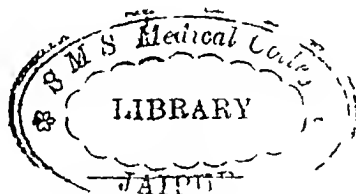


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KEY TO DATES AND PAGES.

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An Address ON THE PROBLEM OF CANCER*

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MR. PRESIDENT,—Before discussing the problem of carcinoma I must emphasize the importance of isolating all forms of hyperplasia from the processes now described under the comprehensive term "inflammation." All authorities in pathology agree that so-called "chronic inflammation" is a different process from "acute inflammation." The inclusion of so many different processes under one term compels me to say that the time has come to orientate afresh the present chaotic outlook on the subject of "inflammation" and to discover how the matter can be simplified. I urge the limitation of the term "inflammation" to the circulatory disturbances which occur inside and outside injured and structurally intact blood vessels, provided the injury does not cause their death. I exclude all forms of hyperplasia from "inflammation," and by hyperplasia I mean that process where one cell begins to divide into two cells, therefore, I would exclude from the subject of "inflammation" the formation of granulation tissue and the healing of wounds, and place them under the term "hyperplasia," of which they are very beautifully controlled and regulated forms, the laws governing which are slowly beginning to dawn upon us. If all forms of hyperplasia were included in one self-contained subject important changes in our conception of many things would necessarily follow. For example, the condition now described as "chronic mastitis" would not be regarded as an "inflammatory" process. The desquamative epithelial hyperplasia and the hyperplasia of the pericanalicular and periacinous connective tissue containing lymphocytes, which are characteristic of so-called "chronic mastitis," will be seen to have a fundamental physiological significance when they are compared with the precisely similar changes in breasts of newly born male and female children and of females at puberty and lactation. "Chronic mastitis" is really a state in which physiological activity becomes pathological by being present when the breast should be at rest. It is not an inflammatory condition at all. Again, the cellular flora evoked by the irritation of the tubercle bacillus is an example of the importance of considering the morphological effects from the point of view of hyperplasia, instead of regarding them merely as "inflammatory" in origin. The importance of the point lies in this respect: all the connective tissue cells are in contact with the irritant at the site of inoculation, yet the cells which undergo hyperplasia are only the endothelial cells which produce the epithelioid and giant cells of a tubercle. This fact shows that there is a mutual affinity, so far as hyperplasia is concerned, between the irritant and endothelial cells only.

Take another example. Gonococcal infections can induce formation of papillomata, showing that only the epithelial cells responded by hyperplasia to the irritant, although many other types of cells are in contact with it at the same time. I give this as an example of gonococcal selection for epithelium, knowing full well that certain observers—Dr. G. M. Findlay of the Imperial Cancer

Research, for example—believe that the formation of papillomata of the skin in gonorrhoeal infections is not due to the gonococcus but to the presence of an ultra-microscopical organism which is capable of inducing warts in other situations also. In any event the formation of papillomata is a decisive example of a selective action between the products of micro-organisms and one type of tissue cells only.

Before leaving the subject that concerns the relationship between direct irritation of epithelium and the formation of papillomata I must point out that formation of papillomata is of frequent occurrence in premenial epithelial hyperplasia of the large and small ducts respectively in carcinoma of the breast. Lastly, the staphylococcus, when inoculated into the subcutaneous tissue, induces the hyperplasia of fibrous tissue in two parts—(1) as a process of repair in the parts that are killed, and (2) in the strands of fibrous tissue which surround the lesion.

There is another important example of the necessity to separate hyperplasia from "inflammation." It is pretty widely held, and I believe wrongly held, that the dilatation of the blood vessels and also increase in their number causes hyperplasia. John Hunter appears to have maintained this thesis, and in order to demonstrate that hyperplasia occurs as the result of increased blood supply he transplanted a cock's spur into a cock's comb, expecting that in consequence the cock's spur would undergo hyperplasia. His expectation was fulfilled, and the spur underwent an enormous increase in size. I repeated Hunter's experiment and, besides transplanting one spur into a cock's comb, I transplanted at the same time the other spur under the skin of the cock's back. These transplanted spurs underwent about the same amount of hyperplasia during the time they were under observation. I had to kill these birds before I wanted to because the noise they made interfered with the classes in King's College and with the amenities of several business offices in its neighbourhood. During the operation of transplanting the spur into the cock's comb there was decided hæmorrhage from the wound made by excision of the spur, and there was no hæmorrhage when I incised the cock's comb, which appeared to me to consist of gelatinous, glutinous, avascular structure. The comb is vascular only when it is erect. By planting the spur into the comb it did not appear to me that I was placing it in a more vascular medium. Then what could be the explanation of Hunter's transplanted spur? The explanation seems to me to be this—that in its new situation it was not subjected to the wear and tear of life it met with in its normal position, and in consequence grew into enormous proportions. There are many other examples of continuation of growth occurring in the structures not subjected to the ordinary normal wear and tear of life—the claws of animals, for example. However, let us suppose for a moment that Hunter was right, that this cock's spur became so large because it was receiving a greater supply of blood than normal. If this were so Hunter's experiments would have raised the following much more vital problem of hyperplasia: if a comb were able on account of its presumed enormous blood supply, to induce hyperplasia in another structure, why did the comb itself cease growing?

Beyond what I have stated I do not consider that Hunter's experiment proved anything at all. In granulation tissue there is a vast amount of new blood-vessel formation, but when it has been covered by epithelium and ends in a scar these new blood vessels all atrophy. Why should this be so? The answer is perfectly clear to me. It is the hyperplasia of granulation tissue formation that demands the increased blood supply, and when the

* Delivered before the American Medical Association on June 15th.

demand is over the large vascularity is no longer necessary to maintain the life of the cicatrix, and consequently the blood vessels disappear. So far as I am concerned, it is a law that the demand of hyperplasia induces vascularity, and hypoplasia is not induced by an increased blood supply.

I pass on to the hyperplasia which more intimately concerns carcinoma. There are decided indications in breast pathology that an addition should be made, with all due care, to the present limited conception of the morphological appearances of carcinoma. All pathologists agree that carcinoma exists when epithelial cells can be seen invading alien country, whence they grow and from which they are disseminated and grow in different parts of the body. My statement that an addition to the morphological status of carcinoma is essential is based upon what I consider to be a law—namely, that before epithelial cells invade the parts outside the normal boundaries of ducts and acini there has been malignant epithelial hyperplasia within them, and that the process of carcinoma really begins before invasion occurs. I can see in every early carcinoma of the breast the presence of this malignant change within the normal boundaries of ducts and acini. It can frequently be discovered in advanced carcinoma in microscopical sections that have been made in series of the whole focus of primary disease. The epithelial cells outside the normal boundaries possess the same morphological appearances as those inside. I feel sure that the epithelial hyperplasia inside the normal boundaries is malignant and that it is the source of supply to the invading cells.

I now show you a state of things which can be commonly demonstrated in breast lesions which are not now generally considered to be carcinoma. Here are terminal ducts and acini that are filled by an epithelial hyperplasia that cannot be distinguished from the invading cells of carcinoma in other specimens, but here they are all enclosed in normal boundaries. This type of lesion usually occurs in the breasts of females before the carcinoma age. This specimen I removed from a woman of 25 years. I believe the catastrophe of carcinoma here was a question of time and opportunity, and that this lesion represents the true precancerous stage, and can be regarded as malignant if not carcinomatous. I may here state that I have never seen in the earliest examples of carcinoma of the breast this malignant change occurring in the acini alone, the terminal ducts as well have always contained the malignant epithelial hyperplasia. In all instances the elastica must be stained to make sure that the cell-containing spaces are dilated ducts.

Before leaving this part of my subject I would like to state definitely that by morphological examination I can never detect any visible indication of a local attempt to arrest the process of carcinoma. Some people have suggested that the enormous hyperplasia elastica around the ducts and even the acini, which I have shown sometimes occurs in carcinoma, is an indication of an attempt to bar its progress. All I can say on this matter is that hyperplasia elastica is rare in breast carcinoma and when present has proved to be inefficient, and that hyperplasia elastica occurs frequently round ducts and acini wherein there is nothing more than a slight desquamating epithelial hyperplasia. Other people consider the accumulations of lymphocytes which are observed at some parts of a growing carcinomatous edge to be further indications of a local attempt to limit the disease. There are so many parts of the growing edge at which there are no lymphocytes that it is hardly fair to Nature to believe her capable of exerting so feeble a defence. Again, upon *post-mortem* examination of a patient who had suffered from advanced mammary carcinoma I discovered small unsuspected supraclavicular lymphatic glands, which contained vigorous-looking epithelial cells which must have been lying dormant for a considerable time. There was no local reaction of any kind round these cells, although the disease must have been growing with intense rapidity in the liver of the person at the same time. This observation demonstrates two points: (1) that where the disease was lying dormant there was no visible reaction to account for the stagnation of growth, and (2) that there was probably systemic

influence in operation to arrest the growth of the epithelial cells in the supraclavicular lymphatic glands and to allow or encourage the intensely rapid growth in the liver.

There is another factor that I consider important, although at first sight it appears to be merely accidental. It is this: it seems to me important to separate in one's mind those factors which induce carcinoma from those intrinsic and extrinsic cellular operations that occur in a cell dividing into two cells. For example, there can be no doubt that tar and even x-rays can induce carcinoma, that the filthiness of the Ross tumour can induce one of four varieties of sarcoma, and that the entrance of a spermatozoon into an ovum initiates a propagation of species, yet we are perfectly ignorant of the intrinsic invisible factors that are operating in the cells, nor do we yet understand how they are influenced by variations in evolution, biochemistry, internal secretions, and so forth, operating upon them from outside.

In considering the induction of carcinoma one factor remains of paramount importance—the irritant must be applied directly to the actual cells which are eventually parents of the subsequent carcinoma, and the irritant is the main factor in the localization of the future disease. There must be also a time factor in the process of carcinoma. Experimentally the length of time carcinoma takes to appear seems to depend upon the intensity of the tar application. If tar be applied only once a week the period at which the carcinoma develops in mice is within about ten to twelve months. If it be applied twice a week or oftener the time can be reduced to four to nine months or less. There is a time factor even in intensive application of tar. The time factor may have an important bearing in giving time for preneoplastic epithelial hyperplasia in the ducts and acini of the breast, to which I have already drawn your attention. In addition to the visible effects in carcinoma there are some very cogent reasons for believing that there is a systemic invisible action or inhibition of action associated with the induction of carcinoma.

I pass on to adduce the evidence there is of a systemic influence upon the process of carcinoma.

(a) I have already indicated one, to which I do not again refer.

(b) It is perfectly well known that metastatic deposits in subcutaneous tissue in carcinoma of the breast may remain latent and show no signs either of their presence or activity for a period of thirty years after removal of the breast, then with almost dramatic suddenness a cancer en cuirasse develops covering the chest. Here is an indication of a systemic influence arresting carcinoma, and also of an influence which induces its subsequent intensely rapid growth. It is impossible to state whether the influences are different or whether they are due to modification of the same one.

(c) Primary carcinoma appearing in the same person at the same time in two different viscera, or on the skin and viscera, is a rare occurrence. The fact of its rarity suggests that the existence of a primary carcinoma protects a patient from the incidence of a primary carcinoma elsewhere in the body. In Great Britain most women who die of carcinoma are attacked either in their breasts or uteri. Yet it is extraordinarily rare for primary carcinoma of the breast to be complicated by a primary carcinoma of the uterus, and vice versa. It makes one wonder whether the incidence of a primary carcinoma in the breast protects a woman from a primary carcinoma in the uterus, and vice versa. In Holland carcinoma of the breast and uterus in females is not so common as in Great Britain. The females of Holland suffer more from carcinoma of the alimentary tract. Does primary carcinoma arising in these situations protect the women of Holland from primary carcinoma of the breast and uterus? Upon this point another factor must be taken into consideration.

While granting that these examples are indications of protection, there may be an explanation for the different sites of primary carcinoma of women in the two countries mentioned. It must also be granted that different sources of irritation may select different viscera for residual purposes. For instance, the nematode worm *Gongylonema neoplasticum*

Fibiger selects the stomach, another nematode worm *Trichosomoides crassicauda* Lowenstein selects the urinary bladder. The result of selection of different viscera by different agents of irritation, even though they belong to the same species, would explain the different viscera affected in the women of Great Britain and Holland respectively and collectively.

(d) There are indications that the removal of that part of an area in which carcinoma has appeared in a tar-painted area induces a later appearance of primary carcinoma in another apparently non-cancerous part in the same area (Murray). This experiment supports the assumption that the presence of one primary carcinoma may prevent or delay the appearance of another primary carcinoma.

(e) The fact that only a proportion of mice subjected to the action of tar develop carcinoma also indicates the existence of normal local or systemic protection.

(f) When carcinoma has developed and has been removed from one tar-painted area, it requires a more intense application of tar to induce a primary carcinoma in another area of the same mouse (Murray).

(g) The same difficulty in inducing carcinoma in a tar-painted area is experienced when the mouse under experiment has had a mammary carcinoma previously removed by operation (Murray).

(h) The work of Dr. Cutlibert Dukes especially conclusively proves that multiple adenomatous papillomata of the colon invariably end in carcinoma, yet only one or two, and occasionally three, among them become the site of primary carcinoma. Why is it that so few become carcinomatous unless the presence of one primary carcinoma protects from the incidence of another? When a primary carcinoma has appeared in two or three separate colonic adenomatous papillomata it may be that primary carcinoma appeared in them either at the same time or before the acquisition of immunity.

(i) Dr. Cramer excised and minced up the spleens from a number of mice and returned each to the peritoneal cavity of its own mouse. Tar carcinoma appeared much earlier in these mice compared with otherwise untreated animals.

[I pass on to another problem—namely, whether the removal of a primary benign tumour makes any difference to the rate of growth of secondary benign tumours of the same nature. I cannot verify the statement, but it is said by clinical observers that the removal of an intra-cystic papillomatous state in an ovary will induce the disappearance of secondary papillomata scattered over the peritoneal cavity. There is an observation of my own which bears upon this point. Small microscopic multiple fibro-adenomata in the breast occur more commonly than is generally supposed in the area of the breast immediately surrounding an obvious clinical fibro-adenoma. Yet it is rather rare, but by no means impossible, to discover a case in which the removal of a clinically obvious fibro-adenoma has been followed at a later period by the appearance of another fibro-adenoma in or near the same situation. All that can be said now upon this point is that either the removal of the obvious fibro-adenoma has no effect on its microscopical neighbour, or if there be one it is certainly not one that intensifies growth. I must say that at the present moment it is a hazardous speculation only, and much more investigation is required in this direction. Yet it may be that the effect of removal of benign tumours upon secondary foci of the same tumours may be different from the effect of the removal of malignant primary tumours upon secondary primary tumours.]

(j) Several years ago I drew particular attention to an influence—for want of a better term—a "trophic influence"—of the nervous system upon epithelial structures, and I pointed out that in some examples where hairs become grey on the result of advancing age, grey patches appear upon the maximum points described by Sir Henry Head in his work upon herpes zoster. These are points at which nerves become cutaneous. I have seen beards becoming grey on four symmetrical points—namely, where the mental and great auricular nerves become cutaneous on the face. Moreover, I showed that the mental nerve areas described by Dr. Head were completely white when the rest of the beard was only scattered with a few grey hairs. In

continuation of this demonstration I pointed out that if a diagram were made of all patients suffering from small rodent ulcers of the back their points of instance would coincide with those points on which the posterior spinal branches of intercostal nerves become cutaneous. In this respect they resemble early patches of leucodermia and scleroderma of the back. Further, I published examples in which the areas occupied by extensive rodent ulcers are sometimes identical with the distribution of nerves. I also showed some examples in which the spread of a rodent ulcer was arrested at the edge of the areas which had lost their tactile and thermal sensations. Dr. Cramer of the Imperial Cancer Research Fund, London in the *British Journal of Experimental Pathology* (vol. 6 p. 21) published a paper upon "Innervation as a factor in the experimental production of cancer," in which he said his experimental observations were in agreement with my clinical observations. His conclusion was as follows:

Loss of nervous control in an area of skin does not predispose to cancer on the contrary the presence of a peripheral sensory mechanism is an essential factor in the process of chronic irritation which leads to the development of cancer.

I would not dwell so much on this clinical observation of mine but for the fact that it has, after twenty-five years, begun to attract attention. Cramer and Oertel, for instance, have lately drawn some attention to it. I do not want it to be understood that the distribution of rodent ulcer alone occasionally occupies definite nerve areas, because I have examples where infective processes such as erysipelas, tuberculosis, and tertiary syphilis are also occasionally delimited at the margins of nerve areas. I have no doubt that there is a mutual affinity between nerve areas and infective processes which occasionally can be demonstrated clinically as well as in rodent ulcers. The anastomosis of blood vessels and lymphatic vessels at these margins is so complete that these vessels cannot influence the limitation of which I have spoken. Moreover, microscopic sections made of these margins show no mechanical obstruction to spread of disease.

(f) Miss Maud Slye considers that heredity plays the most important part in the incidence and genesis of disease.

Finally I refer to some recent contemporary notions concerning carcinoma. (a) Gye's conception of the genesis of carcinoma is that it is induced by the combined action of an ultra-microscopic virus and a specific factor. His conception has caused a great deal of controversy, and most observers have failed to confirm beyond any possibility of doubt the presence of two agents even when they repeat Gye's technique and experiments. Even if Gye were right in his conception, there are many points in the problem of carcinoma it would not touch, mainly those intrinsic and extrinsic cellular influences to which I have already alluded. I do not suppose for a moment that Gye would explain the evolution of an ape into a man by saying it was connected with the union of an ultra-microscopic virus and a specific factor. (b) Blumenthal associates a bacillus with the induction of malignant disease. Fibiger connects a nematode worm with rat carcinoma and Borrel discovered a filarial worm in the breast carcinoma of mice. Other observers have associated with carcinoma bilharzias, *Trichina spiralis*, the embedded head of a tapeworm, and hosts of other living agents.

After taking into consideration all these points it still has to be admitted that knowledge does not yet permit any definite statement to be made in answer to the question whether the incidence of carcinoma is induced by a living or lifeless agent, or both. Should a living agent be a factor, then the establishment beyond all doubt of the existence or non-existence of ultra-microscopic organisms will be more essential than ever. All the living and lifeless agents that have been described in association with carcinoma may be contaminated by the presence of these organisms. The complete establishment of the existence will upset a great deal of present bacteriological knowledge.

Do carcinoma cells differ specifically from any other cells? Warburg says that they do, and his work on the biochemistry of malignant cells enables him to state that under aerobic and anaerobic conditions they split glucose

into lactic acid and thereby differ from normal cells except retinal cells. This is the only biochemical difference that is known between normal (except retinal cells) and malignant cells. Warburg also states that the blood of the veins leaving the malignant tumour contains more lactic acid than the blood in the arteries supplying it. The excess of lactic acid in the veins leaving the tumour disappears when the blood reaches the general circulation; therefore examinations of the blood for an excess of lactic acid is of no value for purposes of diagnosis. Since Warburg's work it has been discovered that regenerating tissues can in aerobic and anaerobic conditions break up glucose into lactic acid, but the amount of lactic acid is relatively much less than in malignant disease. On the basis of his work Warburg suggests a hypothesis accounting for tumour origin. He conceives that normal tissues are not homogeneous but consist of a mosaic of cells growing and surviving by oxidation process of carbohydrate, interspersed with isolated cells which have a dual capacity of using either the carbohydrate oxidized process or the splitting process into lactic acid. In spite of the immense labour of Warburg and the wonderfully accurate and careful experiments he has conducted, the question still remains not very satisfactorily answered—whether normal cells can, after a time, develop the peculiar metabolism of carcinoma cells when the life of normal cells grows under conditions which impair their normal metabolism. Even if it be demonstrated that Warburg is completely right, that there are normal cells which from the moment of their existence can break up glucose into lactic acid "it does not explain why cancer cells grow" (W. Cramer).

In carcinoma there is another outstanding morphological fact that may have a biological significance. No nerve endings can be discovered in carcinoma. Although Horst Oertel has issued a preliminary report on "Innervation and tumour growth" (*Canadian Medical Association Journal*, 1928, xvi), in which he says he has been able to stain nerve fibres among carcinoma cells. I think it would be wiser to wait to hear what Oertel says in his final communications. Great care will have to be exercised in excluding the possibility that the nerves seen in malignant tumours are due to the presence of pre-existing nerve fibres among which the invading tumours have spread.

Finally, it may be asked, Why is there so much sterility of definite statement when the attention of scientific observers throughout the world is being devoted to carcinoma? The answer to this question can be only, that the problem will never be solved completely until we know what life is.

SOME OBSERVATIONS ON THE DICK TEST

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The investigation here recorded was primarily undertaken to determine if there was any difference in the reaction to the Dick test in the fourth week of scarlet fever between cases with septic complications such as rhinitis and uncomplicated cases. We found in 48 septic cases that 21 (44 per cent) remained Dick-positive, and of 103 clean cases 31 were positive. The preponderance of positives was only noted in the cases with rhinitis and "spotty" faces.

The septic patients were given scarlet fever prophylactic vaccine in doses of 0.1 to 0.3 c.c.m. but, except in the case of rhinitis, the effects were not favourable. In rhinitis, the administration of an antientarrhal or even a simple staphylococcal vaccine will often bring about improvement, so that the effect is possibly not specific.

Four patients under observation, who had had definite initial attacks, showed relapses in the following circumstances. One who was convalescent had a definite relapse the day after a test dose, giving at the same time a positive test, on retesting him, fourteen days after the

acute stage of the relapse, he was still strongly positive. A second patient had a relapse nine days after giving a positive test. In another convalescent Dick-positive patient with rhinitis, relapse followed the injection of 0.1 c.c.m. prophylactic (=250 skin doses). The fourth patient, who was strongly positive during the acute stage, relapsed nineteen days later after a fourteen days' apyrexial period. A fortnight after this second attack he was still strongly positive.

Since two of these patients remained positive after two attacks of scarlet fever, and such a high proportion of convalescents were giving positive reactions, we decided to extend our investigation. We treated 194 convalescents in the fourth week of the infection, and found that 61 (31 per cent) remained positive. As a control we tested 116 diphtheria convalescents and found 48 positives (41 per cent).

The next group examined was 131 patients with scarlet fever in the first three days of the disease while still febrile and showing a rash. We found that a positive reaction could easily be read, even when a rash was present, because the scarlet fever rash affects only the papillae of the skin, giving the punctate appearance, while a positive Dick test causes a generalized erythematous patch. Many positive cases showed up brilliantly, even in a profuse rash. Here we found 64 positives and 67 negatives—that is, 49 per cent positives. We retested 59 of these in the fourth week, all those giving an initial negative test remained negative (20 cases). Of the initial positives (39 cases) 24 remained positive and 15 became negative, 5 patients in this latter group had had antitoxic serum. We did not observe any clinical difference in the course of the disease between those giving positive or negative initial tests.

Another group reviewed was composed of newcomers to our staff during the previous twenty months, 94 were tested and 33 were found positive (36 per cent). Fifteen of the staff tested gave a previous history of scarlet fever, and in 5 (28 per cent) of these the result was positive. This proportion does not differ materially from that obtained among those who had no history of a former attack. Seventeen of these patients were given 0.1, 0.2, and 0.5 c.c.m. doses of the prophylactic (1 c.c.m. = 2,500 skin test doses) and retested. Eleven of them were negative and 6 still remained positive. These became negative after two further doses of 1.0 c.c.m. One of the patients who received three doses developed scarlet fever six months later and after being tested again gave a strong positive reaction. She also gave a history of a mild attack of scarlet fever six years previously.

In recording the results of repeated test doses during scarlet fever convalescence one great fallacy has to be recognized—namely, that many persons with positive reactions may be easily converted into negative reactors by the small amount of toxin introduced into the skin by the test. To prove this point we gave repeated single skin test doses to eleven members of our staff who had given strong positive reactions on the first test. The results were as follows: one became negative after a single skin test dose, three after two doses, one after four doses, two after five doses, one after six doses, one after seven doses, while two who reacted as very strong positives to the first dose remained positive after seven doses.

Since it seemed possible that these negative results might be due to a local tissue immunity, some of those who became negative were tested on the skin of the leg. The results proved the immunity to be general, and not local.

All the staff while being immunized were employed in our sanatorium, which is a quite separate institution, so that there was no possible chance of their gaining immunity by small doses of infection apart from the injections. One nurse rendered negative by this latter method developed scarlet fever three months later, she was then found to be positive again. The attack was a very mild one, but was complicated by the onset of rheumatism and endocarditis. Tested in the third week of disease she was again negative. No nurse who was originally Dick-negative has contracted scarlet fever up to the present.*

* Since writing one Dick-negative reactor has contracted scarlet fever. She was tested seven months ago. On testing again the first day of her illness she was still negative.

Before discussing the interpretation of these unexpected results, the effects of scarlet fever antitoxin treatment in our wards may be recorded. Out of 960 admissions 114 of the worst cases have been given doses of scarlet fever antitoxin in amounts of 10 to 40 c.c., according to our estimate of the severity and duration of the disease. In 96 of these the results have been extremely favourable. In this group we have observed rapid decrease in the fever, clearing of the throat, cessation of purulent nasal discharge, and a low incidence of septic complications, such as otorrhoea (7 per cent.), in view of the fact that all the cases are severe ones. We have found antitoxin effective even so late as the fifth day of disease in septic cases. Only 3 deaths occurred out of a total of 960 cases, compared with 15 in the immediately preceding cases of the same number, none of whom received serum.

One of the fatal cases was a patient with the malignant haemorrhagic type of infection, who died a few hours following admission, after thirty-six hours' illness, 2 died of septic pneumonia. In these 3 cases the serum had no appreciable effect. In 15 others the disease was not influenced by serum. One of these was a second day case, 6 were third-day cases, 2 were fourth-day cases, and 6 fifth-day and after.

These failures are difficult to explain, since the patients appeared no worse than others with equal duration of disease who were strikingly benefited. For many years we have used galil with good effect in cases of scarlet fever with phagedenic ulceration of the throat, in some of these serum failures it was used with benefit. As this drug is no longer procurable in England we have recently tried sulpharazonobenzene (three different brands), but it does not appear to be nearly so effective.

One complication that appeared in 20 per cent of the serum treated cases was severe secondary cervical adenitis, although only one of these cases eventually suppurred.

DISCUSSION

In our results the most striking feature is the remarkably slight difference among the proportions of positives in the various groups. 31 per cent in the scarlet fever convalescents, 34 per cent in the staff group, and 41 per cent in the diphtheria convalescents. The surprisingly high proportion of negatives in the acute stage of scarlet fever was also quite unexpected (51 per cent). The fact that all the negative cases in the group remained negative and most of the positive cases positive on retesting strongly confirms our opinion that there was no error in observation.

Although some of the acute scarlet fever cases showed a reversal of reaction from positive to negative on retesting during convalescence more than half still remained positive. While our results on retesting in convalescence differ from those of many other observers who have retested scarlet fever cases repeatedly during convalescence, we think that others have not sufficiently recognized the powerful effect of a few repeated skin tests in producing immunity against the toxin in certain individuals.

Although four of the Dick-positive convalescents had second attacks of scarlet fever within a month clinical experience proves that the bulk of these persistently positive reactors are unlikely to contract scarlet fever again. It may be that the nose and pharynx acquire local immunity, although general antitoxic immunity is not developed.

We first thought the test material was at fault, but this cannot be the reason, because, if it had been too weak, while the number of positive reactions in convalescence would have diminished, the number of negative reactions in the acute stage would have increased. If strong enough to make all the acute cases positive it would presumably also have increased the number of positive reactions in convalescence.

Another curious fact in the etiology of scarlet fever is the rarity of attacks of scarlet fever in infancy, many observers have stated that this is indicated also by infants always being Dick (as Schick) negative. It has been too hastily assumed that this result is due to a passive immunity inherited from the mother. This view cannot be accepted in all cases, because we have frequently seen a nursing mother contract scarlet fever while her baby

escaped. Two such instances occurred in our present series of cases. In one instance the 8-day-old infant of a woman with definite scarlet fever, contracted the day after parturition, was tested and found Dick-negative. She escaped infection, although in a scarlet fever ward, while her mother was actually suffering from the disease, it is obvious that an infant cannot inherit what her mother does not possess.

Recently Dr Fletcher¹ has stated that in the Dutch East Indies, where scarlet fever does not occur, the bulk of young children give positive Dick reactions. With increasing age the number of negatives becomes equal to that found in countries where scarlet fever is endemic, thus an immunity is obtained in spite of the absence of scarlet fever.

We would suggest that immunity to scarlet fever is partly inborn or hereditary and partly a function of age, being high in infancy, rapidly decreasing in early childhood, rising again in later childhood and becoming comparatively high in adult life. It would appear that in any age group outside infancy reactors to the Dick test might be placed in three groups: those who are persistently strongly negative, those who fluctuate between positive and negative, and those who are strongly positive and, though convertible into the negative by artificial means, tend soon to become positive again.

We do not think the doctrine of immunity increasing in age, due to subminimal doses of infection through life, will cover all the recognized facts, especially the immunity of infants.

If it were not for the strikingly beneficial results of streptococcal antitoxin in 90 per cent of the cases we could feel doubtful of the etiological relationship of *Streptococcus scarlatinae* to scarlet fever, but even here there are some inexplicable complete failures. Moreover, although this serum reduces the fever within forty-eight hours by several degrees in most cases, in many it does not appear to extinguish it completely, as the temperature tends to hover between 99° and 100° F. for three or four further days.

Another interesting feature is that serum does not appear to prevent secondary cervical adenitis—that is, adenitis after the throat is apparently normal. This phenomenon does not commonly occur in other streptococcal throat infections, although in scarlet fever it is certainly common even after the mildest cases. These facts, coupled with our experience of the beneficial effect of galil (one of the arsenicals) where serum has failed, suggest the possibility that there may be another symbiotic factor, at present unknown, which might explain much that is inexplicable in the recent discoveries concerning the etiology of scarlet fever.

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¹ *British Medical Journal* March 17th 1923 p. 448.

THE ANTIRACHITIC ACTION OF IRRADIATED ERGOSTEROL IN CHILDREN AND ADOLESCENTS

BY

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It is now ten years since rickets was first proved by scientific experiment to be intimately related to the absence from the dietary of a specific food factor. This new conception of the etiology of the disease met with considerable opposition, but it has held its own against all previously recognized hypotheses, and to-day there are grounds for believing that the specific antirachitic food factor has actually been isolated as a pure chemical substance. The story of the experimental work that led from the original proof of the existence of the antirachitic factor to its isolation is a long but fascinating one, and the main steps in the chain of discovery may be condensed as follows.

To McLean¹ belongs the credit of establishing the existence of the antirachitic factor by means of his exhaustive investigations on puppies. He demonstrated that

rickets could be produced with certainty, and be prevented or cured with equal certainty, by the omission from, or addition to, the diet of certain foodstuffs, the most important of which were cod-liver oil, egg-yolk, cream, and butter. These foodstuffs, which he found were able to prevent the occurrence of rickets when given to growing animals, were known to be rich sources of the then comparatively recently discovered fat-soluble vitamin, or vitamin A. For some years it remained doubtful whether this growth-promoting vitamin A and the antirachitic vitamin were identical bodies, but in 1922 McCollum and his co-workers⁷ proved that they were two distinct entities, one of which (vitamin A) was more easily destroyed by oxidation than the other.

Many attempts were made to isolate these factors, and though it was found possible to obtain highly concentrated active fractions from such substances as cod-liver oil which were rich in fat-soluble vitamins, efforts to separate the vitamins as pure chemical substances were never successful.

In the meantime Hulsehinsky⁸ had demonstrated that rickets could be cured in children by exposing them to ultra-violet light. Shortly afterwards it was found by Hume,⁴ and by Goldblatt and Soames,² that rats kept without a supply of fat-soluble vitamin would grow better if they were exposed to ultra-violet light. Hume and Smith⁶ later found that stimulation of growth and good bone calcification occurred in rats as the result of exposing the cages in which they were housed to ultra-violet light, it was subsequently found that this occurred only when sawdust was present in the cages during the irradiation, some of the sawdust being afterwards eaten by the animals. Steenbock and Black⁹ were working at this time on the effects of ultra-violet irradiation, and they had already found that the irradiation of common foodstuffs previously devoid of any fat-soluble vitamins conferred on them the property of promoting growth and good bone calcification.

It seemed important to determine whether these findings were applicable to cases of human rickets, and in 1925 Cowell⁵ showed that active rickets could be cured in children by giving them milk which had previously been irradiated. Hess shortly afterwards published similar results obtained with dried milk, the same worker later found that the irradiation of apparently pure cholesterol rendered it powerfully antirachitic both in animals and children. For a short time it was believed that irradiated cholesterol might prove to be the much sought after antirachitic vitamin. It was soon proved that perfectly pure cholesterol could not be made antirachitic by irradiation, and in 1927 Rosenheim and Webster,⁸ and Windus and Hess,¹⁰ showed that the irradiation of the chemically related ergosterol converted it into an intensely potent antirachitic agent. It is now considered highly probable that this sterol is the true parent substance of the antirachitic vitamin, or "provitamin," and is converted into the actual antirachitic vitamin under the influence of ultra-violet light.

Irradiated ergosterol was shown to have a marked curative effect in clinical cases of rickets, and commercial preparations have been put on the market by reputable firms both in this country and in Germany. The German preparation is sold under the trade name of "vigantol", numerous articles have been published in Continental medical journals during the past few months describing the successful results obtained by its use in cases of rickets and osteomalacia. Three widely advertised British preparations are sold by the British Drug Houses under the names of (1) radiostol, which contains the antirachitic vitamin alone, (2) radiostoleum, which contains vitamin A as well as the antirachitic vitamin, (3) radiomalt, which contains both vitamins, together with malt. Few reports as to the efficacy of these preparations in clinical cases have yet been published. Aidin¹¹ has recently recorded a series of five cases of rickets in young children treated successfully by radiostol. The dose given to his patients was at first 3 minims three times a day, this was found to be insufficient to bring about rapid healing, and the amount was increased to 10 minims three times a day.

The cases of rickets about to be described were treated with the commercial preparations of irradiated ergosterol under controlled conditions in hospital. The diagnosis of active rickets was confirmed in every case by means of radiograms, and progress was followed by a series of x-ray photographs taken at frequent intervals. The patients' diets were chosen in such a way as to exclude the possibility of any considerable amount of antirachitic vitamin being consumed—that is to say, they were given but a small daily allowance of milk, no eggs, and no butter, they were allowed green vegetables, which furnished a supply of vitamin A. The patients themselves were kept in such positions in the wards that direct sunlight could not fall on them. It has previously been shown that under these conditions no appreciable healing of active rickets takes place in the course of a few weeks.

Case 1—A girl, aged 13 years, with marked deformities of the lower limbs and bronchial and nasal catarrh. Treatment: For the first twenty days 3 minims of radiostol were given twice a day, subsequently 5 minims three times a day. Slight healing at the epiphyses was noted after three weeks, and rapid healing after four weeks; healing was virtually complete in six weeks. After ten days in hospital she developed acute bronchitis, her allowance of milk was at once increased to 1½ pints a day and she became afebrile in three days. She gained 4 lb in weight during the six weeks of treatment.

Case 2—A boy aged 5 with marked rickety deformities. Treatment: For the first twenty days 4 minims of radiostol twice a day, subsequently 5 minims three times a day. Pronounced healing was apparent in three weeks; very dense calcification at the ends of the diaphyses in six weeks, though the margins were still irregular. He gained 4½ lb in the course of the treatment.

Case 3—A girl, aged 2, with moderate deformities of the lower limbs, florid rickets radiographically. Treatment: 5 minims of radiostoleum three times a day. Pronounced healing was apparent in three weeks, and healing was complete by the sixth week. Her general condition was much improved and she gained 1½ lb during the six weeks.

Case 4—A girl aged 13 with late rickets, she had noticed pain in her knees and slight knock-knee deformity for about two months, active rickets was clearly shown in the x-ray photographs. Treatment: 5 minims of radiostol three times a day. Healing was just beginning after ten days, and was practically complete in five weeks.

Case 5—A girl aged 17, with late rickets. She was small and underdeveloped for her age, she began to menstruate at the age of 16. When she was 15 she first noticed that she was getting knock-knees for two or three months before admission she had had considerable pain in her knees. Treatment: 5 minims of radiostol three times a day. Healing was just beginning after ten days, it proceeded rapidly after three weeks, and was almost complete in five weeks.

These cases show that the commercial preparations of irradiated ergosterol employed will bring about the healing of active rickets in young children of various ages and in adolescents. The minimal effective dose for bringing about rapid healing was approximately determined in Case 1, where 6 minims of radiostol a day produced only very slight healing in three weeks, whereas the later cases healed very rapidly in this space of time with 15 minims a day. It would appear probable that 15 minims of either radiostol or radiostoleum is a sufficient daily dose for most cases of rickets. It is unlikely that any ill effects would follow the giving of even considerably larger doses, though Kreitmar and Moll¹² have recently shown that certain experimental animals can be poisoned in a few weeks by giving them daily doses of irradiated ergosterol of the order of 1,000 times the minimal effective antirachitic dose.

It may perhaps be emphasized that though irradiated ergosterol will bring about the healing of rickets it does not, like cod-liver oil, contain vitamin A, and evidence is now accumulating to show that an adequate supply of this vitamin is all-important to secure resistance to infections. When, therefore, any preparation of irradiated ergosterol is employed as an antirachitic agent, it is essential to see that a sufficient supply of vitamin A is given at the same time. This can be done by including egg-yolk, butter, milk, and green vegetables in the diet, or by using a preparation which contains this vitamin in a concentrated form. All the young children whose cases are reported here put on weight during their treatment. Curiously enough the one that gained least weight was the one that received the extra supply of vitamin A, in the form of radiostoleum.

This work was assisted by a grant from the Medical Research Council to whom my thanks are due. I wish to express my thanks to Professor Mellanby for permission to publish these cases, which were under his care at the Royal Infirmary, Sheffield.

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REPORT ON THE RESULTS OF EXAMINATION OF NINE CASES AFTER THE ORAL INGESTION OF 1,000 GRAMS OF GLUCOSE

BY

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It has been stated by different authorities that it is impossible to make a normal person pass sugar in the urine after the oral ingestion of glucose.

The leak point of the kidney for glucose is now generally recognized as being between 0.16 and 0.18 per cent. MacLean¹ states that the hyperglycaemia resulting from the ingestion of carbohydrates appears in the normal individual, to be limited to about this level, the threshold level for glucose and cannot easily if at all be forced above it. He also goes on to state that in this fact lies the explanation of the difficulty in provoking glycosuria in the normal individual by giving glucose, a difficulty referred to in several recent publications. Later on in the same book he quotes Taylor, who, as the result of experimental work,² stated that "in the majority of healthy males there is no limit of assimilation of glucose, glycosuria does not occur following the largest possible ingestion of pure glucose." These observers in five instances gave doses of 500 grams of glucose, with the production of glycosuria in one case only.

Shapland,⁴ commenting on this subject, states that—

A striking phenomenon in the curve of the healthy subject is the intervention of the storage mechanism directly the blood sugar concentration approaches the normal renal threshold for sugar. This storage mechanism is so efficient that even if sugar ingestion is pushed to the limit of digestive tolerance it is rarely possible to produce a demonstrable glycosuria in a normal subject. It is indeed doubtful if alimentary glycosuria can occur in perfect health. Should it occur in a subject with a normal renal threshold for sugar it indicates a defect in dealing with excess of carbohydrate and therefore the patient should be regarded as a potential diabetic.

Up to the present all attempts at giving doses of more than 500 grams of glucose have failed, owing to the nausea and vomiting which were induced. It occurred to me that, as the native races of Natal are fond of sugar, it might be possible to induce them to take larger doses than those previously recorded. Acting on this assumption nine natives were examined. In each case an ordinary glucose tolerance curve was first done in order to eliminate any cases in which there might be any disturbance of the glycogen storing power of the liver. For this the usual dose of 50 grams of glucose was employed.

MacLean's method of estimating the blood sugar was employed throughout the investigation, and the urine tests were made with Benedict's solution. It will be seen from examination of the charts that, with the exception of Cases 3 and 5, a normal glucose tolerance was found. Cases 3 and 5 each showed a maximum blood sugar concentration of 200 mg. per 100 c.c. of blood. I think that it may be assumed that these two readings are within the limits of experimental error. Each patient was then given a dose of 1,000 grams of glucose, and in each case this huge dose was swallowed without any nausea or vomiting. Cases 1, 5, 6, 7, and 9 show a distinct rise in the blood sugar and a definite glycosuria. Examination of the charts will show that the glycosuria varied from a trace up to 2 per cent. The hyperglycaemia varied within rather wider limits.

This series of cases, though small, shows definitely that the ingestion of huge doses of glucose strains the glycogen-storing capacity of the liver to its fullest extent, and that there is then a certain degree of overflow.

During the course of this investigation I discussed these cases with Professor MacLean, who pointed out that in his opinion the interesting point was that some of the cases passed sugar in the urine with a blood sugar content which was lower than that which is ordinarily accepted as the minimal existing level. (See Cases 2, 3, 4, and 8.) It

In each of these charts the continuous curve shows blood sugar after 50 grams of glucose, the interrupted curve shows blood sugar after 1,000 grams of glucose.

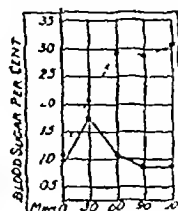


Chart 1

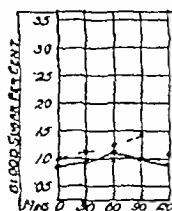


Chart 2

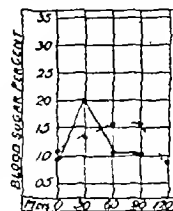


Chart 3

Chart 1 (Case 1)—Urine after 50 grams of glucose: 1 hour nil; 2 hours nil. After 1,000 grams of glucose: 1 hour trace; 2 hours 1½ per cent.

Chart 2 (Case 2)—Urine after 50 grams of glucose: 1 hour nil; 2 hours nil. After 1,000 grams of glucose: 1 hour nil; 2 hours 1 per cent; 8 hours 2 per cent; 13 hours 1 per cent.

Chart 3 (Case 3)—Urine after 50 grams of glucose: 1 hour nil; 2 hours nil. After 1,000 grams of glucose: 1 hour nil; 2 hours trace; 14 hours trace; 20 hours trace.

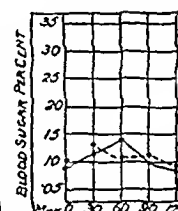


Chart 4

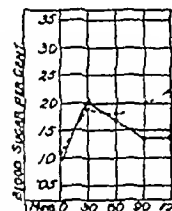


Chart 5

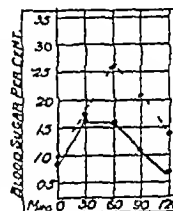


Chart 6

Chart 4 (Case 4)—Urine after 50 grams of glucose: 1 hour nil; 2 hours nil. After 1,000 grams of glucose: 1 hour trace; 2 hours 1 per cent; 6 hours 1½ per cent; 18 hours 1 per cent.

Chart 5 (Case 5)—Urine after 50 grams of glucose: 1 hour nil; 2 hours nil; 3 hours nil. After 1,000 grams of glucose: 1 hour nil; 2 hours 1 per cent; 3 hours 2 per cent; 6 hours 2 per cent.

Chart 6 (Case 6)—Urine after 50 grams of glucose: 1 hour nil; 2 hours nil. After 1,000 grams of glucose: 1 hour trace; 2 hours 1 per cent; 6 hours 1½ per cent; 18 hours trace.

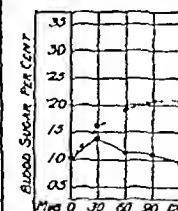


Chart 7

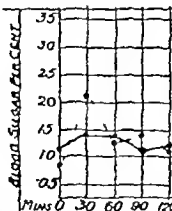


Chart 8

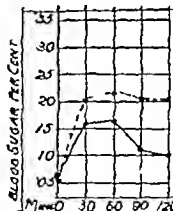


Chart 9

Chart 7 (Case 7)—Urine after 50 grams of glucose: 1 hour nil; 2 hours nil; 3 hours nil. After 1,000 grams of glucose: 1 hour nil; 2 hours trace; 3 hours 1 per cent.

Chart 8 (Case 8)—Urine after 50 grams of glucose: 0 hour nil; 1 hour nil; 2 hours nil. After 1,000 grams of glucose: 3 hours trace; 15 hours 1 per cent.

Chart 9 (Case 9)—Urine after 50 grams of glucose: 1 hour nil; 2 hours nil; 3 hours nil. After 1,000 grams of glucose: 1 hour nil; 2 hours 1 per cent; 7 hours trace.

was interesting also to note that in some cases the glycosuria persisted for periods up to eighteen hours after the ingestion of the glucose.

In view of the information derived from these experiments it is interesting to review again the current views on alimentary glycosuria and renal glycosuria. Cammidge³ admits that if the glycogenetic powers of the liver are exceeded a portion of the carbohydrate derived from the food may enter the peripheral circulation, and so produce hyperglycaemia and glycosuria. In this way, he states, it

is possible to account for the glycosuria produced by large doses of sugar, even in healthy people

Graham⁶ states that a study of the blood sugar in cases of so-called alimentary glycosuria and severe diabetes does not suggest that there is any difference between the two types. In both the machine which regulates the taking up of the sugar from the blood is only out of action to a greater or less extent, the tissues are unable to burn sugar, which therefore floods the blood and is excreted in the urine.

Commenting on this series of investigations, Professor MacLean suggested that in the cases where the normal renal threshold was not exceeded, but where glycosuria was found, there might be some mechanism which lowered the normal threshold in order to eliminate the excessive quantity of sugar ingested. Cases 2, 3, and 4, and possibly 8, show that it is not necessary to have hyperglycaemia before glucose is passed in the urine, while in Cases 1, 5, 6, 7, and 9 a hyperglycaemia as well as a glycosuria was demonstrated.

The investigation was carried out on natives in the Mental Hospital, Pietermaritzburg. It might be contended that these subjects were not normal. I maintain, however, that the normal glucose tolerance after 50 grams shown by the cases eliminates any possibility of there being any defective power of glucose storage due to their mental condition. I have come to the tentative conclusion that in normal persons there is present in the kidney a hypothetical mechanism which is brought into play when huge doses of glucose are given. By this mechanism the kidney can eliminate the excess of sugar in the urine without increasing the blood sugar content. If this is so then it would be possible to explain renal glycosuria as either an absence of this hypothetical mechanism or also as an impairment of it.

SUMMARY

Nine cases showing a normal glucose tolerance were examined after the administration of 1,000 grams of glucose.

Five of these cases showed a hyperglycaemia with a corresponding glycosuria. Four of the cases showed no hyperglycaemia, but showed a glycosuria varying from a trace to 2 per cent. Therefore, these cases passed sugar in the urine at a leak point which is below what is considered to be the leak point of the normal person. Seven of the cases continued to pass sugar in the urine for varying periods up to eighteen hours after the blood sugar had returned to normal limits.

I wish to thank Dr. Egerton Brown, superintendent of the Mental Hospital, for his courtesy and consideration during the investigation. J. D. Montgomery.

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A NOTE ON ETHER CONVULSIONS

BY

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IN view of the interest aroused recently in convulsions occurring during ether anaesthesia, the following case is recorded as one in which impurities in the ether were a causative factor in the condition.

A girl aged 8 years, was admitted to the Children's Hospital, Birmingham, on April 28th as a case of acute abdominal crisis. Careful inquiry failed to elicit any previous history of epilepsy either in the child or in the parents. On admission she presented a very toxic appearance and marked pyrexia although the symptoms were only of a few hours duration. Immediate laparotomy was performed at 11.30 p.m. No morphia was given before operation but atropine sulphate 1/100 grain was administered according to routine half an hour previous to it.

Operation.—Anaesthesia was induced by a mixture containing two parts of ether to one of chloroform and open ether sequence. The child passed quietly through the opening stages, and all

was proceeding comfortably until the intestines were handled. Although deeply anaesthetized she began to show distress indicated by jerky respiration and a slightly greyish tinge. Various measures were tried at this stage to combat the difficulty—namely, air breathing alone, deeper anaesthesia, and oxygen administration together with ether. As a result her colour improved and gradually the breathing became more regular so ether alone was resumed. In a short while twitching of both eyebrows occurred and the facial muscles next became involved, the eyeballs remained stationary with the pupils fixed and widely dilated. These myoclonic movements were rapid and continuous at the rate of approximately seven per second. In turn the left arm, abdominal muscles, trunk muscles, leg and right arm muscles were involved. The rate of twitching became less and the amplitude of movement increased. Until the skin sutures were inserted periods of generalized convulsions alternated with brief intervals of flaccidity. The jactitation of legs and abdomen was of sufficient magnitude to throw off instruments which were laid there and to interfere with peritoneal and muscular suture. Continuous oxygen through an airway—which latter had been used throughout—had no effect on the convulsive movements. The ether-chloroform mixture was also tried for about ten minutes during the later part of the operation, and this coincided with the onset of intermittent but more powerful convulsions.

Condition Found at Operation.—No free pus was found but there was hyperaemia of the lower abdominal peritoneum. The appendix was bound down to the posterior wall of the caecum, and therefore was not removed since the caecum could not be mobilized. A tube was left to drain the pelvis and later a sero-purulent discharge issued from which pneumococci were isolated in culture. The operation took approximately forty-five minutes. Convulsions persisted for about thirty minutes. The optic fundi examined at the close of the operation revealed no abnormality. Before leaving the operating table the patient showed profound exhaustion as a result of the continued convulsions, the pulse rate having risen from 140 to 160 per minute with a coincident marked fall in pulse volume.

Subsequent Progress.—After leaving the theatre at 12.15 a.m. the patient remained quiet for half an hour, a second series of convulsions then occurred. They were as before epileptiform and generalized in distribution. This time they lasted for twenty minutes being controlled by a small rectal dose of potassium bromide and chloral hydrate. After a free interval of twenty-five minutes she was again seized by an attack, lasting for twenty minutes during which time a further dose of potassium bromide and chloral was given. At 2.15 a.m. a fourth and last series of convulsions occurred after a free interval of twenty-five minutes. This time the spasms were of mild degree and confined to the right side. Consciousness was not regained in the usual manner afterwards but the patient had a restless night and was very dazed.

During the following twenty-four hours she only vomited twice. For forty-eight hours afterwards there was marked delirium and restlessness but, judging from the high temperature and pulse rate this might have been due to the virulence of the infecting organism. The patient has since made gradual but good progress towards recovery.

COMMENT

By a coincidence a short article on tests for ether impurities appeared in the *Lancet* of the same date as the above described case. E. B. Robinson¹ of Manchester University describes two tests as advocated by W. Wolbe². One is for the detection of acetaldehyde by means of an alkaline-ammoniacal solution of silver nitrate, the second test is for the presence of peroxides by means of a reagent consisting of potassium iodide and phenol phtalein.

I am indebted to Dr. Hickmans, biochemist to the Children's Hospital, who investigated samples of the ether administered in the above case, and nine other sample bottles from the same batch. The ether employed in the present case was a new bottle, which was only opened shortly before use, and had been kept in dark storage since it was received from the makers in April, 1928.

The nine other bottles, taken at random from stock, failed to respond to either test, whereas the bottle of ether used in operation gave a strongly positive reaction to the presence of acetaldehyde and peroxides. Moreover, when a small sample of ether from the implicated bottle was poured into the palm of the hand and allowed to evaporate, a noticeably pungent acid smell was noted, whereas the other samples merely left a clean, sweet, ether odour.

It is necessary, I think, to mention here that the first test solution is more unstable than hinted at by E. B. Robinson. When the reagent A (the alkaline solution of silver nitrate) and the tested ether mixed with it were poured away, on the day following the test, a violent explosion occurred in each case, a biochemist being temporarily disfigured by spots of black silver stain. If the solutions are poured away immediately after the conclusion of the test all is well.

CAUSES OF THEIR CONVULSIONS

Various factors have been presented as giving rise to the alarming and only too frequently fatal convulsions arising during ether anaesthesia.

1 *Impurities in the Ether*—This factor was strongly upheld by the late Dr S. R. Wilson.¹ He maintained that the convulsions were of toxic origin, and resulted from the action of acetaldehyde causing cell asphyxia by its inherent properties as a reducing agent, with the subsequent formation of acetic acid. That this was the cause in my own case I have no doubt. The convulsions gave every appearance of arising from severe and continuous irritation of the central nervous system. Evidently there was present some toxic product which was not eliminated from the system as rapidly as ether, hence the post-operative convulsions. Again in favour of a neuro-cell disorder was the subsidence of convulsions after the exhibition of bromides and chloral.

2 *Deep Etherization*—This has been suggested as a cause. In answer to this, it may be asked how many cases of ether convulsions have been observed in comparison with the number of cases that have been deeply etherized?

3 *Excess of CO₂ in the system* is suggested by Dr Pinson⁴ as a cause of dyspnoea, with exaggerated muscular activity overflowing from the respiratory group to the rest of the body. In the case recorded, at no stage of the operation was there any marked excess of CO₂. An airway was used throughout, and except for one short period the patient kept a good colour.

4 *Lack of oxygen supply to the brain*, due to oedema and collapse of the lung bases, is suggested by Dr Gwathey⁵ as a result of various animal experiments. Against this theory is the failure to arrest the convulsions in my own case by free ventilation of the patient with oxygen.

5 *Atropine overdosage* has been put forward by Dr Hornabrook.⁶ On the other hand, the dose administered in this case was the usual routine pre-operative measure adopted at this hospital, and no similar case had occurred before.

6 *Renal origin* has been suggested. In the present case the urine before operation was found to be free from pathological elements, but after operation ketone bodies were present in abundance. This latter finding is again in support of a toxic origin of the convulsions.

7 *Idiosyncrasy* has been offered as being the basic factor. Obviously this affords a very wide field for speculation, and only time will prove or disprove this theory.

8 *Various minor factors*, such as youth, pre-existing toxæmia, and heat, have been postulated. Cases are on record supporting and opposing these factors.

SUMMARY

A case of epileptiform convulsions is described occurring during the course of ether anaesthesia.

The ether was shown, by readily utilized tests, to contain large proportions of two well-known impurities sometimes associated with ether.

Although nine other bottles of the same batch were subjected to the same tests no impurities were detected in these.

Acetaldehyde was probably the factor causing the convulsions by its action on a nervous system perhaps already rendered susceptible by a pneumococcal septicaemia, but certainly a nervous system to which epilepsy was previously quite foreign.

Acetaldehyde, being of higher specific gravity and therefore less volatile than ether, accumulated in the system and was eliminated less speedily, thus causing the delayed post-operative seizures.

No cases of ether convulsions were recorded when ether was used as an anaesthetic during the seventy years previous to 1919. At this time various contentions were published that pure ether was not an anaesthetic, and as a result impure ethers came into use.

THE SYSTEMIC TREATMENT OF INFECTIVE ARTHRITIS

BY

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MARQUENADE of the condition formerly designated rheumatoid arthritis and, more recently, infective arthritis under the title of focal arthritis, together with the importance attached to the discovery of a focus of infection, has resulted in too narrow an outlook and oversight of the fact that, at any rate from the therapeutic point of view, this condition should be regarded as a systemic infection and not as a disease of joints.

This view, which of necessity embraces a wider outlook, calls for more comprehensive methods of treatment, the essentials of which are a raising of the individual's immunity and the correction of biochemical abnormalities—the former implying the principles of treatment commonly applied to the active stage of, say, tuberculosis and the latter, adjustment of departures from the normal in each system, the alimentary, the haemopoietic, etc. stage by stage. The success of such treatment depends in large measure upon individual experience in knowing just when to tackle each system. It will thus be seen that every case requires individual consideration in the matter of treatment section by section. Actual joint treatment will not be discussed in this paper.

The removal of infective foci, when present and obvious, should automatically take place, not necessarily in the hope of immediate results, but as a routine to relieve the individual from any embarrassing load factor.

Bearing in mind the common incidence of tonsillar and oral sepsis in non-arthritis it does not seem unreasonable to suggest that the alimentary tract, even in virtue of size and occultness alone, is potentially the source of infection in a large percentage of cases of arthritis and the not unusual methods of treatment by intestinal antiseptics, Plombières douches, and vaccines made from intestinal organisms are tacit witnesses to this view.

The relative value of any form of intestinal disinfection is difficult to assess correctly, in that some cases respond more readily to one treatment than others, and the chronicity of the disease bears a definite relationship to this response. I am rather in favour of the administration of small doses of calomel, such as one sixth of a grain every hour for six doses on alternate days, followed by a saline the next morning. Another method found most efficacious in some instances is that of changing the pH value of the intestinal medium by administration of pure cultures of lactic acid bacilli in milk twice a day. On some occasions the rectal administration of this has been tried after colon evacuation by enemata. Plombières douches have been found extremely useful on the whole and are always worth consideration. It is difficult to estimate the disinfecting powers of potassium permanganate in capsules when taken by the mouth and followed by a draught of water on an empty stomach, but this method with or without rectal irrigation with permanganate solution has its advocates. Guaiacol carbonate with sublimed sulphur in cachets over a long period of time is a routine of long standing. The administration of streptococcal vaccines would seem to be most indicated where there is an associated nasopharyngeal involvement especially when allergic in origin. In the atrophic form of arthritis achlorhydria is exceedingly common, and if the result of a fractional test meal proves this to be the case hydrochloric acid well diluted should be given at meal times.

Although in many cases of infective arthritis personally investigated the levulose tolerance test and Widal's haemolysis test seem to be too gross to demonstrate a liver inefficiency yet an hepatic inadequacy of a mild or moderate degree may be assumed on the summary of evidence obtained by a skilled biochemical opinion on the urine and stools, and the somewhat haphazard diet sometimes prescribed for these patients is capable of adjustment to meet the capabilities of any particular digestion until such time as the temporary rest afforded to the liver

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by these means is no longer required. When the sugar storage mechanism is at fault and an emaciated patient is required to put on weight, insulin in suitable doses, together with the ingestion of glucose or sugar candy, has been found very useful.

Moderately severe secondary anaemia is usual in infective arthritis. This has to be combated by the methods usually adopted in secondary anaemia, such as iron and arsenic by the mouth or injections of serum ferrugineum, but it is not unusual in chronic cases to find a fatigued bone marrow, and recently liver feeding has produced some hopeful results. The troublesome leucopenia which follows prolonged arthritis sometimes responds to injections of nucleic acid.

The value of skilfully given massage as a general measure in infective arthritis is too well known to need comment, but hydrotherapy (though its indiscriminate use in the acute and subacute stages has brought discredit on many spas) is useful, when properly applied, throughout the course of the disease, quite apart from the question of joint treatment, as a general sedative or stimulant to metabolism, to induce sweating and ensure sleep. Moreover, any well equipped spa, being an arthritic unit in itself, implies the presence of specialized apparatus and personnel. In the systematic treatment of arthritis hydrotherapy is particularly useful in increasing the function of that highly specialized but much neglected organ the skin. The sweat in the grosser forms of arthritis has a characteristic and tenacious odour and the skin is apt to be either greasy and opaque or else atrophic and shiny, the various methods of hydrotherapy, therefore in overcoming the dysfunction of the skin cannot be overestimated. In arthritic cases complicated by fibrositis and more particularly by panniculitis there is no treatment which adequately takes the place of hydrotherapy.

PERSISTENT PRIAPISM DUE TO SECONDARY CARCINOMA IN THE CORPORA CAVERNOSA

BY

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SCHUEER,⁴ in an elaborate classification of the causes of priapism published in 1911, mentions as a subleading neoplastic diseases of the penis "This appears to be, however, a rare phenomenon, as is, indeed, priapism itself."

It seems worth while to record the following case in which the etiology of the symptom was not ascertained during life.

A labourer, aged 62, was admitted to my service in the Wellington Hospital on March 18th 1926 with the history that five weeks previously the penis had become erect and had remained so. There was mild aching pain about the organ at times shooting into the perineum and thighs. He had had mild nocturia for some years. Since the onset of the priapism there had been some scalding on micturition, but no difficulty and the stream was good. He stated that at times the urine was dark in colour. There was no definite haematuria. He had not lost weight or strength.

Examination showed him to be a well nourished somewhat adipose man. No oedema was present. The cardiac and respiratory systems were normal. Blood pressure 140/80. The abdomen was very large owing to fat and was difficult to palpate. There was no apparent enlargement of the liver or spleen, no dullness in the flanks, no pain on pressure in the costo vertebral angles. Neither kidney was palpable or tender. The testicles and scrotum appeared to be normal. The penis was erect, hard, and turgid, lying parallel to the abdominal wall. No irregularities were felt on careful palpation of the corpus spongiosum or corpora cavernosa.

On rectal examination a soft uniformly enlarged prostate gland was felt projecting markedly into the rectum and extending upwards so that the examining finger could barely reach the uppermost limit. No nodules or indurations were felt in the region of the bulb or membranous urethra.

The urine was acid, with no deposit, specific gravity 1018. No white cells, organisms or red cells were present.

A blood count showed red cells 4,500,000, white cells 7,000, lymphocytes 34 per cent. The central nervous system seemed normal.

The Wassermann test of blood and spinal fluid was negative. The Kahn test also was negative.

Kidney function: phthalin, 52 per cent in first two hours. Blood, non-protein nitrogen, 40 mg per 100 c.c.m. There was no residual urine. It was impossible to pass a cystoscope for study. Plain x-ray gave negative results.

Provisional Diagnosis—Leukaemia and central nervous disease having been eliminated the cause of the priapism remained obscure. The only notable pathological feature was the very large prostate.

All the usual non-surgical measures were tried without any effect.

Operation—Suprapubic prostatectomy was performed. The mass removed, comprising two lateral lobes, had the dimensions of 6 cm by 5 cm. Microscopically there was no sign of malignancy.

The patient seemed to recover well from the operation, but the priapism was little, if at all, improved. He was allowed up on the third day. On the eleventh day he was not so well, and there was very little urinary secretion. In spite of all treatment the urinary flow was not properly re-established. The non-protein blood nitrogen reached 67 mg and he died in coma on April 29th fourteen days following the operation.

Autopsy Findings—There was a suprapubic wound partially healed and a healthy looking prostatic cavity. The bladder showed no inflammation and but little trabeculation. The ureters were not dilated. The right kidney was normal in size but on section showed early dilatation of the pelvis and some toxic pallor of the cortex. The left kidney presented a cystic swelling on its upper and outer aspect. The cyst was lined by necrotic membrane and filled with blood-stained turbid fluid. It did not communicate with the pelvis, which was somewhat dilated. The kidney was pale and at one part of the cortex was a small whitish nodule of tumour. The liver was filled with discrete masses of new growth. The corpora cavernosa were infiltrated with white masses of tumour which in parts showed red patches of degeneration. The fibrous capsule was not invaded except on section there was no evidence of the growth. There was no glandular involvement and there were no other metastases.

Microscopical Appearance—The nodule in the kidney and the walls of the cystic cavity, together with sections of the deposit in the liver all gave a similar appearance—namely masses of cubical cells having an elongated anastomosing arrangement strongly resembling the convoluted tubules of the kidney. This is a not uncommon appearance in sections of certain portions of so-called Granitz tumours and is fairly characteristic of carcinoma as seen in the renal substance. Primary carcinoma in the corpora themselves would presumably not take on this formation but would be of the carcinoma simplex type with stroma more or less developed. For this reason it is assumed that the primary growth was renal. The late development of symptoms as associated with a lesion of the corpora would confirm this view.

Comment

The commonest causes of priapism of the persistent type appear to be leukaemia and lesions of the central nervous system. Cases in which it is due to blocking of the circulation in the corpora cavernosa by malignant growth are rare. Dr. Frank Hinman² published in the *Annals of Surgery* in 1914 a comprehensive review of the subject of priapism in general, and in 173 references in the bibliography attached not a single one was due to malignancy.

The only reference found in a casual survey of more recent literature was in a case reported by Cowie,¹ in which the substance of the corpora cavernosa was replaced by myxosarcomatous tissue spreading from a primary growth in the prostate.

Dr. W. A. Frontz of Baltimore recently reported a case at the annual meeting of the American Association of Genito-urinary Surgeons, Atlantic City, N. J. This case was not diagnosed until necropsy. An attempt was made to relieve the condition by incision into the corpora cavernosa. At necropsy extensive metastases were found, but Dr. Frontz was inclined to think that the tumour was primary in the corpora cavernosa. At the same meeting Dr. H. H. Young³ of Baltimore mentioned that he had encountered a similar case.

Diagnosis in these cases is apt to be erroneous as the growth is well confined in the sheath of the corpus and no nodulation can be felt from the outside. In cases where malignancy is widespread in other parts of the body no treatment appears to be of any use.

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THE EIGHT STAGE CLASSIFICATION OF PULMONARY TUBERCULOSIS

BY

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THERE is no doubt that classification plays a very important part in the questions of regime, treatment, and prognosis of tuberculosis of the lungs. The more exact the diagnosis the more definite and the more successful may the result of treatment be. Not only is the stage of disease important, but even still more, in my opinion, is the tendency of the process—that is, the rapidity of the development of the disease and transition into the next stage. It reminds me of a non-stop train rapidly travelling towards its destination and passing all stations. The damage may only be noticed at the end of the journey, when it may be too late or too complicated to repair, or there may be a serious accident on the way, quite suddenly and unexpectedly. But if the train stopped at each station and was inspected and examined in every detail remedial measures might be undertaken and disaster be averted.

A brief classification is comparable with such a "non-stop" train, and is especially unsatisfactory for the inexperienced practitioner, since the most important part of the disease—the rapidity of development—may entirely escape attention. This is especially serious when the patient is sent to another medical consultant, because everything turns on two fundamental points—the exact stage of the disease and how quickly it developed. The rest depends upon the experience of the doctor and the condition in which the patient is and to which he could afterwards obtain. It is unnecessary to enumerate all the classifications, but some should be mentioned, especially the well-known and most imperfect Turban-Gerhard, where the third stage includes an immense quantity of variations under only one label.

Brehmer's classification resembles that of Turban in character, but combines all forms of pulmonary tuberculosis in three groups:

1. The acute form—as, for example, military tuberculosis.
2. The subacute and chronic forms including the caseous, caseo-fibrous and fibrous varieties.
3. Abortive forms such as that at the apex of the upper lobe.

A slightly more detailed classification was suggested by Dr. A. Sokolovsky of Poland (Wykłady kliniczne chorób dróg oddychowych). He also recognizes three stages, but subdivides them into more detailed forms:

A Chronic Tuberculosis

1. The early stage (a) With evident signs of lesion of the organs of respiration (b) With concealed signs (1) pseudo-chlorosis (2) pseudo-cardiac form (3) pseudo-malarial form (4) pseudo-gastro-intestinal form (5) pseudo-pleuritic form (6) pseudo-bronchial form, (7) pseudo-laryngeal form (8) pseudo-empysematous form.
2. Tuberculosis of lungs completely developed—stage of liquefaction and destruction.
3. The fibrous form.

B Acute Tuberculosis

1. Acute caseous tuberculosis (a) local (b) diffuse.

C Acute Military Tuberculosis

1. Typhoid form (septicæmie bacillaire tuberculeuse).
2. Acute tuberculosis (form asphyxique de la phthisie aiguë—Graves).

Sir Robert Philip bases a detailed classification on the degree of systemic intoxication recognizing that the toxæmia plays the great part in the course of the malady. Often the local changes are most extensive, but systemic intoxication is very slight, on the other hand, comparatively slight changes in the systemic disturbances in the lungs may be extremely serious. The prognosis in these cases depends upon what condition governs either the extension of the process or the systemic intoxication.

He adopts a symbol L to designate the local lesion of the lungs, and a symbol S for the systemic involvement, by combining capital and small letters it is possible to express the diagnosis with more or less accuracy. In addition, Sir Robert Philip uses the small numbers, 1, 2,

and 3 indicating the stages of Turban. For instance, L₁S means early local process with slight systemic intoxication, and L₂S the same early process but with more severe intoxication. Symbol 1 represents the relatively hopeless case, so, for instance, L₁1, L₂1, and L₃1 are the groups where the toxæmia is not in proportion to the extent and severity of the local lesion of the lungs.

His classification divides tuberculosis of the lung into two clinical groups. This classification is very detailed, but gives place to subjectivism because the degree of systemic toxæmia is less distinctively conceived than the extension of the lesion. Various observers may indicate the same degree of toxæmia differently, besides which, used as a basis in this way, the Turban classification is particularly exact.

I do not think it is necessary to describe the classifications proposed by Petruschky, Cornet, Rohden, Bencke, Laonus, Williams, Germain Sec, Hoffmann, Bard, Frankel Meissen, and others, none of these, in my opinion, give an exact definition of the stage of the process. This is why I propose the classification of Professor Gaborlovitch as the best one for obtaining this purpose and the most detailed and exact.

CLASSIFICATION OF PROFESSOR GABRILOVITCH

Gaborlovitch divided all forms into two groups (1) the primary, and (2) the secondary. Each of these groups he subdivided into four forms or stages.

The Primary Group

- 1 Sicca
- 2 Catarrhalis
- 3 Fibrosa
- 4 Ulcerosa

The Secondary Group

A Broncho-pneumonia metastatica chronica:

- 1 Fibrosa
- 2 Ulcerosa

B Pneumonia tuberculosa chronica

- 1 Fibrosa
- 2 Ulcerosa

For the basis of this classification was taken the pathologico-anatomical condition of the lungs and the clinical signs. Toxæmia plays a very important part in the "index prognosticus," but is not included in the classification. With regard to the general characteristics of this classification it is very expedient to divide tuberculosis into two groups—the primary and secondary—the latter being merely the consequences of the former.

The tuberculous process in the lungs extends chiefly in two ways. One of these is often the result of aspiration of particles of lung (especially after hæmoptysis) into the lower lobes, Gaborlovitch calls it "broncho-pneumonia metastatica chronica." The other way is infection spreading by continuity and gradually involving adjacent parts of the lungs—the so-called "pneumonia tuberculosa chronica." In the first case the middle lobe of the right lung is always found in good condition without any signs of inflammation, but the upper and lower lobes are affected. In the second case the area affected is only the continuation of the process from the neighbouring part of the lung.

Turban's classification gives no distinction between these two forms attributing them to the third stage only, but there is a very great difference between them, and, as a rule, the first is much the more dangerous, and is very grave as regards prognosis.

I will now describe the details and characteristics of all forms of this classification.

PRIMARY FORMS

1 Sicca—Thus, the initial form of the process, is distinguished from pathologico-anatomical standpoints by the formation of a very small fibrous nodule, partly undergoing caseous degeneration. Slight dullness at one or both apices may be present. Auscultation may reveal a weak inspiration or prolonged expiratory sound over the affected region. As a rule there are no complications. The healing process may consist in the formation of fibrous tissue, and, clinically, there may sometimes be found signs of the healed area, which is nearly the same, but not so distinct, as at the time of development. The capacity for work is undiminished.

2 Catarrhalis—This, pathologico-anatomically, means the transition of a fibrous nodule into caseous masses and the formation of exudative caseous foci. As a rule the upper lobe is affected, and some degree of dullness is present with bronchial breathing and crepitation. There are complications in approximately 15 per cent of the cases. Healing is due to the formation of fibrous tissue, which is interspersed also between the affected and sound parts of the lung. Clinically in 30 per cent crepitation disappears, and dullness is not so distinct as before. The patient's capacity for work is about 80 per cent.

3 Fibrosa—The pathologico-anatomical condition is the further spread of caseous masses, their liquefaction, and the formation of tuberculous ulcers. Marked dullness may be detected over the affected area with bronchial breathing, and prolonged expiration. Fine moist rales and medium rales as a rule may be heard. There are complications in about 25 per cent. Healing is due to the removal of caseous masses from the bottom of the ulcer, then follows the contraction of the cavity by fibrous tissue. Clinically bronchial breathing and dullness over the affected area are always present, moist rales are absent in about 10 per cent. The capacity for work is relatively about 70 per cent.

4 Ulcerosa—This, pathologico-anatomically, is the spreading of the process with caseous degeneration, and the coalescence of small cavities to form large ones. Over the area of small cavities there is no marked change in the dullness, but a large cavity with thick walls or surrounded by cascating lung tissue, especially when empty, will give, as a rule, a dull note of high pitch with some resonance. On auscultation a low-pitched amphoric breathing is heard, with bubbling rales, crepitations, and also resonant rales. Complications occur in about 40 per cent of the cases. The process of healing is due to the emptying of the cavities and the contraction of their walls by fibrous tissue. Clinically, with the exception of 5 per cent, rales and very distinct amphoric breathing are usually present. The capacity for work is about 35 per cent.

SECONDARY FORMS

If caseous masses are not ejected from the affected area of the upper lobe they may be transferred by aspiration through bronchi and form new foci either in the lower lobe or in the neighbouring part of the lung. In this way they give rise to an exudative caseous process and to pneumonic foci.

A Broncho-pneumonia Metastatica Chronica

1 Fibrosa—Pathologico-anatomically this form is due to the aspiration of caseous masses into one of the bronchi of the lower lobe. There are the same changes in the lungs as in the primary form of fibrous tuberculosis, but between the two affected areas there is a quite normal one. Complications occur in 50 per cent of the cases, and recovery is impossible. The capacity for work is 15 per cent.

2 Ulcerosa—The condition resembles that just described, with the exception of the character of the process, which is the same as in tuberculosis ulcerosa. The incidence of complications and the capacity for work are the same as in the foregoing.

B Pneumonia Tuberculosa Chronica

This form is due to coalescence of many broncho-pneumonic foci, and develops into continuous exudative caseous tuberculosis.

1 Fibrosa—Infiltration or consolidation of nearly the whole lung, with the clinical signs previously described. Recovery is impossible. Complications occur in more than 50 per cent and there is practically no capacity for work.

2 Ulcerosa—Cavities may be found in all parts of the lung. The clinical signs are as previously described. Recovery is impossible. Complications are found in more than 50 per cent, and the capacity for work is practically nil.

In comparison with Turban's classification this one is exceptionally complete. Instead of Turban's third stage it gives a full account of all the progressive changes in the lungs. Turban's third stage does not indicate the condi-

tion of the lungs, but from Gabrilovitch's classification the condition of the pulmonary process may be discerned without further investigation.

This classification shows not only the character of the process, but also the prospects as regards treatment and prognosis—an exceptionally important point. Broncho-pneumonia is always more dangerous than simple pneumonia, the regime in this case must be very severe, and the prognosis extremely grave. Turban's classification gives us no indication as to the nature of the process nor how it spreads. All these considerations are based not on my personal experience only, but also on statistics. If the same area is affected both by broncho-pneumonia and pneumonia, and even if the affected area in the case of pneumonia is the larger, the prognosis is always better for pneumonia than for broncho-pneumonia.

As regards statistics, Turban's "third" stage is silent, and all statistics founded on this classification give not the slightest idea about the nature of tuberculous processes and are of very little value.

The advantage of this classification has been proved statistically. In my work (with Miss Elderton) "Correlation between prognosis based on the condition of the tuberculous patient at entry to a sanatorium, and the issue" (*Annals of Paediatrics*, Vol. II, Parts I and II, April 1927, Cambridge University Press), on page 65 we find: "There is no doubt that the three stages of the Turban-Gerhardt Classification are not sufficient for prognosis, and that the subdivision of Group III by Professor Gabrilovitch's method is an improvement." And further (page 73), as a conclusion: "(2) In estimating issue from stage the Stage III of the Turban-Gerhardt Classification should be subdivided following the divisions used by Professor Gabrilovitch."

COLLOIDAL ANTIMONY IN THE TREATMENT OF TUBERCULOSIS

BY

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In previous articles¹ attention has been drawn to the treatment of tuberculosis by means of intramuscular injections of colloidal antimony (Crookes). A large number of cases have now been treated by this method, and the results obtained are given below. Cases are separated into sputum+ and sputum-, and the sputum+ cases are separated into groups according to the classification adopted in the Ministry of Health Memorandum 37/T.

During the latter half of 1926 196 cases were placed on this treatment, 90 were sputum-, and have nearly all done very well, 3 only having died up to date, but no detailed statement will be made concerning these, as with sputum- cases the diagnosis is open to doubt, and the value of the treatment cannot therefore be demonstrated.

The sputum+ cases numbered 106—11 in Group 1, 23 in Group 2, and 72 in Group 3. No case is included which did not have at least two months' treatment in 1926, and the results are as follows:

	Quiescent	Improved	Not so Well	Died	Left Area	
+1	7	4	0	0	0	July 1st 1927—6 months or more after commencement of treatment.
+2	6	17	0	0	0	
+3	2	56	9	5	0	
+1	7	3	0	1	0	Jan 1st 1928—12 months or more after commencement of treatment.
+2	13	9	0	0	1	
+3	5	34	10	19	4	
+1	7	3	0	1	0	At present—18 months or more after commencement of treatment.
+2	15	5	2	0	1	
+3	7	15	13	32	5	

Four deaths were from other causes, but as the tuberculosis was a contributing factor these are included in the above figures. It will be noted that 67 cases of the original 106 are still under observation or treatment.

Of the cases coming under treatment in the first half of 1927 the following is the result

	Quiescent	Improved	Not so Well	Died	Left Area	
+1	4	12	—	—	—	Jan 1st 1928—6 months or more after commencement of treatment
+2	2	15	1	1	—	
+3	1	25	6	3	—	
+1	9	5	1	1	—	At present—12 months or more after commencement of treatment
+2	6	7	4	1	1	
+3	0	12	5	18	1	

Every case, however severe, is placed on this treatment, and when it is remembered that patients attending municipal clinics come mostly from the poorest section of the community—unsuitably housed, overcrowded, often ill nourished—then I think that the results will compare favourably with those obtained by other methods. With selection of cases for treatment the results would be much better.

Very little change has been made in the method of treatment given in previous articles, except that the colloidal antimony has been increased up to 2 c.c.m. twice weekly, and in cases where the muscle will not tolerate this amount it is given intravenously. So far I have found no contraindications to the use of antimony, and with some 30,000 injections there has been no worse result than a swollen and slightly painful arm.

The present article deals mainly with the results obtained by the use of colloidal antimony, but good results cannot be expected without the usual rest, fresh air, good food and other measures which are generally accepted as essential to the treatment of all cases of pulmonary tuberculosis.

REFERENCE.

¹ British Medical Journal February 26th 1927 Public Health July 1927

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL

THE PAPILLAE FOLIATAE AND CARCINOPHOBIA

The papillae foliatae are a row of small vertical projections of mucosa on the side of the tongue immediately anterior to the attachment of the palatoglossal folds. Wholly vestigial in human beings, they contain a few taste buds, and represent much larger structures such as are seen in the rabbit. It would seem that but little pathological significance could be ascribed to them, yet during the past few years they have quite frequently come under my attention in two types of circumstances.

In the commoner type they are in no way diseased, but they have caused grave worry to the patient, who both mentally and physically introspective, has discovered at the side of the tongue these warty structures alongside which as a rule a few largish veins are evident. It is characteristic of these cases that the tongue can be protruded almost for its whole extent from the mouth. It should at once be recognized that the sole duty then of the medical practitioner is to make the emphatic statement, "You have not a cancer", with very few exceptions this utterance is rewarded by a look of intense contentment. In some instances, however, they are inflamed—oedematous and swollen—and are causing pain. The infection is from an adjacent molar tooth or tonsillar crypt (the pain sometimes is probably referred along the lingual nerve), treatment is obvious.

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OVERLOOKED ALVEOLAR ABSCESS

In view of the renewed interest in the effect of dental conditions on the general health I think it worth while recording two cases of a condition more obvious than infected pulpless teeth. Such cases are not rare in dental practice, but in view of the prolonged medical treatment that was given ineffectively they may help to direct attention to them at this time.

(1) A girl, aged 13 had noticed pain and swelling on the left side of the lower jaw and had been receiving medical treatment for more than twelve months. Examination revealed the presence

of two diseased roots of the lower left first molar tooth, the crown having broken off. The gums were chronically inflamed from the irritation, but no obvious signs of pus were visible in the mouth. Externally there was an indurated swelling with a discharging sinus. A probe could be passed along the sinus into the body of the mandible. The carious roots were extracted and were found to be surrounded by a mass of granulation tissue and a small amount of pus. A suitable mouth wash was prescribed and at two subsequent visits the socket was examined and syringed once. Two months later the sinus had completely healed up and a year later appeared quite healthy. The scar was still visible.

(2) A girl aged 17 had noticed fifteen months previously a swelling of the lower left jaw region, associated with much pain and tenderness for which various remedies were tried. She was pale and anaemic with almost a chlorotic tinge of the skin. On the left side of the mandible was a raised red area two inches long and $3/4$ in wide. It was indurated and painful on the slightest touch and pus oozed from a sinus. In the mouth a carious lower left first molar tooth was surrounded by highly inflamed gingival tissue and three pea-like swellings containing pus. The breath was fetid and the whole mouth had an offensive odour. On extracting the tooth foul-smelling pus welled up and the roots were very offensive. Pus was expressed and the socket and sinus were thoroughly syringed. The usual treatment at home was prescribed and within two weeks improvement was observable. Two months later the patient's general health and digestion were much better and the swelling and sinus had almost completely healed.

Both these patients had been under treatment for more than a year with no apparent improvement, in the second case, the general health was getting worse, in spite of ultra-violet ray treatment, among other remedies adopted. The most effective treatment for such cases appears to be extraction of the tooth as early as possible, since this nearly always has to be performed eventually, before the condition can be cured. It is, of course, regrettable that teeth especially children's, should ever get to this stage when proper dental treatment of early caries can usually save them.

G. GRAHAM MACPHER, M.B., Ch.B., L.D.S. GLAS

DUPLICATION OF THE TESTICLE

With reference to the interesting account by Mr Edington on June 2nd (p. 937) of a case of duplication or subdivision of the testicle, the following detail of another case encountered a few days after the publication of Mr Edington's article may be worthy of record.

A boy aged 6 was admitted to the North Staffordshire Royal Infirmary with a diagnosis of double inguinal hernia associated with double undescended testicles. On examination the right testicle was felt high up just outside the external abdominal ring. It was smaller than normal in size and could be brought down easily into the scrotum. The ring was slightly enlarged and a definite impulse was obtained when the patient coughed. On the left side no testicle could be palpated and no hernia was demonstrable. A condition of penile hypospadias was present.

Operation.—The right external ring was exposed. A congenital sac was found at the lower end of which was present a small testicle with a well formed epididymis and vas. This was the testicle palpable before operation. About $1\frac{1}{2}$ in higher up the sac a second body exactly similar in size and shape was present. It had a well formed epididymis and vas. No communication between the two swellings was apparent. The two vasa did not communicate as far up as the abdominal ring. The testes measured 1.25 cm in length and 0.5 cm in breadth. The neck of the sac was tied and divided and the distal portion of the sac was left *in situ*. In view of the failure to demonstrate any testicle on the left side it was considered desirable to leave both testicles on the right side.

This case would seem to come into class "B" in Mr Edington's group—namely, pseudo-duplication or transverse ectopia. It is of interest to note its association with hypospadias.

I am indebted to Mr Hartley for permission to record the case.
Stoke-on-Trent JOHN S. RALAGE, M.B., F.R.C.S.I.

TRAUMATIC RUPTURE OF TUBERCULOUS ILFO-CAECAL GLANDS

Rupture by violence of tuberculous mesenteric glands is perhaps sufficiently rare to render the following clinical details worthy of record.

A child, aged 5 years was brought to hospital with the story that she had been playing on her sister's back some three hours previously when she had fallen off and her sister had fallen on top of her. The child had at once cried out in pain and shortly afterwards had vomited.

I found the child suffering severely from shock. She had a weak thready pulse of 156 and a temperature of 101.4° F. She complained of pain all over the abdomen and the legs were drawn up. The abdomen moved very slightly on respiration and was almost board-like in its rigidity, and very tender on palpation.

Nothing localized could be made out on palpation, there was no free fluid in the flanks the absence of liver dullness was doubtful. A diagnosis of ruptured viscus was made and immediate operation was undertaken under open ether by Dr. Bark.

The abdomen was opened in the middle line, and some free fluid at once escaped in which were bits of what looked like milk curds. On examining the stomach, however, no perforation was found nor was there any evidence of rupture of the bowel on tracing down the small intestine as far as the ileo-caecal valve. Here, however, to the right iliac fossa, was a big mass which seemed at first to be an intussusception. Careful examination of this, however, revealed it as a mass of tuberculous glands about the size of a tangerine orange situated in the ileo-caecal angle. The glands were soft and in the mass was a ragged cavity from which had come the 'milk curds' we had found on opening the abdomen. The child's condition and numerous adhesions of bowel to the mass made any attempt at resection out of the question, and we had to content ourselves with covering in what raw surfaces we could with peritonium, and closing the abdomen with through and through sutures. Rectal salines were given for the first twenty-four hours, after which convalescence was entirely uneventful.

Six weeks after the operation the child was quite well, she was eating well and sleeping well, and having no trouble with the bowels. She had of course medical treatment during the convalescence and had been in the open air for the last five weeks.

The mass of cascating glands must have been ruptured by the force of the sister's fall on to the child's abdomen, and it was interesting to see what an acute peritoneal crisis was thereby produced.

Earlestown, Lancs.

J SIMS, M.B., Ch.B.

A CASE OF MUSCULO SPIRAL NERVE PARALYSIS

IN view of the comparative rarity of lesions of the musculocutaneous nerve the following case is, I think, worthy of record.

In June, 1927, a papermaker, aged 32, had forebore traction applied to his left arm while it was in the semi-abducted position. As the lower part of the limb had been caught between revolving rollers there was considerable bruising, which extended above the elbow. It was not until this had subsided and he had started to move the joint freely that he noticed that he had little strength with which to flex the forearm and was unable to hold it semi-flexed for any length of time without support. Wasting of the biceps brachii now became apparent, and an area of anaesthesia was found to be present over the outer border of the forearm from the elbow to the base of the thenar eminence. Neither the coraco-brachialis nor the biceps responded to faradism and the reaction of degeneration was present when the nerve was stimulated with the galvanic current.

Some slight improvement has taken place after some months' treatment with the sinusoidal current and massage. There would appear to be a slight reaction to faradism, and the cathodal closing contraction is definitely greater than the anodal on galvanic stimulation. However, the muscle bulk remains the same. The patient shows signs of a return of the appreciation of coarse stimuli in the proximal part of the previous anaesthetic area. He thinks his arm is stronger but has noticed no improvement for the past month.

The main point of interest in this case is that there was no apparent injury either to the lateral cord of the brachial plexus or to the lateral head of the median nerve. Hence the lesion may be accurately localized as being distal to the bifurcation of the lateral cord and proximal to the point of entry into the coraco-brachialis of the musculocutaneous nerve. That some regeneration of nerve has taken place is obvious from the change in electrical reaction. It is therefore assumed that the original lesion was incomplete, or perhaps due to pressure from a haematoma, which later became, in part, absorbed. The question of whether a neurolysis would be of any benefit is now under consideration.

Ottawa, Canada C MERLIN EYNON, M.D., F.R.C.S. Ed.

PIGMENTATION ASSOCIATED WITH LOW BLOOD PRESSURE WITHOUT SUPRARENAL CHANGES

THE following details of a case in which progressive debility, skin pigmentation, and a low blood pressure terminated fatally are of special interest in view of the apparent absence of endocrine abnormality.

A married woman aged 44, was admitted to St. Mary's Hospital for Women and Children, Plaistow on March 3rd 1927, with a history of debility and loss of weight since the previous December, and bouts of nausea, retching and occasional vomiting after food. These attacks had become steadily worse and were accompanied by some pain in the lower lumbar region. The bowels were usually regular. She had noticed brown pigmentation of the face, neck, and wrists for a few months before admission. There had been no previous serious illnesses, and there were six healthy children, the youngest being aged 9.

On admission the patient was well covered. The complexion was sallow, there were small patches of vitiligo on the face and neck, and marked patches on the wrists. There was slight pigmentation of the face, neck, arms, and abdomen. Several achilous stumps were present in the upper jaw. Examination of the abdomen and lungs revealed no abnormality. The heart was normal in size and position, but the heart sounds were weak and the rhythm tick-tack. The central nervous system was normal and investigations of the urine and faeces gave negative results. A fractional test meal showed the presence of complete achylia. A blood count showed red cells 5,128,000 per cmm., total leucocytes 16,000 per cmm., haemoglobin 75 per cent and colour index 0.7. The blood pressure on admission was 100 systolic and 50 diastolic. This rose to 120 systolic before the patient was discharged on April 4th, 1927. With rest and light diet the gastric symptoms had disappeared and the patient felt stronger. She attended the out-patient department for several weeks and improved until the end of May, when she complained of loss of power, and pain in the legs and arms. The blood pressure had fallen to 95 systolic and 45 diastolic.

On readmission on June 2nd the pigmentation was much more marked on the face, arms and abdomen and had now spread to the chest. Patches of vitiligo were present in all these regions. Adrenaline m.t.d.s. was given the blood pressure rose to 110 systolic and 55 diastolic but fell again after a few days to 100/50 where it remained steady. A diagnosis of Addison's disease having been made the chest was examined radiologically for evidence of tuberculosis, but only root thickening on both sides was found. There was no clinical evidence of tubercle. The patient again improved and was discharged on June 21st.

She was again readmitted on August 11th complaining of marked debility and severe pains in the limbs, especially the legs. The pigmentation was more marked. Muscular power in the legs and arms was poor but the reflexes were normal and there was no alteration of sensation. The blood count now was red corpuscles 3,584,000 per cmm., total leucocytes 24,000 per cmm., polymorphonuclears 81 per cent, lymphocytes 15 per cent, eosinophils 4 per cent, the haemoglobin percentage was 55 and the colour index 0.8. The blood pressure was maintained at a steady level of 95-100 systolic and 45-50 diastolic. She was given suprarenal gland gr. j t.d.s., and adrenaline m.v. t.d.s. by the mouth. She seemed to improve and felt better until August 23rd when she complained of nausea and severe shooting pains in the legs and took food badly. The general condition became worse, and on August 31st the blood pressure rose to 115 systolic and later to 130. There was some oedema of the legs and dullness at the base of the right lung. The liver was palpable and tender. No reflexes could be elicited in either leg. Symptoms of heart failure increased, and the patient died at 10.45 p.m. The blood pressure two hours before death was 70 systolic and 40 diastolic.

At the necropsy the heart muscle was thin and showed degenerative changes. No evidence of pulmonary tuberculosis was found but both lungs especially the right were oedematous at the bases. The suprarenal glands showed *post mortem* changes only. The kidneys were slightly enlarged and the left one showed some thinning of the cortex. The other organs, including the brain, showed no abnormality. Sections of the suprarenal glands and of the heart muscle by Dr. H. E. Harding showed that the former organs were normal, while the latter showed myocardial degeneration.

This case was clinically very similar to another recorded by one of us (N.B.) in 1926. In the previous instance, however, there were definite symptoms of hyperthyroidism to account for the sympathetic exhaustion. In the case now reported there were no such symptoms.

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Reports of Societies.

MOVABLE KIDNEY

At a meeting of the Section of Urology of the Royal Society of Medicine, held on June 28th, with the President, Mr. FRANK KIDD, in the chair, Professor JURASZ (Poznan) read a paper on movable kidney.

Professor Jurasz said that the well-known mechanical effects of movable kidney were only a part of the clinical picture. The symptomatology of movable kidney was little understood and therefore the disease presented many difficulties in diagnosis. Movable kidney had been wrongly diagnosed as appendicitis, gall-bladder disease, and gastro-ulcer, since the signs and symptoms were often referred to these organs. The clinical picture of movable kidney was not clear-cut, and there was nothing pathognomonic in the disease. Renal symptoms were often slight or absent, and from his wide experience Professor Jurasz only blamed the kidney after careful elimination of diseases of the other

abdominal viscera. He quoted a case of jaundice with symptoms of cholecystitis upon which he had operated and found no evidence of disease of the biliary passages. A movable right kidney was found and fixed, with complete disappearance of the jaundice and symptoms. He believed that the symptoms were due to a visceral reflex spasm of the biliary passages initiated by the movable kidney. The complex symptoms present in patients with a mobile kidney were probably the result of visceral reflexes—viscero-sensory and visceromotor impulses through the sympathetic and para-sympathetic systems. Viscero-sensory reflexes were well seen in diseases of the gall-bladder, etc., and in headache often associated with movable kidney. Visceromotor effects were seen in cases of pylorospasm and spasm of the gastro-intestinal tract as a whole. Vertigo was sometimes present in patients with a movable kidney, and it had been suggested that this was due to stimulation of the vagus nucleus and irradiation from it to the vestibular nucleus.

Professor JURASZ believed that viscerovisceral reflexes led to mechanical disturbances in various organs, and finally might produce pathological results. He mentioned many examples of the effect of visceral reflexes on nerve cells—namely, the thickening of the coeliac plexus in some cases of enterospasm. Also these visceral reflexes produced definite psychical effects. The commonest visceral reflexes were spasms of various portions of the alimentary tract: cardiospasm, spasm of the sphincter of Oddi, spasm of the appendix, etc. This spasm set up a vicious cycle, and the symptoms often persisted after removal of the apparent cause, such as the appendix. Professor JURASZ thought that the movable kidney produced visceral reflexes and on these grounds many of the symptoms of mobile kidney could be explained. The dilatation of the renal pelvis, slight or uniked, could not always be attributed to mechanical obstructions, such as kinking of the ureter, an aberrant renal vessel, or twisting of the axis of the kidney. The speaker had proved by ureteric catheterization, uroteropelography, and by exploration that none of the factors were necessarily present. On the other hand he had demonstrated a diminished motor power of the pelvis of the movable kidney. This was done by timing the return of an indigo carmine solution into the bladder after its injection into the renal pelvis. The time for a normal kidney was four to five minutes. Examination of the urine from a movable kidney showed a definite functional derangement of the organ, since the urea content was diminished, anuria sometimes occurred, and also the specific gravity was low. It had been said that abdominal symptoms could be produced by pressure or kinking of the viscera by the movable kidney but he had never found evidence of this at operation.

Professor JURASZ held very strongly that the involuntary nervous system played the most important part in the symptom-complex of mobile kidney, and consequently diagnosis was often difficult. He had found movable kidneys in children, and he therefore thought that the etiology might be congenital, and also that some cases of pyelitis and nervous instability in children might possibly be due to a movable kidney. Early diagnosis and treatment was most important, because prognosis was bad in cases in which there were secondary changes in the kidney, in other abdominal organs, and in the nervous system. A slightly movable kidney often produced more symptoms than a very mobile organ. Nephropexy was indicated in every case of mobile kidney when diseases of the abdominal organs could be definitely excluded. The presence of renal symptoms was not necessary. He said he fixed the kidney by slinging it to the last rib. His results had been on the whole very satisfactory.

Many interesting pyelograms were shown by Professor JURASZ, demonstrating dilatation of the renal pelvis with no kinking of ureter and no obstruction to the outflow of urine. Pyelograms of movable kidney in children were also shown.

SIR JOHN THOMSON-WALKER said that movable kidney was usually associated with a general visceroptosis and he thought, therefore, that the kidney alone was not responsible for the various symptoms. He said that the drag of the caecum and ascending colon was probably an important

factor in the production of a movable kidney, and therefore if a mobile kidney was fixed the ascending colon and caecum should also be fixed if definitely displaced. He thought that if the mobile kidney produced reflex disturbances these would be more marked in cases in which the kidney was extremely mobile, but this was not the case. He had often demonstrated kinking of the ureter by adhesions passing from the posterior surface of the bowel. Concerning the choice of cases, he did not agree with Professor JURASZ that all cases should be operated upon, but only those cases with definite renal symptoms. Good results were obtained if cases were selected with care. In order to ascertain the type of case to be benefited by nephropexy he put the patient to bed for a fortnight, and, if the symptoms improved, but recurred on getting up, then the case was suitable for fixation. If, however, the symptoms became worse while lying in bed the case was certainly not suitable. Preliminary x-ray examination of the gastro-intestinal tract was also useful in this respect. Sir JOHN THOMSON-WALKER did not think that merely slinging the kidney was all that was necessary. He advised firm fixation to the posterior abdominal wall, thoroughly stripping the capsule from the posterior aspect of the kidney, but not decapsulating the anterior surface, since there was a risk of adhesions forming to the bowel. Fixation of the kidney in the normal position was not necessary as long as the organ was securely fixed and there was no interference with the outflow of urine. He felt that perhaps colopexy should be performed as well as nephropexy.

MR HUGH LERT said that he did not perform nephropexy unless there was definite evidence of renal symptoms or dilatation of the renal pelvis.

MR JOCELYN SWAN agreed with Sir JOHN THOMSON-WALKER that movable kidney was a part of a general visceroptosis and that the adhesions between the kidney, duodenum and gall bladder described by Professor JURASZ were evidence of visceroptosis. He said that slinging of the kidney was good treatment if at the same time the posterior surface of the kidney was thoroughly decapsulated and the lower pole of the kidney was fixed by a suture to the quadratus lumborum. Mr SWAN thought that the dilatation of the renal pelvis may be explained in a few cases by the reflex mechanism the viscerovisceral reflex described by Professor JURASZ, but adhesions at various points around the course of the ureter could often be found on tracing it downwards.

MR F. A. G. JEANS said he only fixed the kidney when there was no evidence of general visceroptosis. Preliminary x-ray examination of the stomach and colon was always made.

MR C. F. NELSON asked how fixation of the mobile kidney removed the source of the visceral reflexes which had been described. Mr FRANK KIDD said that though Professor JURASZ believed that reflex spasms and sensations caused the symptoms of movable kidney yet he advised a mechanical operation to overcome them. He thought it possible that stripping of the kidney to perform nephropexy destroyed nervous tissue which conducted the reflex impulses.

Professor JURASZ in reply said the operation of nephropexy was discredited because a wrong diagnosis was often made. Functional derangement of the pelvis and kidney must occur, since in many cases mechanical obstructions could not be demonstrated. He admitted that certainly not all cases were functional due to a reflex effect, but that some were definitely mechanical. He did not mean that all cases of mobile kidney should come to operation, but only those cases in which after excluding diseases of other organs the symptoms were due to the kidney, though the symptoms were not necessarily renal. Functional derangements gave rise finally to pathological changes as was well seen in rare cases of non-infected gall stones produced by obstruction due to the spasm of the sphincter of Oddi. Fixing the kidney prevented increased stimulation of the nervous tissue and thus the visceral reflexes were abolished. In conclusion, Professor JURASZ said that the whole question of the reflexes of the involuntary nervous system was still difficult and needed investigation, but the functional effects produced by such reflexes must be realized.

Rebuelus.

CALMETTE'S "TUBERCULOSIS"

THE third French edition of Professor CALMETTE's work on tuberculosis¹ has undergone considerable expansion. The most interesting addition deals with the problems of prophylaxis, especially the preventive treatment in man and animals by means of the bacillary preparation introduced by the author and his collaborator, C. Guérin, under the designation "BCG." The bacillary strain employed is of bovine origin, by a series of cultures on bile media it is rendered non-virulent. Living cultures of the "BCG" when injected intravenously into heifers rendered these animals immune against subsequent inoculation by virulent tubercle bacilli. Moreover, heifers immunized by means of "BCG" proved to be protected against infection even while living in close contact with animals infected with virulent organisms. Later experiments showed that subcutaneous vaccination was as protective as the intravenous, or even more so. After satisfying himself by many animal experiments that "BCG" was innocuous a trial was made of this method to protect the newborn infants of tuberculous mothers against infection. Calmette claims a large measure of success in human subjects, he states that up to the end of 1927 the number of newborn infants immunized by means of "BCG" in France had reached fifty thousand. Whether his claims as regards successful protection against contagion in an infected household will be completely substantiated remains to be proved, but even if the achievement should fall below his expectations his efforts must command great admiration.

The plan Calmette recommends is to administer to the infant by mouth during the first ten days after its birth, at forty-eight-hour intervals, three successive doses of bacterial emulsion. Each dose consists of 1 cc of "BCG" in 2 cc of preservative fluid. This dose is given in a teaspoonful of milk warmed to body temperature half an hour before a feed. In many departments and municipalities of France the systematic treatment of infants in this way is being undertaken by official health organizations. The duration of immunity is stated to be from fifteen to eighteen months. If the child is in contact with infected relatives it may be advisable to repeat the "vaccination" at the end of the first and of the third year, but this is said to be not absolutely necessary. The author considers that there is sufficient evidence already to show that a single series of doses will protect children up to the age of 5 years, even though they are exposed during that time to frequent and massive infections from the mother or other members of the family.

There are some further additions to this latest edition of Professor Calmette's book, but it is for the information which it contains upon the use and value of "BCG" that it will be most eagerly read.

DISEASES OF THE STOMACH

DURING recent years there has been a large increase in the number of monographs on the stomach and its disorders, and many of them owe not a little to the published work of Dr. B. B. CROHN and his co-workers. He has now produced his own textbook *Affections of the Stomach*,² and it is a well-documented, profusely illustrated, authoritative volume. Dr. Crohn has sought to approach the subject from the point of view of "pathological physiology," as he calls it, and all that the laboratory workers and radiologists can produce to aid the clinician in his diagnosis and treatment has been well considered and carefully worked into the substance of the book, which has not by any means lost its essentially practical outlook in the process. Moreover, in certain sections Dr. Crohn has obtained the collaboration of experts, as, for example, in the chapter on radiography of the stomach,

written with Dr. S. J. Goldferl, and in an excellent discussion of the gastric neurosis with Dr. A. Kardiner. The classification of non-organic diseases of the stomach presents many difficulties, and Dr. Crohn's discussion of these so-called functional disorders is very clear. He rightly insists that "the most common causes of disturbed digestion (dyspepsia) are bad eating habits, excessive or injudiciously chosen foods, a 'nervous' constitution, or mental excitement during meal times." The chapters on the treatment of gastro-duodenal ulcers and the results of such treatment, medical and surgical, are especially good. An extensive bibliography follows most of the chapters, and Dr. Crohn may claim to have produced a very complete survey of this vast field.

Dr. STANLEY WYARD's *Handbook of Diseases of the Stomach*³ appeared some time ago, and it is noticed here because, like Dr. Crohn's book, it gives a careful clinical presentation of laboratory and radiological evidence. It is essentially a practical work, and the chapters on diet and dietetics and on certain therapeutic measures are especially valuable. On certain aspects of the subject Dr. Wyard states his own views very dogmatically, which may be an advantage for the purpose of teaching, but is not always so acceptable to other workers in the same field. He has little use for bismuth and other drugs in diseases of the stomach, and we gather that in his belief alkalis act mainly by relieving symptoms and "have no curative properties whatever." In discussing the treatment of gastric ulcer (page 283) he states that "medical treatment requires that the patient shall be absent from his work three months at least, present surgical practice necessitates his absence for little more than three weeks." This is surely an overstatement of the facts, for very few, if any, gastro-enterostomy or gastrectomy patients are back at work within a month, and many ulcers are treated medically in out-patient departments with the patients at work all the time and the healing controlled and watched by radiography. Dr. Wyard writes in an interesting manner, and his own views are stimulating. The volume is well produced and gives a good practical exposition of the subject under review.

Dr. F. RAMON's *Diseases of the Stomach and Duodenum*,⁴ in its essentially "Continental" outlook, provides an interesting contrast to the two volumes noticed above. The clinical aspects of symptomatology are especially well handled, and the chapter on aerophagy is very good. An interesting section is on inflammation of the duodenum, "duodenitis and periduodenitis," a topic usually neglected in books on this subject. The chapter on the nervous dyspepsias is instructive, more especially for its view that some underlying gastritis or other real gastric disorder is often present.

AN AMERICAN TEXTBOOK OF MEDICINE

THE time has gone by when it was possible for one man unaided to sit down and compile a successful textbook of medicine, the field to be covered is altogether too wide, and the subjects to be handled call for knowledge too accurate and too complex for the unassisted brain of one individual, however eminent he may be. In the preparation of *A Text-Book of Medicine*,⁵ by American authors, edited by Dr. RUSSELL L. CECIL, no fewer than one hundred and thirty contributors have taken part. This means that every subject has been discussed by a specialist interested in that particular subject. A glance through the list of authors is sufficient to show to what pains the editor has gone to obtain the services of the best talent in America, and this in itself is a guarantee of the sound orthodoxy of the teaching contained in the book. Provided that the

¹ *L'infection Bacillaire et la Tuberculose chez l'homme et chez les animaux*. Par A. Calmette. Troisième édition. Avec la collaboration de A. Douquet et L. Nègre. Paris: Masson et Cie. 1928. (64 x 10 pp. xiv + 883. 30 figures. 4 plates. 125 fr. sans majoration.)
² *Affections of the Stomach*. By Burrill B. Crohn M.D. Philadelphia and London: W. B. Saunders Company. 1927. (Roy. 8vo pp. 302. 41 figures. 45s. net.)

³ *Handbook of Diseases of the Stomach*. By Stanley Wyard M.D., B.S., M.R.C.P. Oxford Medical Publications. London: Milford Oxford University Press. 1927. (Demy 8vo pp. x + 87. 32 figures. 16s. net.)

⁴ *Les Maladies de l'Estomac et du Duodénum*. Par Félix Ramon. Paris: Masson et Cie. 1927. (3 ed. 8vo pp. 414. 17 figures. 40 fr. sans majoration.)

⁵ *A Text-Book of Medicine*. By American Authors. Edited by Russell L. Cecil A.B., M.D., Associate Editor for Diseases of the Nervous System Professor Foster Kennedy M.D., F.R.S.E. Philadelphia and London: W. B. Saunders Company. 1927. (Roy. 8vo pp. xxii + 1590. 29 figures. 40s. net.)

editor maintains harmony and consistency throughout the whole of the contributions the plan of presenting a textbook in which a large number of authorities have collaborated has obvious advantages to the student preparing for his final examination and to the practitioner of more mature years seeking recent and reliable information. Dr Cecil is to be congratulated on the success with which he has brought this magnum opus into being. The information given as to pathology, symptomatology, and treatment is up to date, and the pursuit of pet theories, to which even the greatest may be prone, seems to have been successfully eliminated. The general plan of the work follows closely that of most other textbooks of medicine, but one very commendable feature is the citation of a short list of references at the end of each chapter in which recent work has been mentioned. This should be very helpful to the earnest reader who wishes to extend his knowledge of a subject. The book is well printed and turned out, but is rather bulky and heavy for reading in comfort in an easy chair, but then textbooks are not meant to be read in easy chairs. It certainly deserves a welcome, not only in America, but in all English speaking countries.

MATRIARCHY

MR ROBERT BRIFFAULT'S massive anthropological work in three volumes, entitled *The Mothers*,* is one of exceptional interest from the novelty of its outlook, it exhibits, moreover, a rare degree of erudition and a masterly faculty for handling whole trains of facts which compel our admiration. Apart from his own personal knowledge of the subject, the author displays an extraordinary acquaintance with the literature, and enforces his arguments with details of evidence culled from thousands of sources. The subtitle—"A study of the origins of sentiments and institutions"—indicates that the book deals with the foundations of social development generally, and also definitely propounds a particular thesis—namely, that in the earliest human groups the influence and authority of the female were predominant, and the main object of the author has been to review the development of social institutions in the light of that thesis. A view commonly held has been that in the primitive races the female was systematically oppressed, enslaved, and maltreated by the ferocity of the male. This has undoubtedly been the position in a certain number of degenerate races, as among the native Australians, but speaking generally the popular notion of the treatment of females is a mere travesty of the actual facts, as Mr Briffault pretty conclusively shows. In the earliest social groups the woman was mistress in her own home, was occupied in agreeable and productive work, was the guardian of such accumulated wealth as was available, and possessed full economic control. To the male was allotted the duty of protecting the home and bringing in game, he thus held a position of economic inferiority, and he gained little additional advantage from being the father of the family, for he was regarded merely as the material agent whereby the spirit of the child was introduced into the body of the woman, the children belonging rather to her and her kin than to him. The home thus constituted on matriarchal lines formed the earliest social unit, to call it a family, as we understand the word, would be a misnomer, and the author has made use of the term "motherhood" as being more appropriate. The custom governing the organization of these motherhoods, and permitting their expansion into larger associations without the loss of their feminine constitution, is known as "exogamy," implying that marriages shall not take place within the group, but always with a member of another group. The males under this system either left the parental group and were adopted into the group to which their wives belonged, or they simply visited their wives while continuing to live within their own group. In either case the males married out, while the females remained within their groups and continued to exercise a predominant influence in the home, ensuring its stability and continuity. In these larger associations, as in the smaller

motherhoods, women continued, almost exclusively, to perform those duties which have given rise to material culture. Leather work, basketry, pottery, and building came within their sphere. As the sole producers of manufactured commodities they were the primitive traders, they cultivated the soil and were the keepers of all surplus production, and, further, they were the physicians of the group. It thus appears, according to Mr Briffault's showing, that the primitive social instincts upon which human mental and social development depended were the material instincts and the ties of kinship that derive directly from them.

The matriarchal character of the primitive social order, depending as it did on the economic predominance of women, persisted so long as men possessed no fundable wealth. Definite economic power, it appears, was first placed in the hands of men by the domestication of animals, which were always regarded as appertaining to the province of the hunter, and by the development of pastoral societies. It became a custom for women to be purchased with cattle, to leave their homes, and to live with their husbands, and thus the patriarchal type of society was introduced. Where no domestication of animals took place, as among some North American tribes the matriarchal system still persists, but even where the patriarchal system has become most firmly established, as in civilized societies, traces of an original matriarchal constitution are recognizable in the customs and sentiments of the peoples. Thus the author shows to be the case as regards the Indians, Chinese, Japanese, Semites, Egyptians, Greeks, Teutons, Celts, and Romans.

Mr Briffault's volumes abound in interesting facts relative to the customs, sentiments, and beliefs of primitive peoples, and there is a naïveté about some of these old beliefs which is of considerable charm. We have already alluded to the curious belief that the essential cause of conception was not sexual congress, but the entry of the spirit of the child, and that this might take place through some merely physical agency, such as a shower of rain or puff of wind, thus it happened to a certain Scottish lassie, of whom it is related that as she chanced to be wandering one night on an ancient battlefield, still strewn with the bones of the dead, she "took up her clothes and uncovered herself sum part, when a sudden whirlwind threw some of the ashes in her private member. Whereupon she conceived and bore a son called Gilie Downak Chraivohk."

BIOCHEMISTRY AND CHEMICAL PHYSIOLOGY

THE exhaustion of the first edition of PRYDE'S *Recent Advances in Biochemistry* in the short space of one year from its first appearance has given the author an opportunity of revising and extending his work. In the second edition,[†] which is now upon the market, he has described the more outstanding researches of the year, and where necessary has modified and culled the reviews of various biochemical problems to include new evidence. It is impossible in a brief description to give any account of the subjects with which this book deals, but particular mention should perhaps be made of the chapters dealing with the recent work upon the metabolism of carbohydrates and phosphates, and the structure of carbohydrates—a subject upon which the author can give first-hand information. These are, however, only examples taken from a considerable mass of new material. Indeed as Mr Pryde himself points out, the extreme rapidity of the progress of his subject is well illustrated by the fact that such extensive alterations and additions have already been required. One might add that the necessity for bringing out another edition after so short a time is a testimony to the fact that many readers have appreciated the author's clear and easy style, and his skill in the choice and arrangement of material.

The short textbook of chemical physiology by Professor ERNST SCHMIDT was first published seven years ago. A second and rigorously revised edition[‡] now appears. The

* *The Mothers*. By Robert Briffault. In three volumes. London G. Allen and Unwin Ltd. New York: The Macmillan Company, 1927 (Roy Bro., Vol. I pp. xi + 781, Vol. II pp. xx + 789 19 figures Vol. III pp. xv + 841, 25s net each volume.)

† *Recent Advances in Biochemistry*. By John Pryde B.Sc. St. And. M.Sc. Wales. Second edition. London J. and A. Churchill 1928 (5s.) x + 379 38 figures. 12s 6d net.)
‡ *Kurzes Lehrbuch der Chemischen Physiologie*. Von Dr. Ernst Schmidt. Zweite neubearbeitete Auflage. Berlin S. Karger 1927 (6s.) x + 383 16 figs.)

book follows conventional lines. The early chapters are devoted to the chemistry of the major constituents of protoplasm, and are followed by others in which the special chemistry of individual organs and the functional aspects of biochemistry in digestion, respiration, internal secretion, and total metabolism are considered. From the scope of the book it would appear that it is intended for medical students or other students of science first entering upon the study of biochemistry. By such it will be much appreciated, provided they have that measure of chemical experience which will permit them to comprehend the great wealth of detail which the author has managed to cram within the covers of this small volume. The text is liberally annotated with references to the original literature and the author claims to have surveyed the literature up to the middle of 1926. The book is certainly up to date, but in saying this we do not mean to suggest that the author is forever seeking new gods for his selection from recent work is restrained and judicious.

A GUIDE TO TRAINING

Mrs H. M. ABRAHAM and Dr A. ABRAHAM are particularly well qualified for the task of writing a book on *Training for Athletes*,* for they both possess the experience of distinguished track athletes, and one of them has the medical and physiological knowledge which is necessary for any authoritative statements as to methods of training. Not content with their own knowledge they have enhanced the value of their book by enlisting the help of Lord BURGHLEY, Messrs D. G. A. LEWIS, I. R. GARY, B. HOWARD BAKER, and M. C. NOKES in the articles on the special subjects in which those gentlemen have distinguished themselves. Naturally this book is more concerned with running and jumping than with rowing which leaves far less to the choice of the individual than does the racing track. Although this is only a small book its 180 pages seem to contain all that it is possible to teach in a book about training and competing, including the necessary physiological facts expressed in language comprehensible to the non-medical reader. Some conception of the effort involved in running one hundred yards at full speed may be got from the statement, made on the authority of Professor A. V. HILL, that a creak sprinter accumulates in his muscles in those ten seconds 40 grams of lactic acid, an amount corresponding to that accumulated during twenty-seven minutes at rest. As all this acid has to be removed by oxygen inspired, the necessity of good lung and heart capacity is evident to the least scientific reader.

If the absurd and oppressive regimen of beef *ad libitum* and beer in moderation still lingers in the training of cricketers at our older universities the authors of this book are more enlightened, for they sanction all wholesome digestible food in a diet including a due proportion of protein, fat, and carbohydrates, and as to alcohol they use no uncertain language. "We are of opinion," they write, "that alcohol is quite unnecessary to an athlete, and we strongly deprecate the advice often given to regard it as a useful 'tonic' in training." The necessity of well-fitting shoes is properly insisted upon, but we are disappointed to find no statement as to their shape. Such running shoes as we have seen have all tended to be pointed and to preclude the free and proper use of the great toe. We are shown what a great cumulative difference a very small disadvantage may cause in the course of a race of only one hundred yards in which six inches at the tape makes all the difference between victory and defeat. It seems possible that a properly acting great toe might give just such a small but final advantage over the abducted useless digit in a pointed shoe.

The authors take a sane and balanced view of the question of athletics for women, and while allowing that some girls who anatomically approximate to the male type may excel, they hold that, except for swimming, women's development is less adapted to athletic excellence than men's, and that perhaps severe physical exertion is to be deprecated when practised by potential mothers.

* *Training for Athletes*. By H. M. ABRAHAM and Dr A. ABRAHAM in collaboration with Lord BURGHLEY, D. G. A. LEWIS, F. R. GARY, B. HOWARD BAKER, and M. C. NOKES. London: C. Bell and Sons Ltd. 1928. (Cr. 8vo pp. xviii + 183. 12 plates. 6s. net.)

NOTES ON BOOKS

L'Année Médicale Pratique,¹⁰ under the skillful editorship of Dr CAMILLE LIAN, continues to provide a vast amount of information which is in many ways of interest and value to English readers. The main part of the book consists of articles on a wide range of subjects, written by experts and arranged in alphabetical order, and it concludes with a section on professional matters, a list of new pharmaceutical preparations, and a subject index to the previous six volumes. It is a work that should be better known to the profession in this country.

The seventh edition of the late Dr GWYN DAVIS'S *Applied Anatomy*¹¹ has appeared, edited, as before, by Dr G. P. MULLER. Many of the sections have been rewritten, and accounts of new procedures, such as cervical sympathectomy and the Billroth and Polya operations, have been added. The excellent series of illustrations has been further improved by corrections of some errors in previous issues and by the addition of new figures. The considerable amount of revision which has been performed has made this extremely useful book even more valuable than its predecessors.

Professor E. SELIGMANN'S work on the control of infectious diseases¹² is a collection, as its subtitle states, of lectures delivered at the Charlottenburg Academy of Social Hygiene. The work is divided into two unequal parts. The first or general part includes chapters on the principles of epidemiology including experimental epidemiology in which the work of Topley and Webster receives recognition, on the transmission of disease and susceptibility to disease, and on the legal principles of control of infectious disease, including international sanitary conventions and disinfection. In the second part, which forms the bulk of the work, the various infectious diseases are considered under the headings of infections (1) of the respiratory tract, (2) alimentary canal, (3) blood, lungs, and nerves, and (4) skin and mucous membranes. The appendix contains a variety of miscellaneous information arranged in ten sections, including a list of diseases notifiable in different countries, a summary of the mortality from tuberculosis in the two hemispheres, and various German sanitary enactments, of which the most interesting is the law passed in February, 1927, for the control of venereal disease.

No doubt some of the movements, exercises, and procedures described in *The Technique, Effects, and Uses of Swedish Medical Gymnastics and Massage*,¹³ by Dr J. ARVEDSON, and translated by Dr MINA L. DOBBIE, are of proved value in various conditions, but a perusal of this book leaves us somewhat sceptical of the practical effect of some of the more complicated. For instance we find difficulty in persuading ourselves of the therapeutic efficacy of sitting nose root shaking. In this process "the gymnast grasps the patient's occiput with one hand (in itself a difficult task for a woman, and the illustrations show all female gymnasts), while the other grasps the root of the nose and performs a shaking as forcibly as necessary to affect the chronic catarrh on the mucous membrane of the nose. Sometimes combined with wing stoop stride sitting back raising. (See page 205.) We cannot help thinking that "as forcibly as necessary" must be very forcibly indeed if it is to relieve chronic catarrh, and we should personally prefer the catarrh to the cure. The above quotation is an example of the cumbersome compound titles or words of command given to many of these proceedings but for all that, one of the shortest—namely "talk standing"—is the most incomprehensible. We learn that talk standing arises by rotation outwards of the arms and hands, and that

it is used to produce a slight expansion of the chest. No doubt talk, if loud enough, may produce expansion of the talker's chest, but except among deaf mutes it is seldom performed by movement of the arms and hands. Is there a mistranslation here or are we betraying ignorance of Swedish massage jargon? Apart from all this, however, there is much in the book of value to masseuses. In particular the movements and exercises for the remedial treatment of scoliosis seem to us practical and beneficial. The illustrations are many, but their value is much reduced by the circumstance that all the patients are represented as fully clothed. Judging from these figures, Sweden appears to be still in the long haired, black stocking stage, which with us is now only a memory.

¹⁰ *L'Année Médicale Pratique*. Publié sous la direction de Dr Camille LIAN. Septième édition. Paris: R. Lépine. 1928. (Fcap. 8vo pp. 651, 7 figures. 24 fr.)

¹¹ *Applied Anatomy*. By Gwyn DAVIS, M.D. Seventh edition revised by George P. MULLER, M.D. London: J. B. Lippincott Company. 1927. (Sup. roy. 8vo pp. xii + 638. 656 figures. 42s. net.)

¹² *Seuchenbekämpfung*. Vorlesungen an der sozialhygienischen Akademie Charlottenburg. Von Professor Dr E. Seligmann. Berlin: S. Karger. 1927. (Sup. roy. 8vo, pp. 282. 18 figures. M 16.60.)

¹³ *The Technique, Effects and Uses of Swedish Medical Gymnastics and Massage*. By Dr J. Arvedson. Translated by Mina L. Dobbie. M.D. B. Ch. London: J. and A. Churchill. 1927. (6½ x 8½, pp. x + 269. 131 figures. 12s. 6d. net.)

*Allen's Commercial Organic Analysis*¹¹ is a handbook of instruction in methods of analytical examination dealing more especially with materials which are wholly or principally of organic composition. The book is representative of a great variety of subjects, including, besides articles of food and substances used in medicine, a wide range of materials used in the arts. Our comments on four volumes of the book have already appeared. Volume v, which is now before us, deals with inks, leather, and the artificial colouring of foods; it includes also benzene and aniline, together with an assortment of substances more or less related to them. Each of the subjects is treated as a distinct section and is the work of a contributor chosen for his experience in the particular subject. Of the contributors four are citizens of the United States, while five belong to this country. In this volume a number of therapeutic substances are described, including several of the pyrazolone group, to which antipyrine belongs. The work appears to have been treated on the best plan possible for the purpose in view, and although it incorporates a good deal of matter taken from original memoirs in unaltered or slightly altered form, there is much besides, which represents exhaustive labour by the writers. It is a book that practising analysts cannot well do without. Volume vi is of the same character. It is concerned wholly with dyes and colouring matters. It is divided into four sections, dealing separately with their properties, constitution, identification, and methods of colorimetry. The treatment of the subject is comprehensive, and the information always appears easy to find.

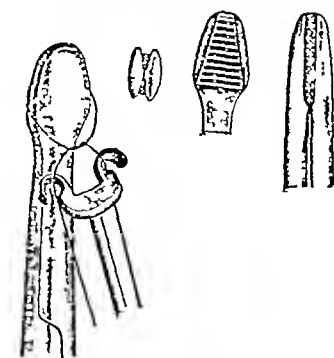
¹¹ *Allen's Commercial Organic Analysis*, Vols. v and vi. Fifth edition revised and in part rewritten. Editors: Samuel S. Sadtler, S.B., Elbert C. Lathrop, Ph.D., C. Ainsworth Mitchell, F.I.C. London: J and A Churchill, 1927 and 1928. (Med. 8 o vol v pp xii + 700 6 figures; vol vi pp ix + 658 304 each volume.)

PREPARATIONS AND APPLIANCES

ARTERY FORCEPS AND LIGATURE CARRIER FOR DEEPLY PLACED VESSELS

Mr E. MILNE EATON (London W.) writes: The forceps of which the jaws are illustrated in the figure have been designed primarily for the application of ligatures to vessels in the tonsil bed. The difficulties to be overcome are to get the loop of the ligature over the tip of the forceps without stripping off the grasped tissue and in tightening the knot to apply tension to the ligature in a direction strictly transverse to the axis of the forceps.

The terminal part of the instrument is deeply tapered and its sides are recessed to give accommodation for the lateral parts of the wedge of tissue raised from the general surface level thus avoiding its detachment in tightening the loop. The carrier consists of a short cross piece with a hook at each side and a straight stem slightly longer than the forceps with, for handle, a small roughened sphere. By its means the ligature is pushed forward into position and the direction of pull is altered to become parallel to the tissue surface.



and in the case of soft tissue such as that of the pharyngeal wall it is unnecessary to remove the forceps until the procedure is completed.

The length of the instrument is $7\frac{1}{2}$ in., but a 5 in. size is available for general surgical use. It will be found of value when owing to lack of assistance or to the site of application a ligature has to be applied without elevation of the tip of the forceps. The use of the carrier is of course unnecessary with the smaller forceps or with the larger one when applied in moderately accessible positions. The instruments have been made for me by Messrs. Mayer and Phelps, London, W.

TRIMINTRIN CAFEINÉE.

Trimintrin caféinée Dubois are pills containing 0.03 gram of liquor trimintrini (1 per cent solution) and 0.02 gram caffeine. The pills are sugar-coated with a soft centre, and are intended to be masticated. This permits the immediate absorption of the trimintrin through the mucosa of the mouth. The preparation appears to be a convenient form of medication for use by cases of angina pectoris. The distributing agents for the British Empire are the Anglo-French Drug Co., Ltd. (238a, Gray's Inn Road, W.C1).

LONDON ASSOCIATION FOR MENTAL WELFARE

ADDRESS BY DR MAPOTHER ON "THE PSYCHIATRIC CLINIC"

THE annual meeting of the London Association for Mental Welfare, presided over by the Hon. Lady LAWRENCE, J.P., L.C.C., was held at the Royal United Services Institution on June 27th.

In giving an account of the work of the year, Miss K. T. WALLAS, L.C.C., chairman of the council, spoke of the several masters which the association had to serve. A part of its work was statutory and a part voluntary. To the first category belonged the work it did for the Mental Hospitals Department of the London County Council by supervising in their own homes all cases subject to be dealt with under the Mental Deficiency Act, and by the conduct of occupation centres for these children, also work for the Ministry of Labour in the placing and after care of mentally defective boys and girls; and, further, the inquiries it made on behalf of the London Education Authority regarding children leaving special schools at the age of 16. The work for voluntary cases for which the association received a grant from the Board of Control was again many-sided including, in the first place, the aiding of those who needed care and protection to secure this through the Mental Deficiency Act as afforded by homes and institutions and the supervision of those who were to some extent able to become partially self-supporting but who without this friendly guidance, would be unable to do so. A very important feature of the voluntary side of the work was the watch and guard maintained over those who though undoubtedly weak in character and subnormal in intellect did not come within the scope of the Act and could not therefore be helped through legislative provision. During the past year roughly 4,000 cases had been assisted on the statutory side of the association's task, and 4,000 others on the voluntary side. The number of youths and girls placed in employment had been 675. Miss Wallas spoke in moving terms of many encouraging features in the work.

Lord STRATHCONA, who has lately become treasurer of the association, presented the accounts which showed an income of £6,300 97 per cent of which was in the form of grants from the public bodies just named.

An address on the work of a psychiatric clinic was then given by Dr E. MAPOTHER, medical superintendent of Maudsley Hospital. Dr Mapother defined such a clinic as an institution which attempted to carry out on a voluntary basis the treatment of curable mental disorder. The distinction between mental disorder and mental defect always rather artificial was becoming more so. Formerly there were two more or less distinct groups of cases—namely those originating before or shortly after birth and those occurring not before adolescence, the two being separated by the years of childhood. But now this fairly long gap in between was being filled up by cases of post-encephalitis lethargica and its sequels. This new state of affairs had been recognized by the law in making the provisions of the Mental Deficiency Act applicable to cases practically of adult life. Conditions like delinquency had always been common territory to mental defect and disorder, and, moreover, there were a large number of slightly subnormal people who developed acute psychoses on top of the subnormality and who came under treatment for a short time, but otherwise were able to live quite useful lives. Unless there was to be an extravagant duplication of arrangements a good many such arrangements should be common for the borderline cases of mental defect and disorder alike. In connexion with the arrangements for the treatment of mental disorder there were four main considerations: the ability of the patient to pay for his treatment, the severity of his malady (practically his certifiability or otherwise), his willingness or unwillingness to receive treatment or indifference thereto, and the question of prognosis. At present the situation was dominated by the first two of these considerations. England was about thirty years behind Germany and Holland and the most progressive States of America in respect to the arrangements for early mental cases though in respect to established cases of mental disorder there was practically no country in the world where the arrangements were as good. The present position in most places outside London—London was far ahead of the rest of the country—was that treatment of mental

disorder at public expense was only to be obtained when a case was bad enough to be suicidal, or a burden, or a nuisance. In his view the clinic might take in a certain number of cases ordinarily certifiable, such as those with suicidal tendencies, provided they were willing to accept treatment. If the psychiatric clinic was to be a training ground for such workers as those embraced by the Association for Mental Welfare—and it was the educational function of the clinic, alike for members of the medical profession and for social workers, which was of the greatest importance—it was necessary that it should cover the widest possible range of cases, so long as the principle of voluntary treatment was not infringed. As to whether the public wanted clinics, he thought the experience of Maudsley, where they had disappointed the expectations of those who had said that within two years of its foundation it would become an ordinary mental hospital for certifiable cases, supplied the answer. As for the question of cost, the maintenance of a patient in a psychiatric clinic was about the same as in a general hospital, and a good deal less than in

a mental hospital. The addition of private wards assisted considerably in reducing the overhead expenses. He thought that psychiatric clinics should be run by local authorities, without such assistance they were crippled for lack of funds, and were not able to provide the wards, personnel, and facilities. The difficulty of public apathy on all matters connected with the treatment of mental cases had to be overcome.

Dr LITITIA FAIRFIELD also added some remarks on the care of the delinquent defective, based on her experience of the female delinquent (using delinquency in the narrow sense of criminality) notified from police courts to the Mental Hospitals Department of the London County Council during the last three years. The total number of these was only 49—a very small number in comparison with the male delinquents. The crimes with which these girls and women were charged were in nearly all cases of a trivial character, obviously arising out of failure to adjust themselves to the responsibilities of life.

UNIVERSITY COLLEGE, NOTTINGHAM

THE NEW BUILDINGS

WHEN the British Medical Association held its Annual Meeting in Nottingham in 1926 members were given an opportunity of visiting the New University College Buildings, then in progress. The main buildings are now complete, and the University Park is laid out to the fullest advantage both as regards beauty and recreation. The whole city is looking forward with pleasurable anticipation to the opening of the new buildings on Tuesday next, July 10th, by His Majesty the King. An appeal has gone forward, and much has already been done towards raising the £250,000 required in endowments if the New University is to obtain its charter.

The present University College has developed step by step from the first adult school founded in this country 130 years ago by the Quakers of Nottingham. In 1877 the present buildings in Shakespeare Street were commenced, the town council of the day being pledged to give its support. The Treasury inspectors stated in the 1890 report that "the Nottingham University College exhibits the nearest approach of all colleges which we have visited to a people's university."

In the year 1913 the College Council had decided that the scope of the work of University College was extending, and that the time was approaching when every effort must be made to raise it to the status of a university. Unfortunately, the outbreak of war and the difficult post-war conditions made it impossible for them further to develop their projected schemes. Meanwhile, the ever-growing needs of the college were being met as best they might. New departments were housed in any available premises in the vicinity of the college, and the chemical, physical, and biological laboratories, though extended, had completely outgrown the old buildings.

It was at this point that Sir Jesse Boot, Nottingham's great benefactor, came forward with gifts unparalleled in their generosity. His realization of the difficulties that beset the chemical department led to his first gift of £20,000 to endow a chair of chemistry. As he came into still closer touch with the college he felt the urgent necessity of moving it from the centre of the city to some place

where there could be adequate buildings, possibility of extension, and opportunity for recreation. He then gave £30,000 to form the nucleus of a building fund, and, to make his ideal possible as he visualized it, he presented a site of almost 50 acres to be laid out as a University Park.

From that time onwards Sir Jesse Boot has not ceased giving, and the buildings, erected at a cost of £285,000, have been his princely gift to his native city. His first intention was to erect the main buildings, leaving the Great Hall and the Women's Hostel to be built later. But

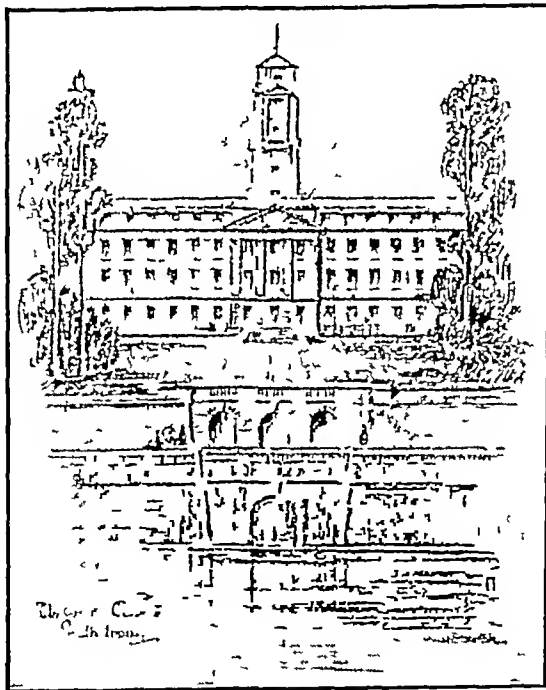
so appreciate was he of his architect and his manager, and of the skill of the workmen engaged on the building, that he promised to guarantee the cost of the building of the Great Hall if it were not possible to defray this by public subscription. His enthusiasm grew as the work progressed, and he eventually decided to bear the expense of the entire building himself.

Lady Boot, equally enthusiastic, associated herself with the work, and offered to build the Women's Hostel, for which plans had already been got out. This undertaking was estimated to cost £45,000 and it was indeed a great burden which she took from the shoulders of the women of Nottingham when she gave so generous a promise.

One of our chief reasons for coming to this decision, says Sir Jesse Boot, is to avoid confusing the public mind by simultaneous appeals both for the actual building of the university and for its endowment. We thought it would simplify matters very much if the appeal to the public could be solely for the endowment fund, and

At the moment of the opening by His Majesty the King, when the stones of the coming university are still unweathered by time, it is difficult to appreciate the full significance of this educational development. Thousands of students yet unborn will pass along these corridors and learn in the lecture rooms and wrest the secrets from Nature in the laboratories. Their work will link still more closely industry with science, add to the honour of the city, and help to increase the well being of our nation.

The whole scheme has been fortunate in its architect, Mr P. Morley Horder. The beauty of the new buildings, situated almost on the crest of the hill, can be appreciated from different points for many miles around. The campanile adds grace to a building of simple dignity. The



UNIVERSITY COLLEGE, NOTTINGHAM.

entrance hall is below this tower, the Great Hall and the library to west and east giving balance to the stately proportions of the façade. From the south front a wonderful prospect can be seen of the park, the open air swimming bath, the lake—once a pond, now a beautiful pleasure lake of 14 acres—the pavilion by the lake side, the new University boulevard, its playing fields and tennis courts, and the distant Trent flowing “sing and silver” by its wooded hills.

On the east of the entrance hall is the council chamber, oak-panelled, approached by marble corridors. At the extreme end of the east corridor is the library, occupying two floors in height and of noble proportions. The Great Hall is at the extreme end of the west corridor. It is built entirely of Portland stone and, but for the ceiling, is austere in its simplicity. A colonnade runs round the gallery, the front of which is carried out in oak. The ceiling is flat, with plaster enrichments in colour. Below the Great Hall is a lesser hall, while under the library there is the refectory, the corridor rooms on the lower floor being used as common rooms, staff rooms, and dressing rooms.

Grouped round the three courts on the ground floor are museum laboratories, and workshops. The first floor gives accommodation for lecture theatres and larger classrooms, while on the second floor are the examination rooms and private research laboratories and studies. Mention should also be made of the extensive laboratories at the disposal of the departments of physics and inorganic chemistry, each of these having an area of more than 2,500 sq ft. The crying need for these new larger buildings will be readily understood when it is realized that in 1926-27 there were in all 2,275 students at the college. Last year 68 took degrees, and 258 received diplomas.

It is impossible to mention in so short an article many of those who have been inspired by the generosity of Sir Jesse Boot to contribute to the coming University. But the citizens of Nottingham remember with gratitude the never-failing sympathy and encouragement which they have received for many years from His Grace the Duke of Portland, President of Court of Governors, nor will the name of Alderman Huntsman now Mayor of Nottingham, be forgotten. He has devoted years energy, and all the force of his own strong idealism to this project. As chairman of the College Council he has guided the destinies of the University College with a sure hand and with high hopes for its future.

Our illustration from a sketch of the South Front is reproduced by permission of Messrs Jenkins and James publishers Nottingham.

RADIOTHERAPY OF UTERINE CANCER

METHODS, RECORDS, AND RESULTS

IN accordance with a report by the Cancer Commission to the Health Committee of the League of Nations in May last a subcommission of experts was appointed to study the radiotherapy of cancer, with special reference to cancer of the uterus. Emphasis was laid in this report on the importance of collecting data from different sources regarding the methods of radiological treatment and their modern results. In addition, it was suggested by the president of the Cancer Commission, Sir George Buchanan (senior medical officer of the British Ministry of Health) that it might be well for the subcommission to take cognizance of the following points: (1) Available supplies of radium. (2) The centralization of radium in each country for the supply of the smaller clinics and individual practitioners, in the event of this being considered desirable. (3) The form of record which should be kept with the view of comparing the results obtained in different countries after some five years' observation after cessation of treatment.

The subcommission includes the following experts in radiology and gynaecology:

Professor CL. REGAUD, Director of the Radium Institute of the Curie Foundation, Paris (President).

Mr. CONYERS BEEBELEY, Director of the Gynaecological Service, Middlesex Hospital Cancer Charity.

Professor DODERLEIN, Director of the Gynaecological Clinic of the University, Munich.
Professor W. LAHR, Director of the Laboratory Research Work, the Stoto Gynaecological Clinic, Chemnitz.
Professor VAN ROOY, Director of the Gynaecological Clinic of the University, Amsterdam.
M. R. LEROUX, Chief of the Therapeutic Works at the Curie Foundation, Paris.
Professor VOLTZ, Gynaecological Clinic of the University, Munich.
Professor G. FORSSELL and Dr. HEYMAN, Radiumhemmet, Stockholm.
Professor PESTALOZZA, Director of the Gynaecological Clinic, Rome.
Dr. JANET E. LANE-CLAYTON (Investigator), attached to the Departmental Cancer Committee of the Ministry of Health, London.

The first preliminary meetings of the subcommission were held on June 18th and 19th, and were attended by the president of the Cancer Commission. Detailed consideration was first given to the nature of the information to be collected and the sources to which application should be made. It was considered necessary to obtain individual details of a numerically large series of cases of cancer of the uterus, classified according to their treatment: (a) by radium, (b) by x rays, or (c) by both, taking account only of those cases in which the treatment was completed more than three years ago, and in which the later histories were traceable, it will also be necessary to have statistical data of all observed cases in each of the clinics taking part in the inquiry. The details to be given were settled, but the subcommission left the preparation of model forms, cards, etc., to the Health Secretariat of the League, which, for this purpose, will have the advice of Dr. Lacassagne (Paris), Professor VOLTZ (Munich), Dr. Heyman (Stockholm), in addition to that of Dr. Janet Lane-Clayton, who has been appointed the technical inquiry officer of the commission for this purpose. The same group of experts will assist in the collection and codification of the replies received.

The clinics and institutions to be applied to are to be limited, in the first instance, to those which possess a sufficiently large experience, and their assistance may be invited either directly or through national health administrations or other appropriate national organizations.

As some cancer or gynaecological clinics have already expressed their willingness to co-operate in an inquiry whose practical value they recognize, it is hoped that these data may be collected without delay. It is intended that the results, when analysed, should be submitted in the form of a report to the Health Committee of the League, and published in due course. While the clinics or institutions chosen will be specially requested to follow the system of record proposed to them for purposes of international comparison, they will also be invited to summarize their own observations and views regarding the efficiency of radiological treatment in any manner which they consider may be useful to the Commission. The inquiry as such is to be limited to uterine cancer (cervix and body), but necessary information regarding cancer of other gynaecological sites may be supplied for separate study.

On the broader questions relating to the treatment of uterine cancer by radiology the president, Professor Regaud, submitted a series of considerations which, after a general discussion, were adopted by the subcommission as representing the most important directions to which its future discussions should be directed, and on which definite recommendations should be made in due course to the Health Committee with a view to publication. Among these considerations were:

1. Propaganda among doctors and the general public in order to ensure the early discovery and early and correct treatment of cancer of the uterus.
2. Increase in the number of consultation centres.
3. Organization of centres for microscopic analysis in order to ensure early diagnoses.
4. Recommendations for the organization of the correct treatment of the disease.
5. Recommendations for the radiotherapeutical equipment of clinics.
6. Disadvantages of out-patient treatment.
7. Recommendations for the compilation of reliable statistics.
8. Recommendations for special scientific research.

The Commission also noted, as subjects for inquiry, the available supplies of radium and the need for an authoritative opinion as to the advantages and drawbacks of distributing radium or radium emanations to hospitals and individual practitioners.

British Medical Journal.

SATURDAY, JULY 7TH, 1928.

AMERICAN ANALOGIES

THE resemblance between the American Medical Association and the British Medical Association is as great as the similarity of names implies: many analogies can be found in their machinery and procedure. As is only natural in a country whose population has quadrupled itself in three generations, the American body, though seventeen years younger than its British counterpart, has a membership twice or three as large, and with ampler resources it undertakes some public duties at present beyond the means of the organized profession in these islands. Apart from differences of size and scope the two Associations have a great deal in common and work on corresponding lines. With each the turning point of its year is a congress in some large centre for scientific and medico-political business, and just as our own Association is about to hold its ninety-sixth Annual Meeting at Cardiff, so the A.M.A. has lately held its seventy-ninth annual session at Minneapolis. Each also invites on these occasions distinguished colleagues from abroad. Among those taking part in the scientific proceedings at Minneapolis three weeks ago was Sir Jentah Chentle and his address on cancer is printed in the opening pages of our present issue. At Edinburgh last summer we welcomed as a delegate of the American Medical Association its president elect, Dr W. S. Thayer, Eminent Professor of Medicine in Johns Hopkins University, whose discourse at Guy's Hospital during the Richard Bright centenary celebrations appeared in these columns about the same time.¹ Professor Thayer has now succeeded to the presidential chair and his inaugural address at Minneapolis is before us.² It is a note-worthy address, eloquent, thoughtful, suggestive, and will well repay perusal in full. It surveys a great deal of ground—the ideals and characteristics of the medical profession, the specific amenities which the Association offers to its members, medical education and the organization of clinical instruction, the corresponding training of nurses, the relation of the practitioner to communal health activities and lay public health organizations, the effects of the growth of specialism and the elaboration of diagnostic methods on professional relationships. Many wise words are said on these subjects, and they serve to bring out the essential similarity of views, aims and methods of the American and the British Medical Associations, together with some not unimportant differences in the conditions under which they work in the Republic and in the Empire.

The American Medical Association has in the United States to perform the functions not only of the British Medical Association but also as far as possible, of our General Medical Council. It has to be the great guardian of the standards of medical education and of medical conduct in the interests of the public. Its task in this regard is not easy, and without its influence both these standards would be lamentably lowered. Though in Great Britain these matters are the prime duty of the General Medical Council, it must not be overlooked that the British Medical Association is in no small degree also con-

cerned with them. It is a powerful means of formulating and encouraging correct professional behaviour, and is constantly vigilant, so far as the imperfect constitution of the General Medical Council will allow, in securing that, in the matter of medical education, the views of those who are trained receive consideration as well as the views of those who conduct the training. Professor Thayer refers to the admirable report of Mr. Abraham Flexner on the medical schools of America, and to Sir Andrew Macphail's address on "American Methods in Medical Education," which was printed as the principal article in our last Educational Number,³ and he well reminds us of the influence which general professional ideals must have upon education as well as upon conduct, and of the reciprocal influence of a wide basic education upon conduct and ideals. Even within the bounds of strictly medical training the specialist who has not had a good basic medical training is a danger to society. 'Too early specialization is one of the great faults of American education.' With us it is perhaps not so much too early specialist training as the absence of some degree of wider medical experience which is the danger in the development of specialism.

The spread of specialization is causing great changes in medical practice. Both the time and the expense entailed by a complete physical investigation of a patient have much increased, and there is a marked tendency towards group practice and co-operative clinics. Professor Thayer warns us that this is not always wise, in so far as it diminishes the opportunity for the exercise of the most vital and important element in the practice of medicine—the human influence, the close personal association between doctor and patient. Experience and wisdom are worth many instruments. Our main functions, our immediate duties, are 'to care individually for our patients, to treat them when ill, and to give them such advice that they may preserve their good health, to prevent the spread of disease from our patients to others within the household or outside, to co-operate in every respect with local boards of health in the early reporting of registrable disease and through scrupulous attention to all prophylactic measures.' Professor Thayer adds some wise words, useful here as well as in the United States, with regard to the wider duties of the medical profession in relation to public health. He reminds us that we share these duties with the public. It is on the medical profession that the burden of special competence, and therefore of special responsibility, lies. Individually and collectively we are especially qualified to advise the public in these matters. We must seek to direct the public toward sane and efficient action. Yet 'in the broader matters of public health the public has the same right, after seeking what advice it will, to take just what action it chooses: neither as individuals nor as an association have we the right to demand that the public accept our views.' Members of both Associations, impatient to realize their ideals and zealous in professional and public interests are liable to forget this truth. Both these great medical Associations are in a peculiarly delicate position. 'Do what we will we shall be accused of selfishness, of attempting to protect our own personal interests, of using our power as an organization to oppress others. We must be careful to see that such reproaches are wholly unjustified. The rarest and most valuable of human qualities is the ability to square one's ideals with the realities of existence. We must as a profession and as an association make this effort.'

¹ *British Medical Journal* July 16th 1927 p. 87.

² *Journ. Amer. Med. Assoc.* June 16th 1928 p. 1917.

³ *British Medical Journal* September 3rd 1927 p. 373.

Happily, the history, the work, the accomplishments of both the Associations show that such accusations are, in fact, without foundation, and that, in maintaining the honour and interests of the profession, there has been equal care and success in the advancement of medical science and the promotion of the public good.

Professor Thayer's final appeal to certain members of the profession is worth quoting in the hope that it may not be without its effect in relation to the British Medical Association. In this life," he says, "there are always those, often superior men and women, who are so occupied with their special interests and pursuits that they lose touch with the larger activities of life. Such are very likely, subconsciously, to manifest a certain impatience with public movements and discussions. From the privacy of their peaceful abode they are prone to regard with suspicion and distrust those who enter into public life. There are such men in our own profession who, rarely departing from the quiet round of their existence, look on those who direct the functions of this body with something of suspicion. I wish that some of these men might have the opportunity that has been given to me to see the working of the central organization of this Association. They could only feel, as I do, a sense of the deepest admiration for the character and devotion and idealism of those men who represent us and they could not fail to marvel at the magnitude and the beneficence of the work they have accomplished and are accomplishing."

POOR LAW AND LOCAL GOVERNMENT REFORM

THE Minister of Health has just issued to local authorities a Parliamentary Paper¹ expounding the third but not final, version of the Government's proposals for Poor Law and other local government reforms. The first version was described in our issue of December 12th 1925 (p. 1136). In this connexion a special committee was set up by the Council of the British Medical Association early in 1926 to watch the matter, a memorandum on the subject was prepared and this memorandum and the comments of the Committee on the Minister's tentative proposals were endorsed by the Council a little later and by the Representative Body, after a full discussion (reported in the *Supplement* of July 31st 1926) at Nottingham. A revised scheme, in many respects differing radically from the first was set out in an official memorandum with a covering letter to local authorities issued by the Minister in June of last year. We printed two articles describing and commenting on this second scheme in the *Journal* of June 11th 1927 (p. 1073) and that of July 2nd, 1927 (p. 21). The Association welcomed and gave a general approval to the first set of proposals as going a good way towards that simplification and even unification of administration in matters of health which has for so long been the policy of the Association. Two important objections in detail were however, raised that there was no compulsory co-option of medical representatives and other suitable persons on the statutory committees dealing with health matters including those transferred from Poor Law administrations and that county councils were to be given a general supervising power over and responsibility for, the administration of health services in the hands of all borough and urban district councils, within the county. We expressed profound dis-

appointment with the second set of proposals as seeming to abandon—except in county boroughs, and even there with qualifications—this main principle of unified administration. Boards of guardians were not to be abolished, then areas and methods of election were merely to be modified. Rural district councillors were to be perpetuated as ex officio guardians, and though greater freedom in the use of institutions was to be brought about, their financial and general administration was to become even more complicated than at present. These and other defects seemed to us to make the second scheme not worth having in county areas.

The third set of proposals just made public by the Minister of Health, is now placed as an integral part of the whole policy of the Government for rating and local government reform. It is intended to be judged along with the relevant proposals of this year's Budget and with the Rating and Valuation (Apportionment) Bill now before Parliament. The proposals are not final, they are presented for the information and consideration of local authorities and other bodies directly concerned therewith, and discussions between such bodies and the Ministry of Health during the next few months may be expected to result in some modifications, perhaps of considerable importance, in detail. It may be said at once, however that this third scheme, so far as it relates to Poor Law reform and consequential modifications of health administration, approximates much more closely to the first of the earlier schemes than to the second, and it will almost certainly, therefore, be found that the British Medical Association will welcome it and be in a position to give it as a whole its cordial support. The ill advised proposal of the first scheme, to which we have alluded, that county councils should have supervision of and responsibility for, the health administration of urban authorities within their area, does not appear to have any place in this third version. Boards of guardians are definitely to be abolished and their functions transferred *in toto* to county councils and county borough councils. Each county and county borough will be a complete unit, and the council of each such authority will be required to prepare, in anticipation of the date of the Act coming into operation, a scheme of the administrative arrangements which it will make for the discharge of its new functions. Every such scheme will be subject to the approval of the Ministry of Health, and before this is given there will be an opportunity for the representations of other authorities and of persons interested to be considered. It is intended that there shall be a good deal of freedom and elasticity in the formulation of these schemes, but the Parliamentary Paper gives definite indications of some of the things they should provide for and of the arrangements which would probably be favoured as convenient and proper. Much, therefore, will depend upon the action of county councils and county borough councils but if they act in accordance with the indications given, and in the spirit of the Government memorandum a great advance will have been made in the direction desired by the British Medical Association.

Three important points to which attention should be particularly directed are (1) distribution of functions (2) delegation of functions (3) co-option of members on administrative committees. In none of these directions is there to be the compulsion which the Association would have preferred, but all of them are to be within the power of the councils and the Ministry indicates that it may in most cases be desirable to adopt them. This is obviously true. For

¹ Stationery Office Cmd. 3134 1s net.

a council simply to hand over the transferred functions (apart from the power of raising a rate or of borrowing money) *en bloc* to a new committee instead of referring the health functions to its Health Committee (or Maternity and Child Welfare Committee or Mental Deficiency Committee as the case may be), the education functions to its Education Committee, and the assistance functions to another committee, would be to reduce all advantages of the reform to a minimum. Not to use the power of establishing local subcommittees for suitable areas in a large county would clearly be a mistake. Further, where in a county area there are non-county boroughs or urban districts of suitable size which are themselves authorities for health, education, maternity, and child welfare or other such purposes, it would result in a lamentable confusion and overlapping if the county council did not delegate the appropriate functions (apart perhaps from residential institutional provision) wholly to such authorities. Again, if, with all this extra work thrown upon it, a council did not utilize on its committees and subcommittees the services of interested and experienced persons, including members of the medical profession, who did not happen themselves to be members of the council, much valuable help would be wantonly lost and the work would probably be done less efficiently. It appears certain, however, that no council is to be obliged to adopt these desirable methods, and it may therefore be necessary in some cases to bring persuasion and even pressure to bear in order to secure their adoption. It may be added that it is proposed to provide that existing Poor Law officers shall be transferred to the new authorities or that proper compensation shall be paid. Some modifications of the proposals will be required in their application to London and to Scotland. In London the Metropolitan Asylums Board will cease to exist, and it is proposed that in Scotland—as in England and Wales since 1902—the separate education authorities shall also disappear, their functions being transferred to the main local government authority of the area.

Besides explaining this scheme for the reform of the Poor Law and of local health administration, the Minister's memorandum also deals with highway administration and with financial proposals with regard to rating reform and grants from the Exchequer for local services. These are, of course, of very great importance, but, though no doubt many of our readers will be interested in them, they are not the particular concern of the medical profession as such. A somewhat elaborate formula is given whereby the appointment to areas of the new and greatly increased grants in aid is to be made. This will not be fully understood by the uninitiated, but it may be of some interest to note that its main features are very similar to those of a suggestion made some fifteen years ago by Dr Brackenbury in connexion with evidence given before an interdepartmental committee on education finance. He suggested that the chief factors in such a formula should be (1) population, (2) proportion of children up to 14 years of age to total population, (3) rateable value per head of population below a certain figure, (4) in sparsely populated areas the number of persons per acre. In the formula now put forward for the wider purpose these are the factors, but the proportion of children below 5 years of age is taken instead of up to 14 years, and the sparsity is judged in reference to mileage of roads instead of acreage. There is also now added a further factor relating to the figure of unemployment in each area.

THE PSYCHOLOGY OF THE SICK

SIR FARQUHAR BUZZARD, Regius Professor of Medicine in the University of Oxford, gave an address some weeks ago to the Royal Institution on "The psychology of the sick," and the text of this has now been printed in pamphlet form. His first object was to show how great a motive all health had been behind man's desire and man's search for knowledge about himself, his structure, and his functions. It might be questioned, he said, whether mere curiosity, without the stimulus of ill health, would have afforded the necessary incentive, whether, for instance, we should not still have been ignorant of the composition and activities of the gastric juice had not indigestion marred the happiness of countless lives. Disease, indeed, had not only prompted research, but had provided man with much of the material essential for his investigations. At every step in the progress of biology careful observation and study of the abnormal had given us the means by which our conceptions of the normal could be controlled and checked. Conduct and behaviour, as the expressions of mental activity, had hitherto been regarded as the special province of the psychologist, but evidence was accumulating to show that such study must depend in the future more and more on the co-operation of workers in other branches of science. Sir Farquhar Buzzard reminded his hearers of certain salient features pertaining to the normal anatomical and physiological development of the brain and how, as in the animal scale, so in the course of the growth of each human being, a close parallel was found between the degree of development of the brain and the degree of development of intelligence or mental capacity. The newborn infant possessed a brain not only smaller but more primitive in structure than that of an adult, large numbers of the nerve elements were immature and therefore incapable of taking their part in those activities for which they were destined. The development of these elements continued far into adult life, and corresponded with the increase of knowledge and expansion of intelligence characteristic of these years. After middle age the multiplication of processes and the formation of new links between various centres gradually ceased and the mind became less and less capable of acquiring fresh knowledge or of making novel adjustments. After presenting in outline the life history of a normal human brain and a normal human mind, the lecturer went on to discuss those agencies which disturbed the stream of mental and moral progress, and later the structural changes found in the brain in association with those disturbances, illustrating and illustrating the law whereby those functions of the brain acquired most recently in time, and most highly specialized or complex in character, were the first to fail and the last to recover. Passing next to the associated psychical and physical disorders attendant upon disease, Sir Farquhar Buzzard spoke of the effects produced on the brain and mind in sufferers from encephalitis lethargica—a subject dealt with at length by Dr Allan Parsons in the report of which a notice appeared in our last issue at p. 1122. In this disease any part of the brain might be attacked, and all forms of paralysis, blindness, deafness, loss of speech, and of mental faculties were, from time to time, left in its train. One group of cases called for particular attention, a group consisting of children of school age who had been bright, well conducted, and of average ability and character, and whom this disease had left not physically impaired, but hopelessly lacking in moral sense and responsibility. After demonstrating by lantern slides the relationship between disorders of mentality and structural changes in the brain, Sir Farquhar Buzzard concluded his address by stating that the evidence drawn from pathological sources warned us that we could not remember, recognize, reason, or

express ourselves unless our brains were structurally healthy and intact, and that there were material alterations of structure, physical or chemical in origin, underlying and perhaps even determining the psychology of the sick

LINACRE'S INFLUENCE ON ENGLISH MEDICINE.

THOMAS LINACRE (1460-1524), the prototype and father of the scholar physicians in this country, exerted a lasting influence on medicine by founding the Royal College of Physicians of London in 1518, and brought the spirit of Greek learning into the intellectual life of the country. By his will he also established lectureships at the two older universities, but unfortunately these did not fulfil the intentions of the pious founder for example, at St John's College, Cambridge, the lectureship became a college appointment and largely a sinecure, twenty years ago, however, the character of the office there was changed, and a distinguished leader in medicine was appointed each year. In 1908, as the first lecturer under the new regulations, the late Sir William Osler gave an account of Thomas Linacre's life, of his activities as a medical humanist and a grammarian, and of the history of the Cambridge foundation, in 1913 the late Sir Norman Moore discoursed in his inimitable manner on "The Physician in English History," and on May 5th last Sir George Newman read an essay, both learned and delightful, on Linacre's influence on English medicine, which has just been attractively printed for private circulation as a pamphlet of 37 pages. Though the subject is much the same as Sir William Osler's it is treated on different lines, and the reader realizes that these two scholarly essays are complementary to each other. Going to Italy with a scholastic grounding in the classics Linacre brought back to England a living comprehension of the service which pure Hellenism could render to English medicine, of the essential importance of Aristotle, and of the necessity of a re-orientation of medical knowledge as transmitted by the Arabs. In conclusion, Sir George Newman points out that, although Linacre and his pupil Sir Thomas More knew that the future well-being of the English nation lay with simple methods of prevention, this practice is still widely disregarded. Readers of the author's book of essays, *The Interpreters of Nature* published last year and reviewed in our issue of April 30th, 1927 will naturally hope that in its second edition the Linacre Lecture of 1928 will be included.

MEDICINE AND FLYING

SIR SAMUEL HOARE, Secretary of State and President of the Air Council after presenting the prizes at the London Hospital Medical College and Dental School on June 29th, made some interesting remarks on the contacts between the new profession of flying and the ancient profession of medicine. He said that there was no profession in the world which demanded a higher standard of physical and nervous efficiency than flying. As the Royal Air Force had developed, the old tests which had proved sufficient for the Army and Navy were quite out-distanced, and it was soon evident that the man who had what the insurance companies would call a first-class life was by no means necessarily a good pilot. Other tests had to be superimposed, and the medical officers of the Air Force had accordingly gone to work in a special way. Instead of merely ascertaining that a candidate for a commission was free from any obvious disability or disease, they had worked out some special tests for the efficiency and co-ordination of brain, eye, hand, and foot. Sir Samuel Hoare mentioned that a short time ago he himself went through these tests, and he was glad to report that, notwithstanding five years' work in the Cabinet, his eyesight was classed in the same category as that of Mr. Jack Hobbs, the well-known professional cricketer, who had

been examined shortly before. But he was excelled by Lady Maud Hoare, who accompanied him in his flight to India and back, in respect of co-ordination of movements of hands and feet, excellences which he attributed to her habit of continual motor-driving in London. The tests applied to candidates at the medical stations were supported in a remarkable degree by reports received afterwards from the units to which the newly commissioned officers were sent. This series of tests had been developed, not from theory, but from practice. The men who had proved themselves to be the best pilots were taken and their qualities analysed, and the result of the analysis was made the standard for application to subsequent candidates. Sir Samuel Hoare pleaded that the medical services of the Air Force should be considered not only as an integral part of the 'new arm,' but as an important branch of the medical profession. He mentioned also the services which the aeroplane itself was rendering as an instrument of first aid. During some recent military operations in a difficult mountainous region of Kurdistan, about one hundred men of the regiment fell ill of dysentery. Thanks to the Royal Air Force, every one of those men was transported with the utmost swiftness to the hospital at Baghdad—an operation which otherwise than by air would have involved days of painful journeying—where they all completely recovered. One of the principal sheiks of the desert, a man who had lived his life under similar conditions to the patriarchs of the Old Testament, went down with pneumonia. An aeroplane was sent to his assistance, he, too, was conveyed to the hospital at Baghdad and made a good recovery. The aeroplane, besides being an instrument of defence and of civil transport, was specially well adapted for ambulance purposes. Some of the fastest aeroplanes were now being equipped in such a way that they could easily accommodate stretchers, and Sir Samuel Hoare said that he himself had recently flown in one of these machines a distance of two hundred miles in sixty-eight minutes.

A CAROTID RESPIRATORY REFLEX

THE exaggeration of the respiratory movements caused by pressure on the side of the neck was formerly attributed to stimulation of the vagus nerve, recent investigations, however, by Drs. D. Danileopolu, I. Marcus, G. G. Proca, and E. Manesco of Bucarest have thrown some doubt upon this explanation. In a preliminary note published last year in the *Revista Stiintelor Medicale* they ascribe this respiratory reflex to mechanical excitation of the carotid sinus. They found that this phenomenon, together with the alterations in cardiac rhythm, blood pressure, and contractility of the stomach which accompanied it, could only be produced by pressure at one spot just below the angle of the jaw. Though the pneumogastric is accessible to the finger below this spot, pressure on the lower part of the nerve did not produce the reflex effects. By means of experiments on dogs the observers satisfied themselves that the starting place of this phenomenon was the bifurcation of the common carotid artery, which corresponds with the spot just below the angle of the jaw. From their experiments these observers have arrived at some preliminary conclusions. They have found that mechanical irritation of the central end of the vagus will only produce alteration in respiration if it is exceedingly intense, and then merely to a small degree. Anatomical examination of the nerve supply of the carotid sinus, though not yet complete, has shown the presence of filaments from the superior cervical ganglion, from the upper part of the trunk of the vagus, and from the glosso-pharyngeal nerve. The area of distribution of these filaments is very susceptible to pain, even in dogs under the influence of morphine. Surrounding areas are by no means so sensitive. When the carotid

sinus was carefully exposed in morphinized dogs, pinching with the fingers readily provoked the respiratory reflex, and as the phenomenon occurred whether the common carotid were tied or not, it could have nothing to do with the cerebral circulation. The observers have convinced themselves that the reflex is started in the tunica intima of the artery, and at a particular spot in the carotid sinus. Though excitation of the sinus, either from within or without, may lead to pain, the respiratory reflex itself is not painful. In connexion with their experiments on the tunica intima study was made of the vascular depressor reflex described by Hering as being caused by mechanical irritation of the internal wall of the carotid sinus. It was found that the reflex could be conducted by a sympathetic or a parasympathetic route, with correspondingly different results, and it is proposed to term it the pressor-depressor carotid reflex. It is suggested, as a result of these investigations, that the dyspnoea of effort may have its origin in excitation of the carotid sinus region, and that there exists in the arterial tree a reflex producing zone able to regulate the cardio-vascular circulation, the functions of the respiratory centres, and possibly even other vegetative functions in the body. So far very little study has been undertaken of the relation of the reflex to pathological conditions, but the present authors have noted in an old case of encephalitis that compression of the carotid sinus produced a prolonged period of apnoea instead of the normal effect

THE NATIONAL PHYSICAL LABORATORY

SOME hundreds of visitors journeyed to Teddington on June 26th, when the National Physical Laboratory was thrown open for inspection. They were received by Sir Ernest Rutherford, chairman of the general board of the laboratory, Sir Richard Glazebrook, chairman of the executive committee, and Sir Joseph Petavel, the director, and were then allowed, under most competent directions, to wander over the laboratory. The laboratory, we may recall, is not a single building, but an estate of perhaps fifty separate buildings, divided by roads, some of which bear such names as Kelvin and Rayleigh Avenues. The work of the laboratory has often been described in these pages in connexion with the annual reports which emanate from it. It is an extraordinarily varied and impressive work, and to the man whose bent is for physics and mechanics it must offer as many exciting points as the zoological gardens to a small child. Not many of the researches which are proceeding have a bearing upon medicine. There is, of course, the routine testing of clinical thermometers and the visitors were introduced to the groups of patient ladies who are engaged upon this rather drudging toil, ascertaining and registering the accuracy of the thermometers to the number of something like two thousand a day. The testing of x-ray protective materials goes on continually, and specimens of the cements and plasters which are advised for lining the walls of x-ray cubicles and departments were on view. Other features of interest to the x-ray worker were the testing of pastilles, the experiments (still in the preliminary stage) on the ionization standard of x-ray dosage, the alpha ray testing of radioactive materials, the gamma-ray testing of radium, and some apparatus for the ready identification and measurement of radium containers. These, however, are all side-shows in comparison with the great work of the laboratory in aerodynamics, engineering, and electro-technics. The wind tunnels in the aerodynamics department, where experiments are proceeding on interference effects which have a close bearing on the control of aero planes, excited a great deal of interest, as did also the high-voltage building, with its power equipment, and the illumination building, where the efficiency of light wells

in buildings is being measured and the reflection characteristics of road materials are under investigation. The great purpose of the whole laboratory is measurement from the standardizing of wrist watches or aneroid barometers to the gauging of radio-frequencies of 50 million cycles per second.

DAWSON WILLIAMS MEMORIAL FUND

WE again remind subscribers to the Dawson Williams Memorial Fund that they are invited to attend a general meeting at the house of the Royal Society of Medicine (1, Wimpole Street, W.) on Tuesday next, July 10th, at 5.30 p.m., to hear a statement by the honorary treasurer (Sir St. Clair Thomson) and to consider the form which the memorial shall take. The recommendation of the organizing committee is that the memorial shall be a prize, to be awarded every two years or at longer intervals, for the best work which has appeared on pediatrics since the previous award. Disease in childhood was the branch of medicine which engaged Sir Dawson Williams's earliest interest, and this special interest continued right through a career which necessarily involved a close acquaintance with every side of medicine. The meeting will also consider the arrangements as to the trusteeship of the fund and the appointment of auditors. It is hoped that as many subscribers as possible will attend the meeting or make known their preference in order that the memorial may go forward with the full approval of all those whose gifts have made it possible. At the time the circulars summoning the meeting were issued the net amount to be invested stood at somewhat over £800, but it is possible that the announcement of the closing of the list on July 10th may bring forth a number of delayed contributions. Cheques should be sent to the honorary treasurer, Sir St. Clair Thomson, at 64, Wimpole Street, W., before the date of the meeting.

THE TRUDEAU MEDAL

IN connexion with the announcement in our issue of June 23rd (p. 1097) that Sir Robert Philip has been awarded the Trudeau Medal, it should have been mentioned that this medal is the gift of the American National Tuberculosis Association and was founded in memory of Edward Livingston Trudeau, its first president. This association is the largest national organization of the kind in the world and is representative of all that is most authoritative on the subject of tuberculosis in the United States. This fact still further enhances the value and importance of the award of the Trudeau Medal to the President of the British Medical Association.

WE regret to announce the death, on July 1st, in his seventieth year, of Dr. E. M. Crookshank, F.R.C.S., Professor of Comparative Pathology and Bacteriology at King's College, London, and for many years a prominent member of the Court of Governors of the Royal Veterinary College, Camden Town.

IN the Supplement this week we publish again the provisional programme for the Annual Meeting of the British Medical Association at Cardiff, with additions and corrections received up to the time of going to press. Arrangements for the scientific and clinical work of the meeting on July 25th, 26th, and 27th are now almost complete, and it will be seen from the detailed announcements under each heading that a wide range of interesting subjects of practical importance will be discussed in the eighteen sections. Members who have not yet secured rooms should read the notice about accommodation in and near Cardiff printed at p. 6.

THE PLACE OF THE VOLUNTARY HOSPITALS IN RELATION TO HEALTH SERVICES

SIR THOMAS HORDER, Bt, K C V O, M D,
F R C P,

PHYSICIAN TO ST BARTHOLOMEW'S HOSPITAL

I ASSUME that thirty five years of close and continuous association with one of the large voluntary hospitals, as physician and as teacher, has been considered to fit me for speaking on certain aspects of this difficult but important subject. I do not dispute the reasonableness of this view. A man must be obtuse indeed if he has nothing he wants to say, or no observations to make that are worth listening to, in connexion with a subject in which the institution where he has spent so much of his life is so closely involved.

But I must make it clear that there are many points in connexion with the thorny problems which face your association concerning which I cannot help you, nor am I so presumptuous as to try. Yet it was probably apparent to the council, in sending me this invitation, that the practice of medicine and the making of doctors are matters intimately bound up with the existence and with the fate of the voluntary hospital. Also that the exercise of these two functions imposes upon every thoughtful man and woman engaged in them the clear duty of associating himself with you in finding satisfactory solutions to the problems presented to you.

For many years I have been deeply impressed by the whole nexus of co-ordinated human effort represented by the institution which has, from long association, won not only my deep affection but also my utmost admiration and respect. The business acumen of its governing body, the administrative ability of its lay staff, the whole-hearted devotion of its multitude of loyal friends and supporters, the ample scope it affords for the pursuit of medical research and progress, the complete training ground it furnishes for the education of medical men and of nurses, and, finally the confidence which its prestige inspires in the hearts of its patients—all these things combine to make a large voluntary hospital a unit of singular and enormous value in the social economy.

The committee of the medical council of my hospital, appointed to consider the letter from the Ministry of Health with which we are all here now so familiar, in their report, which was sent to the governing body, proudly drew attention to the fact that St Bartholomew's Hospital is in no sense a local hospital, but rather a national institution. I would go further. I would say that St Bartholomew's, like every one of our voluntary hospitals with attached medical schools, is an international institution. This fact was demonstrated a few weeks ago, when delegates from over forty nations collected in the great hall of Harvey's hospital to do honour to his work and to his memory. And there are voluntary hospitals for the treatment of special diseases both in London and the other large centres of Britain, without schools, yet possessing great and wide reputations, partly because of the high standard of the work done in them and partly because of the distinction of members of their visiting staffs.

The Bogy of State Control

There are some who fear that the voluntary principle underlying these great institutions, and under the aegis of which so much work and progress are possible, is in danger of supersession by State control. I think this is a bogy. I find it impossible to believe that any statesman can sincerely consider such a step. Quite apart from the fact that the Minister of Health has so many irons in the fire that he is continually in danger of leaving one or two of them to get quite cold—a notoriously unpopular thing to do—and therefore has little enough room for such a large iron as this would prove to be, I credit him with too much desire for efficient medical service for the nation to wish to demolish the edifice which is, of all edifices yet built

with this purpose in view, the most efficient. That we should wish to co-ordinate the national health services seems reasonable, but to hinder his bureau by instituting State control over institutes so firmly established, and so generally acknowledged to be effective, as are the large voluntary hospitals of the country, seems to me the least likely thing to attract him.

For some time after the war the greatly increased expenditure of the voluntary hospitals certainly tended to increase the fears to which I have referred, and suggestions of State subsidies naturally furthered these fears. But that time of stress has fortunately passed and the balance sheets of most of these institutions have in recent years shown a much healthier state of affairs. It is worthy of notice in this connexion that if we consider the sources of income, this improvement is not so much the result of increased donations and subscriptions as it is of actually earned income. In the case of quite a number of the voluntary hospitals the receipts on account of services rendered actually exceeded those from voluntary gifts in the year 1926. And in one case the receipts from public authorities alone amounted to a figure much less than that from total voluntary gifts. Thus it seems clear that, in an indirect fashion, the voluntary hospitals are receiving State aid, and that to a not inconsiderable degree. In other words, they are being paid for work done a principle which must surely receive our commendation, and we may trust the public to imitate Divinity in helping those who help themselves, rather than remove its support when it discovers that the "voluntary principle" has changed somewhat in its connotation.

Centres of Health Services

And yet these fears of which I spoke have not departed, indeed, they have reemerged of late, because, in his desire to ventilate certain difficulties relating to other parts of the national health services, the Minister has, not unnaturally, cast his eye upon the voluntary hospitals, and has considered what relation they might bear to a co-ordinated scheme. But we should not, I think, read more into such a survey, or into the questionnaire which he has issued through his permanent secretary, than this. It is clear that no such scheme can possibly be considered without reference to the part that may be played by the largest and the most active units now operating in regard to the study and the treatment of disease. The chief aim of a Ministry is to foster and to encourage rather than to control. Reform of the Poor Laws and co-ordination of the health services go naturally hand in hand. In attempting these things it is a statesmanlike thing to proceed from the centre outwards. The centre is the voluntary hospital system, and the Minister begins by inquiring to what extent and in what manner he may expect help from this quarter. This is how the present position appeals to me.

We cannot, any one of us individually, decide upon the degree to which co-ordination is necessary, since conditions vary so much in different places. The Minister of Health and his chief officers are alone able to say how much need there is for fresh organization, for they alone are able to visualize the whole position. By its regional committees, however, the British Hospitals Association should also be cognisant, to a very large extent, of the gaps and the overlapping in various areas. The association can therefore render valuable aid to the Minister in this respect.

There are some reforms which make an appeal to all of us. Of the alleged shortage of beds in the voluntary hospitals I am not very competent to speak. But that the large number of beds in the Poor Law infirmaries should be more efficiently utilized, and should receive more definite and more systematic medical supervision, is clearly desirable. Neither destitution nor senility should constitute a bar to thorough medical treatment. Nor should they of themselves qualify for beds that are badly wanted for sick persons. A revision of the Poor Law infirmary wards might well lead to the utilization of some of the beds, in close association with the voluntary hospital of the area concerned, thus allowing of a natural expansion of the voluntary hospital without incurring heavy additional capital expense. Certain types of case might with advantage be drafted into these remodelled Poor Law

wards, such as cases of inoperable cancer, of chronic diseases of the heart and kidneys, and of chronic arthritis. To the advantage of such an arrangement in relation to medical research, and to medical education, I shall refer later.

Problems in Country Districts

In London and the large centres the question of overlapping, with consequent duplication of effort and wastage of material, scarcely arises, but this is no doubt an urgent problem in the country districts. How best to deal with it lies outside my special knowledge. This is an example of the fact that we are not faced with one inclusive problem but with many different problems. Indeed, each area has its own problems and each area is best competent to solve its own problems. Two great principles, it seems to me, should guide us. So far as London and the other great centres are concerned we should not consider decentralization a deterrent to progress, but rather a stimulus to it. So far as the country areas are concerned, combination and co-ordination are the great needs. These two processes are mutually complementary and the operation of them, conducted skilfully and with foresight, should effect solutions to most if not all, the problems that arise.

Perhaps one of the most urgent of all our problems is the provision of adequate medical and surgical treatment for middle-class patients of limited means. This is a crying need. We in London have no alternative between the general wards of a large hospital and a private nursing home where, often enough, the cost to the patient is absolutely prohibitive. In other large centres the state of affairs is much the same. In the country districts these patients are often better catered for, many cottage hospitals having a few small rooms where such persons can be treated for reasonable fees. It should be a *sine qua non* in the reconstruction of every large hospital that an annex for "paying patients" is included in the lay-out. Administered with the same business ability shown in running the general wards such annexes might be made to pay a handsome sum annually to the hospital exchequer. Here is a reform that can be proceeded with at once, without waiting for Poor Law reform to give the voluntary hospitals power to act.

There is also need for considerable extension of the convalescent homes in connexion with the large voluntary hospitals, but the patients at these homes should be under fuller medical supervision. This would admit of a quicker turnover of cases in the parent hospital, where many patients are kept during the convalescent stage of their disease, thus blocking the beds for more acute cases. The system of pooling the beds at these homes seems, for reasons that are obscure to me, to be much less in operation than I should think possible and desirable.

Health Services and Medical Education

When I said, at the beginning of my remarks, that the problems of co-ordination of the health services have a bearing upon medical education, I had in mind the extra teaching facilities that such co-ordination would yield at all periods of the doctor's career. There are three such periods in medical education, and at each period the voluntary hospital has, up till now, provided almost entirely the material and the opportunities for the medical man's training. There is the education of the student prior to his qualification, there is the valuable experience which he gains by holding a resident staff appointment immediately after qualification, and there are the "refresher" classes and demonstrations which are so essential to the maintenance of his efficiency after he gets into practice, and which are summed up in the term "post-graduate" medical education.

It may be thought that during the first of these periods further co-ordination of the health services offers very little by way of extra facilities to the medical student's training. But this thought is superficial. It is quite true that this is a period of intensive culture, and that the time of the embryo doctor is very largely taken up at the centre of tuition, which is his medical school and hospital. But even at this stage the sphere of his education might be enlarged profitably if some of the ideas recently mooted were brought

into effect. All the obstetric, and even much of the gynecological, practice might go on in certain wards in municipal hospitals, and thus offer a good field for teaching. The same principle might apply to certain plastic operations, as for hernia—for which, by the way, there is said to be a definite shortage of beds in the voluntary hospitals. Again, what could be more useful to the student than a series of demonstrations upon the diseases and disabilities of old age? And where could anything like such good material be found for this purpose as in the Poor Law infirmaries? The types of clinical material which would be rendered available for tuition in the municipal hospitals might easily be amplified, so that, just as the medical student in London has, for some time past, gone to hospitals under the Metropolitan Asylums Board for special instruction in fevers and in lunacy, so he will, perhaps, in the future go to similar institutions for other, and equally important, branches of his study.

More Resident Appointments

When we turn to the second stage in the doctor's training—the preparation of the qualified medical man for more efficient practice than his mere diploma gives him—we can visualize under a co-ordinated scheme, a much larger number of house appointments, whether resident or not, than is now open to him. The value of these would be quite incalculable. It is my lot to meet many practitioners up and down the country and to discuss their patients with them. The difference in efficiency between those who have, and those who have not, had the immense advantage of holding house appointments is very striking, so much so that it is not very difficult to grade these colleagues according to this very point. Close contact with hospital management, the sense of responsibility, the daily intercourse with their seniors, the discussions with their fellow-residents, the conduct of emergencies—these are some of the great benefits which the holding of such a post as house-physician, house-surgeon, or resident medical officer confers, and which helps to make the doctor competent, reliable, and tactful when he comes to engage in actual practice. Any organization of the health services which multiplies these posts, whether in the large centres or in country areas, would add greatly to the total efficiency of medical practice.

But it is probably in the third stage of medical education, that of post-graduate tuition, where we may foresee the greatest good to ensue from a well-planned scheme of hospital co-ordination. And this applies, as in the second stage, both to the centres and to the country districts.

The seemingly indefinite postponement of a large and adequate system of post-graduate education in this country is, to my thinking, a matter for grave concern, and the present hold up of the scheme when had been evolved as the result of the work of the Departmental Committee of the Ministry is a source of great personal regret. That London, the centre of a great empire, should still lack such a scheme *in esse* is an astounding anomaly. There are tears for these things, but I must not depress you to-day, you have troubles enough of your own!

Post-graduate Study Facilities

Assuming that we do some day get seriously to work on the matter, it is generally agreed, following the work of the Athlone Committee that a complete post-graduate clinical unit or hospital is essential, since the segregation of post-graduates from undergraduates seems imperative to a successful scheme. The linking up of such a unit with certain of the Poor Law hospitals would provide excellent facilities for post-graduate education, and the staffing, the pathological investigations, and the operative work might well be undertaken by the central post-graduate institution. Following such an institution in London would naturally come affiliated post-graduate hospitals in other large centres. The present tendency towards the introduction of an earlier retiring age for members of the staff at the undergraduate teaching hospitals flies a number of men who have had great experience in medical education and practice for engaging in just this class of work, and a panel of such teachers would

be available both for the central institutions and for travelling to the smaller areas, where a rota of lecturers and demonstrators might be in operation. In most of the large provincial towns, again, there are senior men with considerable hospital experience who could do valuable work of this kind, given that the clinical material were properly assembled. Thus there would come into existence teaching centres of sufficient size and importance to enable practitioners to engage in post-graduate study within their own areas, and thus the necessity of leaving their practice in order to live for a time in London, or some large but remote academic centre, would be obviated. These facilities would be of inestimable service to the panel practitioner, who is too often blamed for not being "up to date," yet has no organized means at present of escaping such censure. Post-graduate instruction is, after all, a duty which the Ministry owes to those doctors whom it employs under the National Health Insurance Acts.

Research in connexion with the causation of disease, and especially in connexion with treatment, would be greatly aided by such segregation of cases as has been suggested in considering the revision of the Poor Law hospitals and the placing of the beds in these institutions under the aegis of the large voluntary hospitals. Comparative methods of treatment in such diseases, for example, as inoperable cancer, can only be undertaken with scientific method where a number of similar cases are assembled in one institution. Similarly, a ward given up to arthritis would allow of that team work which is notoriously desirable in the investigation and in the treatment of such a disease. Time prevents me from enlarging upon this aspect of the question.

And now, in conclusion, let us assume that a definite position is really created by the questionnaire issued by the Ministry, and that the replies of the voluntary hospitals are seriously awaited and will be as seriously considered. Then I submit that they have here a great opportunity. I suggest that they approach it not only carefully and, if you like, cautiously, but with enthusiasm. Let them demonstrate their recognized supremacy by an active and progressive spirit, and a willingness to co-operate in any forward move on the part of the Ministry. They are to-day the centre and focus of medical science and of medical art. In proportion as they are these they have a duty in connexion with every advance that is suggested, whether in the direct transmission of knowledge and administrative experience or in any co-ordination of the health services which may be desirable in the national interest. Within the walls of the voluntary hospital resides a large mass of potential energy of a very high order, and this energy should be at the service of the State if, and when, it is required. The infusion by this energy of outlying units is a process which should commend itself to all of us, since the result would inevitably mean the raising of the general level of the health services. There should be a constant stream of influence from the centre to the periphery, so that only the inevitable barriers of place and time—and these barriers become less and less with the years—should determine that John Jones in the Poor Law infirmary, or in the cottage hospital, receives less skilful treatment for his disease than does Thomas Smith in the wards of the institutions of which we are justly so proud.

But perhaps the interest of the Ministry in our answers to its questions has already subsided, the Minister's scheme of Poor Law reform having received a serious check in deference to the larger projects of his more ambitious colleague. Or perhaps another Minister will shortly sit in his place to whom the zeal for organization may not make the same appeal. I still hold that our better attitude is one of advance rather than of standing still in these matters. I think the recent stirring of the waters has been for the public good, and I suggest that we each and severally busy ourselves in doing our utmost to co-ordinate the health services by any means in our power. I feel confident that any move we ourselves make in this direction will receive sanction from the Ministry if only it spells greater efficiency and a wider application of the knowledge we possess. It is only by such advances that the voluntary hospitals can hope to maintain their

present position in the confidence of the public as the responsible bodies to whom it looks for guidance and control.

I find, indeed, that your Association is pledged to just such activity as I am now advocating, for in the statement of its policy there occur these words:

'The voluntary hospitals should be ready to fulfil their proper functions in relation to all the other agencies, State, municipal, or voluntary, concerned with the general health of the community.'

I feel sure that the spirit of this readiness to function in this particular direction is intended to be active and not passive. How much of such activity is practicable, and in what directions it can be exercised, can only be determined by energetic but tactful approaches to the various authorities concerned.

EPSOM COLLEGE

THE seventy-fifth annual general meeting of the Governors of Epsom College was held at 49, Bedford Square, W.C., on June 28th, when Dr. Raymond Crawford was in the chair.

THE CHAIRMAN, in proposing the adoption of the annual report, referred to the progress of the fund for the new sanatorium, of which outline plans, together with full details as to the accommodation to be provided, were published in the *British Medical Journal* of December 3rd, 1927. He pointed out that if two sums of £5,000 were received the council could put the work in hand, as the total sum collected to date amounted to nearly £5,000. The College would benefit in another direction by the provision of the new building, because the old sanatorium could be easily adapted for the admission of about forty more boarders. The enlargement of the school in this way would result in many economies, and the further increase in income would enable the council to improve the salaries paid to the masters. The report was adopted.

Dr. F. W. Collinson and Dr. R. W. Innes Smith were elected vice-presidents of the College in recognition of their valued services, each having collected over £1,000 as an honorary local secretary.

A new by-law and various alterations in the existing by-laws were confirmed, including changes made as a result of the council's decision to abolish the Lower School and to raise the age of candidates for Foundation scholarships.

The scrutineers announced the result of the voting as follows:

Honorary Pensionerships (£75 a year)		Votes.
Dr. James S. Robertson		4,157
Mrs. Gertrude Middlemist		3,326
Mrs. Elizabeth Christian		2,485
Mrs. Mary G. S. Kenny		2,086
Ordinary Pensioners (£50 a year) with an addition of £10 a year from the Dr. Strong Fund		
Mrs. Ellen M. Blake		2,067
Dr. Lambert Houghton		2,012
Mrs. Ida M. S. Style		1,672
Dr. Vincent O. Taylor		1,634
Pugh Pension (£40 a year)		
Mrs. Mary A. Ingledew		1,481
Broadwell Sewell Annuitants (£30 a year)		
Miss Ella M. Lenev		2,631
Miss Elizabeth E. B. Diller		1,793
Foundation Scholars		
Alfred G. Stansfeld		17,657
Geoffrey G. Wallis		13,079
John R. Copeland		11,042
John A. H. Holburn		10,757
John Watson		10,496
Antony L. Haynes		10,427
Louis C. Dillon		8,651
Eric J. Holborow		6,531

THE SECRETARY mentioned that Mrs. Fliza M. Morrison, Dr. Theodore M. Kendall, and Mrs. Lillian Marshall would be appointed ordinary pensioners under By-law 16 at the council meeting which would be held immediately after the annual general meeting, further vacancies having arisen.

A vote of thanks to the Chairman was adopted with acclamation on the motion of Sir John Broadbent, who referred to the many constructive suggestions for the improvement of the College which Dr. Crawford had cordially supported.

SOMETHING NEW IN MEDICAL DEFENCE

INDIVIDUAL medical defence is not provided by the British Medical Association, since this is outside its legal powers. Every medical practitioner is, however, advised by the Association to join one of the recognized medical defence societies immediately upon registration. This advice is given with every possible emphasis in the Association's *Handbook for Recently Qualified Medical Practitioners*, and is repeated year by year in the Educational Number of the *British Medical Journal*. Particulars of the three well established professional bodies, which for a small yearly sum undertake the legal defence of their members, are given in the *Handbook*. Their names are the Medical Defence Union Ltd., the London and Counties Medical Protection Society, Ltd (both with offices in London), and the Medical and Dental Defence Union of Scotland, Ltd (with offices in Glasgow).

It appears that a fourth body has now been formed to undertake the same kind of work under the personal direction of Mr William Findlay, formerly secretary and treasurer of the Medical and Dental Defence Union of Scotland. According to the printed circulars, this new competitor in a field already well covered is styled "The Surgical and Medical Protection Union of London, Ltd," having registered offices in London and a "Department for Scotland" in Glasgow. The particulars filed at Somerset House show that the company was registered on April 13th, 1928, with a nominal capital of £15,000, the shareholders and directors being Mr W Findlay and Mr A McClure solicitors. No provision is made for the appointment of a council or for any representation of members or subscribers either in the management of the company's affairs or in the direction of its policy. It is in fact a proprietary concern owned and managed by two non-medical persons. The circular letter inviting the adhesion of members of the medical profession states that "the annual subscription is £1 per annum, and to practitioners who are transferring from another Defence Society the subscription is 15s, and will be retained at that sum for at least three years. No entrance fee is payable on admission. The subscription includes an insurance, unlimited in amount, and all costs, in cases which may be raised against a subscriber, in which he may be found liable in damages." As a further attraction the directors of the company pledge themselves to defend subscribers "against all claims which may be made against them, in respect of their professional work, including liability not only for the acts of the subscriber himself, but of all assistants and dispensers in his employment, and of other practitioners acting on his behalf." Moreover, according to the memorandum and articles of association, these benefits are to be extended not only to registered medical practitioners, dental surgeons, and veterinary surgeons, but also to nurses, proprietors of nursing homes, etc., and all other persons or institutions having for one or more of their objects the cure of physical or mental disease.

We are informed that Messrs Findlay and McClure and Co., on behalf of this new body which they have founded, recently circularized the members of the Medical and Dental Defence Union of Scotland offering to acquire the whole assets and undertaking of the Union for £10,100, and to enrol its members at an annual subscription of 15s, including an insurance, unlimited in amount, against all professional responsibility, with "an unqualified guarantee" that every subscriber will be defended "without any discretionary power to refuse defence, and, if damages are awarded that these will be paid unconditionally, as well as all costs awarded to claimants." A special general meeting of the Medical and Dental Defence Union of Scotland, attended by some 300 members, was called to

consider this matter on June 13th, and unanimously rejected the offer. We are not surprised.

It does not appear that Mr Findlay and his co-director have so far offered to buy up the Medical Defence Union or the London and Counties Medical Protection Society, but have contented themselves with the general statement that the subscription to their union is 15s to practitioners who transfer from another defence society. We anticipate that few members of these societies will be tempted to forsake the substance for the shadow.

England and Wales.

Dinner to Sir Robert Jones

ON June 28th, at the Cafe Royal, London, a group of surgeons—friends, colleagues, and pupils—entertained Sir Robert Jones to dinner. A book, specially written for the occasion and entitled *The Robert Jones Birthday Volume*, was presented to him. This book comprises a collection of surgical essays. After the loyal toast had been honoured the health of the guest was proposed by the chairman, Sir Berkeley Moynihan, President of the Royal College of Surgeons of England, in a speech distinguished alike by its brilliance and its affectionate intimacy. Sir Robert Jones replied in a charming and characteristic speech. As an indication of the feelings which prompted this tribute we cannot do better than quote from the preface of the volume Sir Berkeley Moynihan's actual words.

"This volume written by a band of brothers, is dedicated with greatest respect and with warmest affection to Sir Robert Jones on the occasion of the seventieth anniversary of his birth."

"The opportunity to pay tribute to our friend in whom we recognize one of the masters of surgery was most eagerly welcomed. We felt that it gave us the chance to say openly what has long been in our hearts in regard to his work for our profession and in acknowledgement of the inspiration, encouragement and example he has given to all who have had the high privilege of association with him."

All those who contribute to this volume are proud to think that the influence of Robert Jones of his methods and of his teaching has inspired them has found a place in their work to be transmitted by them to due course to their successors. Spirit alone is immortal. In the practice of orthopaedic surgery the spirit of Robert Jones will live for ever.

The story of the triumphs of Robert Jones as prophet, high priest, and practitioner in orthopaedic surgery makes plain the reason for our deep respect. Our affection for him transcends if it be possible our gratitude for his professional worthiness. Few men have ever possessed in so radiant a degree the genius for friendship. No one can be long in his company, none can work with him or play with him without realizing not only the sweet simplicity of his character but the greatness of his heart. He speaks ill of no man. He seeks and finds good in all things and in all men. He sets an ideal and a standard of action in friendship which all strive to reach when with him. In a long and very intimate friendship I have never heard an unjust criticism, a cruel jibe or a word of bitter cynicism on his lips. He covers his displeasure or stern disapproval by silence, or a restrained reproof that is often weightier than a torrent of words from others. His personality radiates cheerfulness, good temper and goodwill. All men are attracted by him and in war time conflicting temperaments found in him something that appeased their differences, assuaged animosities and encouraged a desire for friendliness. He was then called upon to rule in various places over colleagues at first unfriendly, openly antagonistic, indifferent to his rule or incredulous of his practice. We were all amazed at his success in overcoming very real difficulties by gentleness, sympathy, a true understanding of the minds of others and a tactfulness which in times of crisis was almost magical.

To Robert Jones great surgeon, inspiring teacher, loyal colleague, and good friend we affectionately inscribe this volume.

In addition to Sir Robert's daughter and son-in-law, Mr and Mrs Frederick Watson, and his son and daughter-in-law Mr and Mrs Arthur Probyn Jones, the following were present: Sir Berkeley Moynihan, Sir Harold Stiles, Sir John Lynn-Thomas, Mr E Munhead Little, Professor Munk Jansen, Mr A B Mitchell, Mr Thurstan Holland, Sir William de Courcy Wheeler, Mr E Lanning Evans,

Mr H A T Fairbank, Mr E W Hey Groves, Mr R O Plushie, Mr A S Blundell Bankart, Mr W Rowley Bristow, Mr Naughton Dunn, Mr G R Girdlestone, Mr Harry Platt, Mr D McCrae Aitken, Mr W H Titchoway, Mr T P McMurray

Radium Treatment at University College Hospital

The fifth annual report of Mr N Asherson, the Harker-Smith registrar, deals with all cases treated with radium at University College Hospital, with the exception of rodent ulcer, from November 1st, 1926, to October 31st, 1927, and includes a report of the subsequent histories of cases recorded by previous registrars. During the year under review a new departure was the adoption of metallic radium as the standard of measurement of dosage. All gynaecological patients treated with radium at this hospital are first examined under general anaesthesia. In the case of non-malignant or doubtfully malignant diseases the uterus is curetted and a portion of the lesion or scrapings is examined microscopically. The Harker-Smith records thus include a statement of the microscopical findings in all cases treated with radium. During the six years since the institution of this form of treatment at University College Hospital the number of cases dealt with has been as follows: carcinoma of the cervix, 118, menopausal menorrhagia, 68, fibroids, 61, carcinoma of the uterine body, 18, essential menorrhagia, 17, cervicitis, 10, dysmenorrhoea, 8, and endometrioma, 1. A summary of these cases under the respective headings is given, including an account of the subsequent progress. Among the conclusions drawn is a general impression that, as regards carcinoma of the cervix, radium seems to stop the advance of the disease locally, any extension being slow. Although in many instances the pelvis contained large growths, metastases were not clinically detectable in the liver or elsewhere in the abdominal cavity, apart from pelvic glandular deposits. Radium appeared to be definitely beneficial in the treatment of intractable menorrhagia not due to the menopause and unassociated with pelvic abnormality. All the patients with dysmenorrhoea were apparently cured. The use of radium therapy in non-malignant conditions is being extended, and cases of deafness due to catarrhal otitis media are being treated by small doses.

The Medical Superintendent of Maudsley Hospital

When, in 1922, the name of Dr Edward Mapother was submitted for appointment as the first medical superintendent of Maudsley Hospital, the condition was laid down that the appointment should be held subject to the pleasure of the London County Council, and Dr Mapother, as well as the other candidates, were informed that the Council would probably exercise its pleasure at the expiration of six years at latest. Dr Mapother has now completed his six years of service, and the Mental Hospitals Committee of the Council has reviewed the appointment. Its report is to the effect that the work which is carried on at the hospital, the first of its kind to be established, and possessing a number of special features, is still in process of development, and that the development has reached its present stage under the guidance and largely as the result of the energy and high ability of Dr Mapother. The committee has therefore come to the conclusion that it is essential for the full realization of the purposes of Maudsley that its present direction should continue, and that it would be undesirable for the Council to exercise its discretionary power to determine the appointment at the expiration of the six years' tenure of office.

London Mental Hospitals.

In November last an arrangement was authorized for the services of consultants on the staff of London Hospital and Guy's Hospital to be available for Clapham and Bexley Mental Hospitals respectively, at an honorarium of £4 14s a visit, subject to the total expenditure during any year being limited to £200 at each hospital. The Mental Hospitals Committee of the London County Council now proposes that arrangements of a similar kind shall be made for the services of consultants on the staff of University College Hospital to be available for Long Grove Mental Hos-

pital and the Enell Colony. The consultants proposed are a physician, a surgeon, an ophthalmologist, an ear, nose, and throat surgeon, and a gynaecologist. Arrangements were also made last year for one assistant medical officer in the mental hospital service to be placed at the disposal of the Minister of Health for special work at Horton Mental Hospital in connexion with the malarial therapy of general paralysis of the insane. The Ministry of Health has now asked that, pending some plan of a permanent character being devised for the carrying out of the work in question, the existing arrangement may be extended until March 31st, 1929.

Royal Sanitary Institute

The retirement of the secretary and director of the Royal Sanitary Institute, Mr E White Wallis, O B E, was made the occasion of a complimentary dinner at the Cafe Royal on June 27th. A gathering of about one hundred, including many medical officers of health, assembled under the chairmanship of Professor A Bostock Hill, M D. The Duke of Northumberland, president of the Institute, was to have presided, but was prevented by illness from attending. Professor Bostock Hill, in proposing the health of the guest, said that Mr White Wallis was appointed secretary of the Institute in 1880, at a time when the Institute was only four years old, and had a membership of little more than 300, whereas to-day it had 4,700 members on its roll. Mr White Wallis had been largely responsible for the establishment of branches of the Institute overseas and for the introduction of the Institute's system of examinations for sanitary officers into the Dominions and Colonies. He had also trained a staff in his own singularly efficient methods of secretaryship, and this fact caused the council to regard his retirement with more equanimity, though with no less regret. Sir Arthur Newsholme and Dr Charles Porter added brief tributes to Mr White Wallis's genius in affairs, his astute management of a varied team, and especially his skill in handling the arrangements for a long series of successful annual congresses in provincial towns. The chairman then, in the name of many subscribers, presented Mr White Wallis with a wireless set and a cheque. The recipient suitably acknowledged the gift and recalled some of the outstanding changes, events, and personalities with which he had been brought into contact during his secretaryship. He counted it a matter of special pride to have served the Institute while three sovereigns had been its patrons and three Dukes of Northumberland its presidents. The Institute was unique in its happy combination of several professions and interests, and this gave a never-ending variety and stimulus to its work. The only other toast was that of "The Chairman," the proposer, Mr John D Watson, emphasizing the value of Professor Bostock's Hill's thirty-five years of service on the council and committees of the Institute.

Open-air School for Bermondsey

The Nightingale House Open-air School, established by the London County Council in Fort Road, Bermondsey, was opened on June 29th by Dr F Barrie Lambert, chairman of the Special Services Subcommittee. The new school provides accommodation for 125 children. It is one of the two additional schools for tuberculous children which were included in the programme of educational development. The cost of the school, including furnishing, has been about £7,500. It stands in one acre of ground, which has been laid out by the Parks Department, and gardening will be one of the subjects of the curriculum. The buildings consist of an administrative block, open air dining room, and rest shed, and five open-air shelters of the latest type. The school will work in close co-operation with the Bermondsey Tuberculosis Dispensary, the tuberculosis officer for the borough having been appointed medical officer, and a part-time nurse from the dispensary will attend. The temperatures of the children will be taken daily, rest periods observed, and regular meals provided, for which the parents will pay if they are able. The children can be required to remain at school until they are 16. They will, however, be specially examined at the age of 14, and, if fit, allowed to leave school and enter suitable employment.

Scotland.

Scottish Graduation Ceremonies

A GRADUATION ceremony took place at Edinburgh University on June 28th, when several eminent members of the medical profession received the honorary degree of Doctor of Laws. Among those accorded this distinction were Sir John Rose Bradford, KCMC, MD, President of the Royal College of Physicians of London, Professor J. Cossar Iwart, MD, FRS, emeritus professor of natural history in the University of Edinburgh, James Haig Ferguson, MD, late gynaecologist to the Royal Infirmary of Edinburgh, R. A. Fleming, MA, MD, President of the Royal College of Physicians of Edinburgh, G. Lovell Gulland, CMG, MD, late professor of medicine in the University of Edinburgh, Dame Mary Scharlieb, DBE, MD, president of the School of Medicine for Women, London and Mr. Henry S. Wellcome, founder of the research laboratories at Gordon College, Khartoum, the Bureau of Scientific Research, London, and the Museum of Historical Medicine, London. A graduation ceremony took place also at St. Andrews University on June 28th, when the members of the medical profession who received the degree of LL.D. were Professor L. P. Cuthbert of the chair of chemical physiology in the University of Glasgow, and Professor William Darroch of Columbia University, New York, who did important work as a surgeon with the 51st Division in the great war. On the occasion of the installation of the new Chancellor of the University of Aberdeen on July 3rd the honorary degree of LL.D. was conferred on emeritus professor J. A. MacWilliam, MD, FRS.

New St. Andrews Professor

The Court of the University of St. Andrews has appointed Professor John McGibbon, MB, FRCPI, to succeed Professor Kynoch, who recently resigned the chair of midwifery and gynaecology. Professor McGibbon has also been appointed by the directors of the Royal Infirmary, Dundee, to be a medical officer in charge of obstetrics and gynaecology in the Infirmary. He graduated in medicine at Edinburgh in 1898 and became a fellow of the Royal College of Physicians of Edinburgh in 1912. He succeeded his father in a well-established practice in the Stockbridge district of Edinburgh but immediately after graduation began to devote himself specially to obstetric work. For some years he was a lecturer in midwifery and gynaecology in the School of Medicine of the Royal Colleges at Edinburgh, and acted as assistant to the late Dr. Haultain on the staff of the Hospital for Women at Viehbald Place, Edinburgh, in the establishment of which he had taken a great interest. He was also for a number of years assistant physician on the staff of the Royal Maternity and Simpson Memorial Hospital at Edinburgh, and lecturer on clinical midwifery to the University. In 1922 he was appointed professor of obstetrics in the University of Johannesburg, a post which he held till his appointment at St. Andrews University. He has contributed numerous papers to the literature of the branch of medicine in which he is specially interested, and during the past six years he has been actively engaged in the organization of the department of obstetrics and gynaecology in the University and in the Hospital for Women at Johannesburg. At one time he was examiner in midwifery in the University of Aberdeen, and for the past six years has been examiner in midwifery and gynaecology to the University of Cape Town. He is expected to take up duty at the Royal Infirmary and Medical School, Dundee, in October of the present year, when the winter session commences.

Increase of Sickness Benefit in Scotland

At the Scottish Conference of Friendly and Approved Societies, held in Edinburgh on June 23rd, Dr. G. M. Cullen of the Scottish Board of Health, speaking on the subject of medical certification under the National Insurance Act, said that the friendly societies had pointed the way which was afterwards taken by the Government and had very largely constructed the road on which national

insurance had become possible. Most doctors, he thought, had changed their minds in regard to national health insurance since the introduction of the Act. Within the past few years, however, a danger had appeared in the shape of lax certification, which must be carefully considered lest it should become a serious handicap to future administration. There was no doubt, so far as the general population of the country was concerned, that the mortality rate was lower and that so far as could be judged illness was less frequent and less severe. In respect of this, however, the amount spent in Scotland upon sickness and disablement benefit had risen from £1,570,000 in 1925 to £1,940,000 in 1926, and £2,020,000 in 1927. Some societies were giving a larger weekly benefit than previously, but it was the general opinion that the real cause of the increase was lax certification. In the speaker's opinion three factors should be kept in view when trying to reduce such laxity—namely, the insured person, the doctor, and the approved society. There was a certain impression in the mind of insured persons regarding their right to money under the Insurance Act, and approved societies might do something to spread among insured persons a clearer idea of what their privileges were. With regard to the doctors, he did not think that any layman had any idea of the difficulties of certification. Some people were unwell all their lives and yet continued to work, while others would cease work for two or three weeks because of a condition of health which was no worse than the condition of the first class he had mentioned. The question of the will to work was just as important as the physical condition. There had been lax certification from the beginning and there always would be, but it ought to be kept within reasonable bounds. Some doctors were not sufficiently careful, and possibly the imposition of a severe penalty might be advisable. Dr. Cullen thought, however, that such doctors formed a small number and the difficulty would not be properly met by blaming the doctors alone. He believed that something might be done by increasing the number of visiting nurses, and societies might combine to arrange that the certificates were supervised by some skilled person. Dr. Cullen also made a plea for more extended use of the medical referees. Sir James Ilesman gave an address reviewing the year 1927 which, he said, had not been bad from the point of view of health. The death rate, which was one great test in vital statistics, was 13.5 per 1,000 and almost at its lowest. The tuberculosis rate was stationary. A sinister shadow, however, was the mortality from malignant diseases, which was the highest on record, both in numbers and in rate. Heart disease still accounted for nearly 8,000 deaths in Scotland, malignant disease nearly 7,000, apoplexy 6,000, pneumonia nearly 6,000 and bronchitis nearly 4,000. One of the disturbing outbreaks of the year had been influenza. Unemployment still remained high, though not so high as in former years, but it affected certain areas, such as those of the coal, steel, iron, shipbuilding, and, in some respects, the textile industries. Sir James thought that the Poor Law and labour exchange authorities were tightening up administration with a view to saving as much public money as possible, and he did not criticize that, though he had been seriously disturbed by experience of the national health insurance scheme during the past two years. The year 1926 was thoroughly bad—the expenditure being 20 per cent above that of the previous year, the expenditure so far for the present year was 25 or 26 per cent above that of 1925. They were actually at the present time spending more in sickness and disablement benefit by about 8 per cent than had been calculated and in Scotland the expenditure in this respect had practically doubled within four years. This meant practically for the great majority of societies that no additional benefits could be paid, and some would only be able to provide the ordinary benefits by falling back on previous accumulations. They had to face the disagreeable possibility that a considerable number of claims were being made that were not genuine. Were the societies examining the claims with due care and capacity, and were the doctors certifying carefully and properly? Many doctors were not lax, but a minority, particularly in industrial areas, were less satisfactory. In Northern Ireland, where the experience had also been very

bad, nine doctors had been removed from the certifying panel within the last four months, and the example might have to be followed in Scotland. The administrators of the Insurance Act did not wish that any good claim should be disowned or not paid, even if by doing so a society should be put on the wrong side financially. They were bound, however, as trustees, to refuse bad claims, and Sir James hoped that in Scotland there was sufficient knowledge and sense, as well as character, to keep the scheme right and to stop leakage.

Fees under the Midwives and Maternity Homes Act

The Scottish Board of Health has issued a circular relating to a revised scale of fees for medical practitioners called in by midwives in cases of emergency in accordance with the Midwives (Scotland) Act, 1915, and for doctors attending women in childbirth under the Midwives and Maternity Homes (Scotland) Act, 1927. The fee for all attendances during confinement, including subsequent visits during the first ten days, is two guineas, and for a second doctor to give an anaesthetic, one guinea. The fee for various minor operative procedures during this period is one guinea but this is not available when the sum of two guineas is already payable. The fee in connexion with a miscarriage, including ten days' attendance, is one guinea. For any subsequent visit to the mother or child a fee of 5s. is chargeable for the first visit and 3s. 6d. for following visits, with double fee during the night. No fee is to be paid by the local supervising authority in cases where the patient is being attended under arrangements with some club or other association, or when the doctor is under obligation to treat the patient under the National Health Insurance Act, or where he is in receipt of a fee from the patient already. With regard to services after the tenth day, the fee is only paid if the doctor has reported to the local authority that he considers his further attendance necessary and submits his claim within two months from the date of the last visit covered by the scale.

Correspondence.

DIRECT REPRESENTATION ON THE GENERAL MEDICAL COUNCIL

SIR,—Owing to the lamented death of Dr J. A. Macdonald of Tannaton, and to the resignation of Sir Robert Bolam (who has been appointed representative for the University of Durham), there will be, in October, an election of two Direct Representatives on the General Medical Council by the medical practitioners of England and Wales. It is understood that meetings of the profession will shortly be called in all parts of the country to consider nominations for such representatives.

The educational side of the Council's work is well cared for by the representatives of the various universities and licensing bodies. Many of these representatives, too, are thoroughly conversant with the special problems of consultant practice, being themselves actively working in that sphere.

Only two general practitioners at the moment have seats on the General Medical Council. The penal cases, which absorb so large a proportion of the Council's time, deal often with situations arising in the lives of general practitioners, as is only natural seeing that general practitioners constitute the bulk of the profession. The preparation of the medical student for ordinary family practice demands emphasis in the regulations laid down for his education, and for this the advice of general practitioners ought to be useful.

We are advised of a strong feeling that opportunity should be taken of this by-election to place upon the General Medical Council two Direct Representatives who have the closest possible touch with the problems and difficulties of the general medical practitioner. Having been approached on the matter, we venture to solicit the support of the profession as two general practitioners representing industrial and rural areas respectively. We are both in the active pursuit of our profession, and have had a good deal of experience of administrative and

medico-political work, which we hope would be of value if the profession should see fit to endorse our candidature. One of us (J. W. Bone) has had thirty-two years in general practice, private and contract, in the industrial area of Luton, has served on the Insurance Acts Committee for five years, and at the present time has the honour to be a member of the Council of the British Medical Association and chairman of its Medico-Political Committee. The other (E. K. Le Fleming) is familiar with other aspects of private and contract practice through twenty-seven years' work in the rural area of Wimborne, whilst in addition to serving on the Council of the British Medical Association and the Insurance Acts Committee he has been honoured by the confidence of the insurance practitioners for the past five years as chairman of the Conference of Local Medical and Panel Committees of the United Kingdom.

Our experience in interpreting the collective views of our fellow practitioners and our willingness to devote whatever time and energy may be necessary to the proper fulfilment of the duties of a Direct Representative embolden us to solicit the support of the profession generally.—We are, etc.,

June 27th

JOHN W. BONE
E. K. LE FLEMING

PROTECTION OF THE MEDICAL PRACTITIONER SIGNING LUNACY CERTIFICATES

SIR,—On June 7th a meeting of the Bournemouth Division of the British Medical Association was held to discuss certain matters arising out of the Annual Report of Council. The most important subject discussed was the protection of medical practitioners discharging duties in pursuance of the Lunacy Acts. Two resolutions appealing to this question were proposed and carried, with only one dissentient. In the Supplement for June 16th (p. 253) you publish these two resolutions sent up from the Bournemouth Division, which read as follows:

I.—In regard to Section 330 of the Lunacy Act, 1890—(a) the onus of proof of want of reasonable care and want of good faith should be on the plaintiff (b) unless the plaintiff can satisfy the judge that he is able to prove in a court of law the want of reasonable care and good faith, the case should not proceed to trial, and (c) the judge should be able to call in expert opinion on the point of reasonable care in respect of medical certificates if he himself is in any doubt.

II.—If under Sections 13 and 16 of the Lunacy Act, 1890, a magistrate make an order to one or two medical men as the case may be (two medical men under Section 13 and one under Section 16) to examine a person believed to be of unsound mind it should be considered that the magistrate should be solely responsible as an instrument of the law and the doctors should have the status of a witness and enjoy the immunities of a witness.

I was present at that meeting and whole-heartedly supported both these resolutions. At the request of some of our members and with the consent of our chairman (Dr Asten), and at the suggestion of Dr Hawthorne, Chairman of the Representative Body of the Association, may I be allowed to state my reasons, emanating from many years' experience of the working of the Lunacy Acts, for supporting the above-named resolutions?

I should first like to draw the attention of your readers to the following recognized facts. All Lunacy Acts and Royal Commissions in Lunacy have been initiated and carried into being (1) for the protection of the persons alleged to be of unsound mind, for their supervision and care and treatment, (2) for the protection of the general public. Many sections of the Lunacy Act of 1890 deal with misdemeanours, and in Section 317, Clause 2, we find

Any person who makes a wilful misstatement of any material fact in any medical or other certificate or in any statement or report of bodily or mental condition under this Act shall be guilty of a misdemeanour.

But protection is given to the medical certifier under Section 330, Clauses 1 and 2

1 If any proceedings are taken against any person for signing a certificate under this Act such person shall not be liable to any civil or criminal proceedings whether on the ground of jurisdiction or on any other ground if such person has acted in good faith and with reasonable care.

2 If any proceedings are taken against any person for signing a certificate such proceedings upon summary application to the High Court or a Judge, may be stayed upon such terms as to costs and otherwise as the Court or Judge may think fit—if the Court or Judge is satisfied that there is no reasonable ground for alleging want of good faith or reasonable care.

It is, of course, only right and just to the person alleged to be of unsound mind that the greatest possible care should be taken by medical men before signing such certificates, for it must never be forgotten that such certificates mean practically that for a time, or perhaps for the rest of his life, the alleged person of unsound mind is deprived of all his civil rights, may lose appointments of much value, or have a lucrative partnership dissolved.

Prior to the 1890 Lunacy Act anyone could sign an order for the legal care, control, and treatment of a person of unsound mind as a result of actions and agitutions on the part of the public, the intervention of the magistrate became embodied in the Lunacy Act, and I am certain this intervention will never be done away with. But to avoid anxiety and expense to doctors against whom actions might be started, often by unscrupulous persons, and advised by equally unscrupulous and shady solicitors, Clauses 1 and 2 of Section 303 were inserted in the Act of 1890.

There is no doubt that the Parliamentary Committees of the British Medical Association and the Medico-Psychological Association, set up in 1889 (on both of which I had a seat), quite imagined when this Section 330 was discussed, and especially Clause 2, that the onus of proof before the judge of want of good faith and reasonable care would be on the plaintiff, for does not English law demand that the prosecution must establish the guilt of the accused rather than that the accused should have to prove his innocence? I do not think any single member of the British Medical Association will vote against Resolution I, and it need not be further discussed.

With regard to Resolution II it is clear that the British Medical Association's Committee in its evidence and suggestions before the Royal Commission agreed as to the principles embodied in this resolution, but the Royal Commission would not or could not see eye to eye with it. Surely the non-agreement of the Commission is no reason why the British Medical Association should not strive for these principles, not merely for the safety of the medical man, but for the safeguarding of the patient and the general public. Later on I shall hope to show how these principles are agreed to by eminent judges of the King's Bench, the Court of Appeal, and the House of Lords.

Let me state three classes of mental cases giving no end of anxiety to relations and being in certain degrees a danger and a nuisance to the public and yet cases refusing to place themselves as voluntary boarders under the Act for care and treatment. Yet in many of these cases the relatives dread taking the initiative, and the doctors fear certifying because they both know that the illness under proper control and care may be quickly recovered from, while they recognize that on discharge many patients will resent their loss of liberty, and if litigiously inclined and ill advised may cause no end of trouble and anxiety and expense to those who had taken what they believed to be the right and only course. I mention three special forms of mental disease in which this difficulty is most likely to arise.

(1) Cases of circular insanity in which periods of excitement and exaltation alternate with periods of deep depression while, either intervening or following after the latter, come periods of apparent normality.

(2) Cases of alcoholic insanity (not delirium) in which under legal care control and treatment the symptoms quickly clear up. In these cases the patient almost invariably feels great resentment on his discharge against those who have only acted for his welfare.

(3) Some cases of paranoia especially those so graphically described by Dr. Rutherford Jeffrey, medical superintendent of Bootham Park Mental Hospital, York, in his book *Common Symptoms of an Unsound Mind* and called by him false paranoia in which there are periods of apparent normality when the delusions of persecution are either in abeyance or non-assertive as to conduct. There are many such patients and they prove a source of great anxiety and trouble to the relatives to the family medical man and maybe to the public also. They are cases in which the medical man is afraid to certify on the initiative of a relative.

In all these cases such an alteration of the law as stated in Resolution II—giving medical men who sign certificates of lunacy by the direction and with the authority of a magistrate the status and immunity of an ordinary witness

—would really be a boon to many patients and a relief to relatives and the general public. This status and immunity should apply to all doctors signing certificates by the direction of a magistrate under Section 13 (private patients), Section 15 (persons of unsound mind found wandering) and Section 16 (rate-supported patients). In such cases information has to be given to a magistrate especially appointed under the Act of 1890 by the relieving officer or the police, and he thereupon directs and authorizes one, or two doctors, as the case may be, to examine and report to him, and he himself sees and examines the alleged person of unsound mind before making the order for his detention, care and treatment, whether in a public mental hospital, a registered mental hospital, a private mental hospital, or private care.

Now let me draw your readers' attention to the opinions of judges on this important matter.

The case of *Everett v. Griffiths* and another (the doctor) was first tried in the Court of King's Bench before the Lord Chief Justice. It was then taken to the Appeal Court and finally to the House of Lords and is reported in *Law Reports* (1921). It was the case of a rate-supported person about whom information had been given to the relieving officer. He had reported it to the magistrate Griffiths who had directed the Poor Law medical officer to examine and report. There is no doubt from the evidence that the doctor took great care and the patient was under his supervision prior to certification and detention in Colney Hatch, from which he quickly escaped. The action was tried before the Lord Chief Justice. The jury disagreed but the judge gave judgement for both defendants. For the magistrate because he was acting judicially in signing the order and for the doctor as the plaintiff's detention was caused not by the medical certificate but by the order of the magistrate. The doctor was consulted in an advisory capacity. In the Court of Appeal the appeal was dismissed and the Lord Chief Justice's judgement upheld. Lord Justice Atkin dissenting as he considered there was no difference between Section 16 and Section 6 which is the section dealing with the ordinary patient by a relative and two medical certificates and on these the magistrate is asked to sign an order. The case was taken to the House of Lords and by the Law Lords dismissed and the judgement of the Lord Chief Justice upheld. In giving judgement Lord Atkinson entirely disagreed with Lord Justice Atkin re Sections 13 and 16 being on the same footing as Section 6. The latter he said is a 'family affair' while the former are 'judicial'. Under Section 6 the magistrate need not see the patient while under Sections 13 and 16 he must.

Lord Moulton showed to my mind in all he said a distinct feeling that in these cases the medical man was protected. Such with these legal opinions of such eminent judges the British Medical Association should take heart and try to get this immunity once and for all decided in cases dealt with under these sections. Such alteration will, I believe, be from my long experience a blessing, not only to the patient, but to the relatives, their friends, and the general public, while the safeguarding of the alleged person of unsound mind will be well insured.

I hope I have made clear to all my reasons for supporting these resolutions, and I only wish I could have been able to attend the Cardiff Meeting, but this, unfortunately, I find impossible.

When the Voluntary Boarder Section is made to apply to public mental hospitals and private care much less certifying need be done, and when a proper and workable Early Treatment Bill is passed there will, I hope, be far less chances of vexatious actions against medical men for trying to the best of their ability to do what is right for their patients afflicted with mental disorders—I am, etc.,

Bournemouth June 27th

LIONEL A. WEATHERLY, M.D.

VOLUNTARY HOSPITALS AND THE STATE

SIR,—The proposals for "reform in local government" to be submitted to Parliament in the autumn session by the Minister of Health have now been published (*White Paper, Cmd 3134*). These proposals, as they affect the medical services, are separately described for London and for the provinces. In the provinces each county and county borough will be a complete unit of administration of all the medical services hitherto assigned to Poor Law authorities. In London the London County Council will become responsible for all Poor Law medical services, as well as those now performed by the Metropolitan Asylums Board,

which will cease to exist. The effect upon the voluntary hospitals will be indirect, but none the less real. All the hospitals other than the voluntary hospitals will be under a unified control by a body which will have the power of imposing a rate for their development and maintenance. Contrasted with these arrangements will be the position of the voluntary hospital, an isolated unit in each area, having to face the competition of a county organization with complete command of the rates. As the larger subscribers to hospitals are also ratepayers, the position must come about that the subscriber, faced with the necessity of paying an enormously increased rate for the public hospitals, will not be able, however desirous he may be, to make the same subscription to the voluntary hospitals that he may have done in the past. Centralization, backed by the power of the purse, is thus opposed to isolated private effort, and the ultimate effect upon the voluntary hospitals must, I think, be extremely serious.

It is, I submit, unfortunate that the voluntary system should be further menaced by recommendations in the Report of the Council of the British Medical Association to be brought forward for adoption by the Representative Body at Cardiff. In this Report it is suggested that "the first step in the attempt to co-ordinate the work of the voluntary and municipal hospitals must be the establishment of a central advisory authority appointed by the Minister of Health" (the italics are mine). I submit that if the Minister of Health is to have the chief voice in the appointment of that central advisory authority the voluntary system vanishes. The scheme is, as the Report itself mentions, on the same lines as the plan suggested by the Dawson Committee, whose recommendations were published in 1920. An editorial in the *Times* of December 2nd, 1927, commenting upon the Dawson plan, said

'The weakness of the scheme lies in the fact that the predominant partner is the health authority and that behind the health authority stands the Ministry of Health—that is the State. He would be a sanguine observer of existing methods who supposed that the voluntary spirit would remain undiminished in such close contact with what would of necessity soon become a highly organized service.' The lamb of voluntarism and the lion of socialism cannot lie down together.

My own opinion entirely coincides with that expressed by this leader in the *Times*. I am so much impressed with the danger to the voluntary system thus imminent that I put down an amendment to the Annual Report for consideration by the Marylebone Division at its meeting on June 28th, 1928, in the terms detailed below. The Marylebone Division probably includes more consultants than any other single Division of the British Medical Association. The secretary informed the meeting that fifteen hundred invitations to attend it had been sent out. Actually the meeting consisted of eleven persons, only four of whom were members of the teaching staffs of London hospitals. My amendment was rejected on a vote by this small meeting, seven voting against, three for, the chairman not voting. I cannot think that the staffs of voluntary hospitals are as indifferent on the matter as this singularly small attendance would indicate. I have given notice that I shall move an amendment to the Report of the Council when it comes before the Representative Body at Cardiff, my amendment being in the following words:

That the Representative Body having considered the scheme for the co-ordination of hospital provision submitted by the Council (Appendix 7 Annual Report) disapproves of the recommendation that the central advisory authority to co-ordinate the work of the voluntary and municipal hospitals be appointed by the Minister of Health inasmuch as such appointment would inevitably transfer the control of the voluntary hospitals to the State as represented by the Ministry of Health. The Representative Body desires to keep the voluntary system intact and would prefer to see a central advisory authority in which representatives of the voluntary hospitals would be in a majority and the co-ordination would be effected with a voluntary hospital acting as the primary or central hospital of any group of medical services to be thus co-ordinated.

I hope that I may have more support for this motion at Cardiff from the staffs of voluntary hospitals than was forthcoming at this very unrepresentative meeting of the Marylebone Division last week—I am, etc.,

London W 1 July 2nd.

E GRAHAM LITTLE

GASTRIC AND DUODENAL OPERATIONS

SIR,—I was wrong in believing that Sir Berkeley Moyulhan had any leanings towards the views of those who advocate gastrectomy as a treatment for duodenal ulcer, and I hasten to offer him my apologies.

His weighty opinion so definitely expressed in his courteous letter will, I hope, dissuade anyone in this country or America from adopting such a line of treatment—I am, etc.,

Liverpool June 30th.

F STRONG HEANEY

TREATMENT OF MALIGNANT DISEASE BY COLLOIDAL LEAD

SIR,—I have been informed that there is the possibility that my remarks (*Journal*, June 23rd, p. 1088) regarding the work of Dr Todd at Bristol with lead selenide may be misinterpreted to mean that the preparation used there was made "on my instructions." It seems impossible that such a construction can be put on my words, but if anyone should so misconstrue them I hasten to say that the work at Bristol, although based on our work in Liverpool, has been conducted entirely independently, and that the Bristol workers alone are responsible for what has been done. I congratulate them on their enterprise and success. Perhaps Dr Todd will allow me to point out that in his published report, by some oversight, the word "decidua" is used instead of "chorionic epithelium"—the two tissues are, of course, entirely different—the one is maternal, the other foetal.

Without in any way wishing to underrate the assistance given to us by Mr Patterson some years ago, which I have acknowledged in my earlier publications, I must point out that his claims (*Journal*, June 30th, p. 1134) are somewhat ridiculous. I first met Mr Patterson when he was a chemist, under Mr Ward, in the employ of the British Colloidal Company. I hoped that this company would be able to make for me colloidal preparations of lead. I had a long conversation with Mr Patterson and suggested various preparations of lead he should attempt to make, one of which was lead iodide—I have a letter from Mr Patterson, dated May 9th, 1920, which entirely confirms this statement. As a satisfactory preparation was not then produced, the company generously allowed Mr Patterson to come to Liverpool to work under my direction, and subsequent improvements made were suggested by me—I need not go into details, for we do not use the material now. Mr Patterson was never appointed to "take sole charge of the chemical work of [our] cancer research," nor did he ever do so, he may have been for a short time the only whole-time chemist working for us. It is, therefore, absurd of Mr Patterson to talk about "his" preparation. I regret to have to inflict such trumpery details on your readers—I am, etc.,

Liverpool, July 2nd.

W BLAIR BELL

* * We have received a copy of the interim report by Dr A T Todd and his colleagues at Bristol, entitled *Chemo-therapeutic Researches on Cancer, with Especial Reference to the Lead and Sulphur Groups*, to which reference was made by him in the letter printed in our issue of June 16th (p. 1048). This report is published by Messrs J W Arrowsmith, Ltd, of Bristol and London, at the price of 2s 6d—Ed B V J

BATTERSEA (ANTIVIVISECTION) HOSPITAL

SIR,—My attention has been drawn to a statement made by Mr J F Peart, F R C S, and published in your issue of June 23rd (p. 1080), giving an account of a meeting of the Research Defence Society from which it would appear that some people draw the wholly inaccurate conclusion that I was anxious to associate myself with methods in contravention of the accepted principles of the Battersea General (Antivivisection) Hospital. As chairman there for twelve years I think this calls for some explanation. Mr Peart was quite correct in stating that I was willing to afford him every facility for treatment other than was permitted at our hospital, provided it was not done

their During my term of office I always made it quite clear that patients and their relations should be at liberty to have any treatment they desired, and the patients should, if they wished, be removed to other hospitals if we were not able to give it. I consider it no part of the chairman's duty to act as adviser to medical experts or to lay down the law as to how a patient should be treated, except in so far as the principles of an antivenereal section hospital were concerned.

I held Mr. Peart in very great esteem, as I consider he did a great deal of valuable work for the Battersea Hospital, and although I could not take over his responsibilities, the rules and regulations of the hospital had to, as he has stated, be most strictly adhered to—I am, etc.,

London S.W. 7 July 1st

TENTERDEN

Sir—It has been brought to my notice that my remarks at the Research Defence Society meeting have been misconstructed as regards my reference to Lord Tenterden. In fairness to him I wish to state that I merely meant to convey that he gave me every assistance possible within the limits of his obligations to the hospital. Nothing could be further from the truth than that he tried in any way to infringe those obligations—I am, etc.,

London W. July 2nd

J. F. PEART

Obituary

JOHN WILLIAM MACKENZIE, O.B.E., T.D., M.D.

Physician the Northern Infirmary Inverness

We regret to record that Dr. J. W. MACKENZIE, physician to the Northern Infirmary, Inverness, died recently at his residence there from septic pneumonia, after an illness of only a week's duration.

John William Mackenzie was born in 1876 and received his medical education at Edinburgh University, graduating M.B., Ch.B. in 1892, and proceeding M.D. (with commendation) in 1903. He commenced practice in his native town in 1906, after gaining special experience in diseases of the ear, throat, and nose in London and Cardiff, and soon built up a large and successful practice. At the beginning of the war he was in command of the Highland Mounted Brigade Field Ambulance, with which he served with distinction in Gallipoli and Egypt, being subsequently promoted to the rank of lieutenant-colonel, for his services during the war he was twice mentioned in dispatches and awarded the O.B.E. On his return to Inverness he not only gave of his best to his greatly increasing practice, but also played a large part in the public affairs of his profession and of the community in which he laboured. He was a member of the medical staff of the Northern Infirmary as physician and as specialist in diseases of the throat, ear, and nose, and took a keen interest in the scheme for reconstructing and endowing that institution in an up-to-date form to serve as a key hospital for the Northern Highlands.

A colleague writes: His medical brethren were immensely indebted to Dr. Mackenzie for the time and effort he expended as honorary secretary of the Inverness Division of the British Medical Association, and at the time of his death he held office as a vice-president of the North of Scotland Branch. He was a Fellow of the Royal Society of Medicine, and a member of the Scottish Laryngological and Otological Society. In many ways he gave an enthusiastic helping hand to the civic activities of the capital of the Highlands. He possessed a kindly, lovable character, which endeared him as both friend and professional adviser to his patients, and which won the affection of all with whom he came in contact. His death is a severe loss to his medical brethren and to the northern public. An eloquent testimony to the affection which he inspired in them was given by the large attendance at his funeral, representatives of all classes and of many public bodies being present. He was indeed greatly loved and is deeply mourned, and widespread sympathy is felt for his widow.

Dr. ALEXANDER STEWART GORDON, who died suddenly at his residence in Inverkeithing on June 28th, was a native of Bathgate. He received his medical education at Edinburgh, where he graduated M.B., Ch.B. in 1904, and proceeded M.D. in 1910. In the latter year he also obtained the diploma in public health of the Royal Colleges of Physicians and Surgeons, Edinburgh. While still a student, he had acted as a member of the staff of the Edinburgh and East of Scotland Hospital which was dispatched to South Africa during the Boer war. After holding the post of house surgeon in Edinburgh Royal Infirmary to Sir Montagu Cottenill Dr. Gordon acquired the practice of the late Dr. Philip at Inverkeithing in 1911, and was appointed medical officer of health for the burgh. He was also parochial medical officer and local medical officer to the post office and school board. With the growth of the district around Inverkeithing consequent upon the construction of the naval base at Rosyth, Dr. Gordon's practice increased greatly and he was appointed Admiralty surgeon and agent. During the late war he was medical officer in charge of the troops of the inner Fort defences, and later medical officer to the R.A.I. station at Donibristle. His services during the war were recognized by the award of the Order of the British Empire. Dr. Gordon was a member of the British Medical Association and of various medical societies, he was the author of a paper on the "Refractory phase of the heart under digitalis and strophanthus." A well-known and popular practitioner throughout the district of West Fife, he was known to a wider circle as a skilled curler. Dr. Gordon had not reached the age of 50, and is survived by a widow and two children.

Dr. AMERIC LEWIS FLAXMAN, who died on June 11th at his residence, St. Nicholas, Pittenweem, had been in ill health for a long time, and virtually retired from practice some eight years ago. After obtaining the M.A. degree at Oxford in early life he later decided to take up medicine, and studied at Middlesex Hospital, becoming a Licentiate of the Society of Apothecaries of London in 1882. He subsequently held the appointments of clinical assistant to this hospital and resident clinical assistant in the East London Hospital for Children. He settled thereafter in Pittenweem and St. Monance, where he conducted a large practice for some forty years. In middle-life he was well known in sporting circles as a lover of horses and dogs. For a number of years he took part successfully in trotting matches at a time when this form of racing was popular in Britain. He was a well-known breeder of dogs, and among dog fanciers is still known as the introducer of the breed of white West Highland terriers, which has recently become fashionable. He was also fond of travel, and despite the calls of a large circle of patients by whom he was greatly beloved, he had managed to pay several visits to the West Indies and to the East. He was a descendant of John Flaxman, the celebrated sculptor and ceramic artist of the eighteenth century, of whom he preserved numerous mementoes.

Dr. BENJAMIN POPE BANTLETT, who died in his sleep, on June 20th, at his residence at Bourton, Dorset, was born in 1861, and received his medical education at Guy's Hospital, he obtained the diploma L.S.A. in 1882 and the M.R.C.S. in 1883. After holding a resident appointment at Leicester Infirmary, he assisted the late Dr. Webber of Crewkerne, Somerset, for two years, and then settled in Bourton in 1886, where he practised for forty-two years. He was district medical officer under the More and Shaftesbury boards of guardians, and medical officer of health of the Mere Rural District for the whole of that time. Throughout the war he was anaesthetist and radio-grapher of the Red Cross Hospitals at More, Wilts, and Plank House, Gillingham, Dorset. He held the post of chairman of the Bourton parish council from its inception, and was an ardent Freemason, being a past master of the Dorset Masters Lodge and a past officer of the Provincial Grand Lodge of Dorset. He had a great reputation as a geologist, and was an expert on the Bourton neigh-

bomhood, his collection of fossils and specimens being very complete. His health had been failing for the past two years, but he continued in his practice until last April. He is survived by one son and six daughters. He had been a member of the British Medical Association for forty-five years, having served for various periods on the Somersetshire, Dorset, and Wiltshire Panel Committees. He was a member of the Inoculture Committee of the West Dorset Division from 1917 to 1921, and of the Dorset and West Hants Branch Council from 1919 to 1921.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

Foot-and-Mouth Disease: Inspection of Imported Meat

On June 27th Lord STRACHAN, in the House of Lords, raised the question of the introduction of foot and mouth disease into this country. He moved that it was undesirable that the Ministry of Agriculture should accept foreign inspection of imported meat from South American countries where foot and mouth disease prevailed while refusing to accept foreign inspection of meat from Continental countries. He urged the Government to stop the danger of infection from chilled meat which he said was practically taking the place of frozen meat. Lord STRACHAN in reply said that there were very good reasons why the Government should discriminate between meat imported from the Continent and that from South America. It had been clearly proved that infection was introduced into this country by the carcasses of pigs brought from the Continent. There had been no proof, however, that infection had been introduced in carcasses from South America. There had been a good many surmises and the Ministry of Agriculture had taken every possible step to prevent infection being brought in. Although there might be possibilities of the survival of the virus in the carcasses from South America, time was so important a factor that it could not be ignored and in practice it was wise to assume that the longer a carcass took to reach this country the less likelihood there was of the virus surviving in or on it. The experiments by the Research Department had not yet developed in the war the Ministry would desire in that the experimenters had not yet found a direct antidote to the disease. The experiments were in a more or less tentative condition and so far the results were not conclusive. It was impossible to say definitely how long the virus continued alive in the blood or bones of carcasses. There was no evidence to show that freezing the meat would kill the virus which seemed to live in the bones just as long as in frozen meat. To deal with this an order had been issued with regard to the disposal of bones.

Lord BLENDISZ who has just returned from South America said that the Argentine Government were doing their utmost to carry out effective inspection. It might be the opinion of some medical authorities here that frozen meat was just as wholesome and nutritious as chilled meat. It was quite certain, however, that that was not the view of a large number of medical authorities in this country. The British public quite properly has developed a taste for chilled meat compared with frozen meat as being more attractive to the palate and in their opinion more wholesome and nutritious. There was no scientific information to lead them to believe that the danger of infection would be lessened by the importation of frozen carcasses in preference to chilled. Lord EASELY said that frozen meat contained an advantage over chilled meat. The Ministry of Agriculture ought to alter the regulations about the disposal of bones and penalize the butchers if they allowed an unboiled bone to leave their premises. A quarantine ought to be placed on chilled meat. Lord STRACHAN withdrew his motion.

Scientific Cinematograph Films Suggested Exemption from Duty

During the Committee stage of the Finance Bill in the House of Commons on July 3rd Captain FRASER moved a new clause to exempt from duty films recording scientific investigations or research imported into Great Britain or Northern Ireland if the Commissioners were satisfied that the films would not be sold, hired, or publicly exhibited for profit. He said that the man who had carried out researches with a microscope or in other directions of a scientific and particularly of a medical scientific, kind now found it possible through the technique which had been developed to record those researches and investigations on a film. Science knew no barriers and ought not to be subject to any taxation. There had recently been one or two instances where eminent foreign scientists desired to bring to this country films recording valuable work they had done not for profit but to demonstrate to their colleagues working on similar lines in this country. Cancer was very likely to be alleviated by some of the researches being made in America, England and Germany by men who used the microscope and the cinematograph for recording their researches. The free interchange of the results of their investigations was something which no taxation should be allowed to impede.

Dr. STURGES seconded the new clause. He said that its object was one with which every member must have sympathy. Even in the few years since 1925 the importance of these scientific films had considerably increased. Many of them had originated in America, Germany and other countries and were most valuable for teaching and scientific purposes. It had always been one of the

proudest features of science that it recognised no frontiers. There ought to be free trade in all that appertained to science and research and anything that would make for the alleviation of human suffering. Therefore there could be no question that the suggested removal of this taxation would have the sympathy of them all and no doubt also of the Chancellor of the Exchequer. The only possible objection was that of administration but it should be possible for the scientific bodies to which such films would be assigned to give a certificate which would permit of the working of this exemption without causing much administrative difficulty. He hoped that the Chancellor of the Exchequer would receive the proposal in a sympathetic spirit. If he did he would receive the thanks not only of scientific bodies, but of general public opinion in this country.

Mr. A. M. SAMUEL said that this clause had received the most careful consideration with a desire if possible to give effect to it. It had been found, however, that to distinguish the scientific films from those which could be shown in the ordinary way would be impossible from an administrative point of view. The revenue authorities could not trace films which were produced as scientific films in these days of popular science and be sure that they were not subsequently shown in picture houses in the ordinary way.

Captain FRASER appealed to the Chancellor of the Exchequer to give the matter careful reconsideration as the films to which the clause referred were only of scientific interest and were in no sense of the word 'popular'.

Mr. CHURCHILL replied that he could give no undertaking in the matter. In view of what Captain Fraser had said, however, he would see that all the facts which had been adduced were examined once again. Those responsible for making that inquiry would receive any further evidence that Captain Fraser might bring forward.

The proposed clause was then withdrawn.

Dogs Act (Amendment) Bill

The Dogs Act (Amendment) Bill was read the second time in the House of Lords on June 28th. Lord BEATIE pointed out that under the principal Act no dog seized by the police could be given or sold for the purposes of vivisection but under this bill dogs which were found were not so protected. He intimated that in the Committee stage he would move an amendment to deal with this point.

Shops Bill

The Shops (Hours of Closing) Bill was read a third time by the House of Commons on June 29th. During the discussion on the Report stage that day Dr. DAVIDSON SHIELDS said chocolates and ice-cream were better for health if not taken late at night. It was in the interests of the community that as few chocolates and as little ice-cream as possible should be taken after 8 o'clock at night. On the motion of Sir VIVIAN HENDERSON an amendment was made adding to the proviso about the sale of refreshments after closing hours the words including table waters, sweets, chocolates, sugar confectionery and ice-cream.

Medical Services in the Highlands and Islands.—Sir J. GILMOUR, replying on July 3rd to Sir A. Sinclair, said the statement in the Report of the Scottish Board of Health that the gap was widening between the standard of medical services in the Highlands and that in the Lowlands expressed the view of the Consultative Council on Highlands and Islands whose report he had seen and was now considering. The money available in the Highlands and Islands (Medical Service) Fund was sufficient to maintain the medical services on their present scale during the current year. It was anticipated, however, that the fund would be exhausted by the middle of the next financial year before which time the question of what further financial provision should be made would be fully considered in the light of the whole circumstances of the case. Sir A. SINCLAIR asked if provision would be made in the meantime for catering up the leeway as well as maintaining these services at the lower level to which they had fallen. Sir J. GILMOUR said that the provision for this year had been made out and would be carried out to the full.

Post-operation Tetanus.—On July 3rd Sir J. GILMOUR in reply to a question said that consideration of the report on post-operation tetanus was still proceeding but he was not yet in a position to make a statement. He hoped to be able to do so very shortly.

Annual Returns of Vaccination Officers.—On July 3rd Mr. CHAMBERLAIN told Mr. Pethick Lawrence that a summary of the annual returns of the vaccination officers for the years 1918 to 1925 would be found in Appendix A to the report of the Chief Medical Officer of the Ministry for 1926, and similar figures for 1926 would be published in the forthcoming report for 1927. The preparation of a return for each county would involve an expenditure of time and labour out of proportion to the value of such a return.

Small-pox Inspection of Casuals.—On June 28th Mr. CHAMBERLAIN in an answer to Mr. Shepherd said the present order for the medical inspection of casuals was due to expire at the end of June but he was continuing it to the end of September. In the week ended June 23rd there were 230 cases of small-pox notified in England and Wales. From January 24th to June 25th 1923 the number of cases of small-pox reported among casuals was 124. Mr. SHEPHERD asked if many of these cases would not be prevented if the casuals were medically inspected on arrival, instead of when they had been in the casual ward over twelve hours. Mr. CHAMBERLAIN said it might be impossible to examine all casuals at the moment of arrival, but he would look into the matter.

Hon M Cn—Sir John Bland-Sutton Bt Past President Royal College
 of Surgeons of England
 Hon D Sc—Dr George Linlue Streevor Director of the Department of
 Embryology in the Carnegie Institute of Baltimore Maryland
 Hon M A—Miss Margaret Hurley in recognition of distinguished
 service to the nursing profession in Ireland
 M D—C Ireland G S Dickson J J Huro (in absentia)
 M M D—C Ireland A O F S Addeley R F G Allen R H Bland
 D M Brind A J Brindin L R H Keatings Marie M E Lea
 Wilson R A G A. Mahon-Daly I C Malone C I Martin
 G G F Pratt H J Robinson H S Smithwick H R F Treedy
 D S P Wilson.

Medical News.

THE Fellowship of Medicine announces that Dr A O Roxburgh will give a dermatological demonstration on July 10th, at 2.30 p.m., in the outpatient department of St John's Hospital, at 262, Uxbridge Road, W 12. On July 11th there will be a urology demonstration at 2.30 p.m. at All Saints Hospital, and on July 12th, at 3 p.m., Mr A special course in ophthalmology demonstration at the Royal Westminster Ophthalmic Hospital. These demonstrations are free to medical practitioners. A course of official demonstrations, operations, and lectures on medicine, surgery, and the specialties will be held at the Prince of Wales's Hospital, Tottenham from July 9th to 21st, from 10.30 to 5.30 daily. A special course in ophthalmology at St Mark's Hospital, from July 9th to 14th, will consist of lectures, demonstrations, and operations. A whole day course at Queen Mary's Hospital from August 27th to September 8th, will include demonstrations in medicine, surgery, and the specialties. There will be a course in diseases of the chest at the Brompton Hospital from July 30th to August 4th, one in diseases of infants at the Infants Hospital, Westminster, from August 13th to 25th, and another in urology at All Saints Hospital, from August 7th to September 1st. Copies of all syllabuses and information on other post graduate work may be obtained from the secretary of the Fellowship, 1, Wimpole Street, W 1.

DR E A COCKayne, physician to the Middlesex Hospital, has joined the Medical Advisory Committee of the Asthma Research Council, and Dr T E Fremantle M.F. has joined the Council. Active steps are now being taken to prosecute the investigation of the causes and possible cures of asthma and its kindred complaints. An advertisement will be found elsewhere in this issue for a part-time research scholar to investigate inhalation and physical treatment. The selected candidate will be required to visit Mount Doro and other Continental resorts for the treatment of asthma prior to taking up his appointment in London.

THE June issue of *The World's Health* appears as a special number published jointly by the League of Red Cross Societies and the International Union against Venereal Diseases. It contains articles by Professor A Bayot, chairman of the Union, Dr Cavallion, chief of the department of venereal disease control in the French Ministry of Health, and Dr 1. Lambert, chief of the health division, League of Red Cross Societies. Reports are given of the measures adopted and the progress made in different countries, and there are accounts of the work in this respect carried out by the League of Nations and the International Labour Office. The review may be obtained from the League of Red Cross Societies, 2 Avenue Velasquez, Paris VIII^e, price 1s.

THE large number of guides to London's complex transport system indicate that few have been found entirely satisfactory, some have been too complicated for ordinary use and others have been too bulky. *The Tube Bus Guide to London*, however, escapes these faults and it should prove exceedingly useful to visitors and Londoners alike. It gives in unambiguous terms the most convenient methods of travel between all the principal landmarks and in an area where the streets are counted in hundreds. This is as much guidance as one is entitled to expect. The information regarding such matters as omnibus stopping places appears to be more precise than usual, while the chief centres are illustrated by unusually clear little maps. In size the booklet is no larger than the third part of a pack of ordinary playing cards. It has been prepared by Mr J C Willis, M.A., So D, F.R.S., and is published at the price of 6d by Messrs W Heffer and Sons, Cambridge.

MR. C E KENNETH MEES, D.Sc., will give a public lecture on "Physics in Photography," on Thursday, July 12th, at 8 p.m. in the rooms of the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, W C 2, under the chairmanship of Sir William Pope.

DR LEONHARD SEIF of Munich will give a lecture on individual psychology in general practice diagnosis, and treatment of the neuroses on Thursday, July 12th, at 8.30 p.m., in the rooms of the Adler Society, 55, Gower Street, W C 1. A discussion will follow the lecture, to which practitioners and senior students are invited.

THE Harben gold medal of the Royal Institute of Public Health was presented on June 28th to Sir Ronald Ross in recognition of his great work in making the tropics healthier. The medal is awarded every three years for eminent services to public health, irrespective of nationality.

A NEW edition—the nineteenth—of volume I of Martindale and Westcott's *Extra Pharmacopoeia* revised and brought up to date by W Harrison Martindale, Ph.D., is published this week by H K Lewis and Co., Ltd.

THE current number of the *Police Journal*, a quarterly review for the police forces of the Empire, the first issue of which was reviewed on January 14th (p. 67) contains several articles of some medical legal interest. One of these Professor Sydney Smith's paper on "The identification of fire arms and projectiles, as illustrated by the case of the murder of Sir Loo Stack Pasha," has been reprinted, by permission, from our issue of January 2nd, 1926. Dr M Hamblin Smith, medical officer to H M Prison, Birmingham, contributes an interesting article on "The value of psychology in court work" which should be of considerable use to those to whom it is primarily addressed. "The prosecution of offenders English practice," by Sir Archibald Bodkin, Director of Public Prosecutions, gives a clear explanation of a legal process which is frequently misunderstood, but whose deservous inclusion in the average person's stock of "general knowledge."

A PUBLICATION of some fifty pages entitled *Actino therapy or Ultra violet Radiation*, and illustrating the apparatus of the Cox Cavendish Electrical Company, Limited (105, Great Portland Street, W), contains particulars of a bewildering variety of mercury vapour and tungsten and carbon arc lamps, in one apparatus these three types are combined on the one stand, so that any one or more of them can be used by a simple adjustment. Attention is drawn to the quartz mercury arc lamp, supplied in various forms under the name of "ultraro." In a quartz mercury vapour lamp termed the "nivistar" the old type of water cooled vacuum has been replaced by a forced draught. The latest developments in ultra violet lamp production seem to relate not so much to the source of the radiation as to its adjustment to suit various positions and needs.

THE following appointments have recently been made in foreign medical centres: Dr Alfred Gutlich of Greifswald, professor of otolaryngology at Cologne. Dr S Weber of Kiev, professor of otolaryngology at Riga and Dr Akira Agata, professor of hormone chemistry at Tokyo.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W C 1**.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W C 1 on receipt of proofs.

All communications with reference to ADVERTISEMENTS as well as orders for copies of the Journal should be addressed to the Financial Secretary and Business Manager.

THE TELEPHONE NUMBERS of the British Medical Association and the *British Medical Journal* are *MUSEUM 9561, 9562, 9563, and 9564* (internal exchange four lines).

THE TELEGRAPHIC ADDRESSES are
EDITOR of the *British Medical Journal* *Atiology Westcent, London*
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(Advertisements etc.) *Articulate Westcent London*
MEDICAL SECRETARY *Medicern Westcent London*

The address of the Irish Office of the British Medical Association is 16 South Frederick Street, Dublin (telegrams *Bacillus Dublin* telephone 62550 Dublin) and of the Scottish Office 7 Drumshigh Gardens Edinburgh (telegrams *Associatic, Edinburgh* telephone 24361 Edinburgh).

QUERIES AND ANSWERS

INJECTION TREATMENT OF VARICOSE VEINS
"G W J" would like to know whether there are any hospitals in Central London where varicose veins are treated by injection.

FINGER SUCKING
"S C M" asks for suggestions for the cure of finger sucking in an infant aged 20 weeks. The habit started when she was 4 weeks old. Local application of aloes and tincture of asafoetida has been tried without success.

FORMICATION
DR JOHN THOMPSON (Lisburn) asks for suggestions in the treatment of formication of the skin. The patient's sensations commence in the back and pass into and over the head. At times they start in the epigastric region.

STATUS EPILEPTICUS

DR L. HARRIS LISTON (Middleton St George oo Durham) writes in answer to "I O B's" query about the treatment of status epilepticus I may advise as I have treated many such and not seen a death since I adopted the outling short method of giving a hypodermic injection of 1/100 grain hyosceline hydrobromide. One then is usually sufficient, occasionally another after an hour's interval if the convulsions have not ceased and rarely a third is needed. A useful combination is hyosceline hydrobromide 1/100 grain morphine sulphate 1/6 grain, and atropine sulphate 1/180 grain, and this can be obtained as tabloid hypodermic "A" (Burroughs Wellcome and Co.) I would also advise the administration of luminal sodium 1 grain every night and a dose of saline every morning.

TREATMENT OF SITTIC TONSILS

"J A E" writes In the letter on tonsil suction printed in the *Journal* of June 16th (p 1048), Dr R Scott Stevenson quotes a formula of Sir James Dundas Grant iodine gr 1, acetic other (acid free) 3ij glycerol ad 3j I prescribed this only two days ago but the prescription was returned by the chemist on the ground that the acetic other was "incompatible" with the glycerol He states that his acetic other was definitely acid free I did not know enough to argue the matter and I substituted Mandl's patent I should like very much to use the Dundas Grant formula, and I should be grateful if you can suggest anything which will help.

* * * We have referred this inquiry to Sir James Dundas Grant, who replies

As the ingredients of the iodine acetic ether and glycerol paint for the tonsils, formulated by me, are not strictly miscible, it is advisable to dispense a fluid ounce of the mixture in a two-ounce bottle, so as to allow of shaking up before application.

INCOME TAX

Cash Basis

"E M A W" states that for some years he has paid income tax on the basis of fees earned and inquires whether there is any definite ruling on the question.

* * * It has to be admitted that the legal basis is the value of fees earned—that is, the amount of gross bookings for the year less a carefully ascertained allowance for probable losses by non-payment. But for many years the revenue authorities have agreed as a concession for mutual convenience to accept, in lieu of the strict gross amount, the total of the cash receipts provided that there are no circumstances such as the growth of the practice which render that basis an unfair index of the true earnings. The matter was discussed some years ago between a prominent official at Somerset House and a deputation representing the profession and the above is the gist of the agreed position.

Proof of Partnership

"H I J" has recently taken a into partnership and has been requested by the inspector of taxes to forward the partnership agreement for perusal.

* * * So far as our knowledge goes such a request is not usual in the case of a professional partnership, where the bona fides of the parties is undoubted and the facts are free from the complications that may attend similar agreements in the business world. We think therefore that our correspondent is justified in demurring to the request, while supplying such information with regard to the terms of the agreement as may be relevant.

LETTERS, NOTES, ETC.

HERPES AND VARICELLA.

DR VAUGHAN PENDREN (East Shooon) writes. My brother-in-law had a severe attack of herpes, and both his daughters developed varicella two weeks later. A boy aged 12 contracted a mild attack of herpes and a fortnight later his sister and two brothers younger than he were all down with chicken pox. These make my sixth experience of this phenomenon.

HOSPITALS FOR MIDDLE CLASS PATIENTS

THE RIGHT REV MONSIEUR CARTON DE WIART writes. Speaking at the conference of the British Hospitals Association at Southport Sir Thomas Harder is reported to have said that one of the most urgent of our problems to-day was the provision of adequate medical and surgical treatment for middle-class patients. "It is a crying need," he said. "We in London have no alternative between the general wards of the large hospital and the private nursing home, where, often enough, the cost to the patient is absolutely prohibitive." May I be allowed to state that a hospital for the middle-classes has been in existence since 1913 in the north of London. St Andrew's Hospital, Dollis Hill, for the professional and middle-classes was opened in 1913 for the reception of patients who while not suitable subjects for free treatment in charitable institutions are yet unable to meet the charges necessary to secure adequate medical or surgical treatment in private nursing homes. Standing on the crest of Dollis Hill it commands a beautiful view, in all directions, of the

picturesque country outlying London. The building has been equipped and furnished according to all modern requirements and stands in its own grounds of seventeen acres. Patients are admitted only on the recommendation of their own medical adviser. They are received irrespective of nationality or creed. Medical and surgical cases are received but those of a mental, contagious, consumptive, or venereal nature are not admitted. The hospital depends for its maintenance upon voluntary contributions and patients' payments. It is under the care of a most efficient honorary medical staff and two resident medical officers. It is now well known and its accommodation is taxed to the utmost. The number of beds must be increased at once. The opening of a children's ward is imperative, and more accommodation must be provided for the staff. The cost of the extension will be £33,000 towards which £6,601 is available. To all who are interested in this work and anxious to provide for this "crying need," we urgently appeal for assistance to enable us to provide the necessary accommodation. Plans have been prepared and building can proceed at once if help is forthcoming. I all particulars concerning the hospital will be supplied on application to the Administrator, St Andrew's Hospital, Dollis Hill, N.W.2.

MIDWIFERY MORTALITY

DR J. H. DUBOIS (Workington) writes. Dr Roxburgh in his letter (June 30th, p 1126) has pointed out the danger of hounding over midwives to "a body of midwives who are licensed to attend cases but who are totally unfit to take the responsibility thrown upon them." This is due to their very elementary and inefficient training, as at present any woman (many of an indifferent class) with no knowledge of surgical and medical nursing is, given one year's midwifery training and turned out licensed. I do not think this is good for the patients or doctors. No woman should be eligible for the examination in midwifery until she has had three years' thorough training in hospital and has passed the State examination in general nursing. The doctor spends at least five years in training, the trained nurse with her maternity spends four years, the untrained woman spends a year at midwifery and is then licensed. Another bad feature is that these untrained nurses but licensed midwives are sent out to country districts and are expected to attend cases of all kinds surgical or medical or midwifery, which is unfair to trained nurses and to those treated by them.

DR FREDERICK RUSSELL (Southend-on-Sea) writes. Will you allow me to plead for serious consideration of Dr Roxburgh's letter? For a long time I have been striving to draw attention to the fact that the majority of practitioners who are not attached to the ones affected but there are some who until affected peculiarly. What is most serious is the loss of professional skill and knowledge that must come to them. I write feebly because I have made it my business to watch the story of the profession for the last thirty-five years. When the general practitioners refused to man the clinics I knew they were making a fatal mistake. The idea of retaining an imagined surgical monopoly has driven the members of the Hospitals Association to uphold blindly a voluntary system which has been compelled to be more scrupulous as to how money was raised for the voluntary hospitals. This has been in vain, and the Hospital Savings Association and the middle-class hospitals will in the end hurt them financially as well as the general practitioners, as Dr Roxburgh so ably points out, these organizations will render the practitioners less efficient and more ignorant. Every surgical case will go straight to the hospitals. When I was a young practitioner in Lancashire all minor surgery and most of the patients with fractures and dislocations, were attended by general practitioners in their surgeries or in the workmen's homes. But when the employers were able to persuade the workmen to give weekly contributions to the hospitals then they stopped paying the general practitioners and all surgical cases were dealt with at the hospitals. The divorce of the general practitioners from the hospitals and the clinics will go on for a time, but finally medical men of all kinds must be paid for all the work they do for the nation and the general practitioners will have to be attached to the hospitals and clinics. The profession must awake to a realization of what is going on.

CORRECTION.

In the annotation entitled "Fine work and eyestrain" published in the *Journal* of June 30th (p 1119) the name of the ophthalmic surgeon referred to appeared as "Mr T. G. Clegg", this should have been Mr J. Gray Clegg.

In Mr R. Chalmers's note on pneumonia after operation for gastric and duodenal ulcers (June 30th p 1134) line 6 in column 2 should read "Morrison's and anaprapubic pouches." On the second day consolidation of the left lower lobe appeared.

VACANCIES

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 47, 48, 49, 52, 53, 54, and 55 of our advertisement columns and advertisements as to partnerships, residencies and locum tenencies at pages 50 and 51.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 11.

Remarks

ON

THE SURGICAL TREATMENT OF DIVERTICULITIS

BY

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The figures for the distribution of diverticula in the colon have been given by Dr Spriggs in 158 cases, as follows: pelvic colon 116, descending colon 76, ascending colon 30, transverse colon 31, whole colon 23, caecum 7. Of these 158 cases 12 per cent had an inflammatory process associated with the diverticula—in other words, diverticulitis.

From the point of view of the surgeon the following two questions are important: (1) In what proportion of cases is diverticulosis confined to the iliac and pelvic colon? (2) In diverticulitis is the condition restricted as a rule to one limited section of the bowel, or does it usually involve a considerable length of the colon simultaneously? I put these questions lately to Mr Marver of Ruthin Castle, and he has answered as follows:

In the last 100 consecutive cases of diverticulosis 16 had proceeded to diverticulitis at one or more points. In only 3 cases were the hypertrophic changes confined to the iliac and pelvic colon exclusively. In 11 of the 16 cases of diverticulitis the disease in the pelvic and iliac colon was associated with diverticulosis in other parts. In 8 of the cases less than 6 inches of bowel was hypertrophied; in the other 8 there was either more than 6 inches affected or more than one area.

These facts have a bearing on the operative treatment, more particularly on the question of resection, which I shall discuss later. In the cases of acute inflammatory colitis originating in diverticula a very long length of the bowel is usually infiltrated.

As a preliminary to the discussion of treatment it is necessary to distinguish the different clinical conditions which have their beginnings in diverticulitis, the acute and the chronic, and the sequelae or complications. These may be defined as follows:

1. Acute diverticulitis
2. Chronic diverticulitis
3. Acute perforative diverticulitis
4. Chronic perforative diverticulitis
5. Diverticulitis with stenosis

I have seen in all 18 cases suffering from the disease. My experience agrees with that of those who find it comparatively uncommon among the industrial classes—only six of my cases were seen in hospital.

The cases may be tabulated as follows:

Diverticulitis (18 Cases)

Type	Treatment	Result
Acute without complication—2 cases	1. None 2. Caecostomy	— D
Chronic without complication—2 cases	1. None 2. Fixation and wrapping	— C
Acute perforation general peritonitis—4 cases	1. Diverticulum excised and drainage 2. Diverticulum excised and drainage 3. Drainage 4. Drainage	C C C D
Chronic perforation with abscess—6 cases	1. Drainage 2. Drainage, separation of adhesions 3. Drainage 4. Drainage 5. Drainage 6. Drainage	C F C C C C
Stenosis—4 cases	1. No operation 2. Short circuit 3. Colostomy 4. Resection	— C C C

1. Acute Diverticulitis

This type is subacute at the start. The patient has some vague abdominal pain which increases in severity until, at the end of about forty-eight hours, he is acutely ill with severe localized pain, pyrexia, and increased

pulse rate. On examination a large extremely tender tumour is found usually in the left lower abdomen. The following case is typical:

A woman aged 61 was first seen on September 14th, 1925. For a week previously she had been ill with fever, occasional vomiting, constipation and acute abdominal pain. On examination a large tender tumour extended from the left iliac fossa as far up as the lower left ribs. The diagnosis was acute diverticulitis of the iliac and descending colon. I advised that no operation should be done unless there were definite signs of abscess. This inflammatory mass gradually disappeared. She had a slight recurrence of the condition in November 1926. Her doctor reports to me that in January 1927 he could make out nothing but a little thickening of the colon further that she had had no signs of stenosis and that by avoiding salts and by careful dieting she had remained well up to the present.

2. Chronic Diverticulitis

The chronic form of the disease is the commonest of all. The clinical features have been described in detail by Dr Spriggs, and I shall take the liberty of epitomizing his account. The patient has abdominal discomfort, less often pain, in the lower abdomen at or about the navel, but especially in the left iliac fossa. General flatulence and a feeling of distension are complained of. Constipation is frequent, or irregularity of the bowels or diarrhoea, or a sense of incomplete evacuation. Occasionally there is haemorrhage from the rectum. A sausage-shaped tumour, sometimes tender, but not always, can be felt in the left iliac fossa except in the obese. The following is an example of this chronic type:

A man aged 60 was first seen on March 23rd 1927. This patient had had attacks of abdominal pain at intervals for about two years. The pain had never been acute. His chief complaint was total loss of appetite. There had been considerable loss of flesh but this had not been progressive; he had been persistently troubled with flatulence. The site of the pain was in the left iliac fossa. Growth of the colon was suspected. Operation was performed on March 27th 1927. The pelvic colon was found adherent to the parietes in the left side of the pelvis. It was freed; the condition was considered to be inflammatory and due to diverticulitis. The adherent part of the colon was wrapped in omentum; a forty-eight hour drain was placed in the pelvis. For the last nine months he has been free from symptoms and his appetite has returned.

3. Acute Perforation

Acute perforation may be the initial symptom of the disease. This was so in all of the four cases of perforation on which I have operated, the duration of the symptoms before operation being six hours, thirty-six hours, four days, and one week. In one case the perforation concerned the transverse colon, in one the descending colon, in the remaining two the pelvic colon. The sequelae of this accident are those which would be expected to follow a perforation at this bowel site.

In one of my cases, the transverse colon perforation, there was an unlimited peritonitis, but the operation was done within six hours and recovery followed resection of the diverticulum, cleansing of the peritoneum, and drainage.

In the second case there was also an unlimited peritonitis.

The patient was admitted to hospital after thirty-six hours; his pulse rate was 132, his temperature 100.8° F, and the abdomen showed signs of an acute and generalized peritonitis of a severe type. A perforation of a diverticulum of the sigmoid colon was found and an intense diffuse peritonitis with fetid blood stained exudate. He died nine days after operation from persistence of the peritonitis and ileus.

In the third case the resultant infection was more localized.

The patient was a woman aged 44; the onset was sudden severe hypogastric pain with vomiting. On the fourth day there was an exacerbation of the pain with a pulse rate of 120 and temperature of 100.4° F. When seen she had signs of an acute peritoneal infection in the lower abdomen. A perforated diverticulum of the pelvic colon was demonstrated; the bowel having become adherent to the parietes in the pelvis there was a large pelvic collection of fetid pus. The diverticulum was excised; the pelvis drained and recovery followed.

In the fourth case the infection following the perforation was also localized.

This patient was also a woman aged 39. The symptoms were a week old when she was admitted to hospital. Her illness commenced with acute pain around the umbilicus and then in the left iliac fossa throughout the week she vomited frequently. At the end of the week she had a temperature of 101.4° F, and a pulse of 110 with signs of an acute infection in the lower abdomen towards the left side. A sloughed diverticulum of the descending colon was found and a large purulent collection in the left iliac fossa. After operation she had a faecal fistula which closed in three weeks.

The sequelae of this accident of perforation are similar to those following a perforative lesion of the appendix, the peritonitis is of a severe type and localization may or may not occur.

4 Chronic Perforation

There is no simply cut line between the cases of acute and the cases of chronic perforation. This group comprises those in which there is no sudden flooding of the peritoneum, where the perforation is shut off before it is complete and the typical sequel is an abscess. In fact, the group is best described as "chronic perforation with abscess," and may include the cases where no single gross perforation is demonstrated. If so, it will include all the cases of so-called "pericolicitis sinistra," the old original term. It will form the largest group which comes under surgical treatment.

Six of my cases belong to this group. One case was seen in an attack, of which the patient had had several in the previous two years. The disease was recent in the remaining five. They illustrate the variations which will arise in the clinical course according to the site of the focus and its limitation. Four of them were simple abscess evacuations in which the symptoms had been present nine weeks, fifteen days, fourteen days and four days. Healing after evacuation occurred in seventeen days, twenty-two days, twenty-eight days and twenty-eight days. In one case the ascending colon was the part of the bowel concerned, in the other three the sigmoid colon. The remaining two cases have points of special interest.

1 A female patient, aged 40, who had an attack of sharp pain in the lower abdomen six weeks previously. She had a second attack three weeks later and a third a week after this. In the last attack the pain was hypogastric, she vomited several times and the pain lasted three days. The pre-operative diagnosis was appendicitis. The appendix was healthy, a mass was found by the examining hand on the pelvic brim on the left side. The mass consisted of ileum adherent to iliac colon and on separation an abscess was opened. A perforation of a diverticulum was demonstrated on the mesenteric aspect of the iliac colon. The wound was drained and healing took place in three weeks.

The last case of the group illustrates an important surgical point to which I shall refer later.

2 A male patient, aged 43, for two years had had short attacks of abdominal pain of moderate severity. He came under observation in the course of an attack which had lasted a month—an exceptionally long time. He was ill with pyrexia and diarrhoea. Above the symphysis pubis and to the left of the middle line was an acutely tender mass. The diagnosis was diverticulitis with abscess. At operation an abscess was found buried in a linited mass of pelvic colon and adherent ileum. A faecal fistula followed this operation and has persisted up to the present rendering the patient unable to follow his occupation. Some months after operation the Wassermann test gave a double plus result and this may have had something to do with the persistence of the fistula.

5 Diverticulitis with Stenosis

Attacks of flatulent distension with actual colic are comparatively frequent incidents in many cases of chronic diverticulitis. Usually they are subacute and can be warded off by diet, a medical man of my acquaintance found complete relief from recurring attacks of this kind during a month spent in Barcelona eating the food of the country cooked in oil. By continuing the same type of cooking at home he has escaped further attacks during the last eighteen months or so.

There are four cases of persistent subacute obstruction from stenosis in my list.

1 A man, aged 61, in February 1926 had an attack of constipation with distension and gripping pain. Radiological examination demonstrated obstruction of the colon at the pelvic brim. The abdomen was opened by another surgeon, no growth was found but diverticulitis of the pelvic colon was demonstrated. Nothing further was done. I saw this patient in October 1927, he then complained of troublesome constipation and occasional distension. The pelvic colon was tender to palpation. A further radiological examination showed diverticulitis of the pelvic colon and many diverticula elsewhere. As he had no progressive symptoms no operation was advised.

2 The second case is that of a man, aged 47, who complained of constipation varied by occasional diarrhoea and also occasional haemorrhage of four months duration. The pelvic colon could be felt as an indurated and tender mass in the left iliac fossa and into the loin. Operation showed the whole length of the pelvic colon indurated with inflammatory exudate. On account of the signs of stenosis a transverse colostomy was performed. With irrigation the condition of the bowel improved so that it was possible to close the colostomy in two months, the stenosis being relieved.

3 The patient in this case was a woman, aged 42. During the previous eight years she had had six attacks of abdominal pain, diarrhoea and haemorrhage. The pain was hypogastric, in some of the attacks there had been vomiting. Radiologically the opaque meal was held up in the caecum and ascending colon for ninety-six hours. At operation an inflammatory mass was found in the central part of the transverse colon. An anastomosis was made between the terminal ileum and pelvic colon. Her symptoms have been entirely relieved.

4 The last case is that of a man, aged 44. He had had attacks of abdominal pain for five months. He was seen during an attack, which commenced suddenly with acute abdominal pain, there was no action of the bowels for eight days. On admission to hospital a tender tumour was palpable in the left iliac fossa. The operative diagnosis was carcinoma of the pelvic colon, and the supposed growth was resected. Examination of the specimen showed the mass to be inflammatory and due to diverticulitis. The iliac anus was closed later.

Questions of surgical treatment may be discussed in relation to these five clinical types.

1 First, in regard to *acute diverticulitis* without complication. The case quoted illustrates what I consider should be the attitude of a surgeon to this type—namely, that unless unequivocal signs of abscess make them appear, and no operation should be done. There is nothing useful to do. Resection of a long length of colon would be a difficult and risky proceeding, and would have to finish with a colostomy. Isolation of the inflamed bowel by wrapping it with omentum is unnecessary, as the bowel can be trusted to isolate itself by adhesions. Lastly, any exploration for a suspected abscess would very likely result in the leaving of a faecal fistula. The one duty of the surgeon is to be on the look out for general and local signs of abscess formation. Unless this occurs the prognosis is good so far as subsidence of the acute attack is concerned. Even if abscess is suspected, delay is best. The case of persistent faecal fistula in my fourth group shows the danger attached to exploration for an abscess buried in a mass of adherent coils of large and small intestine. In this case it is true the adhesions were old and the patient a particularly bad subject, but even in recent cases the risk of serious damage to the bowel wall is considerable.

In one such case, operated on in 1921, I performed caecostomy. I have to admit that the evidence on which the diagnosis of diverticulitis is based in this case is not conclusive, but I believe it to have been an example of the disease.

The patient was a woman, aged 40, who had had symptoms for four weeks—general abdominal pain and blood in the stools. She was confined to bed during this time. The abdomen was distended and a mass was palpable in the left iliac fossa. Temperature 101°F, pulse 116. Her general condition was poor. At operation six days after admission to hospital the sigmoid colon was found transformed into a large inflammatory mass; there was no evidence of new growth. Caecostomy was performed. Her general condition did not improve, watery stools continued with haemorrhage. Death occurred one month after caecostomy.

This case is no test of the value of colostomy in acute diverticulitis, but I believe this to be unnecessary. On this matter there is difference of opinion. Sir Charles Gordon-Watson has said, "In these acute cases colostomy will often be necessary", and again, "In the absence of a definite abscess active inflammation subsides with surprising rapidity after colostomy." This is the only recommendation of colostomy as a measure to be applied in the acute cases which I have met with. It may be that it hastens subsidence, but before adopting it we shall want to know what is the prospect of subsidence in these cases without it. I suspect this prospect to be favourable, and we should, I think, be very sure that it is unfavourable before we adopt a procedure which is so distressing to the patient and which involves many weeks of discomfort before the artificial anus can be closed. Sir C. Gordon-Watson says "After a reasonable interval recovery may be so complete that the colostomy can be closed." For some forms of infiltrative colitis colostomy is the remedy, and without it the disease cannot be controlled, but I doubt very much whether it is the right procedure in the acute colitis which originates in diverticulitis.

II The second class of case, *chronic diverticulitis* without complication, will not often come to surgeons. The treatment has been laid down by the physicians. If such cases come to operation on account of the suspicion of new growth, there is one thing that appears to me to be worth doing. The worst of all the complications of the disease

is a bladder fistula, a complication which has been recorded in quite a number of cases. If the affected coil of colon is lifted out of the pelvis and wrapped in omentum a perforation of the bladder will not occur should an abscess form at a later period. Chronic diverticulitis without complication is not, then, a surgical disease, but if operated on for any reason the bowel should be isolated by omental wrapping, and fixed in the left iliac fossa.

III The accident of *acute perforation* is not likely to be diagnosed precisely before operation. It should be looked upon as a cause of acute peritonitis of not infrequent occurrence, one of the conditions to be borne in mind when the abdomen is opened on account of acute peritonitis of uncertain origin. It is treated on the ordinary surgical lines: the perforated diverticulum is excised and the bowel wall invaginated, drainage being provided as may be necessary. The infection is likely to be of a severe type.

IV In *subacute and chronic perforation* it is best to wait until the abscess is well defined, and, in the second place, to confine surgical treatment strictly to the evacuation of the abscess and the drainage of its site. I am unable to offer any information regarding the prognosis of recurrence of abscess after simple drainage, a question which would be worth while following up. The danger of serious damage to the bowel wall if anything more is done than evacuation of the abscess has already been mentioned. There is not, in fact, any need to search for a sloughed or perforated diverticulum in order to obtain healing.

V Stenosis, when it is certainly known to be secondary to diverticulitis, will require separate discussion in each individual case. There is no such clear indication for operation as in cancer, where it is known with certainty that the stenosis will be progressive. The study of a large group of cases of chronic diverticulitis followed over several years would be of much value. In what proportion of such cases does stenosis supervene? In what proportion of cases of stenosis does acute intestinal obstruction occur?

Mr Lockhart-Mummery writes as follows:

Early recognition of the disease is of the utmost importance but if symptoms of chronic obstruction associated with the formation of a tumour and chronic sepsis are already present, I believe that immediate surgical interference is indicated and that palliative measures at this stage will more than probably result in a disaster from which it will be difficult if not impossible for the surgeon to extricate the patient. As in so many other diseases one sees that the bad results following operation are almost invariably in those cases which have been submitted to operation at a too advanced stage."

The first question to answer in any given case is, Is operation required? If the patient is suffering, in spite of treatment, from recurring attacks of subacute obstruction with griping pain, distension, and constipation, then operation is undoubtedly required.

What operation is to be done? If the disease is so situated and so localized that resection is easy, then this is the operation to choose. But it may be ruled out by two different conditions: first, the disease may be situated so far along the pelvic colon that anastomosis is impossible, and secondly, the extent of bowel involved may be so great that reunion is difficult. It is all the more unjustifiable to submit the patient to an extensive operation involving risks, in that in colostomy we have not *in mere pis aller*, as in cancer, but a remedy for the disease offering at any rate a fair prospect of cure. It proved curative of the stenosis in one of my patients. In stenosis of the pelvic colon when resection is impossible colostomy in the transverse colon seems the proper thing to do. Unfortunately a short-circuit operation will rarely be feasible in view of the usual site of the disease but will be preferred to colostomy under favourable conditions as in case No. 4 of this group.

In three cases in this group, one of which was treated by resection, one by colostomy, and the third by diversion, the necessity for operation was clear. The fourth is a borderline case in which the question of the necessity for operation is one for debate. A male, aged 61, not a good surgical risk, operated on two years ago on suspicion of growth, with symptoms of constipation and recurring griping pain with distension. The sequel is interesting as showing that the stenosis is not necessarily progressive. To-day, although nothing was done, his attacks are of less

severity, and recent radiological examination shows no stenosis definitely less marked than it was two years ago. The diverticulitis and constriction involve the distal part of the pelvic colon, but he has diverticula in the whole of the sigmoid loop and in the lower part of the descending colon, colostomy here would be the operation necessary, but as his symptoms at present show no tendency to increase in severity I advised against any surgical treatment.

At the beginning of this paper I gave the observations supplied to me by Mr. Marver on the localization of diverticulosis on the one hand and of diverticulitis on the other, the bearing of these on the treatment by resection may now be discussed. Is resection generally applicable to cases of chronic diverticulitis without complication?

For two reasons it appears necessary to answer this question in the negative. In the first place it is reported by physicians that the patient can usually be kept in satisfactory health by diet and paraffin. In the second place, the site of the actual disease is often unfavourable for resection and the extent of the bowel involved would necessitate a very extensive colectomy in the great majority of cases. If it is true that the average patient with uncomplicated chronic diverticulitis can be kept in fair health by medical measures, a major operation which is not without its risks does not seem justifiable.

Is resection an operation to be generally adopted for cases of chronic diverticulitis with stenosis? Probably it will be employed more and more frequently in these cases, but it will always, except in a very few cases, be an extensive resection. Resection must go wide not only of the area of diverticulitis, but of any associated diverticulosis. A portion of bowel has to be chosen for anastomosis which is free of developed diverticula, this must be confirmed radiologically, as the presence of diverticula is liable to be overlooked in the course of a laparotomy in a fat-laden bowel. Mr. Marver, in his letter, refers to one such case in which an anastomosis was made in bowel in which diverticula were present, necessitating a further excision after four years of suffering. Before the indication for resection can be settled the value of colostomy in these cases of stenosis will have to be estimated. It may be that if the bowel is kept empty by colostomy the inflammatory condition will subside and the stenosis resolve. In cases of stenosis obviously unfavourable for resection it is the method to be recommended with a fair prospect of its proving curative.

Observations

ON

ULTRA-VIOLET RAY THERAPY *

BY

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In this lecture I shall doubtless be expected to give a list of diseases which can be relieved or cured by ultra-violet rays, and to say how the treatment should be administered. Thus I shall do, but before I proceed to this part of my lecture I must give an introductory account of the rays and their action on the body. This is necessary, because the subject of ultra-violet ray therapy is far from being standardized, and although I can give some help in the selection of diseases for treatment, and some advice in regard to methods of administration, the general practitioner will frequently be confronted by cases in which he will have to use his own judgement in the treatment of patients. For the benefit of those who desire to practise ultra-violet ray therapy as a "side-line" in their general work I shall lay emphasis on methods and apparatus suitable for this purpose.

The first fact to recall is that ultra-violet rays are not all of the same kind. They differ in their wave-length, and they do not all possess the same biological chemical or physical properties. Those with the shortest wave-

* Abstract of a British Medical Association Lecture delivered to the Southampton Division, March 30th, 1928.

length I shall designate by the number 20, and those with the longest wave-length by 39†. There are rays of every wave-length between 20 and 39. Rays with wave-length shorter than 20 do not concern us, because they do not reach the body. Those with wave-length of 40 are the visible violet light rays. The visible red light rays have a wave-length of 70. Rays with wave-length of 80 and over are the invisible heat waves, sometimes called the infra-red rays. I mention these facts because the ultra-violet lamps also emit these other rays as well as the ultra-violet, and the former possess therapeutic properties too. So when the practitioner exposes his patients to the ultra-violet lamp he administers phototherapy and thermotherapy as well as ultra-violet therapy. This is especially the case when certain types of lamp are used.

When these different rays fall upon the body they penetrate for certain distances, and then they are absorbed. Rays possess energy, and this energy is not lost when the rays are stopped. Either heat is produced or chemical changes occur, depending on the wave-length of the rays and the kind of tissue in which the rays are absorbed. The tissues react to these thermal and chemical changes, and various biological effects ensue. These effects, whether physiological, pathological, or therapeutic, are the outcome of the thermal or chemical changes caused by the rays.

Before we study these effects I must say a few words on the distance to which the different rays penetrate before they are stopped. This is important, because various kinds of tissue lie in the path of the rays, and the distance reached by the latter is dependent on the nature of the tissue as well as on the wave-length of the rays. Ultra-violet rays with wave-length from 20 to 24 are stopped in the stratum corneum of the epidermis. Those with wave-length from 25 to 33 pass through this layer, but are stopped in the stratum mucosum of the epidermis—that is, in the basal epidermal cell. Those with wave-length from 34 to 39 pass through the entire epidermis, but are stopped by the blood in the subepidermal capillaries. Rays with wave-length of 40 (these are the visible violet rays) probably do not penetrate further than the longest ultra-violet rays. On the other hand the visible red ray (wave-length 70) has a much greater penetrating power, and it reaches the superficial strata of the muscles under the deep fascia before they are stopped. The visible green and yellow rays have an intermediate penetrating power. The invisible heat rays have a feeble penetrating power. It is doubtful whether those with the shortest wave-length (80) penetrate much deeper than the sub-epidermal capillaries, while those with longer wave-length do not penetrate as far.

We may now study the action of the various rays on the tissues which absorb them. As I have already said, the rays expend their energy in the production of thermal or chemical changes; their action ends there. The infra-red rays heat the tissues that absorb them. Since their penetrating power is very slight the distribution of the heat is superficial. The maximum temperature is produced on the surface, below the surface the temperature rapidly drops to normal. The visible light rays also expend their energy in the production of heat. By reason of the greater penetrating power of most of these rays they can heat to a greater depth than the infra-red rays. By means of the visible red rays it is possible to elevate the temperature of the superficial layers of muscle under the deep fascia. The ultra-violet rays with the longest wave-lengths (34 to 39) expend their energy in heating the blood in the sub-epidermal capillaries. They have no action, so far as is known, on the epidermis. These are the so-called "long" ultra-violet rays.

The rays which pass through the stratum corneum but are stopped by the cells of the stratum mucosum (25 to 33) produce chemical changes in these cells. These changes are of a destructive nature, and they kill the cells if the rays are sufficiently intense or applied for a sufficiently long time. The dead cells are cast off by the process of desquamation. The separation of the remains of dead

cells is, of course, a natural process, but in physiological states the cells that are cast off have died of old age. The artificial destruction of epidermal cells by ultra-violet rays is followed by certain biological effects. They will be described presently. These rays are sometimes called the "medium length" rays. The rays with wave-length from 20 to 24 (the "short" rays) do not pass beyond the horny layer of the epidermis. Since this layer is composed of dead tissue the rays cannot produce any biological effect in it. If they fell on living tissue they would destroy it, but only to a very slight depth, because their penetrating power is so little. These very short rays can also kill bacteria, but to kill them they must reach the bacteria and not be stopped by overlying tissue. Unfortunately the rays which are most powerfully bactericidal (23 to 24) have a very feeble penetrating power. As the wave-length gets longer the germ destroying power falls rapidly. Consequently we cannot expect ultra-violet rays to destroy bacteria (that is, by direct action) if they lie more than the very slightest depth below the surface.

There is another important chemical change which the rays bring about. This is what is known as the "activation of cholesterol." This substance is present in all growing tissues, and it plays an important part in metabolism. It cannot perform its function unless it is rendered active. Ultra-violet rays possess this activating power. In this way the curative action of the rays in rickets is explained.

Let us now consider the biological effects which follow the physical and chemical changes brought about by the different rays. The invisible heat rays and the visible light rays are thermogenic. Consequently the biological effects of these rays are those of heat. The effects of heat are far-reaching, but the time at my disposal does not allow me to go into the matter. I might mention, however, that it increases the action of those ultra-violet rays which bring about chemical effects.

It is believed that the ultra-violet rays with the longest wave-lengths (34 to 39) have no chemical action on the tissues. It is probable that they are thermogenic. Their biological effects are therefore those of heat. The chemical changes induced in the living epidermal cells by the rays of shorter wave-length are not immediately followed by any visible effect, but after an interval of two to ten hours there develops an erythema. It lasts from a few hours to a few days according to the length of exposure and the intensity of the rays. It then fades away. Desquamation begins after four or five days. The degree of erythema and the amount of the desquamation also depend on the length of exposure and the intensity of the rays—that is, on the dosage. With small doses the erythema is slight and the desquamation is indiscernible. With less small dosage the erythema is more evident and the desquamation is apparent. With heavy dosage the erythema is intense and blisters may form. After a few exposures sufficient to procure a fair degree of erythema there develops in many subjects a pigmentation of the skin. This is due to the formation of a substance known as "melanin" in the basal cells of the epidermis. The most potent erythema producing rays are those with wave-lengths from 29 to 30. The pigment-producing rays are those with wave-lengths from 29 to 33. Rays with wave-length a little shorter than 29 can produce marked erythema without pigmentation.

Accompanying or following these changes in the skin are others in other parts of the body, but the mechanism of their production is not known. We may attribute them to the absorption of substances formed by the action of the rays on the epidermal cells. One of these substances is activated cholesterol. Some of these changes are known. One of these is an increase of the calcium and phosphorus content of the blood; more are absorbed from the alimentary canal. The calcium content of the blood cannot be increased by taking calcium compounds by the mouth. Hence this method of administration is of little value unless the skin is irradiated by ultra-violet light. The red blood corpuscles and haemoglobin are increased by a course of exposure of the skin to the rays.

Another very important change is an increased power of the irradiated body to combat chronic infection. Evidently

† These numbers when multiplied by ten give the actual wave-length in millionths of a millimetre when multiplied by one hundred they give the wave-lengths in what are known as Angstrom units. The shorter figures are less confusing for lecture purposes. The expressions "short," "medium" and "long" when applied to the rays refer to their wave-length.

has shown that the bactericidal power of the blood of animals is increased by irradiating the skin. In man, however, the bactericidal power of the blood is usually high, but it is possible that the sun in power to deal with infection may be due to the absorption of proteins which may be formed by the destruction of the protoplasm of the epidermal cells, the action perhaps being akin to that of protein shock.

The ultra-violet rays, or the products of their action on the epidermal cells, stimulate the nerve endings. In this way the organs of the body and their blood supply may be influenced by reflex action. The dilatation of the sub-epithelial blood vessels is an axon reflex (Dixon). It is likely that there are other forms of reflex action. The internal secretion of the ductless glands may be influenced. The nature of the influence—whether stimulation or depression—and the wave-lengths which are most potent for the production of different effects are at present unknown, and need investigation by the experimental physiologist.

Our knowledge of the physiological properties of ultra-violet rays is insufficient to enable us to forecast with accuracy all the diseases which can be successfully treated. Most of what we know regarding the therapeutic properties of these rays has been learnt by clinical experience. The power of the rays to produce erythema renders them useful in the treatment of inflammation of the skin when the state is chronic and the blood supply poor. The direct bactericidal power of the rays renders them of some additional use in local infection although this action is very restricted on account of the slight penetrating power of the germ-killing rays. The production of local erythema is of use in the treatment of referred pain. Relief may be procured by a process of the nature of counter-irritation. The increased power of the body to deal with infection after administration of the rays renders the treatment of value in cases where the resisting power of the body is enfeebled as in conditions of debility after fevers or local infection. The increased absorption of calcium and phosphorus following general irradiation renders the treatment of value in certain types of bone disease and, if suppuration is present there is an additional indication by reason of the enhanced power of the body to combat infection.

Thus it is mainly by indirect action that the ultra-violet rays bring about therapeutic action. Obviously it must be by indirect action when the disease is deeply situated and beyond the range of penetration of the rays. But even when the irradiated skin is the seat of disease it is almost always by indirect action that therapeutic results are obtained. These results can be obtained by exposing the skin of other parts of the body and leaving out the affected part. It is only in a very few diseases that local treatment of the affected part gives some benefit and even in these the treatment of other areas of the skin—that is, general treatment—is of more value than the local.

Apart from their power to activate cholesterol and increase the absorption of calcium and phosphorus, and perhaps their power to increase the resistance to infection none of the known therapeutic properties of ultra-violet rays are peculiar to them and not possessed by some other agents. Many of the maladies for which the rays are recommended by various workers can be treated just as well, or better, by other physical or electrical or thermal agents. I say this with no intention of disparaging ultra-violet ray therapy. Indeed this form of treatment is capable of yielding results such as a feeling of well being, increased mental vigour, heightened resistance to infection and other good effects in which the *modus operandi* of the rays is difficult to ascertain. Even for the production of results which can be obtained by other methods the rays are convenient and frequently efficient. But if we treat by ultra-violet rays all the cases that do not respond to drugs or expectant treatment we shall not obtain a good balance sheet of success and failure.

With regard to apparatus, there is no lamp which emits heat light, and ultra-violet rays of every wave-length. Different lamps give different selections of all three. So far no essential difference has been established between the results obtained by the use of one type of lamp

as compared with another. The plain carbon arc lamp emits much heat and light, but the proportion of ultra-violet rays is small. Consequently the exposure of the patient is lengthy. By coating the carbon with certain metal salts the exposure can be reduced but white fumes are given off, and these make the air cloudy and the objects in the room are gradually covered with a thin film of white powder. Lamps with tungsten electrodes are open to the same objection, their output is poor in heat rays but rich in ultra-violet rays. The lamp which I recommend is the mercury vapour lamp. Its output is rich in ultra-violet rays but poor in heat rays. It gives off no fumes. It is a clean, cold lamp. It works automatically, needing very little attention. Patients feel no warmth when under it, and they may complain of chilliness during treatment, especially in the winter months unless the room is adequately warmed. A lamp of full size should be chosen. Small lamps are not of much use. Treatment of relatively small areas of the skin can be given by their means, but too much time is occupied when general treatment is required. For local treatment of less accessible regions such as the nose, throat, etc., a special lamp, the water-cooled mercury vapour lamp and quartz rod applicators are used. It is also necessary when long exposures are to be given to cutaneous lesions and exsanguination of the skin is required. This type of lamp will only be needed by those who practise ultra-violet ray therapy as specialists.

I shall now describe what I think is the simplest and one of the most effective ways of administering ultra-violet ray treatment to the patient. It must first of all be realized that *general treatment*—that is, the exposure of the entire skin in large areas of it—is necessary in almost all the diseases which can be benefited by the rays. General treatment is required if the disease is general, even if its manifestations are local. It is necessary even if the disease is local. Only in a very few local diseases is local treatment advisable.

The patient, divested of clothing, except the genitalia should lie horizontally on a couch on his back, his eyes protected by goggles. The lamp should hang three feet above the middle of the body, but a little to one side so that if the lamp should break the hot mercury will not fall on the skin. At his first visit give a two minutes' exposure to the anterior surface. Then turn him on his back and give the same length of treatment at the same distance. Repeat the treatment every other day, increasing the exposure by half a minute at each successive visit until he receives ten minutes to the front and ten minutes to the back. This will complete a course of treatment. This method will, in the great majority of patients, cause little or no erythema, scarcely any desquamation, and no pigmentation. If erythema is caused it is faint and transient, lasting for a few hours only, and disappearing before the next treatment. Should it be noticed when the patient comes for his next treatment, he should receive no further application until it has disappeared, his next dose should be no larger than the preceding one. Should it be found necessary to give a longer course time can be saved by bringing the lamp nearer the patient—say two feet. If this is done the exposure should last, not ten, but five minutes.

Children should receive an exposure of one minute at their first visit, and it should be increased by half a minute at each successive visit. In the case of infants the initial exposure should be half a minute and subsequent exposures should be increased at the rate of a quarter of a minute for each successive treatment. These figures are only intended to provide a rough guide. If, on any occasion, the patient interrupts his course, the practitioner, when resuming the application, must take note of the length of the intermission and reduce the length of the next exposure in accordance. If the interval has been as long as two weeks or more he should resume with the initial dose.

Local treatment can be practised to a limited extent with the mercury vapour lamp. The action of the rays can be restricted to the affected area of skin by shielding the skin in the vicinity by black paper. When giving local treatment it is usually necessary to increase the dosage so as to procure evident erythema. The skins of different

patients vary greatly in their sensitivity to the rays, and the dose which would cause slight erythema in one might produce intense redness and subsequent blistering in another. The best way to avoid this is to make a series of test exposures on small areas of skin. Four small windows, each being one inch square, should be cut fairly close together in a sheet of black paper. The paper should then be wrapped around the forearm and the four areas of uncovered skin exposed to the rays, the lamp being at a distance of two feet. These areas should receive one, two, three, and four minutes' exposure respectively. The same hour next day the areas should be examined. The length of exposure to the area in which there is distinct redness should be the length of treatment to the affected region.

The diseases which may be treated by ultra-violet rays I shall classify in three groups. The first includes those in which the treatment will always effect a cure. The second contains those in which the treatment will generally effect a cure, either alone, or in conjunction with other forms of treatment. The third includes a large number of diseases or cases, mostly common and obstinate, for which the treatment is now being tried. In these diseases the insufficiency of experience renders it difficult to say whether the rays are of real use. To these groups I shall add a fourth, which will include those in which the treatment is likely to produce harmful results.

Group 1—The disease which must be given pride of place in ultra violet ray therapy is rickets. For this the treatment may justly be regarded as a specific. I do not know any other disease for which it is a specific, although tetany and laryngismus stridulus—when occurring in rickety children—are said to respond equally well.

Group 2—In this group I would place first the cases of infants who are unable to assimilate their food, and who consequently waste. If no organic disease is present the major number begin to thrive and put on weight. The treatment must be applied very cautiously and minute doses given. Children who have been the subjects of the fevers which commonly occur during their early years, but are left in a weak debilitated state, respond well to the treatment. Their health improves and they gain in weight. Nasal and bronchial catarrh lessens or disappears, and aurial discharge loses its offensive character and may disappear. If the last-mentioned trouble is present, that most valuable form of treatment, zinc ionization, must not be forgotten. Adults who are left in a debilitated state after influenza or similar types of fever improve greatly after ultra violet irradiation. In surgical tuberculosis the rays can play a valuable part in bringing the disease to an end, but additional treatment is generally required, such as surgery, application of splints, etc., and residence at the sea or in the country are necessary for most cases. For this reason the treatment of surgical tuberculosis by ultra-violet rays in large towns is frequently unsuccessful. In dermatology the disease which is most often treated by the rays is lupus vulgaris. General treatment is more effective than local, though they can be combined with advantage. Local treatment requires the water-cooled lamp. The electro-thermic methods are very useful in local treatment, but general treatment should not be omitted. Other infective diseases of the skin, such as impetigo contagiosa and acne vulgaris, respond well. Patients who are liable to boils and carbuncles may be treated by the rays with advantage. Their low resistance to infection by staphylococci can thereby be increased. In seborrhoea I have had some good results in obstinate cases. In true eczema success is not often obtained. The so-called "weeping eczema" (which is really seborrhoea) improves under the treatment, and the "trade eczemas" (which are really forms of dermatitis caused by chemical irritants) can be cured if the causes are removed. Non-specific indolent ulcers should receive a trial of the treatment, both local and general, and success will often be obtained. Erythema pernio is said always to respond to the rays, but I prefer diathermy. In true psoriasis I have had no success with ultra-violet rays. Some cases of pruritus ani and vulvae can be freed from the itching. These cases require local treatment, and when it is given every particle of mucus and exudation and previously applied unguents must be removed. Some

writers have described good results in the treatment of erysipelas by the rays. I have had no personal experience. In alopecia areata the hair grows again after a course of local treatment by the rays. A long course may be required.

Group 3—This includes a large number of chronic maladies and obstinate cases which resist drug treatment. The "rheumatic material," such as chronic fibrositis and arthritis, with which the various departments of physiotherapy are so plentifully supplied, has been treated by the rays, but I have had infinitely better results—at any rate in women—by pelvic diathermy. Treatment of chronic fibrositis and arthritis by the rays will generally be followed by disappointment. The ultra-violet rays have been tried in infection of the uterus and its adnexa and the pelvic supporting tissues, erosion, and some forms of dysmenorrhoea, but here again pelvic diathermy gives far better results. In obstinate cases of sciatica and brachial neuritis I have had little success with the rays after other forms of physiotherapy had failed, although it is possible that the cases which had been cured by the latter would have responded to the rays. Hyperpnea, chronic bronchitis, bronchial asthma, hay fever, Raynaud's disease, acrocyanosis, and other diseases are being treated by ultra-violet rays, and success has been claimed by different writers, but sufficient experience has not been gained to enable a definite statement to be made regarding the therapeutic value of the rays in these diseases.

Group 4—This includes the diseases and patients for which the rays should be administered with extra caution or not at all. Patients with general pyrexia should not receive ultra-violet ray treatment. In acute local infection the rays should not be applied locally, nor should general treatment be given if the body temperature is raised. If pus is present the treatment should not be given until it has been evacuated. If it is suspected, the treatment should be postponed. In pulmonary tuberculosis the treatment should not be given, except by an expert, quiescent phthisis has been rendered active. It is inadvisable to apply the rays to patients who are suffering from failing hearts or who are the subjects of Bright's disease. It is generally inadvisable to give the treatment to very old people. During menstruation ultra-violet ray treatment should be omitted.

In concluding a short lecture on a very large subject I would insist on treatment by ultra-violet light being under the direction of medical men. Unqualified people, even if they are trained, can only administer the rays, but the doctor can employ them to treat disease.

CONGENITAL OESOPHAGEAL OBSTRUCTION

BY

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CONGENITAL malformations of the oesophagus are by no means extremely uncommon, and usually manifest their presence within a few days of birth, almost all prove rapidly fatal. Life may, however, be saved in some of the rarer cases by prompt intervention, and I propose to give details of a case of complete oesophageal obstruction, operation, and recovery, followed by pyloric stenosis, a second operation, and recovery. Before doing so I will outline the development and the congenital malformations of the oesophagus.

DEVELOPMENT

From the primitive foregut the pharynx, oesophagus, and stomach are developed. In the third week the oesophagus is a mere sphincter, or constriction, between the pharynx and the stomach. When the neck is differentiated during the second month the oesophagus undergoes a rapid elongation, the chief factor in producing this elongation is the development of the lungs and pleural cavities, whereby the stomach is pushed backwards into the body cavity. Up to the third week the trachea and oesophagus form a single structure, the lung buds have not yet appeared. There is, however, a histological differentiation of the two parts, which will be described later.

Separation of the oesophagus from the trachea takes place during the third and fourth weeks by the growth of two lateral septa, which eventually meet and fuse in the mid-line to form a partition from which is differentiated the posterior (membranous) wall of the trachea and the anterior wall of the oesophagus (Fig 1). The last portion to fuse is the caudal extremity of the partition—that is at the level of the bifurcation of the trachea. In the fourth week the lung-buds arise from the distal extremity of the respiratory tube, and by their rapid increase in size cause the elongation of the oesophagus referred to above.

Differentiation of the Histological Structure

In a 4 mm embryo the oesophagus is an epithelial tube, flattened from side to side, with a ventrodorsal lumen. It is lined with two layers of cells, the nuclei nearest the lumen showing mitotic figures. The upper portion of the oesophagus shows a slightly different structure, here the dorsal portion of the tube is lined with a single row of cells, while the ventral portion shows three or four layers, this thickened portion is destined to form the respiratory tract. The tube is surrounded by a mass of undifferentiated mesenchyme.

After the trachea and oesophagus have been separated by the fusion of the septa the oesophageal lumen becomes greatly narrowed by a proliferation of the epithelial lining, some authorities consider that it becomes entirely obliterated; others maintain that the original lumen is never entirely lost.^{2,4} The former view is probably correct. In 20 mm embryos vacuoles appear in the epithelium. There are two theories as to their origin: (1) that they are due to accumulation of intracellular fluid, (2) that they are due to an active moving apart of the cells through a transference of mitotic activity from the inner to the outer layer of cells. The latter is regarded as being the most probable explanation of their formation. The result is an enlargement of the lumen due to coalescence of neighbouring vacuoles.

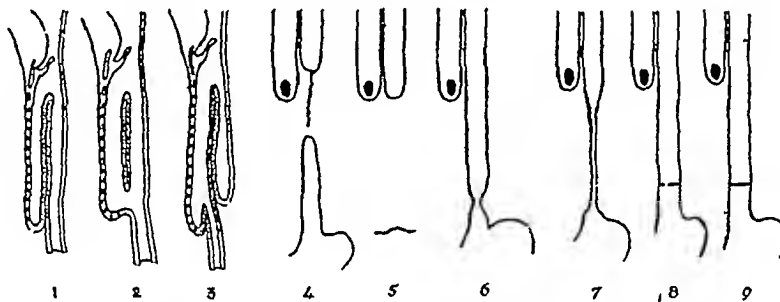


FIG. 1 TO 9.—Diagram showing congenital anomalies of oesophagus.

CONGENITAL MALFORMATIONS

There are seven types of congenital malformation:

- 1 Total absence of the oesophagus
- 2 Doubling of the oesophagus
- 3 Oesophago-tracheal fistulae
- 4 Partial obliteration of the oesophagus
- 5 Diverticulum formation
- 6 Simple congenital strictures
- 7 Membranous or valve-like strictures.

1 *Total Absence of the Oesophagus*.—This occurs only in acardiac monsters, in whom the head also is usually missing and this type is of no importance.

2 *Double Oesophagus*.—Blasius (1674)⁵ records a case of a newborn infant in which the middle two-fourths of the oesophagus was double; this, however, did not cause any obstruction. I can find no record of any similar case.

3 *Oesophago-tracheal Fistulae*.—As was stated in the section dealing with the development of the oesophagus the two lateral septa of the cephalic extremity of the foregut which meet and fuse in order to differentiate the upper half of the oesophagus from the trachea have their point of ultimate fusion at the lower end of the trachea. In this situation they may fail to meet and hence an oesophago-tracheal fistula results. (a) If the oesophago-tracheal septa develop in their normal plane apart from the fistula, both organs are normal (Fig. 2). It rarely

happens that a fold of mucous membrane covers this opening. (b) If the plane of development of the oesophago-tracheal septum is faulty, the latter becomes attached to the posterior wall of the foregut and so leads to obliteration of the upper part of the oesophagus, together with a fistulous communication of the lower part of the oesophagus with the trachea.⁶ This is the commonest congenital anomaly of the oesophagus (Fig. 3).

4 *Partial Obliteration of the Oesophagus*.—(a) Simple blind ending of the upper part of the oesophagus may occur, possibly as a result of a deviation in the lines of development of the two lateral septa. In these circumstances the proximal end of the lower part of the oesophagus is blind also. Another explanation is that the rapid growth of the lung buds has ruptured the continuity of the slender tube which is the primitive oesophagus.⁷ It sometimes happens that the upper and lower blind ends are united by a strip of muscle tissue (Fig. 4). This would appear to be due either to a rupture of the inner layer of cells or to a failure of the epithelium in a portion of the oesophagus to undergo vacuolization, and therefore the lumen, which, according to some observers, has been entirely obliterated at one stage of development, never again becomes patent. The outer layer of cells, however, persists, and forms a thin strand of muscle. (b) Obliteration of the oesophagus may occur only from the level of the tracheal bifurcation downwards, the oesophagus above this level being normal (Fig. 5).

These varieties of malformation of the oesophagus are of interest because of their frequency and because of

the embryological factors concerned in their production. Clinically, however, they are of small importance because no treatment is of any avail. These anomalies are often associated with other congenital malformations—for example Meckel's diverticulum, imperforate anus, and duodenal atresia.

In Types 3 and 4 above severe interference with swallowing is occasioned; gurgling sounds are heard when fluid enters the trachea as soon as the infant swallows, followed by violent attacks of coughing and vomiting. If feeding is persisted in the child may be asphyxiated or pulmonary complications may supervene. Death occurs either from these or from inanition.

Curable Types

I shall not describe the varieties of congenital anomalies of the oesophagus which, although very rare, yet are of great clinical importance because their early recognition and prompt treatment may make all the difference between the life and death of the patient.

5 *Congenital diverticulum* at the pharyngo-oesophageal junction is extremely rare, occurs in the same position as the acquired Zenker's pulsion diverticulum, and eventually produces similar symptoms. It is possibly atavistic in origin, being present normally in the hog and some other animals.^{8,9,10} It differs from a true Zenker's diverticulum by having a complete muscular covering, but its treatment is the same as that of the acquired form.

6 *Simple Congenital Strictures*.—In these cases there is a definite narrowing of the whole circumference of the oesophageal wall at one or more places. This type is very uncommon. The narrowed portion may be either circular and confined to only a small area (Fig. 6) or may extend through more or less of the length of the oesophagus (Fig. 7). Rarely is the upper end of the gullet the affected region;^{11,12} more commonly it is the lower segment.¹³⁻¹⁵ The symptomatology is similar to that of the succeeding variety.

7 *Membranous or Valve-like Strictures*—Membranous or valve-like strictures are, according to Kraus,¹² very rare. The membrane may form a ring-like fold (Fig 8) or a complete diaphragm (Fig 9), and is generally situated a very short distance above the cardia. The condition has been known to be associated with an oesophago-tracheal fistula, but may be the only abnormality.

The *etiological factors* concerned in the formation of simple congenital strictures and of membranous strictures, whether complete or incomplete, would appear to be one or more of the following errors of development:

1 The "mere sphincter" between the pharynx and the oesophagus in a 4 mm embryo referred to above does not elongate equally, but leaves a stenosis of one portion of the canal.

2 The obliterated tube fails to canalize at one place.

3 Although canalization occurs, yet the inner layer of cells fails to transfer its mitotic activity to the outer layer, and therefore a local area of oesophageal wall remains without coalescence of the local venules, and stenosis results.

SYMPTOMS AND DIAGNOSIS

In both simple congenital and annular membranous strictures cases have been recorded in which symptoms were not produced until, after weaning, the child was found to be unable to take solid food, which was almost immediately regurgitated. By feeding solely upon fluids, chiefly milk, life has been maintained, and patients have lived for many years before the true nature of the lesion has been discovered. These patients are very underdeveloped and thin, and males are said to show only slight masculine characteristics.

On the other hand, depending upon the degree of atresia, symptoms of oesophageal obstruction, notably dysphagia and the regurgitation of fluids, may make their appearance as soon as fluid is given to the newborn infant.

If the membranous stricture is not annular but in the form of a complete diaphragm, symptoms of complete oesophageal obstruction are always present from birth. The precise diagnosis of the actual type of oesophageal malformation which is present can only be arrived at by means of a careful x-ray examination and oesophagoscopy, and should not be left until the *post-mortem* examination is reached.

COMPLICATIONS

If left untreated all cases of complete occlusion die of inanition, also the more severe stenoses. With an inadequate lumen the stagnated food may produce a marked oesophagitis in the portion of the oesophagus which is dilated above the stricture. The ulcerative process may actually cause perforation. In rare instances a pressure diverticulum is formed above the stenosis, as in one of my cases. Probably apart from this secondary dilatation of the oesophagus a true congenital dilatation does not occur.

TREATMENT

(a) For Simple Congenital and Annular Membranous Strictures

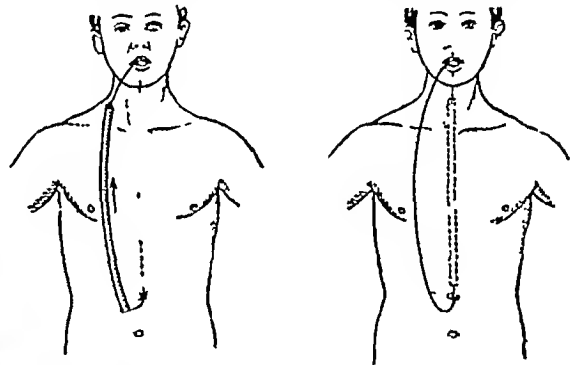
Simple strictures are best treated by slow gradual dilatation by means of bougies. This produces a more permanent result, and much less damage, than when dilatation is performed rapidly. Rapid dilatation causes ulceration at the site of the lesion, and is followed by fibrosis, contraction, and a tighter stricture than was present before treatment commenced. In addition, too rapid dilatation may cause perforation or rupture of the oesophagus.

Treatment, therefore, consists in the passage of carefully graduated bougies. At the first sitting a bougie which only comfortably fits the stricture is passed under direct vision through the oesophagoscope. At subsequent sittings, which should take place once or twice a week, bougies may be passed blindly provided there is not a great deal of dilatation of the oesophagus or diverticulum formation above the stricture. Commence with a bougie of the same size as the one passed through the oesophagoscope, and when this has remained *in situ* for a few minutes replace it by a bougie of one size larger, and at each subsequent sitting pass, if possible, one bougie a size larger

than the largest previously used. In no circumstances should any force be used.

Annular membranous strictures may respond to similar treatment, but, as with this type of stricture considerable dilatation of the oesophagus is usually present, and the lumen is always eccentric, the bougies must invariably be passed under direct oesophagoscopy vision. This type of stricture lends itself to internal oesophagotomy, whereas with simple strictures involving a considerable length of the oesophageal canal this procedure is fraught with much danger. A ring-like stricture may also be treated successfully by electrolysis.

In an emaciated, dehydrated patient, or if in spite of great care and patience improvement does not occur, a gastrostomy is necessary. This allows rest to the oesophagus, permits feeding of the patient, and a retrograde oesophagoscopy may be performed. By this means, or by peroral endoscopy, a filiform bougie to which is attached a silk thread is passed through the stenosis. The thread is drawn upwards or downwards, as the case may be, until one end projects out of the mouth and the other through the gastrostomy opening. Each end of the thread is attached to the two ends of a fine piece of rubber tubing, and therefore a continuous or endless chain is present. By means of the thread the tubing is pulled hard enough to render the diameter of the rubber small enough to pass the stenosis. When tension on it is relaxed its length is diminished and its diameter increased, and it then exerts continuous pressure on the stricture and causes further dilatation. The rubber is left in position for an hour or



FIGS 10 AND 11—Congenital stricture of oesophagus treated by rubber tube.

two every day, and then by pulling upon the thread the rubber is displaced from the oesophagus and its place taken by the thread. Every few days the tubing must be replaced by one of larger calibre until sufficient dilatation is obtained (Figs 10 and 11).

(b) A complete membranous diaphragm in a newborn infant may be perforated by means of the oesophagoscope or a bougie. In this way I have recently treated with success an infant less than two days old suffering from this condition.

CASE OF COMPLETE MEMBRANOUS DIAPHRAGM

The patient was a female child who was born on the evening of January 18th 1928. The mother was a primipara and the labour, which was not abnormal in any way lasted twenty-one hours. The child weighed 7½ lb and appeared to be perfectly healthy.

Throughout the whole of the following day attempts were made to feed the child at regular intervals. At no time would she suckle the breast and when given teaspoonfuls of milk and water the infant appeared to have great difficulty in swallowing and regurgitated the fluid as soon as it had been taken. On one occasion only was there a small quantity of blood, but on each occasion she coughed and choked a great deal and became very agitated.

I saw the child with Dr Henry Robinson about noon on January 20th when she was just forty-two hours old. Outwardly she appeared quite normal but on feeding with a teaspoonful of water she coughed, became cyanosed, retched and retained none of it. The child obviously had a congenital abnormality of the oesophagus and this was most likely to be in the nature of an oesophago-tracheal fistula. The infant was twenty-five miles from London and x-ray examination was not immediately available but having an oesophagoscopy outfit I decided to perform oesophagoscopy forthwith. This was done without of course, any

anæsthetic using a 4 mm. tube (Jackson's pattern) which passed quite freely down to and beyond the level of the bifurcation of the trachea. About 1 in. below this level, however, the tube became obstructed by a glistening membrane with a mother-of-pearl appearance which was at first thought to be inspissated mucus. Careful snabbing, however, showed it to be a solid structure and no opening could be found in it (Fig. 12).

By pressing firmly with the end of the tube the membrane was ruptured and normal oesophageal mucosa was seen below it. Gastric mucus was easily recognized after the tube had been pushed about 1 in. further. On withdrawing the oesophagoscope a few drops of blood obscured the view of the wall of the gullet at the level where the membranous diaphragm had previously been seen. No other abnormality was detected in the pharynx, larynx, or oesophagus.

One ounce of exhausted breast milk was now given to the infant who swallowed it normally and retained it. This appeared very satisfactory and we thought it worth while to investigate the case still further by means of x-rays. With Dr. Robert Knox we examined the infant the same afternoon with the fluorocent screen while she swallowed an emulsion of bismuth and a definite narrowing of the lumen of the oesophagus together with a slight delay in the passage of the bismuth was noted about an inch above the stomach. No other abnormality of the upper alimentary tract could be detected and we were able to give a fairly good prognosis. This was borne out by the fact that the child, although she persisted in refusing the breast, swallowed and retained fluid normally and scarcely vomited again. Temperature, pulse and respiration were normal throughout.

The baby, which had lost about 3 lb. in weight, made steady progress until four weeks later when she weighed 8 lb. She then began to vomit forcibly through both the nostrils and the mouth. A gastric tumour was visible and a pyloric tumour palpable on the second day of these symptoms and hypertrophic pyloric stenosis was diagnosed. Laparotomy on February 18th confirmed this and no other abnormality of the stomach or duodenum was found. Rammstedt's operation under gas and oxygen anaesthesia was followed by an uninterrupted recovery. For some considerable time after this the child was difficult to feed but has now settled down and is doing well at 5 months old she weighed 11½ lb.

The points which I wish to emphasize with reference to this case are:

- 1 So far as I know, this case is unique. I can find no record in the literature of any previous case which has survived.
- 2 Congenital oesophageal malformations are not so rare as might be supposed.
- 3 The symptoms of all varieties are almost identical.
- 4 Some cases which are curable are probably diagnosed as being incurable.
- 5 A careful examination by means of prompt oesophagoscopy, with or without x-ray examination should lead to a cure of a number of cases for which at present no treatment is undertaken.

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PRIMARY SPASMODIC DYSMENORRHOEA AND ITS TREATMENT

BY

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PAIN at the commencement of the menstrual period is very common, and is met with in varying degrees of intensity. It may be only a transitory sensation, or it may be severe enough to force the patient to bed. The more severe types present a trying problem, not only by reason of the distress, but also because of the interference with the patient's livelihood as a result of her inability to follow her normal occupation, which may be more important from her point of view. Patients are nearly always nullipara, though there are exceptions.

In typical cases the pain may come on a few hours before, and end with the menstrual flow, or it may continue for forty-eight hours of that period. Nearly always cessation of pain coincides with a free flow. There are, of course, cases in which pain lasts longer, even throughout the period, but in suggesting a treatment it is better to consider only the typical cases which constitute the majority. The atypical yield to treatment devised on the same lines.

The patients as a rule are anaemic and listless, but the rapid improvement which follows removal of pain suggests that these are, in a large part, secondary symptoms. The increased menstrual flow which follows the usually sudden cessation of pain indicates that an obstruction has been overcome. That obstruction occurs at the junction of the body of the uterus with the cervix. When menstruation commences, in the normal subject, the potential uterine cavity becomes a real one through separation of its walls by accumulating menstrual fluid. Real resistance is met

with, however, at the junction of the body with the neck, and this is overcome by a "lifting" of the body as a result of increasing intrauterine tension, so that a continuing line through the cavity of the body and that of the cervix tends to become one straight line. When this happens the loss becomes free and, tension in the body having dropped, there is no pain. Should the uterine body find difficulty in performing this movement intrauterine tension steadily increases above the normal, and a stage is reached when spasmodic muscular contractions are set up in the uterine wall with resulting pain, the condition now constituting spasmodic dysmenorrhoea.

That a body such as the uterus does tend to assume but one position on distension can be shown experimentally. If the stem of a small rubber balloon is placed between two fingers, at the junction of the bulbous part with the stem the body lying deflated on the back of the hand, it will be found on inflation that a line drawn through the centre of the bulbous portion to its junction with the stem tends to form, and in this case actually does form, a straight line continuous with one drawn through the centre of the stem, in its length. If, before inflating, a small area of the bulbous portion, near its junction with the stem, is painted with rubber solution and allowed to dry—this area representing the portion of the uterus on the side on which it is flexed—the lines drawn as before will not form a continuous straight line when the balloon is inflated. If these lines followed the course of potential channels a fluid would be obstructed at their junction to a degree dependent upon the angle.

Again, the operation of dilatation for menstrual pain by the very type of instrument used merely "straightens" the uterus, and for success depends upon that position being maintained. Following pregnancy a cure often results, because here again the same thing occurs, though the hyperplasia in the uterine wall tends to overcome any lack of elasticity present.

It is clear, accordingly, that inability of the body to assume easily this new and normal position at the commencement of menstruation must result in increased intrauterine tension due to accumulation of menses and turgidity, and that as a result the musculature falls into painful spasm. Two factors are at work in preventing a desired state of affairs, and they may operate separately or in varying degrees of combination. These factors are (1) the elasticity and flexibility of wall, in the angle formed between body and cervix, is below normal, and (2) too acute an angle is formed by the body with the cervix. Intrauterine tension has to overcome one or both of these factors, and if it does so completely relief from pain follows. Just before relief occurs the uterine angle has reached its ideal or "essential to flow" degree, and the vital point in treatment is to ensure the uterus contracting in this position. In my opinion all efforts at causing contraction should, if possible, be commenced just before this tension is released, because immediately afterwards there is a sudden return to the "resting" or intermenstrual state.

I had thought that perhaps a natural rhythmic increase in general blood pressure governed the menstrual flow, and that the cases of amenorrhoea which quickly responded to tonics supported this theory, but continued blood pressure recordings yielded no evidence, so I am convinced that the increased intrauterine pressure is purely the result of local conditions.

I have discussed the causes of spasmodic dysmenorrhoea, as I see them, at some length, because so much depends on their being thoroughly understood. Treatment is simple, but the results I have obtained as the result of this reasoning over a period of four years are very good, patients have remained free from pain for varying periods up to three and a half years.

Successful treatment depends on increasing intrauterine congestion and distension so as to get as much "straightening" of the uterus and as great an "essential to flow" angle as possible, the uterus is then made to contract in this position. It is necessary to establish very carefully the time when the pain commences, and when it ceases, with relation to the commencement of the menstrual flow.

It is very advisable to warn the patient that the effects of the actual treatment will only be noticeable at the periods succeeding the one treated. In the pain at this period for which the patient first consults you there are only the time-honoured sedatives.

In outlining this treatment I will assume that the patient comes for treatment between the periods, but it is possible to commence at any stage. A good general tonic should first be given, and be continued up to the commencement of the period. One such as the following is very satisfactory. Ferri et ammonii citrate 1 drachm, liq. arsenicalis 1 drachm, aq. chlorof. to 6 oz., one tablespoonful to be taken in water three daily after meals.

When pain commences, whether the menstrual flow has started or not, a hot hip bath is ordered, and for the pain aspirin, phenazone, and bromides may be prescribed. Morphine is unnecessary, the patient will have had attacks before the present one and her desire for treatment is only a very faint justification for its use.

Having ascertained how long the pain lasts as a rule the following mixture is commenced a few hours before the pain ceases, the prescription is Liquid extract of ergot 30m, pot. brom. 5 grains (or tr. chlorof. et morph. 3m), water to 1/2 oz. If the pain lasts thirty-six hours or more the mixture is given two-hourly for six hours previous to its cessation and four-hourly afterwards. If it lasts for about twenty-four hours commence about four hours previous to its cessation, if much less than twenty-four hours commence just before cessation, but give only at four-hourly intervals.

The patient should not be permitted to keep the medicine by her for long, because the instability of these preparations is notorious. The age of the patient does not affect this dose of ergot, though for patients under 18 it is unnecessary to give it more often than every four hours. Frequently the following period will be free from pain, but the patient should be advised to continue the tonic between periods, to come for the ergot mixture before the period, and to repeat the treatment if pain recurs. As a rule up to four treatments constitute a maximum. If pain recurs an exact record should be kept of its relative time, this will give guidance as to variation in the time at which you must give the medicine. The time of cessation of pain may vary under treatment in many cases, it must be observed, and the inferences translated into action.

In one type of case a certain number of months remain free and then there is a relapse. Some of these can be corrected, if the duration of the pain is known, by an injection of posterior pituitary extract, about four hours before its cessation, the medicine being used as before. The treatment indicated greatly reduces the cases in which operative intervention may be necessary, there will still remain a few, in which the mechanical solution (dilatation, or the more natural one, pregnancy) must be considered. For example, a patient may have been married for three or four years without conception having occurred, this may indicate obstruction in the length of the canal, and heroic measures may be necessary, but my advice is "try medicinal treatment first."

With special reference to pregnancy, when faced with unsatisfactory results following the prevailing methods in the treatment of unmarried women, I refrain from falling back on the idea that as a last resort it is right to suggest that this is "Nature's cure." It may be so, but what a wealth of impotence on the part of the practitioner is implied! Moreover, the results will sometimes be most unsatisfactory, and there is the risk of precipitating a union which may be followed by misery in other respects.

One of my patients, a woman aged 38, had been so advised, but a baby, born thirteen years ago, brought no relief. The two periods following her first medical treatment have been the only ones in her menstrual life free from pain.

In conclusion, let me repeat that what has been described is the treatment of typical cases, since these preponderate among a large number of women whose livelihood is affected, I make no other excuse for stating an unfinished case.

A CARBOHYDRATE DIET FOR HYPERTHYROIDISM

BY

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Hitherto not enough importance has been given to diet in Graves's disease, treatment being focused mainly on the thyroid gland. There are, however, important reciprocal relations between the thyroid gland and the gastro-intestinal tract of which we have little knowledge yet, but which nevertheless demand a closer study of dietary in hyperthyroidism. Thus, various manifestations of nervous dyspepsia are not only common symptoms of hyperthyroidism, but may also precede for a variable time the other cardinal signs. This was borne out by a statistical study of the more important symptoms in a series of sixty-nine cases of Graves's disease in which the symptoms were tabulated both in order of frequency and time of occurrence.

TABLE I—Percentage Incidence of Symptoms in Hyperthyroidism

Palpitation, shortness of breath and weakness	100 per cent
Mental excitability and loss of weight	85
Diarrhoea	75
Swelling of the neck, exophthalmos and tremor	70
Indigestion	50

TABLE II—Order of Occurrence of Symptoms in Hyperthyroidism

A—Early Symptoms	B—Later Symptoms
1 Weakness	5 Swelling of the neck
2 Indigestion	6 Mental excitability
3 Shortness of breath	7 Diarrhoea
4 Palpitation	8 Exophthalmos and tremor

From these tables it will be seen that indigestion—and under this term are included nausea, vomiting, anorexia, gastric discomfort and sometimes pain—not only occurs in half the cases of Graves's disease, but, when present, is usually a very early symptom and accompanies other prodromal signs of hyperthyroidism such as loss of weight, weakness, shortness of breath and palpitation. Moreover, in 50 cases of hyperthyroidism in which fractional gastric analyses were carried out it was found that gastric motility and secretion become profoundly modified in exophthalmic goitre.

The rate of gastric emptying is exceedingly rapid, often so rapid that very little is to be found in the stomach at the end of an hour, the average emptying rate being fifty-five minutes in cases of achlorhydria and ninety minutes in cases of hypochlorhydria. This rapid emptying of the stomach may be largely explained by the achylia so commonly found in Graves's disease and which was actually present in 22 cases out of 50 examined. The hurrying of food which takes place in hyperthyroidism, together with the lack of secretion, must to a certain extent prevent digestion occurring in the stomach and may afford an explanation of the frequency of digestive troubles in exophthalmic goitre. Some generalities may therefore be drawn from this with regard to dietary.

As the intestines probably have to act vicariously and digest food for the stomach, it is important to arrange the diet so that it can easily be acted on by the intestinal juices. Proteins, being largely digested by the stomach, should be given only in easily digestible forms—for example, brains, scraped beef, sweetbreads, chicken and fish—and their amount reduced to a minimum as they can be positively harmful by stimulating physical and mental activities and thereby increasing the strain on the thyroid gland.

The food must be broken up in fine particles and given as far as possible in liquid form. Six to seven small meals should be given at intervals of two to three hours rather than three full meals in the course of the day. The caloric value of the diet should be high with a tendency towards superalimentation in order to keep pace with the raised metabolic rate.

Amongst the protein spacers to be substituted in the diet, fats are unsuitable. Hyperthyroid patients seldom tolerate fats and these should be given in the more digestible forms, such as the artificial fatty foods. Carbohydrates, on the contrary, may be freely given, as they are as a rule, well tolerated by patients suffering from hyperthyroidism, and may be given in sufficiently large amount to raise the caloric value of the diet to a high level. As a matter of fact I have found carbohydrates act so favourably in hyperthyroidism that the following dietary containing a large excess of carbohydrates was adopted in conjunction with other forms of medical treatment of Graves's disease. The diet is of a caloric value of 2,700 calories, and contains roughly 80 grams of protein, 50 grams of fat, and 440 grams of carbohydrates.

Diet Sheet of a Full Carbohydrate Diet for the Treatment of Graves's Disease

6 a.m. (Breakfast)—Oatmeal porridge 4 oz. tea with cream-bread (two slices) butter 1/4 oz. honey or jam 1/2 oz. fruit 4 to 6 oz. (bananas, grapes, plums, prunes, apples, pears, cherries, apricots, oranges).

8 a.m.—Proprietary food 6 oz. (Benger's food, Mellin's food, Horlick's malted milk, banana, Robinson's groats or patent barley, etc.) bread two slices.

10 a.m.—Milk 8 oz. with Mead's dextrimaltose.

12 a.m. (Lunch)—Meat 2 oz. (scraped beef, brain, sweetbread, chicken, pigeon, rabbit) or fish 2 1/2 oz. (cod, haddock, whiting, lake plaice, etc.). Vegetables—Group 1 4 to 6 oz. (potato, artichoke, parsnip, peas, carrots, onions, beetroot, turnip). Group 2, 3 oz. (broccoli, Brussels sprouts, cabbage, cauliflower, leeks, spinach, tomatoes, celery, lettuce). Bread (two slices) milk 6 oz. milk pudding 4 oz. (rice, arrowroot, cornflour, sago, tapioca).

3.00 p.m. (Tea)—Same as breakfast but without porridge.

6 p.m. (Supper)—Proprietary food 6 oz. bread two slices, one egg.

10 p.m.—Milk 8 oz. with malt extract or milk sugar.

Extras—Cream up to half a pint or fatty artificial foods (cod liver oil, cicemalt, etc.) 1 oz. three daily.

Fats in the form of cod-liver oil and cream are added later as extras, thus raising the caloric value of the diet to over 3,000 calories, while a liberal amount of dilute hydrochloric acid should be given in the form of a long drink to be sipped during mealtime to counteract the achylia so often present in exophthalmic goitre. Patients take the diet particularly well and baring cases in which it may cause or aggravate a flatulent dyspepsia can usually be kept on it for quite a considerable time without tiring of it. Often the appetite improves remarkably.

In watching the progress of the case the extreme variability of the appetite so often present in Graves's disease has to be taken into account, as periods of anorexia alternate with periods of hunger, vacillating with the emotional instability. The improvement is shown by the lessening of the nervous symptoms, by the fall of the pulse rate and of the pulse pressure, and by the rapid increase of weight. Some patients gain as much as 10 lb. in a fortnight. The patients should be kept on the diet for several months and afterwards revert to a normal diet by degrees, first by the addition of fats and then of proteins.

It may be objected that it is unsafe to give a full carbohydrate diet in a disease where there is often a lowered sugar tolerance. This is often revealed by the response which is observed in exophthalmic goitre to a sugar tolerance test although there may be only a latent defect of sugar storage without glycosuria. Thus in three cases of hyperthyroidism taken at random, but sugar-free on a basal diet, one gave a normal response to a glucose tolerance test (50 grams) another showed a lag type curve, and the third had a high threshold and a high rising curve typical of diabetes mellitus. Apart from these cases in which the disturbance of carbohydrate metabolism is only detected by a sugar tolerance test there are other cases of hyperthyroidism with glycosuria of varying degrees, from severe forms with marked denutrition and ketosis to milder ones of intermittent glycosuria. In the light of these findings a full carbohydrate diet would at first appear to be inadvisable in Graves's disease. However, glycosuria very rarely occurs after a carbohydrate excess diet, and when it does the glycosuria very often soon disappears after pushing the diet still further.

While certain cases of hyperthyroidism with glycosuria have to be treated on true diabetic lines, others can be

given starchy food with impunity, and it is remarkable how glycosuria rapidly disappears on full carbohydrate diet, as is shown by the following case

A woman, aged 22, had had an enlarged thyroid gland since the age of 15, but without symptoms of hyperthyroidism. Six months ago the thyroid gland increased in size, and for the first time signs of hyperthyroidism made their appearance—namely, breathlessness, sweating, exophthalmos, and tremor. Examination revealed a large adenomatous thyroid gland, ocular signs, exophthalmos, tremor, and a high pulse pressure. At this time there was no glycosuria. The patient while in hospital developed diphtheria and had to be removed to a fever hospital. On her return a month later the general symptoms of hyperthyroidism seemed somewhat intensified and glycosuria had appeared. Thereupon a glucose tolerance test (50 grams) was made and showed a lowered tolerance for sugar, the values being as follows: resting blood sugar normal, half an hour after glucose administration 0.18 per cent, one hour later 0.20 per cent, 1½ hours later 0.22 per cent, two hours later 0.135 per cent. A trace of sugar (0.5 per cent approximately) appeared after the second hour.

The patient was put on a full carbohydrate diet and the glycosuria disappeared thereafter.

This case is of particular interest because it illustrates two facts not infrequently found in Graves's disease—namely, that glycosuria made its first appearance with the intensification of hyperthyroid symptoms, following an acute throat infection, and, in the second place, that it disappeared on giving carbohydrates freely.

It is difficult to give a satisfactory explanation of the paradoxical response of thyroid glycosuria to a carbohydrate diet. That the mechanism of thyroid glycosuria is more complex than we imagine is revealed by the very contradictory evidence of the effects of feeding animals with thyroid extract. I have failed to produce glycosuria in four dogs after administering thyroid extract (Burroughs and Wellcome) equivalent to one gram of fresh gland per kilo of body weight daily for over a month. Cramer, Kuriyama,³ and Burn and Marks⁴ have also reported similar failures to produce glycosuria by thyroid feeding. Cramer, however, has observed that experimental hyperthyroidism produced by thyroid feeding leads to a complete disappearance of glycogen from the liver, and Burn and Marks have made the interesting observation that this disappearance of glycogen only occurred at a later stage when thyroid feeding had been continued for some time. These experiments suggest that the action of the thyroid hormone is at first to stimulate the glycogenic function of the liver, and that later one may reach a stage in which this function may become exhausted. If such be the case it is reasonable to suppose that a diet rich in carbohydrates may compensate a defective glycogenic function of the liver, dependent on an excessive thyroid action, by reducing to a minimum the stimulating effect of proteins on the thyroid gland.

A similar explanation may be extended to the effect of a carbohydrate diet on hyperthyroidism generally, thus supporting the view that careful dieting should play an important part in the treatment of exophthalmic goitre, whether surgical or medical, and that carbohydrates should be freely given, as they appear to have a soothing action on the thyroid gland.

Summary

1 Attention is drawn to the importance of careful dietetic treatment in hyperthyroidism, from the following observations: (a) in a study of 69 cases of hyperthyroidism it was found that dyspepsia was both a common and an early symptom in hyperthyroidism, (b) in fractional gastric analyses made on 50 cases of Graves's disease rapid emptying of the stomach and achylia or hypochlorhydria were an almost constant feature.

2 A diet rich in carbohydrates is advocated in the treatment of exophthalmic goitre.

3 Mention is made of the paradoxical response of thyroid glycosuria to carbohydrates.

I have to thank Professor Telling for affording me facilities for carrying out these observations on patients under his care.

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JAUNDICE CAUSED BY LARGE EXTRAVASATIONS OF BLOOD

BY

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IN spite of the general trend of recent work on the pathology of jaundice there are still many who feel that a definite clinical jaundice is impossible without the intervention of the liver. The study of fluids aspirated from haematoma has for some time suggested its possibility, and the two cases I propose to describe seem to put the matter almost beyond question.

Haematoma Fluids

When blood is extravasated into the tissues it is converted into a thick brown mucoid fluid, whose pigments consist of unchanged blood pigments and haematoidin, a substance which has the same composition as bilirubin, and which reacts to van den Bergh's test in the same manner as "delayed reaction" bilirubin. The direct van den Bergh test is often difficult, because the mucoid fluid may be impossible to separate by spinning, but the quantitative estimation is simple, as the alcohol used to precipitate the serum protein carries down the haemoglobin at the same time leaving a clear extract containing the bilirubin. The following table gives the results of the van den Bergh test on several haematoma fluids.

No.	Source of Haematoma	Time since Extravasation	Direct Test	Quant. (Units)	Notes
1	Brulso of thigh	14 days	—	4.0	
2	Breast operation	27 hours	Delayed	2.5	
3	Nostril ecchymosis	9 days	Delayed	12.0	
4	Breast operation	5 days	—	5.0	
5	Breast operation	12 days	Delayed	4.0	
6	Breast operation	2 days	Delayed	2.0	
7	Brulso	3 hours	Delayed	0.2	Unaltered blood
8	Pleural effusion	5 days	Delayed	0.75	Blood introduced by previous aspiration
9	Cyst of breast	3 days	Delayed	3.0	After previous aspiration
10	Traumatic hydrocele	4 months	Delayed	1.2	
11	Haemothorax	20 days	Delayed	4.2	
12	Haematoma ear	6 days	Delayed	4.2	
		5 days later	Delayed	4.5	Had filled up again

None of these patients was jaundiced or passed bile in the urine. The blood bilirubin was estimated in Cases 1, 3, 8, and 12, and was found to be normal. It appears that in between three and twenty-four hours the local reticulo-endothelial cells start to convert the haemoglobin into "delayed reaction" bilirubin, and that thereafter the fluid contains a higher concentration of bilirubin than the circulating blood. It does not seem likely that the liver plays any part in this pigment formation. Many other investigators have already arrived at these conclusions.

Jaundice from Haematoma

CASE I

A male aged 62 had a large hypernephroma removed through a lumbo-dorsal incision on February 10th 1925. The wound was closed without drainage. The anaesthetic used was ether. On February 12th a good deal of bruising was visible round the wound, and on the 14th the conjunctivae were yellow with a great deal of urobilin in the urine, but no bile. Next day the patient was jaundiced all over and there was the most intense local jaundice round the wound. The van den Bergh test on February 16th on the blood gave a delayed reaction (after half an hour) with a quantitative figure of 2.7 units. The levulose tolerance test gave the following result:

Fasting blood sugar	0.103 per cent
50 grams of levulose taken fasting	
Half an hour after	0.122 "
One hour after	0.147 "
One and a half hours after	0.137 "
Two hours after	0.116 "

The bile content of the faeces appeared perfectly normal. The urine contained urobilin but no bile. The fragility of the red blood corpuscles was normal. On February 18th more than a pint of brown slimy blood was aspirated from the wound. This contained 6 units of bilirubin. The jaundice faded rapidly and except for the reactionary temperature during the process of absorption of the remains of the blood the patient made an uninterrupted recovery. There were no symptoms of catarrhal jaundice and the levulose tolerance test was thought to indicate no likelihood of it. There was no past or family history of jaundice.

CASE 2

A female aged 27, unmarried, was admitted to hospital with a large haemoperitoneum on February 23rd, 1927. It probably took place on February 17th, but was not associated with any symptoms except a severe anaemia. The red blood corpuscles, on admission were down to 2,696,000 per cmm. and she was definitely jaundiced with a very slight coloration of the conjunctivae. The van den Bergh test on the blood gave a delayed reaction (in about half an hour) with 3.5 units. There was no bile pigment in the urine, but Hay's test for bile salts was positive on one or two occasions, done in a test tube. Oliver's test was always negative. The levulose tolerance test gave the following result:

Fasting blood sugar	0.096 per cent
50 grams of levulose taken fasting	
Half an hour after	0.111
One hour after	0.120

She was given a blood transfusion and an operation was performed on March 4th, 1927. A sarcoma of the uterus was found which had eroded the uterine artery and had caused a large extravasation of blood through the broad ligament into the peritoneal cavity. The blood was unfortunately not kept so that it was not submitted to the van den Bergh test but it was brown and slimy like other haematoma fluids. There was no past or family history of jaundice and she had none of the constitutional symptoms of catarrhal or toxic jaundice. The jaundice persisted till March 7th.

There seems to be no plausible explanation of these two cases except that the jaundice was caused by the absorption into the blood stream of the "delayed reaction" bilirubin formed locally in rather exceptionally large internal haemorrhages. The positive Hay's test in Case 2 is probably of no significance. I had not then seen Gerard's paper⁴ and have since had abundant evidence of the false positives given by the test tube method.

My thanks are due to Sir John Thomson Walker and Mr. W. Gilhott for their kindness in allowing me to publish these cases to Dr. R. D. Lawrence for the levulose tolerance tests and to Dr. C. R. Lane for the blood fragility curve.

LITERATURE

¹McNee, J. W. *Quart. Journ. Med.* July 1923. ²Andrews, C. H. *Ibid.* October 1924. ³Davies, D. T. *Lancet*, February 19th 1927, p. 480. ⁴Gerard, *Journ. R.A. Med. Serv.* July 1926.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL

A METHOD OF REPLACING THE RETROVERTED GRAVID UTERUS

THREE years ago Professor Wiener of Vienna demonstrated an interesting method of replacing the retroverted gravid uterus, the value of which I have since been able to prove in my own practice. Although it has many advantages over the methods employed in this country it does not appear to be generally known. It is useful in those cases where manual manipulation fails to replace the uterus.

The patient, lying on her back, has her pelvis tilted up slightly either by a pillow or on an operating table. A stout rubber bag with a capacity of three fluid ounces is passed after being sterilized, into the vagina, behind the cervix. For this purpose a pair of Champetier de Ribes forceps are useful, but not absolutely necessary. Through the tube of the bag is poured slowly a measured quantity of mercury, which, by its weight and diffuse pressure almost immediately raises the fundus past the sacral promontory. Except in the case of an extremely nervous patient the method can be employed without an anaesthetic; indeed an anaesthetic is undesirable in view of the possibility of the uterus being bound down by adhesions. If the mercury is poured in slowly any pain due to adhesions will be reported in time, and the operation can be stopped. The method does not appear to have any ill effect on the uterine contents.

One point of practical importance may be mentioned with regard to the withdrawal of the bag, when the fundus of the uterus can be felt by abdominal palpation. If an attempt is made to withdraw it when full, there is a grave risk of scattering about twenty-five shillings worth of mercury. The pelvis should be lowered, and the patient encouraged to cough or sit up.

This method, in addition to curing the retroversion without delay, and therefore diminishing the risk of abortion, has the advantage of having a strong suggestive effect in the case of a patient suffering from hyperemesis, associated with a retroverted gravid uterus.

Carlisle

J. N. DOUGLAS SMITH, M.B., Ch.B.

MALARIA AND APPENDICITIS

FROM time to time articles have appeared in the *British Medical Journal* on the etiology and diagnosis of appendicitis, but I do not recollect reading any article where malaria has been shown to be confounded with appendicitis, and so I desire to record the following cases which have occurred in my practice during a period of sixteen years.

CASE 1—In 1913 I was called to attend a European woman aged about 40, in Quetta. She had had pain and tenderness in the right iliac region fever and vomiting since the morning and a rapid pulse. There was slight rigidity of the right rectus muscle. The menstrual history was normal. I took a specimen of blood for a rough leucocytosis and found to my surprise benignant tertian malarial parasites present. I gave her an injection of quinine and by the next morning she felt well. I saw this patient about fourteen years afterwards. She had not undergone an operation for appendicitis and so I surmise malaria was the cause of the symptoms.

CASE 2—A European man aged about 26 was sent into hospital at Aden one evening in 1915 for a laparotomy the next morning on account of an acute abdomen. He had been taken ill that morning with abdominal pain fever and vomiting and was told that he had appendicitis or some other acute abdominal lesion. On examination I found pain and tenderness in the right iliac region but the rigidity of the right rectus was not pronounced. This resembled my previous case so I examined his blood and found benignant tertian parasites. I gave him an injection of quinine immediately and next morning he was able to get up and have his breakfast all the symptoms having disappeared.

CASE 3—I was called to see an Indian male aged 19 at Karachi in 1921. The symptoms were similar to the two previous cases, and benignant tertian parasites were found in the blood. He received similar treatment and had quite recovered on the next day.

I have had a few more cases since then, and now make it a rule to examine the blood for malarial parasites.

I wish to point out, however, that the finding of malarial parasites does not negative appendicitis as the following two cases will illustrate.

CASE 1—A European aged 21 at Karachi was admitted for operation with acute abdominal symptoms under the care of the surgeon in charge. An operation revealed a swollen appendix containing mucus. That evening his temperature ran up and an examination of his blood revealed malarial parasites. An injection of quinine made the subsequent progress uneventful.

CASE 2—An Anglo-Indian aged 18 at Kotri in 1923 was under my treatment for malarial cachexia. The spleen was considerably enlarged and malignant tertian parasites were found in the blood. After two months' treatment he regained normal health and the spleen returned to its normal size. Later one morning he reported sick with fever vomiting and pain in the epigastric region and examination of the blood showed malignant tertian parasites. The injection of quinine had no effect. That night the pain became more pronounced in the right iliac region and he was operated upon twenty-four hours later when it was found that he had a suppurating appendix on the point of perforation.

Many authorities have recorded very accurately the symptoms of acute appendicitis and the periods when operation should and should not be undertaken but the surgeon's aim is to operate early within the first twenty-four hours to obtain the best results. It is during this early period that symptoms are apt to mislead, and in the tropics I suggest that malaria should always be excluded. I hope that my cases may interest medical practitioners in the large presidency hospitals in the tropics, and that further investigations may be made.

In malaria the endothelium of the capillaries in the liver is swollen and the parasites are abundant in the capillaries of the villi of the intestine. Does a similar condition occur in the appendix and does it lead to inflammation?

My thanks are due to Dr. Cairns, the chief medical officer, for permission to publish this note.

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Medical Officer, Kotri District, Sind.

Rebivius.

A FRENCH TREATISE ON CANCER

PROFESSOR MENETRIER's second volume on cancer¹ completes his treatise on that subject. The first volume, which we reviewed in February last year, dealt with generalities, the present volume deals with the forms and varieties of cancer and their treatment. The two volumes, comprising two thousand pages, give an excellent summary of our present knowledge on the subject of malignant disease.

The view has always been held by Professor Menetrier that there is no specific cause of cancer, and he considers that the bearings of modern discoveries and experiments tend to confirm that view, more especially the discovery of a means of producing malignant growths experimentally, enabling their cause and mode of production to be investigated. The causes of cancer, he contends, are multiple and non-specific, physical agents such as x rays, ordinary irritants such as tar, and divers parasites are capable of starting the cancerous process, which is to be regarded as the mode of reaction of the organism against these irritants. He further considers, as the result of his investigation of malignant growths in their earliest stages, that cancer always originates at the site of some pre-existing lesion, apart from which the growth would not arise. Such antecedent lesions are multiple and various in nature, and are grouped by the author under two headings—namely, (1) cellular displacements (heterotopy) caused by irregularities of development, and (2) inflammatory or functional hyperplasias, either simple in character or differentiated into the form of some tumour, such as adenoma or papilloma. According to this view of the origin of cancer it would seem that the line of research demands some shifting of its objective, and should be directed rather towards the elucidation of the chemical, physical, and other effects of ordinary irritation than towards the detection of some definite cause. It might be argued that the extreme frequency with which the tissues of the body are exposed to irritation and the comparative infrequency with which cancer develops at the site of such irritation, renders a causal relation between them improbable. If, however, it is a continuous irritation that is in question, the discrepancy in the frequency of association is probably not so great as might be supposed. The important part played by antecedent lesions has induced Professor Menetrier to devote a large amount of his space to the description of the pre-cancerous conditions mentioned above. Thus a considerable part of the work is occupied with the inflammatory affections and non-malignant growths of the several organs, in the case of cancer of the breast, for example, the various forms of chronic inflammation, cysts, adenomas, and fibro-adenomas, chondromas, osteo-chondromas, and mixed tumours are described in some detail.

Professor Menetrier takes note of the vantage ground which has been gained in recent years through the ability to produce a cancer experimentally, and emphasises the altered views now held as to the curability of cancer. For centuries cancer has been considered to be incurable, we now know that it is not so. Being in its early stages a strictly local affection, excision of the affected tissues will effect as certain a cure as in the removal of a non-malignant growth, moreover, the introduction of modern methods of treatment give some hope that even in somewhat later stages the growth may be completely destroyed. The numerous methods of treatment that are now put in requisition are mostly on their trial, and their proper mode of application is the subject of investigation. Dr H. R. Duval, director of the laboratory of St Michel for the study of cancer, contributes a critical examination of them and their results. Apart from surgical treatment, he speaks in high terms of radiotherapy as applied by those who are conversant with the method. More especially in cancer of the cervix uteri, radiation has given notable results. For example, Regaud's statistics show 26.3 per cent

of cures in inoperable cases, 43.7 per cent in cases at the limit of operability, and 63.6 per cent in operable cases. Meanwhile the practical application of radiotherapy has by no means become more simple in technique, and in incompetent hands it may cause dissemination instead of cure of the disease.

RADIUM IN GYNAECOLOGY

A book on radium in gynaecology is very welcome at a time when this treatment is so much before the medical profession. The subject-matter of Drs Clark and Norris's volume² is well arranged. It opens with a short historical review of the discovery of radium, and in all too brief history of that wonderful scientist Marie Curie. Following this is a very complete chapter on the physics of radium by GIOACCHINO FAILLA of the Memorial Hospital, New York, which at first sight may frighten the ordinary clinician. The necessity, however, of knowing at least the elements of the physics of radium cannot be over-emphasized, and no clinician should start on radiotherapy without such elementary knowledge. This particular chapter is extremely well written, and the book should be read if only for that reason. The next section is somewhat quaintly headed "The pathology and action of radium." The action of radium is still a matter which requires a great deal of investigation, but the general trend of recent work is well summed up.

It is the second half of the book which really deals with the clinical uses of radium in gynaecology, and tumours of the external genitalia are the first to be dealt with. The authors are not satisfied with merely dealing with the methods of treatment by radium and their results, but go, in considerable detail, into such matters as diagnosis and etiology of the disease. They advocate radical surgical excision where possible, with removal of glands, implantation of radium emanation, followed by x rays as soon as healing is complete. Unfortunately they do not give any figures as to the results of such treatment compared with excision alone. In describing the technique they do not mention whether their "seeds" are purely glass or encased in thin platinum. They also make use of that very indefinite measurement millicurie hours. To give one example, they say that the inguinal region is treated for 3,000 millicurie hours at 4 cm with lead blocks. At the end of this paragraph it is stated that excellent results were obtained by this method, but no figures as to the length of time the patient survived or other details are given. The next chapter deals with tumours of the vagina. The authors raise an interesting point concerning the production of fistulae, and quite rightly remark how often this complication is due to the disease and not to the radium, as is sometimes suggested. The chapter on carcinoma of the cervix is somewhat disappointing, especially for the way in which the statistics of the authors' own cases are dealt with. Even after reading through this chapter it is difficult to get any clear idea of how long the patients lived and to what extent they were relieved of their various symptoms when treated by radium alone. A few tables in this connexion would show at once what the results were. The word "cure" appears fairly frequently, and it can only be surmised that three years without symptoms or signs of disease is meant. Clark and Ferguson are quoted as saying that irradiation alone cured 28.5 per cent of Stage I cases, but irradiation combined with cauterization and trachelectomy cured 83 per cent. This certainly suggests that in their hands a trachelectomy has more to do with the "cure" than the irradiation.

In their discussion of technique the authors state that in Stage I operation is justifiable, but in their opinion radium is better. It appears that in these cases they combine the radium treatment with a trachelectomy, but how much radium is used and how long they use it for are difficult to gather. In Stage II they follow much the same procedure, except that they do not always perform trachelectomy. In Stage III cases are treated by a single dose of 2,500 milligram hours (by a printer's error this appears as milligrams). Stage IV cases—that is, the very advanced—

¹ *Nouveau Traité de Médecine et de Thérapeutique*. Publié sous la direction de J. P. Carrot et P. Lereboullet, XIII bis. Cancer. Formes et Variétés des Cancers et leur Traitement. Par P. Menetrier. Deuxième édition revue et considérablement augmentée. Paris: J. B. Baillière et Fils (Roy Bro pp vi + 433-2000 344 figures, 120 fr.)

² *Radium in Gynecology*. By John G. Clark M.D. and Charles G. Norris M.D. With a chapter on Physics by Gioacchino Failla E.E. D.S.C. London: J. B. Lippincott 1928 (Med Bro pp vii + 315 49 figures, 5s net.)

should not, in the opinion of the authors, be treated by irradiation. In discussing on page 199 the action of radium Drs Clark and Norris state dogmatically that this is produced in three ways—namely, by autolytic degeneration (particularly noticed when applied to the unique type of tumour), by caustic action, and finally by growth restraint. Most people will find it difficult to be so certain about the action of radium. The next chapter, on encephaloma of the body of the uterus, deals more with surgical than with radiological treatment. Here, again, we are told that 5,000 to 7,000 milligram hours is none too much, but are not told for what number of hours the treatment is given. The rest of the book deals with non-malignant conditions, such as fibroids.

DEVELOPMENT OF THE HUMAN EYE

THERE is no type of book which repays the reader with more pleasure and stimulation than the monograph wherein a writer who has laboured long over a subject gives to the world his results and deductions, and in the light of the new knowledge recasts his subject, sometimes in essentials, sometimes in minutiae, to conform with his conceptions. If he is right in his main contentions a landmark may have been reached, if he is wrong the interest is but little lessened, for he has usually succeeded in imbuing the facts of science with some of the clothing of personality and giving them an interest richer than they had before. Ophthalmological embryology in this country owes a debt of this kind to Miss Mann. Until a few years ago this subject was to all intents and purposes neglected, and its elucidation was left to Continental investigators, she has saved English ophthalmology from a reproach, and has given this branch of the specialty a vitality of its own with results that speak for themselves. With the help of Professor FRASER of the University of London she has accumulated the largest selection of human embryos at different stages of development that has yet been gathered in this country, and these she has studied in detail, at the same time correlating her findings with those of others. From her own observations she has been able to build up a connected story of the development of the eye most of it was known before and is merely recapitulatory but she has filled in several important blanks, and she has been able to express a reasoned opinion on several debatable points. With her opinion everyone may not agree—if they did embryology would lose much of the interest which it appears destined to claim for a long time to come, whether they do or not is immaterial but there will be few who will deny that she has attained the position of one whose opinions on this particular subject with which she has identified herself demand respect and consideration.

The *Development of the Human Eye*² opens with a chapter on the early stages of the formation of the primordially optic vesicle, the development of the embryonic plate, its lateral out-pouchings to form the optic pits, and its differentiation to form the optic vesicle. There follows a description of the development of the neural and surface ectoderm and the mesoderm which is associated with it until the fully differentiated eye at birth is reached. Incidentally the rationale of several congenital deformities is explained, such as microphthalmia, congenital cystic eyeball, anophthalmia, colobomata. The development of the lens is then dealt with, in which connexion reference is made to the subject of congenital cataract. The fourth chapter deals at great length and in considerable detail with the differentiation of the neural ectoderm into the different layers of the retina and the prolongation of this structure over the ciliary body and iris, it includes a description of the sphincter and dilator of the pupil, and an account of the development of the optic nerve and chiasmal region. The next chapter, dealing with the vitreous is one of the most interesting for over the development of this tissue disputations have taken place since the middle of last century. The author's suggested solution of the problem is that the vitreous has a triple origin, partly from the lens plate, partly from the optic vesicle, and partly from the mesoderm which enters the

optic vesicle through the foetal fissure. Under the heading of "the associated mesoderm" the next chapter deals with the foetal blood system—the larger vessels in the orbit, the development of the choroid, the development and the retrogression of the foetal intraocular blood system, and the development of the definitive retinal arteries and veins—the mesodermal portion of the iris and ciliary body, and the development of the corneo and sclerotic. The differentiation of the structures of the orbit and its contents is then detailed, and the book finishes with a comparative study of phylogenetic and morphological points of interest. There is appended a comparison, in synopsis, between ocular and general development and, finally, a comprehensive bibliography.

In the preface Miss Mann hints that the book will have a limited interest. If it does it will be unfortunate. To the embryologist, the anatomist, the zoologist, and the biologist it should be a necessity, to the ophthalmologist it should be more than a luxury. A certain amount of embryological knowledge is needed if clinical findings in the eye are to be rightly interpreted, for the explanation of many ocular appearances is embryological moreover upon the differential diagnosis of congenital from acquired conditions many decisions of importance rest and this can only be adequately appreciated in the light of a knowledge of the normal and abnormal development. In this connexion it should be noted that the *British Journal of Ophthalmology* has undertaken the financial responsibility for Miss Mann's book. The volume is lavishly and beautifully illustrated with drawings executed by the author and can have been produced only at considerable cost. It is well for British ophthalmology that work of scientific value and international significance should be sponsored and facilitated in this manner by its official organ.

BLOOD TRANSFUSION

La transfusion du sang de l'animal à l'homme,⁴ by Professor RENE CRUCHET of Bordeaux and his assistants, Dr. A. RIOT and CAUSSEMON, deals with a subject on which the professor's name is well known, for at the Nottingham Meeting of the British Medical Association in 1926 he covered much the same ground, though naturally in less space and with fewer illustrations. In his introduction Professor Cruchet tells the reader the story of the difficulties and opposition he had to overcome in carrying out his animal experiments on transfusion. The historical summary shows that, although the idea of transfusion is almost as old as history, it was not put on a sound logical basis until Harvey's discovery of the circulation was published in 1628. The true story of the opposition to Jern Denry's transfusion of man by sheep or calf's blood in 1667 and the long period of its neglect shows that it was due to the Medical Faculty of Paris, which enacted that transfusion could not be done without the approval of a member of the Faculty. Denry, it is significantly pointed out was a professor of mathematics and philosophy at Montpellier and not a medical man. Attention is directed to the work of Oré of Bordeaux, who between 1860 and 1876 advocated human transfusion with animals' blood, and ascribed the untoward effects sometimes seen to coagulation and embolism. These conclusions are confirmed and expanded by Cruchet and his colleagues as the result of numerous experiments. They advocate heterogeneous transfusion as free from disadvantages, such as want of control of the human donor, and as possessing the obvious assets that an animal can be immunized against a number of infections and that the therapeutic results are better than those obtained by transfusion of one human being with the blood of another. The precautions to be taken in transfusion are set out, the causation of serious reactions is fully considered, and the conclusion is reached that agglutination and haemolysis are harmless, provided that the proper technique of transfusion is followed, the most important point being, that the procedure should be carried out very slowly, especially in transfusion from animals to man, a method which the authors consider is then free from danger.

² *The Development of the Human Eye*. By Miss C. Mann M.B. B.S. Lond. I.R.C.S. Eng. With a foreword by Sir John Herbert Parsons C.B.E. D.Sc. M.B. I.R.C.S. F.R.S. London: Cambridge University Press, 1928. (Pp. 8vo pp. x + 206. 24 figures. 36s. net.)

⁴ *La transfusion du sang de l'animal à l'homme*. Par René Cruchet, A. Riot et J. Caussemon. Collection Médecine et Chirurgie pratiques. Paris: Masson et Cie, 1928. (5 x 7 1/2 pp. 103. 13 figures. 12 fr. sans majoration.)

PATHOLOGY

THE revision for the fourteenth edition of DELAFIELD and PRUDEN'S *Text-Book of Pathology*¹ has been carried out by Dr F CARTER WOOD. The general features of the book remain unaltered, but additional matter has been included on the subject of vitamins and hormones, changes have been made in the chapters on diseases of the thyroid, pancreas, lungs, and blood, and modifications in our conception of certain lesions of the liver and gall bladder have been referred to. Additional matter has also been inserted in the chapter on infectious diseases, in that dealing with the bones and joints, and in that on the nervous system. The chapter on lesions following various types of poisoning has been eliminated, as these matters are considered to be covered more fully and satisfactorily in the standard works on legal medicine. The description of the technique of *post-mortem* examinations has been curtailed in order to make room for more important matters. As a textbook for the student of pathology the work remains one of the soundest and most reliable among the numerous works of the kind at his disposal. It presupposes a fair knowledge of gross and microscopic anatomy, embryology, biological chemistry, and physiology on the part of the student, and starting on this basis furnishes him with the fundamental facts of pathology, fully yet tersely described, with a clear discrimination between fact and theory, but with an adequate discussion of the latter in all problems of importance. Dealing with so large and rapidly expanding a subject a work of this kind, notwithstanding its considerable size, necessarily gives to some extent an epitomized presentation, but in connexion with the description of almost every lesion useful and well chosen bibliographical references are given to guide the student who seeks for more detailed information.

GUY'S HOSPITAL REPORTS

ALTHOUGH there is not any contribution in the April instalment of the *Guy's Hospital Reports*² actually under the editor's name, his influence is obvious, especially in the first four articles dealing with various gastric conditions, the first two of which are based on the material from the New Lodge Clinic since its opening in February, 1921. Dr L J BARFORD's statistical inquiry into the etiology, symptoms, signs, and results of treatment in 166 cases of gastric and duodenal ulcer is a very valuable analysis and, the diagnosis being based on clinico-chemical and particularly on radiological data, differs from most previous collections which have been the result of observations made at operations or *post-mortem* examinations. Among the 160 chronic cases, 128 were duodenal, 30 gastric, and 4 ulcers in both regions. This article is followed by Mr T EVANS Jones's analysis of 55 cases of unsuccessful gastro-jejunostomy, of which 36 were diagnosed as jejunal or gastro-jejunal ulcers, 4 as persistent or recurrent gastric or duodenal ulcers, and 15 as other bad results or complications. Dr R C BLOCK's article on four cases of gastro-colic fistula contains a useful commentary on the subject, which shows that malignant disease of the colon, formerly almost the sole cause, has now become rare, and that most of the cases are due to jejunal ulcer following gastro-jejunostomy for duodenal ulcer, all except one of these fistulae being in males. In an investigation, undertaken at the suggestion of Dr HURST, into the relative efficiencies of the commoner substances, collectively known as "alkalis," in the neutralization of free hydrochloric acid in the gastric juice, Messrs C R E FREEZER, C S GIBSON, and E MATTHEWS find that tribasic magnesium phosphate is the most suitable for the rapid correction of gastric acidity, although tribasic calcium phosphate, the citrates, and calcium carbonate are almost as good, that

magnesium oxide and carbonate are rapid neutralizing agents, but that they both produce a hydrogen ion concentration far from the optimum for the tissue cell, and further, that after their administration alkalemia is liable to occur, and that of the substances examined, bismuth oxy-carbonate is the least effective for the neutralization of gastric hydrochloric acid. Jaundice of the newly born, with special reference to physiological jaundice and grave familial jaundice, is described by Dr A C HAMPSHIRE, who has made a number of observations on the blood. Dr BAND records a case of typhoid fever in which a relapse occurred seventy-five days after the original attack. Mr GIBBERD communicates a case of epistaxis and haematome of the vulva associated with the albuminuria of pregnancy, and Dr C P BLACKER discusses at length the dreams of a patient as an index of his inner life. In conclusion, it may be pointed out that these Reports always contain papers of special value which are not published elsewhere.

NOTES ON BOOKS

Dr ROBERT HUTCHINSON, in the preface to his reprint of three addresses, *Some Principles of Diagnosis, Prognosis, and Treatment: A Trilogy*,³ admits that there is nothing in them that has not been said often before, but the critic, however candid he may wish to be, must admit that there can seldom have been more interesting and shrewdly worded advice than that closely packed in these fifty-four pages. The first address, on diagnosis, appeared originally in our issue of March 3rd, 1928 (p. 335). While thoroughly practical and full of common sense, wisely diluted with humour, there are many epigrams which the medical man would do well not only to read but to remember, and there can be no doubt that mental physics so pleasantly flavoured will have much more lasting effect than the formal dogmatism of the dry dust type of textbook. It is easy reading, but this is the artful product of long clinical experience, an extensive acquaintance with good literature, and much successful writing.

Culture the Diffusion Controversy,⁴ a volume in the General Series of the *Psyche Miniatures*, contains four short essays. In the first of these Professor G ELLIOT SMITH states the two views of the origin of civilization, the first, held by the vast majority of anthropologists at the present time, is that civilization has grown up in various communities quite independently of similar events taking place elsewhere in the world, the other, which he strongly supports by many instances, is that civilization, like any invention of which we have knowledge, has spread from one centre. Professor MALINOWSKI in the next twenty pages vigorously controverts Professor Elliot Smith's arguments, and sums up to the effect that diffusion never takes place: culture is a readeption, a truly creative process in which external influence is remodelled by active genius. In the longest of these essays, The prehistoric versus the romantic (diffusionist) school in anthropology, Dr SPINDER brings in the analogy of parasitic diseases, which he considers are most unlikely to arise spontaneously in different areas, and expresses doubt whether any parasitic disease of importance was common to the New and Old Worlds at the time of the discovery of America and its colonization by Europeans: he apparently has no hesitation in accepting the view that syphilis spread from America to the rest of the world. He, however, concludes in somewhat scornful terms against the romantic school. Dr GOLDENWEISER also criticizes Professor Elliot Smith's contention, and in the main agrees with Dr Malinowski but he is not inclined to deny dogmatically the influence of diffusion.

Drs E M BROCKBANK and A RAMSBOTTOM's compact little handbook on *The Clinical Examination of the Lungs*,⁵ which was reviewed in our columns seven years ago, when it first appeared, has now passed into a second edition. It has been slightly enlarged, has some new diagrams, and four plates, each containing two skiagrams, of the normal and morbid appearances of the chest. It is admirably adapted for students when commencing work in the medical wards and out-patient departments.

¹ *Some Principles of Diagnosis, Prognosis and Treatment: A Trilogy* By Robert Hutchinson MD F.R.C.P. Bristol: John Wright and Sons, Ltd. London: Simpkin Marshall Ltd. 1928. (Cr. 8vo pp. 54. 2s. 6d. net.)

² *Culture the Diffusion Controversy* By G. Elliot Smith D.Sc., Bronislaw Malinowski D.Sc., H. J. Spinder Ph.D., and A. Goldenweiser, Ph.D. *Psyche Miniatures* General Series No. 18. London: Kegan Paul, Trench, Trubner and Co. Ltd. 1928. (Fot. 8vo pp. 69. 2s. 6d. net.)

³ *The Clinical Examination of the Lungs* By E. M. Brockbank, MD Vic. F.R.C.P., and Albert Ramsbottom, MD Vic. F.R.C.P. Second edition. London: H. K. Lewis and Co. Ltd. 1928. (Cr. 8vo, pp. viii + 112. 35 illustrations including 4 plates. 5s. net.)

⁴ *A Text-Book of Pathology* By Francis Delafield, M.D., LL.D., and T. Mitchell Prudden, M.D., LL.D. Fourteenth edition. Revised by Francis Carter Wood, M.D. Edinburgh: L. and S. Livingstone. 1928. (6 1/2 x 9 1/2 pp. xi + 1339. 826 figures. 15 plates. 55s. net.)

⁵ *Guy's Hospital Reports* Vol. 78 (Vol. 8 Fourth Series) No. 2 April, 1928. Edited by Arthur F. Hurst, M.D. London: The Lancet Limited. 1928. (6 x 9 1/2 pp. 127-252. 3 plates. 16 figures. Annual subscription for volume of four parts £2 2s. or 12s. 6d. net per issue.)

The American Medical Association of Vienna, which was founded in 1903 to promote post-graduate medical work in that city, was reorganized in 1921 and at the beginning of 1927, adopted as its official organ *Iris Medica*, an English edition of which had existed for five years previously. The journal is published monthly and includes abstracts of current German medical literature, answers to clinical and scientific questions arising in practice, notes on drugs and official information about the association. The bound volume for 1927 represents a well arranged and useful summary of German medical literature during the year, together with an index of subjects and of authors.

The application of science to everyday life involves the disappearance of empiricism even from the art of cooking. Thus we find a physiologist Professor MORTIMER, associated with Miss JESSIE LINDSAY, head of the household arts department of King's College for Women in the production of a *Manual of Modern Cookery*. Cook can now learn the respective amounts of proteins, fats, carbohydrates, salts and vitamins she should allow to the family for which she enters and, if kept properly informed, she will cure the constipation of the household with a due administration of roughage. Miss Lindsay discusses on the various methods of cooking food and the reasons for adopting different methods for different joints. Her 854 recipes include every variety of dish, and though the book is perhaps more suitable for schools and colleges than for the ordinary domestic servant, many of the recipes are well within the competence of the good plain cook.

Iris Medica, Vol. 1. Edited by Dr M. O. Hermann. Vienna: Spitzner & Co., 1927. (5s. x 8, pp. 668, 14.)
Manual of Modern Cookery. By Jessie Lindsay and J. H. Mortimer. London: University of London Press Ltd. (5s. x 8, pp. 316, 48, 6d.)

PREPARATIONS AND APPLIANCES

NON FLAM EYE SHIELDS

The dangers of using ordinary celluloid for articles that may be brought near fire is very great and there have been noted in the columns of the *Journal* not a few incidents that provide a warning against the use of this material. It might be thought that eye shields were unlikely to be a danger in this respect, but the recent experience of a patient who was severely burned about the face through wearing a celluloid eye shield proves the contrary. While he was lighting a cigarette a wisp of cotton wool projecting from beneath the shield caught fire, this in turn fired the shield, with the result that a grave burn was sustained. Common celluloid can usually be recognized by its slight smell of camphor, non-flam has no smell. Messrs Solport Brothers Ltd. of 184 Goswell Road, E.C.1, have now produced appliances which, though very like the former celluloid shields in appearance, are non-inflammable. They are sold under the trade name of

Portia shields and are marketed in the usual opaque form of single eye shields and also as tinted transparent shades for protecting the eyes from excessive sun or artificial light. If one is rash enough to throw an ordinary celluloid shield into the fire there is an instant burst of flame of almost explosive force. When one of these non-flam shields is put into a bright fire it gradually curls up, and then half smoulders half burns away leaving an appreciable residue. There is no doubt about the safety of this new material: it burns with reluctance even in the heart of the fire. One point however might well receive attention from the makers. These eye shields have no provision for ventilation: there should be a series of small perforations parallel with the upper border and at a sufficient distance from it to allow free access of air when the appliance is fitted to the face. Water-proof shields fit so well that unless ventilated they are worse than useless: they act as incubators and are definitely injurious to the eye. With the ventilation suggested these Portia non-flam shields will be a useful surgical appliance.

SIXUS FORCEPS FOR BURYING THE APPENDIX STUMP

Mr HUGH DOXOVAN, FRCS (Birmingham) writes: In the common method of burying the appendix stump after appendicectomy by thrusting it with forceps into a purse-string surrounded area it is a not unusual experience to find the forceps held by the purse-string on withdrawal. Messrs Thackray of Leeds have made for me a modification of Hilton's sixus forceps, the blades being perfectly plain without any serrations and being free from the slightest trace of a bulbous end. These forceps have proved satisfactory in practice.

ROYAL MEDICAL BENEVOLENT FUND

THE FUND is endeavouring to help the widows of medical men who in many cases are living in penury, to assist orphans who are faced with hunger, and to support broken and infirm medical men who in the last days of their life are in need. An urgent appeal is made for subscriptions and donations, as funds are very greatly needed to continue this work of kindness. Cheques should be sent to the Honorary Treasurer, Sir Charles Symonds, 11 Chancery Street, Cavendish Square, W.1. At the last meeting of the committee 47 applications for

assistance were considered, and grants amounting to £792 were voted, making the total sum of £5536 in grants this year. This sum is considerably larger than the amount voted during the corresponding period of last year, thereby showing that increased demands are being made upon the Fund.

Of the many applications considered, the following short notes on two of the cases are typical, and show how distressing are the stories which are told.

Mrs. A. aged 72. Her husband died this year at the age of 92. He had held a post as medical officer of health and had to retire in 1919. Although the post carried no pension he was granted £50 a year under the complimentary title of consulting medical officer. For nine years of retirement this old couple lived on £350 a year. On the husband's death this payment ceased and the widow was left without a penny. Of her three sons the eldest suffers from a war disability and is only able to earn £55 but contributes £25 towards his mother's maintenance. The second son was badly hit in the war and is now a clerk in Canada and cannot help the youngest in farming in the colonies. He is married and has his own family to keep. The Fund voted £36 in four instalments.

Mrs. Y. whose husband was killed in an accident was left with four boys. The practice was sold and with the proceeds thereof the widow tried to run a boarding house, which failed. Realizing what she could not do of this failure she rented a house and took in lodgers when a devastating and unexpected blow fell upon her. Her husband had been given a loan by a friend which had always been looked upon more as a gift than as a loan. The friend had also undertaken to pay for the education of one of the boys. The friend died recently and the executors insisted on the repayment of the loan. The widow offered a cash payment of half the sum but this was refused. There followed a foreclosure and the seizure of all the furniture in the lodging house and the loss to the widow of her last means of livelihood. The Fund voted £40. With this timely help and by the generous action of the local Panel Committee the widow has been enabled to restart.

Subscriptions to help cases such as these are asked for.

The Royal Medical Benevolent Fund Guild still receives many applications for clothing especially for coats and skirts for ladies and girls holding secretarial posts, and suits for working boys. The Guild appeals for second hand clothes and household articles. The gifts should be sent to the Secretary of the Guild, 58 Great Marlborough Street, W.1.

NEW ZEALAND HOSPITALS

A SURVEY OF THE SYSTEM

THE Department of Public Health of New Zealand has recently issued, as an appendix to its annual report, a voluminous survey of the hospital system of the Dominion. This should prove of interest to British readers for they will find in its pages an account of the changes through which a spontaneous and sporadic charitable provision of hospitals has become a more or less systematized organization. The hospitals and charitable aid system of New Zealand has recently been the subject of considerable comment, due in large measure to the increase in hospital expenditure, and the aim of the report has been to give the record of an unbiased examination of the whole position.

Some of the hospitals of New Zealand are maintained entirely by the Government, most receive subsidies equal in amount to their voluntary subscriptions and local levies, a few receive higher payments. By an Act of Parliament of 1909 a hospital and charitable aid board was set up for each district. A primary defect now seen in this arrangement is that the hospital districts are not large enough to be self-contained—that is, to maintain a base hospital, infectious disease and maternity hospitals, secondary or cottage hospitals, an old people's home, district nurses, and subsidized medical men in outlying areas. Many districts have no base hospitals or special hospitals: their cases therefore go elsewhere, and there is constant friction over costs. Further the multiplicity of boards tends to make administration costly. amalgamations have been attempted, but local prejudices are too strong to permit them and the tendency has been for outlying districts to claim independence in the hope of lightening costs. The boards are elected bodies, representation being proportional to a mean between the population and the value of the rateable property in the contributory areas. This again gives rise to disputes between town and country, for the townsmen favour the parliamentary franchise. The Government provides most of the money but is practically unrepresented on the boards, for,

¹ Department of Public Health. Appendix to the Annual Report for the year ended March 31st 1927. Containing a Survey of the New Zealand Hospital System. December 1927. Wellington. W. A. G. Skinner Government Printer 1928.

while the Director-General of Public Health may attend, he manifestly cannot be present at all meetings. It is argued that it would be good if there were a Government representative present, if only as a liaison officer. "With a view to reducing rhetoric, all the more important boards form committees", these do the work, and the boards any co-opt outsiders to them.

Work of the Hospital Boards

An improvement in personnel is noted. "There is not a great deal of kudos in hospital board work, and men merely seeking personal advancement in public life do not as a rule use the hospital boards as a stepping stone thereto." But the work is of enthralling interest, and "we find men giving up other public work and devoting themselves entirely to hospital board activities." The chairman may receive an honorarium of from £100 to £250 per annum, according to the scale of revenue, and members may receive travelling and sustenance expenses. The Board of Health for the Dominion is stated to be a thoroughly representative body, and we note that it contains a representative of the British Medical Association. Local boards are permitted to appoint representatives of the honorary medical staffs to their membership. There are the usual finance and house committees, and recently 'fees committees' have been formed, the reason being that "the growing cost of hospitals, and the tendency to extend their advantages to all classes of the community, makes it desirable that boards should give more attention to the matter of the collection of fees." There is a paragraph describing the internal administration of the hospitals, and the relationship of medical superintendent, managing secretary, and matron. "The medical superintendent is the recognized head of the institution," yet the others are in charge of their own departments and responsible, therefore, to the board.

It will have been noted that the boards are not hospital authorities only, they are also charitable and authorities and provide for the destitute. The report quotes a long paragraph from Mr Sidney Webb's book *The Prevention of Destitution* on the development of modern Poor Law methods, as showing the superiority of prevention of destitution over casual charity. New Zealand authorities, the report says, have done little in this direction, they merely give such relief as is necessary and sufficient. It is urged that "each board should be a charitable organization society for its own district," co-ordinating existing charities, which can do things that the ratepayers' boards cannot do. The report is strongly opposed to the suggestion that charitable aid should be separated from hospital administration and that it should be undertaken by the State, on the ground that relief would cost more, and that "some of the most enlightened methods of relief could hardly flourish except under a voluntary system." The care of orphan children comes within the scope of the welfare branch of the Education Department.

Financial Organization

The district boards are financed from four sources: patients' payments, voluntary gifts, levies through the local rates, and State grants or subsidies. The State gives £1 for every £1 collected through gifts or through the levies on the rates, and it is therefore to the ratepayers' interest that the voluntary gifts should be as high as possible. But it appears that voluntary contributions have not increased by reason of this stimulus. "It having been decided that the care of the sick is a national affair, and not one to be left to haphazard charity, the public no doubt consider that, having paid their hospital rates, there is no need to supplement such payments by voluntary contributions. Many boards have abandoned the idea of collecting voluntary contributions at all, and will not undertake a hospital Saturday, holding that, as hospital finance is assured, a clear field in this respect should be left to other charities who are dependent solely on voluntary contributions." The proportions obtained from the main sources for last year were as follows: patients' payments, 20 per cent, voluntary contributions, 13 per cent, local levies, 29.2 per cent, State grants, 36.6 per cent.

Private Wards

The suggestion that there should be wards for paying patients is strongly opposed by some on the ground that it will promote class distinctions. In many country districts there is no such demand, for all are content to avail themselves of the existing service.

"The opinion of many business men with considerable hospital experience is that it would be a difficult task to make private wards pay at the fees usually charged by private hospitals. Apparently it would cost at least £8 8s a week to cover the full cost including all overhead charges in view of the eight hours system for nurses and other factors to be taken into consideration, and this is only if the wards were constantly full and there were no bad debts. Even a hospital designed for paying patients by such a skilled administrator as Henry Ford does not appear to be able to pay its way at less than the above rates."

Payment of Medical Staff

The medical staff do not receive any financial recognition of their services, but

The Director-General has definitely expressed his opinion that the time has come for the abolition of the honorary staff and that, as hospitals are open to all it is not right to expect the services of the medical profession in an honorary capacity. It is difficult to see from a financial aspect at any rate what other conclusion could be come to. The honorary system is only suitable for hospitals treating only pauper patients, and it could not be expected that the medical profession should give their services free unless some *quid pro quo* in the form of a voice in regard to hospital policy and administration were given them. The engagement, however of any other class of employee upon such an understanding would be absurd and unbusinesslike and it seems just as unbusinesslike in the case of the medical staff.

The views of the New Zealand Branch of the British Medical Association are then put in *extenso*, these correspond closely with the hospital policy of the British Medical Association at home, but with certain special stipulations. The report sums up the effect of the local British Medical Association policy thus:

"The British Medical Association appear to favour the 'open hospital' system—that is, that they apparently are prepared to continue to give their services free in the public wards provided the boards will erect private wards in which they can treat their private patients. The tendency of the hospital boards seems to be opposed to such suggestion and they appear generally to favour the 'closed' hospital—that is, a hospital on which the medical staff is stipendiary."

General Conclusions

It appears from this report that the hospital system in New Zealand is unique.

"Through the length and breadth of the Dominion hospitals are available for all who seek admission. The necessary money for the upkeep of these hospitals is fully assured and is not dependent upon sentimental appeals. These institutions are owned by the people administered by the people and paid for by the people. One of the main principles of our system is that of local autonomy, the administration being in the people themselves by means of boards elected by the people of the district in which the hospital is situated. There is indeed a measure rather of supervision than control vested in the department but the department is not represented on the hospital boards and does not desire to be represented."

The second part of the report deals in detail with the several departments of hospital administration—costs, accounting, and so forth. There is evidently a definite struggle in progress between the advocates of payment by patients and free hospital service. At present patients who can do so pay 9s a day, an attempt to raise the normal charge to 15s in 1925 failed. Others assert that their payment of rates provides the service for them when they need it, like the payment of fire insurance. Friendly societies pay the dues required of their members and their families, but demand a 50 per cent reduction in the charge in return for their guarantee of payment, this the report declares to be unconscionable, as the charge made falls far short of the cost. Reference to this question was made in the *British Medical Journal* of March 31st (p. 563). Attempts have been made to develop State-subsidized industrial contribution schemes as an insurance against hospital benefit.

The answer to criticisms of the high cost of the hospital service is given tersely thus:

"Decrease in the purchasing power of the £1 note, increased number of hospital beds, increase in staff required owing to the more complicated methods of hospital treatment including the employment of a greater proportion of trained nurses and the institution of employees' superannuation."

NATIONAL CONFERENCE ON MATERNITY AND CHILD WELFARE

A CONFERENCE under the auspices of the National Association for the Prevention of Infant Mortality, and presided over by Sir GEORGE NEWMAN, was held at the London Guildhall on July 5th and 6th. It was largely attended by representatives of medical and social welfare organizations and of local authorities. In his address from the chair Sir George Newman said that he doubted whether anyone could point to a voluntary movement which had been taken up so readily, pursued so persistently, and had yielded its results so promptly as that for the saving of child life. He described the fall in the infant death rate during the last thirty years as the result of many factors, but of one above all, namely, the awakening of interest in maternal care on the part of the community. He indicated four lines of further advance: steady continuance of the attack upon preventable mortality, concentration on, and a fuller understanding of, the social causes of mortality and sickness, the development and extension of the care of children of pre-school age, and, finally, an increase of solitude for the mother. When a woman died in performing the greatest of all physiological functions there should be an adequate inquiry into the cause.

Maternal Mortality and Morbidity

A discussion on the causes and prevention of maternal mortality was opened by Mr. Eardley Holland, who said that childbirth ranked third as a "killing condition" among women of child-bearing age, it was exceeded by tuberculosis and organic disease of the heart. The principal mortality rate had fallen only by a fraction since the early years of the century, a humiliating state of affairs, having in view the improvement which had taken place in general health. Five countries had an appreciably lower mortality than our own—namely, Holland, Denmark, Sweden, Norway, and Italy—the figures ranging from 2.3 to 2.8 per 1,000, as compared with the British figure of rather over 4. By a comprehensive and well-directed effort we might place ourselves on a level with the Scandinavian countries, thus halving our maternal mortality rate, saving the lives of 1,500 mothers a year, and improving the health of an infinitely larger number. It was a significant fact that the Swedish maternal mortality rate had not fallen during the last twenty-five years, and it appeared as though a mortality rate of about 2.5 per 1,000 was the irreducible minimum. Mr. Holland went on to describe the conditions in Sweden, from which he had lately returned. Medical students there, during four months of their curriculum, lived and worked in the maternity hospital. The period of training for midwives was two years, and the training was uniform, being conducted in the big maternity hospitals, and not in a large number of minor training centres as was the case in Great Britain. Midwives in Sweden were educated women, many of them of a high social class. No woman in Sweden, not even the highest lady in the land, was attended at her confinement by a medical practitioner unless there were complications. Even when the doctor administered the anaesthetic, the labour was left entirely to the midwife. Of all the confinements in Sweden 30 per cent took place in maternity hospitals. Among the differences which Mr. Holland had noted as between the Scandinavian and the British outlook was that the British woman regarded approaching childbirth with fear—indeed, the impression of fear was sown in her heart as a girl when she attended church and heard the prayer for "women in travail, sick persons, and young children"—and he believed that fear affected the function of the uterus and accounted for many painful and lingering labours. In Scandinavian countries, on the other hand, childbirth was regarded as a perfectly natural and even domestic function, largely because of the complete confidence in the obstetric services.

Dr. VIVIAN CLARK (M.O.H., Manchester) said that there was likely to be a diminution in the number of those

delayed and difficult labours which occurred as a result of deformities of the pelvis. The great cause of bone deformity was rickets, and from various sources, including school medical examinations, there was evidence that rickets was a disease which the public health administration in this country was eliminating. Dr. Clark pleaded for a subsidized midwifery service. Mr. ALECK BOURNE said that while watching the work of some nurses he had been convinced that the true principles of asepsis had never been learned. Too much antiseptic was sought—in other words, reliance on disinfectants to kill organisms on the hands and appliances—and there was not enough emphasis on cleanliness by washing. The killing power of chemical preparations was perhaps emphasized too much in teaching and so an excess of confidence in these substances was created. Even the rubber glove was dangerous if the nurse used it in touching objects other than the patient's genital passages, but he had known nurses who seemed to think that the rubber glove *per se* gave complete protection.

A discussion on maternal morbidity, which in some ways overlapped the discussion just reported, was opened by Dr. BECKWITH WHITEHOUSE, who set out certain essential factors in the attainment of a low morbidity rate—namely, that the trained nurse-midwife should be recognized as the most suitable attendant for all normal obstetric cases; that ante-natal supervision ought to be considered as the duty of the medical profession, that ante-natal centres should be set up in all areas, at which medical practitioners might attend and see their own patients as well as those submitted by midwives in the area, that these centres should provide at public cost sterilized obstetric outfits, that panels of obstetric specialists or consultants should be instituted to provide expert opinion if required by a medical practitioner, and that in-patient maternity departments might be made available in all hospitals and infirmaries for the investigation of difficult ante-natal problems. Mr. FRANK COOK (assistant obstetrical surgeon to Guy's Hospital) dealt with the maternal morbidity due to miscarriages and abortions, which he was inclined to think that women as a whole regarded far too lightly, and Professor LOUIS McILROY and Miss ESTHER RICHARDS discussed the advantages of post-natal clinics, the former describing the system which had been practised for four years with excellent results in the obstetric department of the Royal Free Hospital, and which served to link together the obstetric and infant welfare departments.

Reduction of Infant Mortality

Yet another discussion was on the value of intensive methods in the reduction of infant mortality. Dr. ERIC PURCHARD gave an account of some investigations into the neo-natal death rate of certain boroughs. The very general decrease in this death rate recorded in recent years was not attributed by those concerned to any one factor but to a combination of factors, mostly connected with the improved organization of child welfare administration, the greater number and efficiency of health visitors, better housing, and the more satisfactory midwifery service. Dr. S. G. MOORE (M.O.H., Huddersfield) gave an account of the intensive methods adopted in his area, whereby the infant mortality figures in a special district fell from 111 in 1912-14 to just below 70. Dr. HAMILTON WOOD also described certain results in Warwickshire in the same direction, pointing to the value of voluntary effort and co-operation in a rural community. Sir FREDERICK TRUBY KING told the now familiar story of the child welfare movement in New Zealand of which he is the director.

Finally, a discussion was held on the particular problem of the unmarried mother and her child, in the course of which Dr. R. A. LISTER (M.O.H., Hampshire), after mentioning that the mortality rate for illegitimate infants was almost double the general rate, dealt with the social handicaps placed upon the illegitimate child and its mother. He contended that the unmarried mother did not receive fair play. Her condition was certainly better than it was ten years ago but among religious bodies and some social workers much prejudice still remained. The position of the unmarried mother in England was rather worse than in many other countries, though better than in certain of the American States. Years ago it was quite common

for district nursing associations to make it an unbreakable rule that the district nurse should not be allowed to attend the unmarried mother, and although, through the active help of the Ministry of Health, this rule had been broken down, such concessions as were made were in a grudging spirit, and enormous pressure had to be exercised to secure the entry of these unmarried mothers into institutions. Dr. Lyster contended that such segregation was entirely bad as a general principle, and that a strong effort ought to be made to keep mother and child together in domestic surroundings, the institution being the last resort.

The Guildhall discussions were only the cruticle of a large amount of activity, and lectures, film displays, and visits to welfare institutions filled up a busy programme.

THE ROBERT JONES BIRTHDAY BOOK

THE dinner and presentation to Sir Robert Jones on his seventieth birthday, which was reported in our last issue, formed an occasion very unusual in this country. It was singular, in the first place, because only one speech was made and replied to, and in the second because the guest of the evening was presented with a collection of papers written for that occasion by his hosts and brother surgeons. *The Robert Jones Birthday Volume*,¹ as the book is called, contains twenty-five original essays by as many friends and admirers, and a preface by Sir Berkeley Moynihan, which we printed last week at page 30. In making the formal presentation of the book Sir Berkeley simply but eloquently expressed the feeling of all those present, as well as of many colleagues who could not attend.

Sir Robert Jones has endeared himself, by his charming manners and the native kindness of his nature, to everyone who has had to do with him, as much as he has aroused admiration and respect by his surgical knowledge and ability. For a good many years before the war he was highly thought of by orthopaedic surgeons in Europe, and still better appreciated by those in America. The war gave him the opportunity of serving his fellow men on a scale hitherto undreamed of—an opportunity which he seized with results which have long been celebrated. The work he did for the wounded in every field of battle where the Thomas splint and such like appliances had been used, and in the 35,000 military orthopaedic beds which were placed under his direction in the United Kingdom, spoke for itself, as his teaching did through the surgeons, both British and American, whom he trained. Only a man of extraordinary tact, power of conciliation, and sweet reasonableness could have done what he did in those eventful years.

Since the armistice he has not rested on his laurels, but has devoted his time and talents to the organization throughout the country of the care and cure of cripples, with a success to which many clinics and hospitals already bear witness.

It is perhaps well that the orthopaedic surgeons of to-day should be reminded that mighty men lived ere Agamemnon, and should be told of the achievements of their predecessors, some of whom made remarkable steps in advance, which often, however, led to little permanent progress, because the time was not ripe till Morton and his followers had abolished pain from the operation table and Lister had abolished suppuration from surgical wounds. Mr. Munro Little's opening paper on orthopaedics before Stromeyer should have such an effect, while at the same time it once more brings home to us how fleeting is surgical, and especially orthopaedic, reputation. Among the twenty-two clinical essays in the volume are six by leading surgeons of the European continent and America, one of whom, Dr. Mink Jansen of Leyden, has been so long closely associated with British orthopaedic surgeons that we hardly

think of him as a foreigner, since his devoted services to British sailors interned in Holland earned our hearty gratitude. His paper on dissociation of bone growth is a valuable and suggestive contribution to surgical knowledge and pathology. Professor Clarence Starr of Toronto is one of ourselves. He writes a pithy essay on a subject which he has made his own—that of acute infections in bone. He urges once more the importance of early recognition and early treatment of osteomyelitis.

In the scope of this notice it is impossible to do justice to a collection such as this, whose authors are all recognized authorities on orthopaedic subjects, and we can do little more than indicate them and recommend the study of the originals to our readers. Professor Osmond of Boston discusses the relations of intestinal stasis with spinal and sacro iliac arthritis, a subject which requires much investigation before any exact pathology is possible. Professor Pott describes cases of tumour of the femur and the extensive bone grafting operations which were necessary to fill the gap left by excision of the growths. Professor Hey Groves draws attention in a practical paper to the possibilities of cure of congenital dislocation of the hip which ought to be better appreciated by practitioners than they yet seem to be. Professor Nathaniel Allsopp of Harvard has chosen the open operations for the same deformity as his subject. He is not very hopeful in estimating the results of manipulative reduction, but favours open operation in many cases, or as a last resort, Lorenz's bifurcation operation. Mr. R. C. Linslie writes on fibrocystic diseases of the bones, a subject to which he has given much attention. Mr. Thurstan Holland of Liverpool gives us the benefit of an almost unequalled experience and keen observation and judgement in his well-illustrated essay on the accessory bones of the foot and some other conditions. The difficult subject (as regards treatment) of spinal fractures is discussed by Mr. A. Brownlow Mitchell of Belfast, with instructive illustrations. Mr. Harry Platt of Manchester draws upon his large experience of nerve injuries for his essay on nerve complications in injuries of the elbow. Mr. Faubank's paper on infantile or cervical coxa vara is full of interest, and should give its readers much help in the diagnosis and treatment of this deformity. Mr. McCine Aitken writes hopefully of the treatment of curvature of the spine, emphasizing the importance of the cultivation of postural reflexes in its correction, as well as plaster jackets. Mr. Rowley Bristow gives a good account of cysts of the semilunar cartilages of the knee, and well sums up the evidence for and against the various theories of their causation without being able to arrive at a positive decision. This paper is illustrated by colour prints of microphotographs as well as by ordinary photographs. Mr. Alwyn Smith of Cardiff offers many points of interest in his paper entitled "Sideights on knee-joint surgery," as does Mr. McMurray of Liverpool on the diagnosis of internal derangements of the knee. Mr. Blundell Bankart has written a practical paper on dislocations of the shoulder-joint. Dr. Calvé of Beck-Plage writes on infantile vertebral osteochondritis, Sir W. I. do Coney Wheeler on bone grafting in Pott's disease, Mr. Girdlestone on operations for tuberculosis of the hip, and Mr. Lanning Evans on astragalectomy, which operation he shows to have been practised as long ago as 1608. The paper of Mr. Naughton Dunn on arthrodesis of the tarsus for deformity, and that of Mr. Triethowan on fracture dislocation of the ankle-joint, are as practical and valuable as might be expected of surgeons of their ability and special experience.

The volume is appropriately wound up with an appreciation of Sir Robert Jones by Sir John Lynn-Thomas, who indicates from first-hand knowledge the part played by his friend in the marvellous development of orthopaedic surgery during and after the war.

¹ *The Robert Jones Birthday Volume. A Collection of Surgical Essays.* Oxford Medical Publications. London. Milford Oxford University Press 1928. (Cr. 4to pp. xii + 454. illustrated. £2 2s. net.)

British Medical Journal.

SATURDAY, JULY 14TH, 1928

LUNACY LAW AND ADMINISTRATION

WISE WORDS TO THE PUBLIC

In the *Times* of July 4th and 5th Sir Frederick Willis, who recently retired from the chairmanship of the Board of Control for England and Wales, gave a few of the impressions he has gained during his seven years of office in that capacity. In these two articles he discusses matters of grave national importance, and these "impressions" will be justly appreciated as the weighty conclusions of one who has spent a lifetime in the public service with much distinction, latterly in a position which invests his utterances with exceptional authority.

Sir Frederick Willis has addressed himself to the general public, and it was no doubt fitting that he should say, first of all, that there is no foundation for the allegation that sane persons are frequently certified as insane and detained in mental hospitals or that cruelty to patients is practised in these institutions. Shortly after he entered on his duties, he says, grave complaints of this nature were made in certain quarters, frequently lurid details were given, but generally no information by which the institution could be identified. When the complaints admitted of investigation inquiries were made, and in every case it was proved that the charges were without foundation. The Royal Commission on Lunacy and Mental Disorder, it will be remembered, reported to the same effect, and it is to be hoped that, for a little while at least, the public mind may be set at rest on a matter with which all who have to deal with the care of the insane are well satisfied. Yet this same public, apprehensive and at times darkly suspicious of mental hospitals, has not been aroused as it should be, Sir Frederick says, on the whole subject of the incidence and treatment of mental disease. Indeed, he describes the attitude of the public to this most dreaded form of illness and to the supremely important matter of the mental health of the nation as one of singular apathy. "The view seems still to obtain that insanity cannot be avoided, that nothing can be done to prevent or cure it, and that all that can be done is to place sufferers in some institution where they will be looked after, and, unfortunately, in too many instances the friends then desire to forget all about them."

After paying a well deserved tribute to the mental hospitals of this country, which have evolved from asylums to real hospitals, with expert and specialist services and instructed and devoted nursing staffs, Sir Frederick Willis calls attention to the apparent fact that, notwithstanding the great improvements of recent years in the care and treatment of the insane, the incidence of insanity has not been materially reduced, nor has the recovery rate materially improved. In support of these serious statements he quotes official figures which show that the ratio of first admissions (the index to 'occurring' insanity) to all mental hospitals per 10 000 of population, which was 4.07 in the year 1869, 10.36 to 5.25 in 1919, and

with minor fluctuations declined to 4.48 per 10 000 in the year 1926. Similarly, with regard to recoveries the returns made to the Board of Control show that during the last twenty five years the recovery rate for all institutions has remained practically stationary at about 32 per cent of the numbers admitted. These figures, Sir Frederick Willis considers exceedingly unsatisfactory, especially in comparison with the marked improvement in the public health as revealed by the striking reduction in the general death rate from 22.4 per 1,000 in the five years 1846-50 to 10.9 per 1,000 for the quinquennium 1921-25. The only hope he sees of reducing the incidence of insanity and improving the recovery rate lies in so altering the law as to allow and encourage the early and skilled treatment of persons mentally ill.

Deferring for the moment any excursion into the very intricate subject of lunacy statistics, it is to be noted that in these two articles the late chairman of the Board of Control—himself a lawyer, a civil servant and, from the medical point of view, a layman—is urging the public to press for legal reforms which have been advocated time and again in the columns of the *British Medical Journal*, concerning which the whole medical profession is at one, and which were strongly recommended to Parliament by the Royal Commission on Lunacy and Mental Disorder in July, 1926. The law as it stands to day (and as it is likely to stand, Sir Frederick Willis thinks, until public opinion is fully aroused to the need for action) is a compromise between the principles of medical treatment and the cardinal legal principle of safeguarding the liberty of the individual to manage himself and his property. Unfortunately the compromise has a strong bias in favour of the latter principle inherited from the time when asylums were places of detention rather than of scientific treatment. The existing lunacy code, said the Royal Commission, bristles with precautions against improper detention, with the result that, whereas in every other type of institution for the treatment of disease the aim is to get in touch with the patient at the earliest possible stage, in the case of insanity the patient is not admissible to most institutions until the disease has so far progressed that he is a certifiable lunatic. Certification, the Commissioners said, should be the last resort in treatment, not its prerequisite. For this purpose they recommended a great extension to all mental hospitals of the voluntary system, whereby uncertified patients, able and willing to submit to treatment, might be admitted. This system is at present restricted in England and Wales to registered hospitals and licensed houses for private paying patients, and to two hospitals maintained with public money—namely, the Maudsley Hospital and the City of London Mental Hospital.

Apart from financial considerations, the extension of the voluntary system to public mental hospitals is not likely to provoke much opposition. The real bone of contention will be the further proposal to legalize the provisional or temporary treatment without certification in public and private mental hospitals, or, if the institutions meet with the approval of the Board of Control in general hospitals, nursing homes and single care of the involuntary mental case. In this connexion the term 'involuntary' for reasons which appeared to them sufficient was taken by the members of the Royal Commission to apply both to the case without volition and to the unwilling or resistant patient. No doubt the Royal Commissioners were correct in maintaining that even if there is no volition

the liberty of the individual is none the less infringed if he is removed and detained under treatment. It may be hazarded, however, that the assimilation of the non-volitional with the unwilling or resistant case contributed at least to the recommendation by the Royal Commission that a necessary preliminary for the treatment without certification of the whole involuntary class of patients should be the intervention of a magistrate. There can be no question that this procedure—the bringing in of the justice—will be regarded by the public as tantamount to certification, and if carried into effect will remove the chance of early treatment of mental disorder without certification from a considerable proportion of the very cases to whom it ought to be given. This is the criticism very cogently expressed in the report of the Lamer and Mental Disorder Committee of the British Medical Association¹ which will be discussed by the Representative Body at Cardiff in a few days time. The following words of the report of the Royal Commission seem very much to the point. But when all is said and done, reliance must inevitably be placed at some point on the skill and integrity of the medical man. If confidence is not reposed in the medical profession no system of protection can be devised which will not ultimately break down. If such confidence in the profession is well founded, the intervention of a magistrate becomes superfluous in all cases in which the patient does not deliberately resist treatment.

Unless the law is altered, says Sir Frederick Muls in conclusion, no improvement in the incidence of insanity or the recovery rate would seem to be likely.

The fact that we have failed to get the legislation necessary is at least an indication that public opinion has not been aroused on this subject as it should be. It is greatly to be hoped on every ground that his words will do something to shake the public out of its apathy.

BOVINE TUBERCULOSIS IN THE UNITED STATES

BOVINE tuberculosis has many aspects of interest to the medical man, not the least of which is the part it plays in causing disease in human beings. The bacillus can be conveyed to man both in meat and in milk, but as milk is the only animal food largely used in the raw state it is by far the more important. The value of a pure milk supply cannot be overestimated and it is of considerable interest to know what the United States are doing to produce this. Tubercle-free milk, in theory, need not necessarily be clean milk, and a tubercle-free herd of cattle is not necessarily a healthy one. Nevertheless, the work of the last ten years in America has shown that in practice, when a herd is freed from tuberculosis the general hygiene improves, the poor stock becomes weeded out, the milk yield increases in individual animals, and the bacterial purity of the milk improves enormously. At the same time the price of milk does not rise.

The general campaign in America takes two forms—antituberculosis work among stock and the passing of pure milk ordinances. In both respects it is recognized that little can be accomplished without the aid of the stock owner and the milk producer and so in all cases the first and probably the most important step is to educate the people generally. The forming of accredited herds was the first active step, taken ten years ago and the herds thus passed as free from bovine tuberculosis have increased from 204 in the first

year to 142,500 at the end of 1927, while nearly two million herds are under supervision. The accredited herd plan has now naturally evolved into an accredited men plan, and at the present time nearly one third of all the counties in the United States are either accredited or are under process of becoming so. One of the most active of the States in this work is New York, and some account of the methods adopted there may be of interest.² All testing is confined to areas—a township being the unit—and 90 per cent of the herd owners must sign up before testing commences. The test adopted is the ophthalmic intradermal one, as it is believed that the double method has definite advantages over any single method. Arrangements are made so that all the cattle in the unit can be tested in a week, and a sufficient force of veterinarians is employed to do this. All reactors are branded, segregated, appraised, and shipped to a public abattoir, where they are slaughtered. All infected premises are disinfected according to printed instructions and infected herds are retested at intervals of two or three months until a clean test is obtained. Even though no lesions are observed at necropsy, if one or more reactors are found the herd is treated as infected. All additions to herds must be made from other accredited herds, and after 90 per cent of cattle have been tested a quarantine may be instituted prohibiting the introduction of cattle which have not been tested within sixty days. Accredited herds are retested yearly. This plan has now been in operation for two years with very beneficial results, and over half the cattle in the State have been tested. It is estimated that by the year 1936 all the herds in the State will be accredited.

The other plan for the eradication of bovine tuberculosis is to a certain extent complementary. This consists in the adoption of pure milk ordinances, and so far more than 2,000 towns and cities have done this. In Chicago, for example, such a pure milk campaign has been instituted.³ All milk sold must be from healthy cows, and in spite of numerous objections from the milk trade and others this has been enforced. The supply has remained ample, while the consumption of milk has been raised by 15 per cent to nearly a million and a quarter quarts daily. The yield of milk per cow has increased and the price has remained at the old level (14 cents per quart). Improved quality and further safeguarding of the milk supply at its source have been secured through inspection of dairy farms. Tuberculin testing has become immensely popular, and it has been found that the cleaning up of the disease in cattle has been accompanied by a general improvement in hygiene and methods. Most striking of all, the bacterial quality of the milk has improved by 45 per cent during the past year, and infant mortality (children under 1 year) has decreased by 11.5 per cent, while deaths from enteritis and diarrhoea in children under 2 years have been reduced by 33.2 per cent. Similar results are reported from other localities, and many neighbouring counties and cities are following the examples set by New York and Chicago.

America is evidently taking this problem very seriously. Although the results of the strictly antituberculosis campaign will not be apparent for several years yet, the general improvement of milk has had an immediate and beneficial effect and this has provided us with an example which deserves the most serious consideration of those concerned with public health in these islands.

¹ *British Medical Journal Supplement* April 28th 1928 p. 170

² E. T. Faulder *Journ Amer Vet Med Assoc* 1928 lxxii 771-781
³ H. M. Bundesen *Ibid* 810-812.

A TAX ON KNOWLEDGE.

THE idea of a tax on knowledge has ever been repugnant to the spirit of the British constitution, of which the House of Commons is the prime guardian, and it is therefore in keeping with tradition that a member of that House, Captain Ian Fraser, should have drawn the attention of the Chancellor of the Exchequer to the fact that the customs duty on imported cinematograph films operates as a means of excluding from this country certain films of high scientific value. A summary of the debate in the House of Commons appeared in our Parliamentary Notes last week (p. 37), from which it will be seen that Captain Fraser, who was supported by medical members of Parliament, proposed an amendment to exempt from duty films recording scientific investigation or research. The official reply was, in the first instance, to the effect that it would be impracticable to attempt to discriminate between "wholly educational films" and others. It seems possible that this view arises from the use of the word "educational" in the cinematograph industry to describe films of travel, of scenic interest, or of wild life, which are educational only in the broadest sense. Captain Fraser's amendment referred to films of the type described by Professor H. H. Turner of Oxford in a letter to the *Times* which appeared on July 3rd, relating in detail the almost incredible difficulty and delay which arose when a distinguished American astronomer, visiting this country on the invitation of the Royal Astronomical Society, brought with him two films of high scientific interest illustrative of his subject-matter—the atmosphere of the planets. One was intended for presentation to that society. Evidence that "Circumlocution Department" methods persist is given by the fact that, despite the ample assurance of the integrity of purpose of the owner of the films given by his sponsors in this country, dealings with seven successive officials were necessary before one of the films could be released on payment of the duty, amounting to 29s. Other items brought the total expense to about £4, and the second film was returned to America, the proceedings occupied between two and three days. Certainly, if the procedure adopted in this case, where there was no attempt at evasion, is essential, the administrative obstacles seem almost insurmountable. The complexity and absurdity of the business, however, really adds weight to the suggestion made in Parliament by Dr. Drummond Shiels, and developed by Captain Fraser, that the Customs administration should agree to accept certification by responsible scientific bodies, such as the Royal Society, the Royal Astronomical Society, or the British Medical Association, as evidence that certain films are worthy of exemption from duty. Mr. Churchill has undertaken that the question shall be reopened, and it is to be hoped that no opportunity will be lost by those interested in pressing the point at issue. The incidents quoted above—as well as others reported in the *Times* by Dr. R. G. Cantliff on June 27th and by the secretaries of the British Association on July 6th—make it clear that the duty on such films is a tax on knowledge, to be resisted by organized science with the same tenacity of purpose which animated a long-dead Scottish publisher at Greenock, in the days of the stamp duty upon newspapers, to produce his weekly journal printed upon cotton sheets and describe it as the *Greenock Aircs Clout*! The cinematograph is now not merely a valuable aid in medical education, it has already established itself as an instrument of precision in scientific research. In a matter of this importance it is the duty of the Treasury to override the objections of Customs officials, particularly when the films concerned, almost without exception, neither compete with any British commercial product nor offer any prospect of profit to their owners, their importers, or their users.

CRIME AND THE CRIMINAL.

IT is opportune, now that the public mind is seriously exercised as regards police organization and methods, and while the revival of Mr. Galsworthy's powerful play *Justice* has renewed thought and deepened concern with reference to prison conditions and their effect on the prisoner, that there should recently have been published for the Penal Reform Committee of the Society of Friends a pamphlet on *English Penal Methods*,¹ and in the well-known "To-day and To-morrow" series a little book by George Godwin entitled *Cain, or the Future of Crime*.² Both are short. The former contains only thirty-three pages of reading matter with a short bibliography, and the latter just over one hundred small pages, to which are added some twenty others advertising the series to which it belongs. The general content and main thesis of both publications are similar, but the pamphlet—less than half the length of the booklet, and only one-fifth its cost—is by far the clearer, saner, more logical, better arranged, more practical of the two. It claims, and in fact justifies its claim, to present for the first time within small compass an up-to-date outline of past and present aims in penal administration, to summarize the changing approach to the treatment of delinquency, and to outline what are held to be the most desirable and immediately practical steps in penal reform, and it does these things in a plain, orderly, and effective fashion. The booklet—in accordance, probably, with the aim and intention of the series to be startling, vivacious, whimsical, provoking—presents a very similar attitude towards immediate practical problems in a less balanced manner, and looks beyond these to a more remote and doubtful future when (if we follow the author aright) the chief crimes will be to be financially successful, to have no children, to beget children at too short intervals, or to have leisure, and when the chief punishments for these crimes will be for the State to appropriate accumulated individual possessions, to confiscate and rear children (occasionally allowing the mother to be its trustee), and to exterminate or at least sterilize the offenders. Society's attitude towards the criminal is here indicted as a relic of barbarism, the criminal is considered to be curable or incurable, and the duty of society to cure him if it can and to destroy him if it cannot. The more restrained manner is the more effective in calling attention to a practical problem and in pointing to a rational method of dealing with it. There are few thinking people who now dispute that the prime aim of punishment should be reform of the offender, his transformation, if possible, from a social liability to a social asset. This is not incompatible with the further object of protecting society—indeed, where possible it is obviously the best way of affording that protection. At first our prisons (except the debtors' prisons) were not places of punishment, but merely places of detention for those who would, when the judge came, be discharged, or hanged, or transported. The judge's business was to empty them, not to fill them. Later they became places for the incarceration of convicted persons as an alternative to transportation. Of recent years it has been increasingly the object to avoid sending offenders to prison at all when this can possibly be done, and to make the prison, when used, a place of psychological investigation, of educational work, and of reformatory intention. These objects are as yet, however, very imperfectly carried out, partly because public opinion and magisterial practice are not sufficiently enlightened, partly from other difficulties which are gradually being overcome. Children's courts and the treatment of young offenders,

¹ *English Penal Methods*. Published for the Penal Reform Committee of the Society of Friends. London: Friends Book Centre. Price 6d.

² *Cain or the Future of Crime*. By George Godwin. To-day and To-morrow Series. London: Kegan Paul, Trench, Trubner and Co., Ltd. New York: E. P. Dutton and Co. 1918. (Fcap. 8vo. pp. 108. 2s. 6d. net.)

the probation system, poor persons' defence, medical observation and report before conviction or before sentence, the imposition of fines with an extended time for payment, the remission to reformatory or Borstal institutions (though these are not in all respects suitable, and are in some degree still penal), are all proving satisfactory means of avoiding ordinary imprisonment. The effective application of the Mental Deficiency Act, especially in its recently amended form, will do much in the same direction. The use of specialized persons' education and reformatory work in prisons and prison visitation, are giving a more rational character to the detention itself, and such organizations as discharged prisoners' aid societies, with their more constructive recent methods, are helping to combat recidivism. The effects and still necessary developments of all these means are well set forth in the pamphlet under review, and, in addition, such subjects as capital punishment, preventive detention, and the indeterminate sentence are touched upon.

MINERS' PHTHISIS IN SOUTH AFRICA

Owing to the regrettable illness and retirement of Dr. Watkins-Pitchford from the chairmanship of the Witwatersrand Miners' Phthisis Medical Bureau, the publication of the annual reports on the work of the bureau during the last two years of his term of office has been delayed. They are now published in a single report by his successor, Dr. Louis G. Irvine, who has been first medical examiner to the bureau since its inception in 1916. This report follows the lines of the previous ones and is packed with information. Unfortunately, however, the information is so condensed that it is not easy for the casual reader to get a grasp of the medical problems with which the gold-mining industry of South Africa has to contend. It would be a great advantage if the more important features of the report could be set forth in a brief summary, and we should like to enter a plea that this be done in future years. The methods employed for diminishing the amount of dust in the air of the mines have been so successful that the old type of "miners' phthisis" is disappearing. The large, heavy lung with extensive fibrosis is giving place to the type in which the infective process plays the predominant part. Indeed, Dr. Watkins-Pitchford has expressed the opinion that in these days the development of what appears to be a simple silicosis is initiated by a tuberculous infection. Whereas in the past tuberculosis supervened upon silicosis, it is now believed that the processes are reversed, and that a retention of sputum in the lungs depends upon the presence of a tuberculous infection. Pathological confirmation of this view is still lacking, but it has at least the value of focusing attention upon the importance of the initial physical examination of all individuals applying for employment in the mines. During the ten years 1916-17 to 1925-26 there have been only ten cases of simple silicosis arising among "new miners," one case of combined silicosis and tuberculosis, and fifteen cases of simple tuberculosis. Taking into consideration the number of men employed, these figures are by no means excessive, and, if Dr. Watkins-Pitchford's views are correct, the continuation of a system of rigid initial examinations, combined with measures for the detection of tuberculosis in the earliest stages in individuals, should be followed by an even more satisfactory diminution of pulmonary diseases on the Rand. The bureau has always been justly proud of its x-ray service, and continued improvement in the radiographs is recorded in this report. The radiographs are controlled by clinical examinations and the pathological examinations of the lungs of diseased miners, but it is not clear whether this correlation includes the pathological examination of the thoracic viscera *in situ*. No doubt, for ordinary purposes,

examination of the lungs after removal from the body is sufficient, but for accurate control of the clinical and x-ray findings a careful inspection of the cadaver itself is necessary, and should yield extraordinarily interesting data. The work of the bureau is conducted on truly heroic lines, and throughout the whole report there is abundant evidence that the medical officers of the Rand, whether officials of the bureau or in the employment of the mines, are fully alive to their responsibilities. Not far short of a quarter of a million miners, Europeans and natives, are employed in the mines, and only a highly efficient organization could deal adequately with these numbers. The very satisfactory state of affairs revealed in the report is a matter of congratulation to all concerned.

TREATMENT OF PLACENTA PRAEVIA

The *Transactions of the American Gynecological Society* for the year 1927 maintain their usual high standard of interest and value. Communications on a variety of subjects are presented, and of the eighteen papers eight refer to obstetrical and ten to gynaecological conditions. The list of contributors includes many well-known names, such as Polak, Novak, Rubin, DeLee, Sampson, and Bill, but apart from the papers themselves great interest attaches to the discussions upon each separate paper read to the society. The transactions cover a wide field, for pathology, surgery, radiotherapy, and research have been dealt with in the year's work. To single out any one article for special comment is not easy, but Dr. Bill's communication on the treatment of placenta praevia is one of definite clinical importance. That most women who succumb to placenta praevia do so after delivery has long been recognized, and Dr. Bill asserts that injury to the placental site in the lower segment is the cause of the haemorrhage which so often proves fatal. Such injury may occur without any evidence of trauma of the cervix. Any treatment which will avoid such injury will give improved results, and accordingly Caesarean section is urged for all but the mildest degrees of placenta praevia. The statement is made that scant attention has hitherto been paid to the amount of blood lost before treatment is started, and a plea is therefore put forward on behalf of blood transfusion when carried out before delivery is begun. "No patient is delivered who has a blood count below 3 million reds and a blood pressure below 90-100 systolic and 60 diastolic, until blood transfusion has been given." Dr. Bill's results are very good both for mother and child, even admitting that all the cases were treated in hospital. Vaginal examination is not performed, in order to eliminate one great source of infection in such cases. The paper was well supported in the subsequent discussion, but more than one speaker remarked that podalic version was still the most useful line of treatment for patients who must be attended outside of hospital. The combination of blood transfusion and the Caesarean operation is not a fresh method of dealing with so grave an obstetrical complication as the one under discussion, but it is well that such procedures should receive the attention of the leading scientific societies.

A GUIDE TO SPECIALIZED INFORMATION

Few experiences cause more annoyance to anyone engaged in research or study than to reach the point when the available mine of information has been worked out to its last vein and one has not the least idea how to locate the next. The mineralogical metaphor is pardonable, for there is indeed a close resemblance between the geological structure of the earth's surface and the distribution and varying necessity of our stock of knowledge as embodied

in books and documents. There are large quantities like the British Museum library, capable of yielding more than a little of everything, there are mines useful for one particular subject, such as the libraries of the learned societies and trade organizations, there are rich inaccessible little veins in all sorts of unexpected places. Some of the deposits lie on the surface, some within easy reach, some are buried in the depths where only experts can locate them. The preparation of *The 14th Directory*¹ represents an effort to survey the field of written and printed knowledge as it exists in Great Britain and Ireland, and to furnish the seeker after truth with a map of the territory open to his exploitation. It is a work of reference of a type and scope which has often been envisaged but never realized in this country until now. A subtitle describes it as "a guide to sources of specialized information," but this is perhaps an understatement—the directory may well prove attractive to the general reader whose tastes are catholic, whose curiosity is easily aroused and who will be glad to know where he can find reading matter to satisfy his appetite for knowing a little about everything. Serious students will, however, be specially grateful to the Association of Special Libraries and Information Bureaux, from whose initials the book takes its uncatchy title, and whose efforts, with the financial assistance of the Carnegie United Kingdom Trustees, have made its production possible. Mr G. I. Barwick, Lit. Keeper of Printed Books at the British Museum, has acted as editor while Sir Frederic G. Kenyon and Sir Ernest Rutherford contribute short introductions explaining the genesis and aim of the work. In these days when scientific periodicals are numbered in thousands and new books appear in hundreds every month the value of one general index to existing collections of printed matter needs no emphasis. The compilers of the *14th Directory* have cast their nets wide but the mesh has been small: the range of subjects dealt with is therefore extensive. Entries under the letter "A" in the subject index include "amber" and "archery" as well as "aquiculture" and "anthropology." In format and typography the volume is well fitted to its purpose. The method of arrangement should make reference easy, the main part of the directory falls into three sections of which the first is arranged under subjects, the second under places, and the third is an index to names and named collections occurring in the two others. Information under subject headings includes, where appropriate, an indication of the nature, extent, availability, and location of known collections of material, a note of any useful source (for example, banks, consular agencies, trade organizations), a list of any periodicals dealing with the subject. The second section embodies similar information under the names of towns and villages, in some cases readers may be surprised to learn how rich are their local resources. It is probable that the appearance of this first edition will lead to an access of information to the association which will be embodied in future issues. Meantime it is intended that the material should be kept up to date in the office files of that body, where it is available for members. Both Sir Frederic Kenyon and Sir Ernest Rutherford, in their introductory notes, appeal for the co-operation of scientific workers and others in this enterprise, and their plea should find a ready response everywhere.

CANCER CONTROL.

In view of the International Conference on Cancer in London next week, to which we referred again on June 23rd (p. 1076), attention may perhaps be drawn to a paper by Dr W. B. Coley in the June issue of the *American*

Journal of Surgery. Dr Coley—whose interest in a possible bacterial cause of cancer is well known—discusses the problem of control in considerable detail. It appears that the American Society for the Control of Cancer has lately obtained a million dollars for endowment, and the question arises how the income from this fund can be most profitably laid out. He suggests that a substantial amount should be spent on collecting more accurate first-hand information about the geographical distribution of cancer, with special reference to its wide variation in incidence, and that propaganda among the laity, directed towards the recognition of early cases, should be supplemented by more instruction to medical practitioners in the diagnosis of malignant tumours. In his opinion it is better to place money at the disposal of hospitals and laboratories already established, and possessing clinical and laboratory staffs, than to use it in founding new institutions. As might be expected, Dr Coley advises further and more intensive research into the infective origin of cancer and the possibility of treating inoperable tumours—especially carcinomata—by bacterial toxins. He advocates a systematic attempt to obtain complete after histories of all patients treated for malignant disease in the leading hospitals of the world, and the publication of these and results so that some definite notion may be gained of the percentage of patients with malignant tumours who have kept well for a period of five years after treatment. As Dr Coley will be taking part in the forthcoming conference he may have an opportunity then of pressing upon his fellow workers the opinion stated in this paper, that international cancer congresses, for the interchange of experience and ideas, ought to be held at least every three years.

DAWSON WILLIAMS MEMORIAL FUND

MEETING OF SUBSCRIBERS

A GENERAL meeting of the subscribers to the Dawson Williams Memorial Fund was held at the hall of the Royal Society of Medicine on July 10th under the chairmanship of Sir HUMPHRY ROLLESTON. The purpose of the meeting was to hear a statement by the honorary treasurer (Sir STCLAIR THOMSON) and to decide on the form of the memorial. Among others present were Dr H. B. Blackenbury (Chairman of Council of the British Medical Association), Dr C. O. Hawthorne (Chairman of Representative Body), Mr W. McAdam Eccles, Mr H. S. Souttar, Dr William Hunter, Dr Charles Buttai, Dr H. W. Nott, Dr Alfred Cox (Medical Secretary British Medical Association), and Dr A. G. Horner (Editor, *British Medical Journal*).

Letters expressing regret at inability to attend were read from Lord Dawson, Sir Robert Philip (President of the British Medical Association), Sir Donald MacAlister, Sir James Berry, Mr V. Warren Low, Dr Andrew Balfour, Professor Fraser, Dr F. R. Fothergill, and a number of others, and several of these indicated their approval of the suggestion that the memorial should take the form of a periodical prize for the best work on pediatrics. Professor Blay Bell wrote that he thought it might be a condition of the prize that the work should be published in the *British Medical Journal* under a suitable heading to identify it with the memorial, and Dr Chalmers Watson wrote to suggest that the memorial should be in some way directed to the encouragement of the general practitioner, in whose interests Sir Dawson Williams laboured for the greater part of his working life.

A Prize for Pediatrics

Sir STCLAIR THOMSON reported that the contributors to the fund numbered 389 and the sum subscribed was £880, out of which a small amount—less than 5 per cent. of the total—had been expended on the necessary postages,

¹ *The 14th Directory*. Edited by G. F. Barwick, B.A. Introductions by Sir Frederic G. Kenyon, C.B.E., K.C.B., D.Litt., and Sir Ernest Rutherford, O.M., D.Sc. London: Association of Special Libraries and Information Bureaux, London, Edinburgh, and Glasgow: Oxford University Press, 1928. (7½ x 11¼ pp. xiii + 425. 2s. net.)

printing, and clerical work. The proposal of the Organizing Committee that the memorial should take the form of a prize, to be awarded every two years or at longer intervals, for the best work which had appeared on pediatrics since the previous award, was then considered. Sir HUMPHRY ROLLESTON said that this suggestion arose out of a remark by Sir Dawson Williams's successor in the editorship of the *British Medical Journal*, that disease in childhood was the subject which held Sir Dawson's special interest right up to the end of his life, and it was his desire, as expressed in their last conversation, that the then projected testimonial should take some such form. The interest on the money subscribed would be scarcely enough for a worthy prize to be offered annually, and therefore it was thought that it might be given every two or three years. The question was debated whether the prize should carry the obligation of giving a lecture, Dr HAWTHORNE pointing out that a lecture would have the advantage that it would appear as such in one or other of the medical journals, whereas in any other form the work might come within the cognizance of very few. Sir STCLAIR THOMSON suggested that the details should be left in the hands of the trustees to be appointed, and after some discussion, the main proposal of the Organizing Committee having been adopted, it was agreed to leave it to the discretion of the trustees as to whether they should ask the winner of the prize to give a lecture. The question whether the prize should be open to workers in all countries or restricted to the British Empire was discussed, and it was agreed in this matter also to leave the trustees unfettered.

Appointment of Trustees

With regard to the appointment of trustees, Sir HUMPHRY ROLLESTON suggested that in order to avoid the necessity of alteration of deed the trusteeship should be placed in the hands of those who for the time being held certain offices. He proposed, and it was agreed, that the trustees should be the Presidents of the Royal College of Physicians of London, the Royal College of Surgeons of England, the British Medical Association, the Royal Society of Medicine, and the Section of Diseases of Children of that Society, together with the Editor of the *British Medical Journal*. Mr MOADAM ECOLLS asked whether the trustees would also be adjudicators of the award, to which Sir HUMPHRY ROLLESTON replied that no doubt, as was the practice in similar cases, they would refer the adjudication to a small committee. The Medical Secretary of the British Medical Association was appointed convener of the trustees, and it was agreed to ask Dr A. M. H. Gray and Mr Geoffrey Edwards, respectively honorary treasurer and secretary of the Royal Society of Medicine, to act as auditors of the accounts.

The proceedings closed with votes of thanks to the Royal Society of Medicine for the use of the premises, to Sir Humphry Rolleston for presiding, and to Sir StClair Thomson for his valuable services as honorary treasurer of the fund.

CENTENARY OF THE SHEFFIELD MEDICAL SCHOOL

SHEFFIELD is a city of recent growth in the industrial sense, although as a village it was famous for its special products in the time of Chaucer. With the industrial revolution of the nineteenth century it expanded rapidly and, from the health point of view, unfortunately. But it was among the first of the new industrial centres to realize the necessity for training medical men in the provinces. Its medical school, which celebrates its centenary this week, is junior only to Manchester and Birmingham among modern provincial cities.

Apart from its local interest the history of the medical school, written by the late Dr W. Smith Porter, and now published by the University, is an important contribution to medical history. Dr Porter's recent death robbed his colleagues and his many friends in Sheffield of a distinguished and much beloved personality. In addition to his eminence as a physician he was well known in literary and archaeological circles not only as an authority on the history of Sheffield, but as an expert on the history and the topography of Derbyshire. To tramp with Porter over the hills and among the dales and villages of Derbyshire and South Yorkshire was a privilege which only those who knew him can appreciate.

The history of the Sheffield Medical School was his last literary work, and, unfortunately, he did not live to complete it. It is probably also his best work, and should be widely read. His book shows briefly and vividly the condition of medical practice and education at the end of the eighteenth century and in the first half of the nineteenth century. It sets forth the gradual dawning of the public conscience to the fact that doctors needed some sort of decent training for their work, and that it was no longer desirable that such training should be available only to persons who could afford to go to London.

The Sheffield Medical School originated in the private enterprise of a Dr Overend, who was succeeded by his son, and who established a school, a museum, and a course of instruction in anatomy. They and their successors were intimately associated with "body snatching." Dr Porter makes it clear that Dr Overend ran his business as a "commercial proposition," although he was at the same time a pioneer in the teaching of anatomy and medicine in the provinces. The illegal acquisition of corpses, however, led to tumult and riot, then the principal method of argument among the inhabitants of Sheffield and the district. A medical school, of a more "official" character, was wrecked and burned a generation later, after the Burke and Hare revelations. But in spite of these manifestations of popular indignation, and the justification that undoubtedly existed for them—a Sheffield clergyman was imprisoned in connexion with abuses in his cemetery—there were ardent scientists and public-spirited and enlightened men in Sheffield, and the Sheffield School of Medicine was formed with new and more adequate premises in 1888. This became later the University College of Sheffield, and there is no doubt that the activities of the medical school had much to do with the final establishment of the Sheffield University in 1905.

Owing to the death of Dr Porter the record of the University has been brought up to date largely by Professor Arthur J. Hall, who has been intimately associated with its development. A handsome tribute is paid to the work of Sir John Robertson, who, as medical officer of health for Sheffield, was responsible for the establishment of what is now the department of pathology, and who brought about, while in Sheffield, the compulsory notification of tuberculosis, after proving by voluntary reports on a large scale that notification was the first essential step in any campaign directed against this disease.

The old Sheffield Medical School is now, of course, the medical faculty of the University and occupies a large part of the modern and handsome buildings which were opened by King Edward VII in 1905, having all the departments necessary to a modern medical school, fully equipped and up to date, as are the Sheffield hospitals. The teaching staff includes a number of men whose reputation is worldwide. That the Sheffield students enjoy facilities for training comparing favourably with those of any other teaching centre has been abundantly proved by the eminence which many of them have already attained in their profession.

In celebration of the centenary the University of Sheffield on Wednesday July 11th, held a congregation, and delegates from other universities, with representatives of the city and the University, were entertained at an official luncheon by the faculty of medicine. An account of the proceedings will be published in the next issue of the *Journal*.

BRITISH EMPIRE CANCER CAMPAIGN

ANNUAL GENERAL MEETING

The annual general meeting of the British Empire Cancer Campaign was held at the House of Lords on July 8th under the chairmanship of Sir JOHN BLAND SUTTON.

A letter was read from H R H the Duke of York, President of the Campaign, in which, after referring to the fact that during the year His Majesty had consented to become patron, he stated that the forthcoming International Conference which the Campaign had organized would be attended by 120 international and Dominion delegates, and nearly 300 delegates from this country. His Royal Highness was happy also to think that the various branches of the Campaign were all moving forward in the direction of research. The Birmingham Council was now established and doing valuable work, the Yorkshire Council had founded its research centre in association with Leeds University, the Lancashire, Cheshire, and North Wales Council, under the presidency of the Duke of Gloucester, had met with a splendid response to its preliminary appeal. Northumberland was contemplating the further augmentation of the research work being done at Newcastle under grants from the Grand Council. Further afield, the Irish and the New South Wales campaigns, both affiliated, were developing well, and a campaign had also been instituted in Queensland. The letter concluded: "I am happy to be your president, and I hope to occupy that office when the great work with which we are all associated is brought to a successful conclusion."

On the proposal of Mr CICIL ROWATREFF, the Grand Council was re-elected *en bloc*.

Sir CHARLES GORDON-WATSON, in proposing the adoption of the annual report, paid a tribute to Mr Lockhart-Mummery's editorship. As the document consisted of a series of reports from research bodies and individual workers, presenting at times conflicting views, it was no small compliment to Mr Lockhart-Mummery that during all the years he had carried out the editorial duties the reports should have been presented in so fair-minded a way that no note of adverse criticism had ever been raised. This was hardly the time to refer to the research in detail much as it would be laid bare at the forthcoming conference. The Campaign did not itself carry out research. Its carefully thought-out policy from its inception had been to bring together, in close sympathetic touch, the workers throughout the Empire. It prevented the overlapping of lines of research, checked all new work by counter-research, left no information or inquiry unconsidered, and gave financial aid and encouragement to accredited workers whenever the proposed research offered promise of fruit. He drew special attention to the radiological work at the Cancer Hospital at St Bartholomew's, in the latter a good deal of work on radium, which was hampered by the high cost of the material, was proceeding. Another feature of the report was the work done, after the Liverpool technique, on treatment by lead. Some two years ago the Campaign sent representatives to see Professor Blair Bell's work, and on their advice a grant was made to St Bartholomew's Hospital for research on the lead treatment of cancer. The report of the committee at St Bartholomew's was unfavourable to the method under test. On the other hand, some similar work in Birmingham had been more encouraging. He concluded by remarking that the Campaign rendered great service by disseminating with considerable rapidity all new results of research workers throughout the world. With regard to institutional provision for curable cancer cases, the transference of Maunty Verman from a Hospital for tuberculosis to one for cancer might help the situation considerably. On the financial side he mentioned how greatly the Campaign was indebted to Sir Richard Garton, honorary secretary and chairman of the Finance Committee through whose generosity the expenses of the International Conference would be met without infringing Campaign funds.

Sir RICHARD GARTON said that in the Campaign year (ending March 31st) the income exceeded the expenditure by £8,822 but this result was due to the munificent gift of

£10,000 from an anonymous donor. The cost of appeals was only 8.6 per cent of the money received in donations. He added that £150,000 had been raised for the Yorkshire campaign, and £100,000 for that of Lancashire, Cheshire, and North Wales.

Afterwards, at a quarterly meeting of the Grand Council, the Marquess of Reading was elected chairman in succession to the late Paul Cave, and Lord Dawson of Penn and Sir John Bland Sutton were elected vice-chairmen.

The outstanding features of the annual report are mentioned in the above proceedings. On the subject of lead treatment, the standing committee of the Council of St Bartholomew's Medical College reports conclusions highly unfavourable to the method. The committee states that so far as its limited investigation goes, no evidence has been obtained that the use of lead by intravenous injection leads to the resorption of neoplastic tissues in man. It also reports that the average duration of life of the patients treated by lead was less than their expectation had they not been so treated. On the other hand, as Sir Charles Cawdon-Watson stated the Birmingham Cancer Committee has been conducting an experimental inquiry into the value of colloidal lead compounds in the treatment of malignant disease, and reports provisionally that of 34 cases treated 10 derived benefit, and that there is warrant for the opinion that the method is of distinct therapeutic value and deserves further investigation. The main therapeutic value of lead, say these workers, appears to be in its ability to restrain metastases or to destroy small and recent deposits of growth. In addition, the report embodies statements on various lines of cancer research from institutions receiving grants, including the research departments of the Cancer Hospital, St Mark's, the Middlesex, and Westminster Hospitals, the Christchurch Hospital, Manchester, and the Cancer Research Committee of the London Association of the Medical Women's Federation. Reports are also forthcoming from various individual workers, notably Dr Thomas Lumsden, working at the Fister Institute. Dr Lumsden and his assistants have been extensively investigating the feasibility of producing a vaccine against malignant tumours. If appropriate cases can be found the answer to the question whether vaccine treatment will cure spontaneously occurring tumours, and especially the tumours of man, should, according to Dr Lumsden, be forthcoming within the next year or two. It is stated that the total sum expended by the Campaign on research work during the past year approximated £20,000, and that with the opening of new centres of research the financial needs have increased rather than abated.

THE MANCHESTER CANCER CAMPAIGN

The campaign against cancer recently inaugurated by the Manchester Committee on Cancer may be regarded as having been a genuine success from many points of view. The medical profession of the city and the civic authorities are to be congratulated on their co-operation in an endeavour to fight the evils of this scourge.

The campaign began in July, 1924, with the establishment of a provisional committee by Dr Veitch Clark, medical officer of health for Manchester, and after several meetings it was reconstituted in December of the same year in such a way as to connect it with the various bodies in the city concerned with the many aspects of cancer. It then consisted of lay and professional representatives from the Public Health Committee, the University, the Royal Infirmary, and other large hospitals in the district. Its object was to centralize the efforts being made in cancer research and investigation. A sum of £12,500 was raised and a scheme of work put into operation.

The committee decided to concentrate upon three lines of activity—laboratory research, inquiry into the results of cancer treatment, and distribution to all sections of the community of up-to-date information upon cancer, which included a course of post-graduate lectures for medical practitioners and were delivered by specialists in the particular subjects dealt with. These lectures are now published

In an attractive book form,¹ which has just reached us, together with a survey of the work of the special investigation officers into the results of treatment of cancer of the breast. The manner in which the work has been conducted is particularly to be commended, and the institution of such propaganda must call for the cordial approbation of the Ministry of Health.

The course of lectures was opened by Dr Veitch Clark on October 1st, 1926, who chose as his subject the general survey of the incidence of cancer. After approaching the subject from a statistical and also from a medical aspect, he comes to the only possible conclusion, that the increase in cancer is a definite fact in most countries, not only in Europe but in the Far East as well. He emphasizes the incidence of cancer from 45 years upwards, and the higher rate of prevalence in women due to cancer of the mamma and generative organs. He deals with the various aspects of occupational cancer, and shows the enormous preponderance of cancer incidence amongst cotton operatives.

The subject of mule-spinners' cancer, which is so closely associated with the Lancashire cotton industry, is dealt with more fully in lectures in the same series by Dr Henry, Mr A. H. Southam, and Dr Twort. Mr Southam's lecture, which deals with the clinical features and treatment of the disease, has already been published in our columns.² This is one of the most favourable types of malignant disease, as it can be detected in an early stage and can then be cured by radical removal. Dr Powell White summarizes the modern views as to the causation of cancer, and after discussing Gye's hypothesis states that, in all probability, tissue culture experts will assist us in finally solving this difficult problem. In dealing with the idea of cancer houses and cancer districts he finds the evidence very insufficient and unlikely to satisfy anyone accustomed to weighing up the value of evidence. Professor Jamieson, in his lecture on the lymphatic system, reminds us that a close and accurate knowledge of regional lymphatic anatomy is necessary for good operative work. It appears probable that many cancer cells are killed in the glands, but it is only too obvious that some survive and form secondary tumours. The important point is to regard the spread of a tumour as evenly centrifugal, and consequently that the glands are not likely to be affected by other means than this peripheral permeation. The permeation theory is an extension of our knowledge, and no operation can be regarded as truly radical unless the tumour, a wide area round it, the lymphatic trunks of the areas, and the lymphatic glands are removed. Professor Burgess deals with cancer of the gastro-intestinal tract, and emphasizes the importance of the early symptoms and the early diagnosis of cancer in this situation. In referring to the great frequency of cancer of the stomach he does not regard pre-existent ulceration as an important etiological factor. This view is supported by clinical experience, and is of great practical importance in the surgical treatment of gastric ulcer.

With the mastery of the technique of radiotherapy we may look forward to a new era in the treatment of malignant disease, and it is probable that in a few years radium will be recognized as the best form of treatment for certain types of cancer—for example, cancer of the tongue, rodent ulcer, and epithelioma of the skin. The use of radium and x rays in the treatment of cancer is dealt with by Dr Burrows, and his results, whilst working in Manchester, show 10 per cent of apparently permanent cures in what were nearly all inoperable cases. In carcinoma of the cervix 30 per cent of inoperable cases cleared up, but about 15 per cent of these recurred at a subsequent date. Professor Donald, however, prefers operation to the use of radium in those cases where there seems a reasonable chance of total extirpation of the disease, and does not agree with American gynaecologists with whom the use of radium in the treatment of uterine cancer has largely supplanted operative treatment.

The main line of experimental research which has been

¹ Lectures on cancer also special report on the results of operation in cases of cancer of the breast. Published by the Manchester Committee on Cancer.

² British Medical Journal February 26th 1927.

undertaken by the Manchester committee has been in connexion with the origin and prevention of mule spinners' cancer. The scientific staff, working in the laboratories at the University of Manchester, have examined different samples of lubricating oil used in cotton mills, and have produced cancer in mice with the oil actually used in cotton mills, which confirms the view that mule spinners' cancer can be produced by a mineral oil. Further, it was found that shale oil was much more liable to produce cancer than a shale-free petroleum oil, and a lubricating oil made from sperm oil was quite harmless. Observations were made also on toxic oils purified by various methods, with interesting results. Samples treated with sulphuric acid were rendered harmless, and one process has been found which may be of commercial value. In addition, research work on the investigation of the cancer producing qualities of a special form of tar gave striking results—namely, 100 per cent of tumours appeared in mice in seventeen weeks.

The report contains also the result of the special statistical inquiry carried out by the full time investigators appointed by the committee—Dr Greta Wardle and Dr John Murray. These officers have been conducting an inquiry into the later history and results of treatment of cases of cancer of the breast treated during the two periods 1910-13 and 1919-21. The work appears to have been carried out with great care and exactness, and was based primarily on the pathological diagnosis to ensure correct diagnosis. In all 521 cases were investigated, 375 being cases of primary tumour in which the growth was proved histologically malignant. The report shows clearly that when cases of cancer of the breast are treated by modern surgical methods in the early stages the outlook is very hopeful—over 80 per cent being alive at the end of ten years after the operation. When the axillary glands are involved treatment appears to offer three years of life to 50 per cent, five years to 33.3 per cent, and ten years of life or more to 20 per cent. The majority of the cases under review were suffering from cancer of the spheroidal-celled type. The report emphasizes the importance of the early recognition of the disease and of immediate operation by surgeons who are experienced in this type of work.

The production of a book such as this is specially to be commended, for it must serve to concentrate attention on the different aspects of the cancer problem, and it may be expected to bear good fruit in the future.

THE SCIENTIFIC CONTROL OF LIQUOR CONSUMPTION

At a meeting of the Society for the Study of Inebriety, on July 10th, Dr H. M. VERNON, investigator for the Industrial Fatigue Research Board, expounded a scheme for the control of alcoholic drinking by what may be called scientific taxation. Dr Vernon reminded his audience that during the war several restrictions on the production and sale of alcoholic liquors were introduced by the Liquor Control Board, and made for the sobriety of the nation to an extraordinary degree. The restrictions were based largely on a scheme of physiological regulation, the object of which was to diminish alcoholism by modifying the conditions under which drink could be procured. Before the war alcoholic liquors were on sale continuously from sixteen to nineteen and a half hours a day. This was reduced by the Board to five and a half hours, no liquor was obtainable before mid day, so that almost inevitably the first liquor taken in the day was taken with food, and was thus rendered less harmful, public-houses were closed during the afternoon, which resulted in the prevention of soaking. The total supplies of liquor were also reduced owing to food shortage. The result of all this was that by 1918 the convictions for drunkenness had fallen to 17 per cent of their pre-war number, and the deaths from alcoholism showed a similar fall. In this connexion it may be mentioned that Dr Vernon was criticized in the subsequent discussion for not taking into account the fact that during this period a large part of the male population of the country was abroad on service or under discipline at

home Dr Vernon went on to say that any such restrictions would be difficult to apply in peace time, but there was a method of control, through taxation, which could be instantly applied on any Budget. At present though the expenditure per head on alcoholic liquors was 15 per cent above its pre-war level, the amount of alcohol consumed was only 55 per cent as great, and the convictions for drunkenness were 41 per cent of the pre-war figure. Taxation of liquor was now so high that any alteration was likely to be in the direction of remission rather than of increase, but by adopting a scientific scheme of differential taxation the very remission of taxation on intoxicating liquors could be made in such a way as to reduce intemperance. The principle of this scheme was that dilute liquors were far less deleterious than concentrated liquors, therefore the sale of these dilute liquors should be encouraged by lightening the tax, while the tax on concentrated liquors should be increased. As the result of a long series of experiments he had shown that beer containing 3 per cent of alcohol by volume was non-intoxicating, and he suggested that the tax on such liquor should be lowered, while the tax on strong beer (5.7 per cent of alcohol) should be raised, and that on average beer (4.6 per cent) should remain as at present. The present tax on wines he thought absurdly low, for, reckoned in proportion to their alcoholic content, it was no more than the tax on beers. On the other hand, the average spirit drinker who was accustomed to dilute his spirits with two to four parts of water, and thus reduce them to the alcoholic strength of wine, was heavily overtaxed. As nothing should be done to encourage the consumption of neat spirits, Dr Vernon suggested that spirits should be issued at two concentrations very differently taxed. Instead of the present tax of 72s 6d per proof gallon (spirits at 60° under proof (only slightly more alcoholic than port) should be taxed at 50s per proof gallon (or 20s per actual gallon), while spirits at 30° under proof (the strength now customary) should be taxed at 95s. Dr Vernon's suggestions are best appreciated by the following table

Liquor	Per cent alcohol by vol	Present Taxation		Suggested Taxation	
		Per gallon	For each % of alc	Per gallon	For each % of alc
Very weak beer ..	2.9	£ 0 10	3.4d	£ 0 4	1.4d
Average beer	4.6	1 8	4 d	1 8	4.3d
Strong beer	5.7	2 3	4.7d	2 9	5.8d
Claret ..	10.3	3 0	3.5d	6 0	7.0d
Port and sherry	20.0	8 0	4.8d	15 0	9.6d
Spirits 60° u p	22.8	—	—	20 0	10.5d
Spirits 30° u p	40.0	10 9	15.2d	66 0	33.0d

In the ensuing discussion the chief criticism was that the cause of temperance was not necessarily served by making even a lower strength of beer comparatively cheap

India.

Future of Medical Research in India

As previously mentioned in these columns an endeavour to improve medical research in India is engaging the attention of the central Government, and an inquiry into the matter is being conducted by a committee with Sir Walter Fletcher as chairman. It may be recalled that under the diarchical constitution medicine and public health are 'transferred' subjects (that is, they are entrusted to the provincial Governments), while medical research is among the subjects reserved to the central Government. In the annual report for 1927 of the Calcutta School of Tropical Medicine, the director, Lieut-Colonel J W D Megaw, I M S, records the views he expressed to the members of the Fletcher Committee on the occasion of their

visit to the school last January, his notes throw an interesting light on to the general question and on to its relation to the Calcutta school. The school, though primarily a Government of Bengal institution, actually serves all parts of India, its researches relate to problems arising throughout the sub-continent, and its students are drawn from almost every province and state. Colonel Megaw indicates its deficiencies in respect of personnel and organization, and suggests the steps that should be taken to remedy these. He believes that the most profitable line of development for medical research in India lies in the expansion of existing institutions rather than in the creation of new centres, and that the greatest need is for men rather than buildings. It is suggested that the Calcutta school provides a natural centre for future development. To secure co-ordination of research, however, Colonel Megaw believes the establishment of a central bureau, as distinct from a new research institute, would be desirable, the bureau would be associated with the Government of India, would accommodate the secretariat of the Research Fund Association, be responsible for all research and propaganda work, and serve generally as a nerve centre of medical research. The need for encouraging suitable men to undertake research work is emphasized, and various proposals are outlined. In dealing with the present position of the Calcutta school it is stated that the most important deficiency is the absence of a department of bacteriology, though the creation of a chair of helminthology is also necessary. Reference is made to the question of higher teaching and research in public health. The school is at present the only institution in India properly staffed for the training of men in the routine work of public health but it can admit only a limited number, an increasing proportion of those who desire training have to be rejected each year owing to lack of accommodation. As at present constituted the Calcutta institution can deal only with candidates from Bengal and those provinces which contribute to its funds, and Colonel Megaw suggests that if adequate provision for research and specialized training in public health is to be made a new school of hygiene for all India should be established.

Prevention of Cholera in Bihar and Orissa.

The provincial death rate from cholera rose in the province of Bihar and Orissa during 1926, the mortality being worse in the district of Patna and in certain towns. A sharp outbreak occurred in the Purnea district early in April, but prompt steps were taken and the epidemic was cut short. In his annual report for 1926 Lieut Colonel J A S Phillips, I M S, director of public health for the province, gives an account of the preventive measures which are adopted in connexion with the fairs and festivals. A special staff is provided for the cholera hospital at Puri, and additional medical officers are appointed to supervise the general sanitation of the town, where three great festivals are held in June, July, and November. The town is regarded as consisting of five areas, with an epidemic officer in charge of each, and working in co-operation with the chief health officer and his sanitary staff. The pilgrims are accommodated in lodging houses for the most part, which are cleaned and whitewashed and then licensed by the health officer for the number of pilgrims allowed to occupy them. Each epidemic officer is given a small headquarters in the centre of his area, where disinfectants are stored and the police and sanitary staff can report the occurrence of any form of epidemic disease. His duties include daily examination of the lodging houses in his area, supervision of the disinfection of wells, removal of cholera patients to hospital, and the purification of their dwellings. On one occasion when infection was imported into Puri just before a fair several persons contracted cholera, but they were so promptly dealt with that no second case occurred in any one lodging house. In another town a temporary cholera hospital was erected, consisting of grass huts. In this province the disinfection of wells is effected by chlorinated lime, a great advantage of which is that it can also be used for treating cholera dejecta, so that it is not necessary

to carry more than the one disinfectant to a village where an outbreak occurs. The use of potassium permanganate is not possible for the disinfection of wells, the inhabitants objecting, presumably because it colours the water. Bleaching powder, properly stored, is considered much superior to potassium permanganate, but if carelessly kept becomes inert. Ample supplies of cholera vaccine are kept at the vaccine depot at Naunkum, and civil surgeons are supplied with reserve stocks of kaolin and disinfectants so that they can act immediately when cholera appears.

Civil Hospitals in Burma

An increase in the incidence of cholera in Burma has led to the suggestion that an inquiry should be set on foot into the prevalence of seasonal variation of this disease. There were in 1926, according to the report on hospitals and dispensaries prepared by Lieut Colonel L. E. Gilbert, I.M.S., officiating Inspector-General of Civil Hospitals, 1,208 cases treated as against 378 in the previous year. The death rate among in-patients was 46 per cent. Dysentery cases also showed an increase, the total being 27 per cent higher at 36,744, the disease was largely water-borne, and its prevalence is attributed to the backward state of the water supplies. The number of patients dealt with in civil hospitals was 2,157,446, an increase of 93,923, of the total 2,063,523 were outdoor patients. Reference is made to the system of treatment by subsidized medical practitioners, the cost to the Government being about forty rupees for each twenty patients. This is described as "a very high figure," but it is regarded as too soon to pronounce a final opinion on the working of the scheme. Special clinics for venereal diseases and leprosy were opened during the year, details of the latter were published on January 22nd, 1927 (p. 158). At the end of the year there were 285 hospitals and dispensaries open, an increase of four on the previous year. Many schemes of hospital reconstruction have been delayed owing to the decision of the Government to contribute only one third of the cost, local bodies being unable to find the balance, but in several important cases good progress has been made, notably in the construction of the Dufferin Hospital for Women in Rangoon and of the new mental hospital at Tada-U.

Radium Institute Removed from Ranchi to Patna

The Radium Institute, formerly situated at Ranchi, has been transferred, by instruction of the Government of Bihar and Orissa, to Patna, where it will, for the present, be housed in rooms forming part of the Patna General Hospital, the institute will have at its disposal in the hospital separate accommodation for its patients. This change has been made partly because of the difficulty of reaching Ranchi from Northern India, but also because it is believed that both the institute and the hospital will benefit from the closer co-operation which will be made possible by their proximity. The radiological experts of the institute will henceforth be able to work in collaboration with the physicians and surgeons of the hospital staff. It is also believed that it will be of advantage to the medical college attached to the hospital to have available for its students the facilities for instruction in the employment of radium which the institute can afford.

A Tuberculosis Sanatorium in Madras.

The foundation stone of a sanatorium for the treatment of tuberculosis was laid on April 11th at Tambaram, Madras, by Sir C. P. Ramaswami Aiyar, who made an appeal for public support. The project owes its origin to Dr. D. C. Muthu. It is intended to create a garden colony at the new centre, to provide treatment for tuberculous patients, and to undertake preventive and educative work. An area of 300 acres is available for the development of the colony, which is designed to afford full scope for all forms of open-air activity on an extensive scale. Dr. Muthu contemplates also the establishment of a similar colony at Bangalore.

Ireland.

Rotunda Hospital, Dublin

In his first annual report, dealing with the year 1927, Dr. Bethel Solomons, Master of the Rotunda Hospital, mentions that the outstanding feature during the period under review was the installation of the x-ray plant. He adds that this new department has already been found most useful in obstetrical diagnosis, especially for the performance of pelvimetry, as well as for gynaecological diagnosis and treatment. The scope of the ante-natal department has been considerably increased. Dr. Solomons revived the "Rotunda estimation," which was originated by Dr. Tweedy, and the percentages of this and of the British Medical Association standard are exactly the same—a coincidence which never occurred in the many years when this estimation was previously employed. The number of Caesarean sections increased, partly in consequence of facility of transporting patients. The lower segment was chosen for the operation site whenever possible. Dr. Solomons refers to the paper he read on this subject in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association at Edinburgh (see *Journal*, November 19th, 1927, p. 921). He comments in some detail on various outstanding features of the clinical work of the year under review, and mentions twenty-three cases of accidental haemorrhage and thirty of placenta praevia, all without mortality. The 381 patients admitted to the wards with albuminuria all recovered, except one who had hyperemesis. The report includes an interesting table of cases of disproportion between the foetus and the mother. It is stated that whenever possible the pelvis is measured with the Skutsch or Tottenham pelvimeter, and outlet measurements are taken. The Müller-Kerr estimation has been performed as a routine, and a modification of it is being tested, a trial of labour is allowed when advisable. The infant's head is now measured as a routine procedure after birth. Forceps were applied 131 times, or in 6.6 per cent of the cases. The number of patients (673) admitted to the gynaecological wing during the year constituted a record. Many cases of sterility were dealt with, and the tubes are tested as a routine procedure whenever doubt exists. The pathological laboratory was reopened in February, 1927. During the previous seven years these investigations had been entrusted to the Trinity College laboratory, but the need was felt of pathological facilities in the hospital itself. Dr. F. S. Bomke contributes a description of the various examinations made. The report contains an abundance of instructive tables relating to the obstetrical and gynaecological departments of this famous institution.

New Maternity Hospital for Belfast

At a meeting in the Belfast City Hall on June 29th, Colonel Forrest, superintendent of the Belfast Royal Victoria Hospital, announced that, as a result of the appeal made by the Duchess of Abercorn, the sum of £18,600 had been raised for the building fund of the new maternity hospital. The Lady Mayoress stated that she had undertaken to take charge of the collection of money in Belfast with a view to raising the necessary funds for the maintenance of the new hospital. Professor Lowry, commenting on the necessity of an up-to-date maternity hospital, said that it would not only help to save the lives of mothers and children directly, but would be of great assistance in the training of medical students and maternity nurses. Colonel Forrest remarked that they needed a hospital which would help in saving lives and in the training of students and nurses, it was not to be a barrack nor a mere ornamental building. A maternity hospital required 70 per cent more nurses than an ordinary hospital.

Amalgamation of Hospitals

The annual report of the Meath Hospital showed that the income for the year was slightly in excess of expenditure. The overdraft at the bank on March 31st was £4,744, as compared with £5,003 in 1927. The total expenditure

was £14,300, and the income £14,627. There were in the wards on April 1st, 1927, 120 patients, 1,787 were admitted during the year, making a total of 1,907. Of these, 1,679 were discharged cured or relieved, 106 died, and 122 remained in hospital on March 31st, 1928. The total number of days spent in hospital was 43,274, the average daily number of beds occupied was 118.55. The average number of days spent by each patient in hospital was 22.66, and the mortality was 5.75 per cent on the total cases treated to a termination. There were 5,027 accident cases treated as out-patients, and the dispensary cases numbered 16,123. There was thus a grand total of 23,057 persons who received medical or surgical treatment during the year. The report added that the hospital had suffered a very severe loss through the death of Dr. Richard Lane Jovitt, who had inaugurated the tin-foil collection, it was due entirely to his efforts that the hospital benefited by some hundreds of pounds. The committee acknowledged their indebtedness to the Dublin County Council for giving, in addition to their annual grant of £1,000, a bonus of £1,800, and to the Commissioners of the county borough of Dublin for their grant of £400. Dr. W. Bownell moved the adoption of the report and Sir John W. Moore seconded. The chairman, Mr. William Stewart Collis, said that all the hospitals in turn were making appeals for funds. He feared that they were falling behind in the general advance of medical science as regards housing of the sick, teaching, and research work. This was chiefly due to lack of organization and money, and if these hospitals were to maintain their existence in the front rank they must reform and come into line with those of other great cities. It was obvious, too, that there were medical students scattered in a number of small hospitals who could not have the same opportunities for learning as in a central hospital with five times the number of patients. The chairman compared the hospitals in Dublin with those in Belfast, and added that this difficult and important question was being considered, and that financial help was being sought in other quarters.

Tuberculosis in Waterford

Dr. Hogan, tuberculosis officer for the borough of Waterford, in his annual report states there has been a steady decrease in the death rate from tuberculosis in the city. Dr. Hogan urges that a sanatorium for the treatment of advanced cases only would never be popular, as the mere mention of such a condition was looked upon by the patient as a sentence of death. An institution was required where early cases, advanced cases, middle cases, and even surgical cases could be dealt with. Dr. Hogan remarks that in old cities like Waterford, where so many small houses exist, it is virtually impossible to eradicate the disease, the presence of one tuberculosis patient in a house is sufficient to infect all the other members of the family. The original victim is often not aware of his condition for years, during which his relatives have become infected, some fatally. Notwithstanding their efforts the incidence of the disease was far greater than could be wished, but that was not surprising in view of the number of small houses and the amount of poverty in the city.

International Convention on Cancer

The Minister for Local Government and Public Health (Irish Free State) has appointed Dr. Maurice R. J. Hayes of Dublin to represent him at the forthcoming International Convention on Cancer, to be held from July 16th to the 22nd in London at the House of the Royal Society of Medicine. Dr. Hayes is the President of the Leinster Branch of the British Medical Association.

Public Health Congress in Dublin

The Royal Institute of Public Health has now issued the preliminary programme for the annual congress, to be held this year in Dublin, from August 15th to 20th inclusive. His Excellency the Governor-General of the Irish Free State has accepted the office of honorary president of the congress, and General Richard Mulcahy, Minister for Local Government and Public Health, that of president. Reference to the work of the Institute and to the arrangements for the congress was made in an address

by Sir William Thompson, M.D., reported in the *British Medical Journal* on May 5th (p. 770). Detailed sectional arrangements will be announced at a later date by the Institute. Meanwhile it may be stated that the scientific proceedings will be organized in five main sections, the first, devoted to State medicine, having as subsidiaries two subsections, dealing with municipal and county sanitation, and epidemiology respectively. Bacteriology, pathology, and biochemistry will furnish the subject-matter of the discussions in the second section, and the third will be concerned with maternity and child welfare, and school medical inspection. The fourth section will deal with the production and control of milk and food—a subject which should provoke considerable interest in Ireland—and the fifth with tuberculosis. An interesting programme of supplementary events—official entertainments, social functions, visits to places of interest, etc.—has been arranged, and a large number of the leading figures in the realm of public health and allied sciences, from Great Britain and abroad, will attend. The Council of the Institute extends an invitation to all who may be interested to attend the congress. Information may be obtained from the honorary secretary, at the offices, 37, Russell Square, W.C.1.

Scotland.

Health of Edinburgh

THE annual report of Dr. William Robertson, medical officer of health for Edinburgh, dealing with the year 1927 was issued last month. The population of the city, estimated to the middle of the year, was 425,147, with a density of 13 persons per acre, and the number of inhabited houses was 104,488, the birth rate was 19 and the death rate 14.3, while the infantile mortality was 80 per 1,000, the same figure as in the preceding year. Emphasis is laid on the fact that in Edinburgh, as in other large centres of population, too many children under 1 year of age are still dying, although considerable reductions of infantile mortality have been effected and although last year the Edinburgh figures were below the average for other cities in Scotland. During the year there were 219 deaths from epidemic diseases including enteric fever, scarlet fever, diarrhoea, enteritis, whooping-cough, measles, and diphtheria, out of this total 114 deaths, or more than half, were due to whooping-cough and measles. Mention is made of the great difficulty found in preventing the spread of these diseases when they invade the community. Of the deaths 43 were due to diphtheria, the same number as in the previous year. Attention is drawn to the fact that payment is received by medical practitioners for submitting swabs from persons who have been in contact with this disease with the object of recognizing carriers who might convey the disease to school. The total amount paid in 1927 for these swabs of "contacts" was £103 7s, but it is pointed out that this outlay probably saved much larger sums which would have been required for the treatment of infected persons in hospital. Immunization of children is also being continued, and the facilities offered in this way have been very considerably utilized by citizens of Edinburgh for their children. During 1926 the toxin-antitoxin mixture previously used for diphtheria immunization was replaced by toxoid-antitoxin which is not liable to dissociate on keeping. Among 11,608 children who had been found to be immune or had been protected in this manner 58 cases of diphtheria occurred, but none of these was fatal, while in the same period 2,741 cases had occurred among children who had not been immunized, and of this number 242 had died. With regard to venereal diseases reference is made to the refusal of the House of Commons to allow a second reading of the bill promoted by the Edinburgh Corporation, the report points out that certain forms of the disease are on the increase, notwithstanding all efforts to educate the public, and the need for legislative measures to deal with this problem is urgently pressed. Although there has been progress in dealing with the housing problem there are still 7,328 single-roomed houses in the city, while approximately 12,000 houses are

still occupied at rents below £10, and 22,922 houses with rents between £10 and £15. There is a great necessity for providing low rented houses for low wage earners, especially for those who have larger families than can reasonably be accommodated in two roomed houses. Good progress has been made during the year with the erection of new houses under the various corporation housing schemes, a total of 5,899 houses having been constructed. Regret is expressed in the report that the question of a grant stands in the way of the hostel proposed for single men. In regard to hospital services attention is drawn to what has been done by the city of Aberdeen in co-ordinating the services of various hospitals within the municipal area, and it is added that this step will be forced on local authorities in the near future. With regard to maternity and child welfare, a scheme started in 1917 for the supervision of children through the ante-natal period and up to 5 years of age is subsidized, half by the corporation and half by the State. The percentage of births which had received ante-natal supervision at the centres had increased from 20 per cent in 1921 to 44 per cent in 1927. The number of attendances during the year at eight centres had been 15,417, as compared with 10,777 in 1926. Eight preventive clinics were held for the prevention and correction of diastolic errors and minor ailments, at these there had been 32,611 attendances, as compared with 28,978 in the preceding year. Certain special investigations had been performed including the study of strains of hæmolytic streptococci from cases of scarlatina with reference to their toxic and immunological properties. Streptococci of both scarlatinal and non-scarlatinal origins had been found to possess toxic properties. The necessity for examining the throats of persons attending obstetrical cases complicated by puerperal infection was brought out by the results of examining attendants in a lying-in institution where four cases of puerperal fever had occurred. One nurse was notified as suffering from erysipelas, several other nurses developed cases of sore throat and on taking throat swabs from 54 persons on the staff of the hospital 15 or 27 per cent were found to give positive results as regards hæmolytic streptococci. A large number of tests were made in regard to the virulence of different strains of the diphtheria bacillus. It was found that the intracutaneous test was more satisfactory than subcutaneous administration.

Small-pox Outbreak in Scotland

An outbreak of small-pox of mild type has been reported by the medical officer of health for Arbroath, some dozen cases having so far been traced. Another case, which appears to have been infected in Brechin, has been found in an institution. As chicken-pox is at present notifiable in Scotland, and as the cases of small-pox so far reported have been mild, it is possible that cases of the latter disease may be mistaken for chicken-pox, so that practitioners are requested by the Scottish Board of Health to scrutinize carefully all chicken-pox notifications, and in doubtful cases to request investigation by the local medical officer of health. The Board is prepared to supply local authorities with vaccine lymph at the cost price of 3d per dose.

Edinburgh Veterinary College

At the annual distribution of prizes at the Royal (Dick) Veterinary College, Edinburgh, on June 27th, Sir Thomas Hudson Beare, chairman of the board of managers, who presided, remarked that it was particularly gratifying that the number of post-graduate students remained large. It was hoped to develop post-graduate teaching and research more and more each year. The board of management would gladly strengthen its teaching staff if more money became available. Lord Novar, who distributed the prizes, said that veterinary science, thanks largely to the Royal Veterinary College, had made great progress in the last half century. The old-time veterinary practitioner, like his contemporary the old Highland houndsman, was a great personage and often did good work, thanks to his individual experience, character, and popularity. The transition period to the new style had been rather an anxious

one for the stock owner, and agriculturists sometimes regarded the half-trained veterinary surgeon with some trepidation. The human bond between the patient and his medical adviser was one of the closest known, and a similar bond should exist between the stock owner and the veterinary surgeon. Lord Novar believed that there was a great future for veterinary practice, because in Great Britain they possessed the finest stock in the world. A great deal depended upon research, and the speaker suggested that in this respect some inherent qualifications were essential. The college was, however, entitled to support, and he hoped that agriculturists would subscribe more liberally to it when they could do so. He suggested also that county councils would find the college worthy of financial support.

Memorial to the Late Dr J W Allan

A tablet, erected by former colleagues of the late Dr James Watson Allan to perpetuate his memory, was unveiled on June 26th in the Belvidere Local Hospital, Glasgow, of which he was physician superintendent for many years. An account of his career was published in the *Journal* of February 21st, 1925. In handing over the tablet an appreciative address was given by Dr A K Chalmers, formerly medical officer of health for Glasgow, who said they had met to place on permanent record a tribute to the bond of friendship and affection which had grown up between one of the early superintendents of Belvidere and those whose privilege it was to serve with him. The special significance of their meeting was in this, that although Dr Allan was with them until three years ago, it was more than half a century since he was appointed physician superintendent at Belvidere, and fully a generation had passed since he resigned office. Yet the influence which radiated from him still lived. He was appointed in 1875 and resigned in 1893, and during these eighteen years a succession of residents not only reaped a rich harvest from the wealth of his clinical experience, but came to regard him with an almost filial devotion. In all there were fifty-four residents during this period. Many of them had already completed their tale of years, and the others were widely scattered. Some had gone to the ends of the earth—Africa, India, Australia, and China had claimed some many were in England about a dozen only were in Scotland and still fewer were in, or near, Glasgow. Discussing the nature of Dr Allan's influence, Dr Chalmers said that residents saw, on the one hand, strenuous effort to reach a high standard of efficiency in the ward work, and on the other a studied consideration for their social comfort. The speaker then recalled the position of the hospitals fifty years ago, and spoke of the part played by Dr Allan in gaining public confidence in those institutions and in promoting the education and training of nurses. When Dr Allan left Belvidere, he said, the hospital was established in the confidence of the public, and its reputation had already extended far beyond the boundaries of the city of Glasgow. The dominant note in his character was sympathy—sympathy with the patients and with the anxiety of their friends, and sympathy with the nurses and the demands on their patience. Dr Chalmers concluded by asking the Health Committee to accept the tablet from the residents of Dr Allan's time as an expression of their affectionate remembrance of one who did so much to establish Belvidere in the public confidence and esteem.

Conference of Sanitary Inspectors

The thirty-fifth annual conference of the Sanitary Inspectors' Association of Scotland was held at Dunfermline on July 6th. Mr Archibald Englesim, public health department, Paisley, in his presidential address said that it was desirable that sanitary inspectors in larger centres should hold a diploma from a university, but there was no opening for such specialists in the smaller burghs. Dr Dittmar, Chief Medical Officer, Scottish Board of Health, remarked that the sanitary inspector nowadays had to know something about buildings, building construction, meat inspection, and dairy work, so that he must be a man of fairly wide training. Some educational scheme on the lines of that provided for arted pupils in the engineering trade

would have to be devised, with a combination of theoretical teaching and practical experience. He thought that if a course like this were worked out the status of the sanitary inspector would take care of itself.

England and Wales.

Presentation to Sir George Makins

On June 20th, in the Governors' Hall at St. Thomas's Hospital, Sir George Makins, GCMG, CB, was presented with his portrait, the gift of his old friends, pupils, and colleagues. The painting is the work of Mr. James S. Sleator, and was much admired. The proceedings, which were quite informal, were opened by Sir Arthur Stanley, treasurer of the hospital, with a few warmly appreciative words on behalf of the governors. He was followed by Sir Percy Sargent, Sir Cuthbert Wallace, and Dr. H. G. Turner, who, as friends and colleagues of different periods, dwelt in turn on the length and value of Sir George's services to the medical school and hospital, and on the affectionate regard in which he was held by all with whom he was associated. Special reference was made to Lady Makins, who had taken so large a share in establishing and maintaining these kindly relations. Sir George Makins, in reply, expressed his profound appreciation of the honour done to him. He was deeply touched by what the various speakers had said, and he proffered his sincerest thanks to his many friends for the gift of his portrait, which in the fullness of time would become the property of the hospital.

London Hospitals and the Middle Class

The report of the Pay Bed Committee of King Edward's Hospital Fund for London on hospital accommodation for the professional and middle classes will, it is understood, be issued shortly. According to a forecast of the committee's findings, which has gained general acceptance, the report suggests the allocation of beds in all the large London hospitals for persons who, while they cannot afford to meet the normal specialist fees and private nursing home charges, can make a fixed weekly payment for hospital treatment. Proposals for the initiation of a voluntary insurance scheme for this class are believed to have found favour in the eyes of the committee. It is suggested that each person entering the scheme should make an initial payment of £10, so providing funds which could be used to extend pay-bed accommodation. An annual payment of £2 16s. would also be required, and, while this alone would confer a title to participation in the benefits of the scheme, those who made initial payments would secure a measure of preferential treatment. Lord Riddell, president of the Royal Free Hospital, commenting on the proposal outlined above, has said that the provision of beds was the main problem, and that cheap paying beds were needed not only in the big central hospitals, but in the suburbs and outlying districts. The best arrangement, in his belief, would be the provision of paying beds at the various local hospitals, giving the patients' doctors access to them.

Blackburn Royal Infirmary Extensions

A new wing at the Blackburn and East Lancashire Royal Infirmary, erected as the main feature of the town's war memorial scheme, was opened on June 16th by Mrs. R. A. Yerbrough. The extension scheme, which has involved an expenditure of about £95,000, was prepared by Dr. D. J. Mackintosh, medical superintendent of the Western Infirmary, Glasgow, in conjunction with the local architects. It provides accommodation for ninety beds in five wards, together with two operating theatres, new administrative offices, quarters for the resident medical staff, and a section which will be used to house members of the nursing staff until the extension of the existing nurses' home is possible. The War Memorial Wing, as it is to be called, consists of an octagonal central building, connecting the two new ward blocks, and having in front of it a two-story block for the administrative offices and operating theatres. Covered corridors connect the extension to the older building. In the new wing, on the ground floor, the

west block contains the children's department, and the east block the medical staff quarters. On the first and second floors, in both blocks, there are wards of sixteen beds each and small two-bed wards, together with the usual ancillary accommodation, all four large wards have open sun balconies on the south side. The third floor contains bedrooms for the domestic staff, those in one block being occupied meantime by members of the nursing staff. Over the porte cochère at the entrance is a corridor linking the operating theatres with the central part of the new wing. Special attention has been given throughout to the equipment of the building, and notably to heating, lighting, and ventilation. At the opening ceremony the mayor of Blackburn, Mr. J. A. Ormerod, announced that £101,632 had been contributed to the War Memorial Fund, and stated that this had sufficed to cover the cost of building and furnishing the War Memorial Wing and also of erecting a memorial monument elsewhere in the town. As a result of the extension the board of management has carried out a supplementary scheme at a cost of about £50,000, a new laundry, boiler-house, mortuary and post-mortem room have been provided, and extensive additions have been made to the kitchens. A large x-ray, electrical, and massage department, including an orthopaedic gymnasium, has been erected. It is proposed, in the near future to extend the nurses' home and to enlarge the out-patient waiting hall and casualty department.

Medical Supervision of Children

The London County Council resolved recently, on the motion of Dr. Stella Churchill, to ask its Education and Public Health Committees to consider and report as to the advisability of unification of the medical supervision of school and other children in London in order to obtain continuity of medical work throughout child life. The two committees concerned have met and have heard the views of Dr. Churchill, who has stated that what she had in mind was medical supervision alike of children of school age and of pre-school age. Instructions have been given for a report to be prepared on the subject, dealing with it from the broader aspect of the best method of bringing into relation with one another, and securing co-operation between, the school medical service and the services responsible for the welfare of children of pre-school age. The committees are to report as soon as possible after the summer recess.

Wholesale Dairy Organization

The opening of what is claimed to be the largest and most modern wholesale milk depot in the world, that of the London Wholesale Dairies, Limited, at Vauxhall, was celebrated by a luncheon on July 6th, presided over by the Hon. Sir Arthur Stanley, and attended by the mayors of Lambeth and Deptford and by a number of London medical officers of health, one of whom, Dr. Charles Porter of Marblebone, spoke to the principal toast. The guests were taken round this remarkable building, and were impressed by the absolute cleanliness and efficiency of the handling—an unfortunate word, because the process is a rather extreme example of mechanization—of the thousands of gallons of milk which pass every day through this depot on its way from the farmer to the retail dairyman. The visitors were taken to the pasteurizing floor, where the milk is heated to 145° F., and held at that temperature for thirty minutes. In the bottle and churn room they watched the filling process, which takes place entirely by machinery, and is so arranged that the filling begins the moment the sterilization of the vessels is completed. In the sterilizing room the milk was shown being sterilized in the bottle under pressure. An interesting feature of the plant is the huge glass-lined holding tanks, which have no crevices or corners, and thus lend themselves to easy cleansing, also the "homogenizers," machines which exert a pressure of 3,000 lb. to the square inch and break up the fat cells in the milk so that the cream does not separate and a uniform product in the finished sterilized milk is ensured. It was stated that samples of milk are taken for laboratory control every half-hour throughout the entire process. The visitors also noted the provision of baths and wash-rooms for the employees, and the excellent lighting and ventilation of a modern hygienic factory.

Correspondence.

DIRECT REPRESENTATION ON THE GENERAL MEDICAL COUNCIL

Sir,—In a letter from Dr Bone and Dr Le Fleming, appearing in your issue of July 7th it was pointed out that as the university, professional, and consulting element is so fully in evidence on the General Medical Council it is fitting that the direct representatives of the profession should be general practitioners. With this I am absolutely in accord.

At a meeting of the profession in my Division (Kensington) it was resolved to put forward my name as a candidate for nomination at the coming election. I am, and have been for the whole of my professional career, a general practitioner pure and simple. I served for five years on the General Medical Council as a direct representative, and therefore am thoroughly conversant with its methods and procedure, so that if I were elected I could at once take my place in its deliberations without having to serve any apprenticeship.

In the British Medical Association I have held every possible office except that of Chairman of Council and Treasurer, having been Chairman of my Division, President of my Branch, member of the General Council for seventeen years, Chairman of the Representative Body, 1915-18, Chairman of the Medico-Political Committee for seven years, President of a Section at the General Meeting, 1920, member chairman, and vice-chairman of numerous special and ad hoc committees, and have also represented the Association on many outside bodies, in some cases for many years. During the whole of this time, both within the B.M.A. and also very largely as a member of outside councils, I have done my utmost to further the honour and best interests of my profession. For these reasons I have allowed my name to go forward as a candidate, and I appeal to all members of the profession for their support. Should I be re-elected I should do my very best to carry out the duties of the post, as I did when I was a member some years ago, when I never missed a single session or sitting of the Council.—I am, etc.,

London W 2, July 7th

I. B. TURNER

Sir,—At the request of a meeting of the practitioners of Leicestershire and Rutland I have agreed to submit myself as a candidate for the General Medical Council. I am in entire agreement with Drs Bone and Le Fleming that it is essential to secure the election of those who have a thorough acquaintance with the problems and difficulties of the general practitioner, an acquaintance which I believe I possess.

As Honorary Secretary for nearly twenty years of a Division which is composed almost equally of industrial and rural constituents, as Chairman for fourteen years of the Leicester Panel Committee, as the promoter of the largest public medical service in the country, and now the President of the Leicester section, I have been in close touch locally with every form of medical practice, while as Chairman of the Representative Body of the British Medical Association and a member of all its standing committees, either in the past or at the present time, I have been actively engaged for many years in central work on behalf of the profession.

On these grounds I venture to invite the support of the profession as a whole.—I am, etc.,

Leicester July 9th

R. WALLACE HENRY

Sir,—In the current issue of the *British Medical Journal* I notice there is a letter, dated June 27th, giving the experience of, and asking for support for, two practitioners who are candidates for the election in October to the General Medical Council.

In consequence of that appeal, I venture to state that I also have been nominated unanimously by a meeting of

the profession here, called by the local Division. If the accompanying list of my experiences and appointments, past and present, is not too long I should be greatly obliged if you will be good enough to insert it in your next issue and so to give voters, whom I cannot reach in any other way, information that will show I have had administrative and other experience which might be useful on the General Medical Council.

I do not make any promises, beyond that of a faithful attention to the honour and interests of the profession (which really are those of the community), as the duties of the General Medical Council are limited to the carrying out of the Medical Acts, so far as they concern medical education and registration.—I am, etc.,

C. H. MILBURN

Harrogate July 9th.

* A summary of Dr Milburn's experience in public and medico-political work will be found in the *Supplement* this week at page 18, together with details relating to the other candidates who have been nominated at meetings of the profession convened by Divisions of the British Medical Association.

VOLUNTARY HOSPITALS AND THE STATE

Sir,—On the agenda paper of the last meeting of the Marylebone Division there appeared the cryptic word "Amendment by Dr Graham Little, M.P.," and a copy of this paper was sent to the 669 members of the British Medical Association in the Marylebone Division, not, as Dr Little would have us believe, to 1,500 medical practitioners.

The whole Division became astir on receipt of the agenda, but so content, apparently, are the members of the British Medical Association in this large and influential Division with the Report of the Council, including the well thought-out Appendix VII, that only eleven thought it worth while to attend in order to become acquainted with the terms of this secret amendment. One of these was a close follower of the proposer, who in due course seconded the amendment, but in terms which brought strong condemnation from a stalwart of the Division.

The amendment was so amazing in its wording that no one could be surprised—not even Dr Little himself—at the deserved defeat it sustained.

In his letter printed in your issue of July 7th (p. 34) Dr Little states that the italics were his own in his extract from the scheme to be put before the Representative Body. Unfortunately, his italics, and perhaps intentionally, miss the essential word in the extract. Here I reproduce the extract with italics which are my own.

The first step in the attempt to co-ordinate the work of the voluntary and municipal hospitals must be the establishment of a central *advisory* authority appointed by the Minister of Health.

The Council in adopting this portion of the carefully thought-out scheme of the Hospitals Committee for the co-ordination of hospital provision did so fully aware that the words implied

- 1 That a central advisory authority was essential
- 2 That this body had to be central but only *advisory*
- 3 That such a body could be called into existence only by the Minister of Health himself

Being solely advisory in function this body could not possibly lead to the inevitable transfer of the *control* (again the italics are mine) of the voluntary hospitals to the State as represented by the Ministry of Health. Sir Thomas Horder, in his statesmanlike address to the British Hospitals Association Conference, puts the matter in a nutshell when he says, "I think this is a boggy. I find it impossible to believe that any statesman can sincerely consider such a step" (*British Medical Journal*, July 7th, p. 27). With this statement I am in entire agreement, and so I believe will be the majority of those astute persons who will make up the Representative Body at Cardiff.—I am, etc.,

W. McADAM LECHE

B.M.A. House July 9th

Chairman of the Hospitals Committee

Sir,—The recent conference of the British Hospitals Association at Southport does not seem to have received as much notice in the press as its chief subject-matter deserved. That matter was the part the voluntary hospital system should take in the forthcoming arrangements for the public health services of the country.

Sir Thomas Horder's address¹ brought out clearly and strikingly the value of the voluntary system in the production of a body of well-trained medical men, and it showed how their training might be made still more valuable if to the resources of the voluntary hospitals those of the Poor Law institutions should be added. It was, however, of cardinal importance that the principles underlying the voluntary system should be maintained, and the activities of the Association might be very usefully employed in the consideration of means to this end. In the debate that followed different possibilities were considered. The optimistic thought that the two greatest assets of the system were the affection of the patients for the voluntary hospitals, and the interest taken in them by their supporters. The doubting averred that both these classes of the community were inarticulate, and that the first sign of dissatisfaction on the part of the supporter might be the withdrawal of his support. The debate ended on a note of hope—not over sanguine—that it might be possible for two bodies to work in co-operation, one managing the voluntary, the other the municipal hospitals.

To many it will occur that the fulfilment of this hope could only furnish another instance of the lamb lying down beside the lion: voluntary control would soon be engulfed, and voluntary support would promptly disappear. Thus, fortunately, is not the end desired by the Minister of Health, who has expressed himself emphatically in favour of the retention of the voluntary system. But it was indicated at the conference that he may find arrayed against him forces of a formidable nature. For instance, a large number of the younger medical men who would be required to serve the transformed Poor Law institutions, and in consequence those also now on the staff of the voluntary hospitals, might strongly favour State or municipal control as connoting remuneration for their services. The spirit which animated their elders to accept honorary posts, and wait for the rewards that come in later life, would fade to vanishing point when faced with the opportunity of making at once a substantial income as a set-off against the much heavier expenses and costlier way of life of a young consultant of the present day. Whatever justice there might be in this claim the real problem would be, Could the country, at a time when economy is so vitally needed, stand the large additional expense?

Another opposing force anticipated at the conference was the abiding influence of the permanent officials of the State and municipal departments. Could such a fellow as the voluntary hospital be stabled with the municipal institution accustomed to a liberal diet of red tape? A disquieting prospect for the municipal eye. Moreover, it was thought possible that a vast additional outlay might be involved in specious but ill-considered projects. What opportunities there would be in the costly equipment of modern hospitals! It has been suggested by an eminent municipal officer that under the new regime the voluntary hospitals would necessarily come under the control of the London County Council. As evidence of the capacity of the Council to assume control of large undertakings their management of education and housing were instanced. Many think there is plenty of room for criticism in their expenditure on the former. Becontree does not exactly support the testimony of the latter. It will not be forgotten, either, that the patient Londoner has to make good annually a deficit of some £250,000 on his trams.

The time would seem to be ripe for the representatives of the London hospitals to devise a scheme under which the voluntary and municipal institutions could work together without the loss of the voluntary management and support. The representatives of the Scottish hospitals have been in communication with the Secretary of State for Scotland in regard to this matter, and they have been asked to form a committee and frame their suggestions. It might be of

appreciable assistance to the Minister of Health if the London hospitals would become articulate by adopting a similar course—We are, etc.,

LONDON HERRY,
President
FREDERICK ELFY,
Chairman of Council
R. ROY WILSON,
Chairman of Weekly Board

Chelsea Hospital for Women July 9th

ARSENIC AND THE REALM OF UNCERTAINTY

Sir,—The problem of arsenical poisoning is intimate y bound up with certain problems of the circulation, and in particular with the circulation in the liver. In the *British Medical Journal* of December 17th, 1927 (p. 1137), a method of direct observation of the circulation in the liver in the toad was detailed by me, and in addenda published privately the existence of very considerable stasis in the liver sinusoids was discussed. The possibility of the influence of respiratory compression of the liver as a determining factor in ensuring a flow of blood in all the liver sinusoids was foreshadowed, and recent research by Professor Leonard Hill (see forthcoming paper in the *British Journal of Experimental Pathology*), wherein he notes that, no matter how careful manipulation may be, in toads profound stasis exists, lends him to state that respiratory movements are essential, and, of course, muscular movement of the body generally. The heart alone cannot ensure a complete circulation of the liver, but needs to be aided by respiratory and muscular movements. Consequently, in disease it is imperative that we look for evidence of liver stasis.

The problem of shock involves the problem of the disappearance of blood from active circulation. Professor Cannon considered that blood might be dammed back in the portal circulation by constriction of the hepatic radicles of the portal vein, but it is obvious in shock, with general muscular passivity and with very feeble breathing and diminished arterial blood pressure, that all the factors are present which would produce the stasis of the liver seen under the microscope by L. Hill and by myself. Now as the amount of blood normally circulating in the liver is a large fraction of the total blood—rather more than a quarter—stasis in the liver would throw out of circulation blood than can ill be spared. Further, in certain forms of heart disease (paroxysmal tachycardia) the liver may swell considerably and quickly subside on restoration of normal cardiac rhythm. Hence one can say, as the liver swells, more blood flows into the liver than flows out, and the extra blood in the liver is either stasied in the sinusoids or the total mass must be moving very slowly.

In the case of arsenical poisoning the condition of cloudy swelling of the liver cells must increase resistance to blood flow, and as the blood pressure of the portal vein is roughly 10 mm. of Hg, any extra resistance to the passage of the blood must lead to stasis. L. Hill has measured the blood pressure in the liver sinusoids where blood is moving and found the blood pressure about 2 mm. of Hg. In arsenical poisoning a so-called fatty degeneration of the liver exists. The evidence from phosphorus poisoning leads one to believe that the fat deposited in the liver is really carried to the liver from the fat depots of the body, and that the protein of the liver cell is not transformed into fat. The carriage of this fat is also a problem of the circulation, and if it be the case that the liver microphages engulf fat, the existence of stasis of blood flow in liver sinusoids will influence such removal of fat from the blood stream.

We are now in a position to consider something in the realm of uncertainty and arsenic. In the case of R. v. Maybrick, Professor Tidy objected to an estimation of the total quantity of arsenic in the liver being based on an estimation in a part of the liver only. In other words, if the arsenic present in, say, one-third of the liver in one piece was determined, Professor Tidy maintained that multiplying the amount found by the appropriate factor would not necessarily give a correct amount for the whole liver. In other words, arsenic was found by him to be

¹ *British Medical Journal* July 7th, p. 27

differently distributed in amount in different portions of the same liver. The reason for this discovery may be (1) unequal penetration of the cells of the liver by arsenic, (2) unequal eliminating power of the cells of the liver for arsenic, (3) unequal distribution of blood flow (carrying arsenic) to different portions of the liver (4) unequal carriage of arsenic away from the liver owing to unequal distribution of blood flow to portions of the liver. As regards (1) and (2) it is difficult to see how peculiarities of individual cells would not cancel themselves out in the vast number of cells that must be in a portion of the liver. We are left then with (3) and (4), which could be accounted for by stasis in the liver. If this be granted it is well that one should note the consequent bearing on the medico-legal question of the quantity of arsenic found in the body in different cases of proved arsenical poisoning.

If one is going to argue from quantities of arsenic in the liver and in other organs of the body, say heart and kidney, in different cases one ought to be sure that the poisoning cases compared were *alike* in the existence or non-existence of stasis in the liver. And such knowledge is not in the realm of certainty, but in the realm of uncertainty. The symptoms of arsenical poisoning, the peripheral neuritis leading to a partial or more or less complete paralysis of the limbs—it may be also paralysis of the intercostal muscles leading to immobility—would favour stasis. Vomiting and straining might lead to removal of stasis for the time taken by the muscular acts to be performed, to relapse once more into immobility. It seems fair, too from the descriptions given in R. A. Armstrong, and other cases, to conclude that terminally at least, shock phenomena are present and shock leads to stasis. Further, the rapidity of the heart's action due no doubt to weakening of the heart by the poison, is also to be expected where the total volume of the circulating blood is diminished either by haemorrhage or by stasis.

In the case of R. A. Seddon as pointed out by Sir William Willcox¹ the amount found in the liver was 0.17 gram, while 1.03 grams were found in the muscles. Sir William Willcox states that this distribution of arsenic was probably "owing to there having been a break in the repeated dosage." But it might be just as well argued that the relatively low figure of 0.17 gram in the liver was due to the absence of stasis in the liver, or that the stasis in the liver occurred after the liver had been largely depleted of arsenic, while the high figure of arsenic found in the muscles over 1 gram was due to increased muscular activity during spasms of writhing, vomiting and straining, because the researches of Krogh etc. have revealed the great increase of capillary blood flow in the muscles during activity. Muscular activity would assist the circulation in the liver thereby depleting it of arsenic and muscular activity would tend to arsenic penetrating the muscle cells though increased muscular capillary bed.

I pass now to the question of the quantity of arsenic found after death in the stomach and intestinal tract. In the very valuable paper by Sir William Willcox tables are given of quantities found in various cases. But I do not find in this paper or in the new edition of Taylor's *Medical Jurisprudence*, any help in solving this problem. When arsenic is taken into the system it is absorbed and carried to the liver in the first instance by the portal circulation. Some of the arsenic remains in the liver depending in great part on the circulatory conditions, and above all on the absence or presence of stasis. But some of the arsenic in the liver will be re-excreted along the stomach and intestinal tract and in none of the analyses I have read do I find any attempt made to state how much of the arsenic found in the contents of the stomach and intestines was excreted arsenic from the liver, and not a portion of the arsenic originally taken which remained in the stomach or bowels. Further, there seems to be no attempt made to settle whether the arsenic in the intestinal tract, *excluding the contents* was arsenic that had been absorbed on its way to the liver or arsenic that was in process of excretion from the liver.

I do not say these problems can be solved, but one is bound to consider them before applying a gastro-intestinal

time-table. By that I mean calculating the time when a dose of arsenic was taken by the distribution of the arsenic in the stomach and bowels. How does one know that cases may not crop up where the whole of the arsenic in the stomach and intestinal tract was arsenic excreted from the liver, and if stasis may be present in the liver, how long has that arsenic before excretion been lying there? Yet on the question of the time of a dose may depend a verdict—I am, etc.,

Halesowen July 7th

JAMES M. McQUEEN

GASTRIC SECRETION OF NEUTRAL CHLORIDE

SIR,—In his letter which you published on June 30th (p. 1128) Dr. I. S. Hansman writes to defend a paper by himself and his colleagues against some criticism said to be contained in a letter from me in the *British Medical Journal* of March 24th (p. 521). As Dr. Hansman writes from Australia I am anxious to say nothing of a controversial nature, and would indeed prefer to say nothing at all, but as silence is sometimes more dangerous than speech I would like to point out that the letter he refers to was written in reply to one from Dr. Ponton, and that from beginning to end it contained no word of criticism of the work of Dr. Hansman and his colleagues, and I am quite at a loss to know where he can possibly have found it. I merely stated the main conclusions at which they had arrived and contrasted them with those of Baird, Campbell, and Hern in order to show that the two sets of authorities were diametrically opposed in their views as to the origin of the gastric neutral chloride, and that they could not therefore be cited together as witnesses on the same side. I added no critical comment of my own on either paper. I am sorry if in giving Dr. Hansman's conclusions I unwittingly made much of his statement that the chloride passed through the stomach wall, I admired the restraint that led him to claim no more than his evidence warranted and therefore I purposely used his own phraseology.

Dr. Hansman's last paragraph has really no connexion with anything I wrote. I have never questioned the accuracy of his mathematics. What I do question in my own mind is the accuracy of the data on which his calculations are based. I do not accept his assumptions on the chloride content of the duodenal contents, and his simple little sum of $1+1$ represents itself to me as $1+x$ where x is the sum of various unknowns. Controversy on this point is useless and for that reason I have carefully refrained from it. The question can only be settled by further experiment—I am, etc.,

London S.W. July 4th.

G. W. GOODHART

ADRENALIN IN MEDICAL AND SURGICAL PRACTICE

SIR—Mr. W. M. Beaumont, in his article of June 30th (p. 1104) gave a list of conditions in which adrenaline mydriasis occurs when this substance is instilled into the conjunctival sac. He omitted the important group of patients who give this reaction at the time of the menopause, a condition which I have shown in this *Journal*¹ and elsewhere² is associated with a general increase in the tone of the sympathetic nervous system.

In my latest publication on this subject³ I showed that

- (1) Women at the menopause who complain of flushing display an increased sensitiveness to adrenaline.
- (2) This increased sensitiveness is manifested as certain atypical phenomena associated with intravenous and subcutaneous injections of adrenaline, and its instillation into the conjunctival sac.
- (3) Whereas these atypical phenomena occur in all cases of association of the menopause with flushing, adrenaline mydriasis is present only in cases complaining of severe flushing.
- (4) The atypical adrenaline phenomena do not occur in

¹ *British Medical Journal* 1927 ii 14-15.

² *The Flushings of the Menopause*. Ballière, Tindall and Cox 1927.

³ *Endocrinology* January-February 1928 pp. 59-64.

those women at the menopause who do not complain of flushing nor in women whose menstrual cycles are normal.

(5) Adrenaline sensitiveness at the menopause associated with flushing disappears when the attacks of flushing cease—I am, etc.,

London, W 1, June 29th.

JOHN H. HANNAH, M.D.

THE PAPILLAE FOLIATAE AND CARCINOPHOBIA

SIR,—I was much interested in the memorandum entitled "The papillae foliatae and carcinophobia" by Mr. C. Jennings Marshall in your issue of July 7th (p. 13). I have frequently come across the condition he describes, and have found it to be almost invariably bilateral and to occur only in adults. I had previously regarded it as an hypertrophied, inflamed, or oedematous condition of one of the laterally placed papillae villatae of the tongue, but will in future look more closely into its site of origin—I am, etc.,

F. COLEMAN, M.C., M.R.C.S., L.D.S.,
Dental Surgeon St Bartholomew's Hospital

July 10th.

ANAESTHETICS AND DIABETES

SIR,—In his letter in the *Journal* of June 30th (p. 1127) Dr. S. Levy-Simpson does not mention a most suitable gas anaesthetic for diabetic cases—namely, ethylene. The late Dr. S. R. Wilson of Manchester, in his book *Outlines of Anaesthesia*, describes this gas as specially valuable, inasmuch as any operation can be performed on a person who is anaesthetized with it. The only danger is asphyxia, which is easily avoided by using sufficient oxygen. Dr. Wilson says:

In my experience after-effects are extremely rare and the gas in this respect is very similar to nitrous oxide. One or two subjects had a feeling of nausea and no vomiting. Its greatest value is in bad risk anaesthetics when nitrous gas is insufficient or undesirable owing to associated anaemia and ether is considered detrimental to tissues already damaged.

Dr. Wesley Bourne, in a paper read before the joint meeting of the Canadian Medical Association, the Ontario Medical Association, and the Canadian Society of Anaesthetists on June 17th, 1927, quotes a series of tests proving that ethylene has no deleterious effect on the body cells generally, and especially the liver. According to similar tests ether, chloroform, and ethyl chloride had considerable detrimental result.

I think it is generally admitted that diabetic patients have reduced carbohydrate tolerance after anaesthetization with these substances.

In days gone by, before the introduction of insulin, diabetes was often treated with opium, and, in my own experience, with very good results, especially in the case of patients over the age of 50. Therefore my suggestion for an ideal anaesthetic for a diabetic would be a fair dose of opium or morphine one hour before operation and then a nitrous oxide and oxygen gas anaesthetic. Almost any operation can be done with this, and it is very satisfactory to both the surgeon and patient.

I have just returned from a visit to the United States and Canada, where I saw gas and oxygen given for nearly every operation imaginable, and many surgeons did extensive operations with no other anaesthetic—I am, etc.,

Doncaster July 2nd.

E. J. CHAMBERS

SIR,—In reply to your correspondent in the *Journal* of June 30th (p. 1127) the quotation from my paper, as so often happens, is incomplete. Removed from its context, the sentence is liable to convey an erroneous impression.

I would point out that my opinion of ether as a satisfactory anaesthetic in diabetes has only been proved after treating these cases (which are always productive of grave anxiety) with great care. With the exception of the acute urgencies, all cases have been carefully prepared and rendered sugar-free before operation. During this time and for a week afterwards blood sugars have been estimated at least four times daily, in order to secure adequate control. And further, in my service, no case is allowed to be operated upon unless 50 grams of glucose

and an adequate insulin dose have been administered half an hour before anaesthetization.

Apart from such routine care, I have no knowledge of anaesthesia in diabetes, but I would repeat that under these conditions ether is a satisfactory and a safe anaesthetic as regards both the immediate and remote results—I am, etc.,

Manchester, July 6th

G. J. LANGLEY

EXPERIMENTS ON ANIMALS

SIR,—May I congratulate you on your article on the above subject in the *British Medical Journal* of June 30th (p. 1119). Its moderation and good sense are to be commended, and I should like to suggest that you might see your way to go a little further in bringing about a better feeling in the mind of the general public.

There is no doubt that there is a certain uneasiness at the vast increase in animal experiments, and the average layman does not realize that the great majority of "experiments" are painless. It is realized, however, that, looking at physiology from an international standpoint (and after all the physiologists of different countries are largely working together), a great amount of prolonged and unnecessary pain is inflicted on animals, owing either to anaesthetics not being compulsory in cutting experiments in certain countries or to the existing law not being properly administered. If the defenders of research could use their influence to interest the League of Nations in this international question, and aim at purging the science of physiology from all reproach, what an advance in humanity it would be!

The British are renowned for their kindness to animals. Surely British physiologists would have no objection to helping to free their science from the reproach under which it at present labours—I am, etc.,

Bridgwater July 2nd

HAROLD PARSONS, M.B. Camb.

MIDWIFERY MORTALITY

SIR,—In your issue of June 30th (p. 1126) Dr. David Roxburgh submits some remarkable observations for—as he puts it—"the consideration of your readers." He actually laments the passing of the "ignorant and untrained woman" who acted in the capacity of nurse, and deplores the "shortsightedness and stupidity" of certain doctors who helped to bring the Midwives Act into being. He admits that these untrained women "did nothing" did not attempt to do anything. That is quite true. Most of us have suffered from them. They "did nothing" so frequently that when the unfortunate doctor was at last called in he often could do little or nothing either. That was one of the reasons why they were abolished.

I may have mistaken the intention of Dr. Roxburgh's letter, but surely he is not suggesting that these women should be reinstated, even though it might be to the advantage of the young doctor who needs more experience in obstetrics. Presumably these "untrained and ignorant" midwives were abolished in consequence of the high rate of mortality and puerperal sepsis that were so rampant in those days. I would ask Dr. Roxburgh a plain question. Which would he prefer to see at the bedside of one of his own midwifery cases—a clean, smart, up-to-date, efficient, well-trained licensed midwife, or some old body whose only qualification for the job was, in her own words, "Cos I've bin a mother of ten meself, so I knows what 'er's going through"? And if a properly trained nurse-midwife is available nowadays for the richer classes surely her services are needed still more for those who are less fortunate in their financial resources.

I agree with Dr. Roxburgh that the average young newly qualified doctor is but ill equipped in knowledge and experience when he is called upon to tackle a difficult confinement. I trust that I do not come under this category, for I have personally attended, I suppose, at least the 1,000 cases which he considers are necessary to make a man efficient. But the recently qualified man's inexperience is not caused by the Midwives Act. It is due, and always has been to the inadequate obstetric training

which he undergoes at his medical school. A minimum of twenty cases in order to get "signed up" is far too small a number, and even if, during these twenty cases, a difficult one crops up, he always has the hospital obstetric medical officer at his back who will do the work for him. It is true that when he stunts general practice in earnest, he can learn a very great deal by nitenatal methods, even though he may not be called upon to attend a large number of confinements, but this does not excuse his medical school for giving him so poor a start.

As a matter of fact, judging from the advertisements for the sale of medical practices, the average general practitioner wants to do as little midwifery as he possibly can. In the advertisements, phrases such as these constantly occur: "midwifery not encouraged," "no midwifery." And apparently they are inserted as an inducement to buy. The general practitioner of today seems only too pleased to leave all, or as many confinements as possible, to the well-trained and efficient licensed midwife.

Thank Heaven the "untrained and ignorant women" have passed out of existence for ever, and I, for one, never wish to see their like again—I am, etc.,

JOHN READ POOLER M.B., Ch.B.

Newport Shropshire July 2nd

HAEMATURIA AND INSULIN ADMINISTRATION

Sir,—In your issue of June 9th (p. 977) Drs. R. D. Lawrence and A. S. Hollins drew attention to the occurrence of haematuria during the administration of insulin in diabetes. In view of the rarity of the condition the following two cases would seem worth recording.

Case 1—This patient, a boy aged 3 years, had severe diabetes in May 1925 when he was 2 years old. He had been sugar free with dieting and with 12 units of insulin twice daily until May 5th, 1926, when he contracted scarlet fever. Temperature 100° F., vomiting and a marked rash. Tonsils much injected and tonsillar glands enlarged and tender. Urine sp. gr. 1030 sugar plus. Rothera very marked, no albumin. Drowsy. May 6th semi-conscious vomited once temperature 99° F. given insulin 12 units twice urine as before no albumin volume 30 oz. in twenty-four hours. May 7th condition the same temperature 99° F. insulin 12 units twice urine 25 oz. sp. gr. 1032 sugar plus. Rothera very marked, a thick cloud of albumin smoky colour many red blood cells but no casts seen. May 8th frequent vomiting comatose. In spite of large doses of insulin with glucose and alkali per rectum he became completely anuric and died the following day. A necropsy was not obtained.

The chief points in this case are that nephritis does not commonly occur so early in the course of scarlet fever, haematuria appeared at a time when only comparatively small doses of insulin were being given, and a marked ketonuria was present without albuminuria before the haematuria developed.

Case 2—A boy aged 10 years came under treatment for thirst and weakness of the legs on January 26th 1928. These symptoms had then been present for one month. Urine volume 40 oz. sp. gr. 1032, neutral much sugar acetone and aceto-acetic acid plus no albumin. He was drowsy but could easily be roused. The temperature was normal and remained so throughout. The tonsils were normal and the tonsillar glands were neither enlarged nor tender. There was no obvious source of local sepsis and there was no history of any recent sepsis or acute infectious. Several teeth were carious and were later extracted without any general reaction. There was no obvious pyorrhoea or gingivitis. On January 27th he became comatose the blood sugar then being 0.476 per cent. He was given five doses of 20 units of insulin and in the morning of the 28th two more doses with 20 grams of glucose. He made a rapid recovery from the coma and thereafter felt quite well. During the day he passed 41 oz. of bright red urine. He remained free from glycosuria on a diet of 1,060 calories and two doses of 12 units of insulin a day. The urine became free from blood on the fourth day after this symptom had first appeared.

Perhaps the most interesting feature of this case is the complete absence of any acute infective process or septic lesion, as far as could be ascertained, which might have itself caused the haematuria. As Drs. Lawrence and Hollins have pointed out, all the cases so far recorded have been males—I am, etc.,

London July 2nd.

ARTHUR A. OSMAN

ROYAL COLLEGE OF SURGEONS MUSEUM ANNUAL EXHIBITION

Sir,—At the suggestion of Sir Arthur Keith, I beg to inform you, and those of the profession who are interested in the work of the Royal College of Surgeons of England, that there has been placed on view at the annual exhibition—which is open until July 28th—a series of new and original photomicrographs illustrative of the results of the process of osteolysis as it occurs in the oral cavity. Osteolysis is particularly well studied in this region and, although at present but little investigated already explains some of the pathological changes in the alveolar processes of the jaws and the dental articulation tissues which are universal in man and many of the lower vertebrates—I am, etc.,

Beckenham July 6th

ARTHUR HOPEWELL-SMITH.

ACUTE APLASTIC ANAEMIA

Dr. A. HAYES SMITH (Bradford), in a further letter on this subject, writes:

Your review in the *Journal* of June 25th (p. 1129) in answering the charges of inaccuracies preferred against him by Dr. Young and myself, states: "The actual figures for the two counts were 60 and 87 polymorphonuclears per cmm., it seems quite accurate to describe such a state of affairs as an absence of polymorphs." I have never previously encountered such an illogical and unjustifiable deduction in a scientific journal. A standard of such laxity that counts of 60 and 87 might be "quite accurately" described as *nil* needs no further comment. He commits an equally gross error when he refers to my use of the term "leukin," and states that it "surely means 'absence' of leucocytes." Reference in the glossary at the end of the book gives the accepted meaning of the term in haematology. Leukin is no more synonymous with "absence of leucocytes" than is "anaemia" synonymous with "absence of blood." The sweeping statement that "similar observations" (to those made by me) "are quite frequently to be made in secondary anaemia of various types" cannot be supported by reference to a single case in the literature, although Dr. Young and I have asked for such a reference.

Obituary

HENRY HANDFORD, M.D., F.R.C.P., D.P.H.,

Consulting Physician Nottingham General Hospital Consulting Medical Officer of Health for Nottinghamshire

We have to announce, with regret, the death of Dr. Henry Handford, one of the best known figures in the medical profession in Nottinghamshire, where he was medical officer of health for many years after having taken an active part in other spheres of medicine, notably in the work of the Nottingham General Hospital. He died at his residence at Southwell, Nottinghamshire, on June 24th, in his seventy-fourth year.

Henry Handford commenced his medical education at the University of Edinburgh, graduating M.B., B.S., with honours, in 1878, and obtaining the diploma M.R.C.S. Eng. in the same year. Subsequently he pursued his medical studies in Paris and Vienna, and in 1882 proceeded M.D. Ed. He obtained the Cambridge D.P.H. two years later, and in 1889 was admitted to the Fellowship of the Royal College of Physicians. The greater part of his professional life was spent in Nottinghamshire, where he soon gained a high place in the esteem of his fellows and was appointed physician to the Nottingham General Hospital, a position which he resigned in 1906 on account of the pressure of his duties in connexion with the public health services of the county. When he retired, early in 1926, from the post of medical officer of health for Nottinghamshire he had completed over twenty-six years' service in that capacity. During the war he held a commission as major in the Royal Army Medical Corps, being attached to the sanitary service.

The affairs of his profession absorbed much of Dr. Handford's leisure, and he gave his assistance freely to

various organizations. As a member of the British Medical Association he acted as honorary local secretary to the Annual Meeting at Nottingham in 1892, and was a member of the Central Council from 1899 to 1903. He had filled the office of president in the Midland Branch of the Society of Medical Officers of Health and in the Nottingham Medico-Chirurgical Society, and was a Fellow of the Royal Sanitary Institute, and a member of the Royal Medical Society of Edinburgh.

Dr F. H. Jacob writes: Those who knew Dr Handford well admired him equally for his excellence as a physician and for his qualities as an English gentleman. No man could be more kind and courteous than he at all times and under all circumstances. There was about him a refined dignity of bearing which compelled respect. A love of literature and music and a positive hatred of untruthfulness completed the picture of the true, cultured gentleman. As a physician he was learned, he was an extensive reader, but his knowledge was his own—acquired by diligent observation, and the most painstaking and exact examination of his patients, interpreted in the light of the most recent pathological knowledge, and his own most careful pathological investigations. As illustration of this one may recall a paper to the Nottingham Medical Society, in 1884, on bacteria, in which he showed pure cultures of pathogenic organisms. In 1885 he demonstrated microscopic preparations of *hilzarzia haematobia*, sections from cases of choreic insanity, and of myelitis, actinomycosis, and supposed malignant pustule. In 1904 he described a case of heart-block, showing the heart and sections of the gumma involving the bundle of His. Thus throughout the wide field of medicine did he keep abreast with the most recent scientific knowledge of his day. In his work as county medical officer of health he displayed the same character of thoroughness, extreme conscientiousness and courtesy to all with whom he worked that he had shown in clinical medicine. But clinical medicine suffered a grievous loss which remained a source of regret to his old friends for many years. On January 1st, 1916, his two sons were killed at the Hohenzollern Redoubt. From this terrible blow his kindly and sensitive disposition never properly recovered, and it tinged his later years with sadness.

EDGAR MARCH CROOKSHANK, M.B.,

Emeritus Professor of Bacteriology and Comparative Pathology,
King's College London

As recorded in our last issue, Professor E. M. Crookshank died suddenly on July 1st, at his residence at East Grinstead, in his seventieth year. He received his early education at King's College School, London, and later at King's College Hospital, obtaining the diploma M.R.C.S. in 1881, and graduating M.B. Lond., with honours in obstetrics, three years later. He had been one of Lord Lister's dressers at King's, and subsequently held the post of house-surgeon. In 1882 he was chosen for special duty on the staff of Sir James Hanbury, principal medical officer of the Egyptian expedition. Dr Crookshank was present at the battle of Tel-el-Kebir, and received the Egyptian medal and the Khedive's star; he prepared a report on the antiseptic methods employed in the hospitals in this expedition, and gave evidence before the Royal Commission on the Medical Services in Egypt. He then undertook bacteriological research in Paris and Berlin under Pasteur and Koch. He published in 1886 his well-known *Textbook of Bacteriology and Infective Diseases*, which passed through four editions. In the same year he was appointed professor of bacteriology at King's College, and was later put in charge of the first laboratory to be established in England for research and teaching in comparative pathology. On resigning his chair in 1889 he was elected a Fellow of King's College, and was appointed emeritus professor, and shortly afterwards published a work in two volumes entitled *The History and Pathology of Vaccination*. In 1894 he became a J.P. for Sussex, and from then onwards took an active part in public life, contesting unsuccessfully in 1906 the East Grinstead Parlia-

mentary Division as a Unionist and Tariff Reformer. He travelled widely in the Dominions, investigating the social and economic problems of the places he visited. For nearly forty years Professor Crookshank was one of the governors of the Royal Veterinary College, holding office as chairman of the General Purposes Committee, and of the Committee of Management of the Research Institute in Animal Pathology. At the time of his death he was deeply interested in a comprehensive scheme for the reconstruction of the existing college building in Camden Town.

FREDERICK THOMAS THISTLE, M.D.,

Senior Physician Torbay Hospital, Torquay

It is with deep regret that we have to record the death of Dr F. T. Thistle, which occurred on June 26th at Torquay. His passing removes a well-known and much esteemed figure from the ranks of the medical profession in South Devon.

Frederick Thomas Thistle was born at Whitby in 1859 and received his medical education at St. Bartholomew's Hospital, obtaining the diplomas M.R.C.S. in 1880 and L.R.C.P. in 1881. In the final examination for the former diploma he took first place in midwifery and was bracketed first in surgery. In 1889 he graduated M.D. Durham. After a term as resident medical officer at Stoke Newington and Clapham Dispensary he went to the Torbay Hospital as house-surgeon. Soon afterwards he commenced practice at Torre, and about the same time was appointed honorary visiting surgeon to the Torbay Hospital. He rapidly built up a reputation as a physician and obstetrician, and when the opportunity offered he transferred from the surgical to the medical side of the hospital, where for many years he presided ably over the meetings of the medical council. It was as an obstetrician of exceptional ability that he came to be best known, and his record of over 6,000 cases would be hard to equal.

A colleague writes: Dr Thistle was a man of the highest honour and integrity, energetic and untiring to the utmost degree. He avoided publicity and had no desire for civic or social honours. He was, however, a member of the British Medical Association and of the Torquay Medical Society, in the work of both of which he took the keenest interest, serving as vice-president of the latter body. Universally respected by his colleagues and deeply beloved by his patients, his kindly personality could ill be spared, and he will be greatly missed.

Dr WILLIAM TURNER, who died in tragic circumstances at his home at Hale, Altrincham, Cheshire, on June 25th, had been in practice in that district for over twenty years. He received his medical education at the University of Aberdeen, graduating M.B., Ch.B. in 1901, and continuing his studies later in Dublin and London. After serving in resident posts at the Crichton Royal Institution, Dumfries, and the Scarborough Hospital and Dispensary, he commenced practice at Hale, and soon built up an extensive connexion in that neighbourhood. During the war he held a commission as captain in the Royal Army Medical Corps, being awarded the Military Cross for his services. He was for a long period engaged on the Salonika front, and suffered considerably from ill health, the effects of which were apparent in his later years. In the affairs of his profession he played an active part: he was a member of the Manchester Medical Society and of the British Medical Association, and at the time of his death was a member of the Executive Committee of the Mid Cheshire Division of the Association. He was chairman of the Division in 1921, after holding various other offices. Dr Turner was a prominent figure in his profession in the Altrincham district, where he was recognized as an exceptionally able and conscientious practitioner. At the funeral service, held at St. Peter's Church, Hale, there were present many of his professional brethren, representatives of various public bodies, and members of all classes of society. Deep sympathy is felt for his widow and his young son.

Dr GEORGE SUTHERLAND, who died suddenly at Stornoway, in the Isle of Lewis, on June 28th, was among the best known members of the medical profession in the Outer Hebrides, where he had been in practice for the last seven or eight years. He received his medical education at the University of Edinburgh, and after graduating M.B., Ch.B. in 1910, served as house physician at the Royal Southern Hospital, Liverpool. Thereafter he spent several years abroad, in British Malaya and India and during the war held a temporary commission in the Royal Army Medical Corps. He was at one time medical officer to the station hospital at Quetta. At the end of the war he took up his residence at Invergordon in Ross-shire, but soon afterwards removed to Stornoway, where he was associated, as medical officer, with the work of the Lewis Hospital situated in that town. He was also medical officer for the parish of Stornoway. Dr Sutherland was an active member of the British Medical Association, and at the time of his death held office as vice-chairman of the Islands Division of the Northern Counties Branch.

We regret to record the death of Dr. Richard Dowden, principal medical officer, Federated Malay States, which occurred suddenly from heart failure at Kuala Lumpur, Selangor, on June 24th in his fifty-fourth year, on the eve of his retirement, after nearly twenty-five years in the Colonial Medical Service. He was the son of a well known professor of English at Trinity College, Dublin, where he himself received his medical education, graduating M.D., B.Ch. in 1898, and continuing his studies for a time at Vienna. In 1910 he obtained the Diploma in Tropical Medicine of the University of Liverpool. The greater part of his professional life was spent in the medical service of the colonies. In his earlier years Dr Dowden was employed in the West Indies, where he was a assistant medical officer in the Government Lunatic Asylum at Kingston, Jamaica. Subsequently he was transferred to the Federated Malay States, in which he was appointed principal medical officer in 1922, after being, for a period, senior officer in Penak. He had served as a lieutenant in the Royal Army Medical Corps. A colleague writes: "An impulsive and kind-hearted Irishman, Dr Dowden will be much regretted by his friends, who had hoped that he would spend many happy years of well-earned leisure at home."

The following well-known foreign medical men have recently died: Dr HENRIQUEZ, professor at the Collège de France and member of the Institut and Académie de Médecine; Dr ISRAEL DE JONG, an eminent Paris physician and authority on tuberculosis and respiratory diseases; Dr HANS SCHELBE, senior physician to the Children's Hospital and professor of pediatrics at Bremen, aged 50; Professor HJALMAR SCHIÖTZ, an eminent Danish ophthalmologist, aged 77; Dr J. H. CHARTIER, emeritus professor at the Naval University at Montreal and formerly president of the College of Physicians and Surgeons of the Province of Quebec; Dr XAVIER ARNOZAN, honorary professor of clinical medicine at Bordeaux and editor of the *Journal de Médecine de Bordeaux et de Sud-Ouest*, aged 76; Professor H. MARCHAND, a prominent pathologist of Leipzig, aged 82; Dr LUDWIG LICHTHEIM, professor of internal medicine at Königsberg; Dr JULES MOUTET, professor of oto-rhino-laryngology at Montpellier, aged 62; Dr ANSEL FERNÁNDEZ CARO y NOUVILLAS, president of the Spanish Society of Hygiene and vice-president of the Royal Spanish Academy of Medicine; Dr NEWTON MELMAN SHAFFER, emeritus professor of orthopaedic surgery, Cornell University Medical College, and past-president of the American Orthopaedic Association, aged 81; Professor KARL GARNÉ, who recently retired from the chair of surgery at Bonn University; Professor HROO KARL PLAUT, the Hamburg pathologist, aged 69, whose name is often used in Germany in association with that of Professor Vincent of Paris as a synonym for ulceromembranous angina; Dr NARCISSENTO GUNOEL, professor of children's diseases at Rio de Janeiro and Professor MEYER-WITZ, a Zürich gynaecologist, aged 66.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

THE House of Commons this week discussed Estimates for the Home Office and Post Office, completed the Committee stage of the Valuation (Ascertainment) Bill, and made progress with a number of other bills. A meeting of the Parliamentary Medical Committee had been arranged, but has been postponed till next week.

Scottish Board of Health

In the House of Commons, on July 9th the Reorganization of Offices (Scotland) Bill was considered on the Report stage. The measure provides that the powers and duties of the Scottish Board of Health, the Board of Agriculture for Scotland, and the Prison Commissioners for Scotland shall cease to exist from the appointed day and shall be transferred to a Department of Health for Scotland, a Department of Agriculture for Scotland and a Prisons Department for Scotland respectively. Mr. HANLEY moved to delete the provision abolishing the Scottish Board of Health.

Sir J. CHALMERS, resisting the amendment, said that the new system would lead to greater efficiency. Under that system there was nothing to prevent the technical officers from coming into the closest possible touch with himself or with the Under-Secretary for Health. In his judgement a responsible head of each department, with the full responsibility of his office, and with the knowledge that he had to give advice to his Minister, was infinitely preferable to the system of boards. From experience he had found that in a case of urgency it was much preferable to have a head of a department to whom he could go than to have to submit a question to the chairman of a board who would have to consult the members, who might have conflicting opinions on a question. With regard to the technical experts, he was prepared to give them every opportunity to express their views, in close consultation with the head of the department and with the Minister, but the final word must be with the Minister and with Parliament and not with the experts. If the medical man of science, for example, had his way, he might very possibly impose upon the House of Commons and the country a system eminently desirable in itself but so extravagant, or so much in advance of the times that Parliament could not tolerate it. Hon. members had said that it was desirable that some undertaking should be given that those in the present boards would be fairly treated in the changes that were to be made. That, undoubtedly, would be done. Unfortunately the chairmen of the Board of Health, a doctor who was well known to members of the House, had had to retire through ill health. There had never been a time in the history of the administration of the offices in Scotland when this change over would be made more easily and with less disturbance and difficulty so far as the individuals were concerned.

Dr. SHIELDS said that the Secretary for Scotland had not shown that to change from the board system to that of the departmental system was necessarily moving with the times. The board system suited the genius of the Scottish people. In all departments of industry the technical expert had become much more important. This bill showed no method by which the Minister could be kept in touch with the technical experts. Under the new system in the Scottish Board of Health the heads of the Medical Department, the National Health Insurance Department, the Pensions Department, and the Law Department would have to go back one step. Their decisions and advice would then go to the Minister by way of this new chief of the department, who would be a civil servant with no technical knowledge and who would not be in a position to give any greater weight to the views of his experts than the right hon. gentleman himself. The right hon. gentleman by this system was letting somebody else make up his mind for him, with no better authority and ability to do it, and probably with less. Instead of having direct access to the Minister the technical men would have less. They would have to go through this civil servant and their views might or might not be done justice to. The Minister had said that there was no reason why the experts should not come to see him. If that was the case what would become of the discipline in the department if, behind the back of the chief of the department, any of the technical heads were to go to the Minister and give, perhaps, different advice from that tendered by the chief himself? The future position of the Board of Health was one of the greatest tragedies which this bill would bring about. The Board of Health was a most efficient and up-to-date department. It had done a great deal of work, not only in administration but in stimulating and strengthening Scottish local authorities in various directions. That work could only be less and not more efficiently performed as the result of the changes in

this bill. He (Dr. Shuels) wished to know why there was such delay in filling the vacant medical posts under the board. Were they going to see an example of the anglicizing process in Scotland by individuals being appointed from the Ministry of Health to fill the vacancies?

The amendment was rejected, the Report stage was concluded, and the bill read the third time.

Coroner's Law and the Pace Case

In the House of Commons, on July 8th, Mr. PURCELL asked the Prime Minister whether he would consider the case of Mrs. Pace, the widow who had been subject to a protracted coroner's inquiry had been arrested on a charge of murder and had now been released, no case having been proved against her. Mr. Purcell further asked whether the Prime Minister would institute a public inquiry into the position and powers of coroners.

Sir T. LASKER replied that the proposal to hold a public inquiry into the legal position of coroners would receive due consideration by the proper authorities.

Mr. MORRIS asked if Sir T. Lasker proposed to introduce an amendment of the law relating to coroners' juries and limiting the power of such juries to inquire into the cause of death only, leaving the verdict to be inquired into by the magisterial courts and the assize court.

Sir T. LASKER: I did not say that the Government are contemplating an inquiry into the question of coroners' inquiries. What I said was that the question will receive due consideration from the proper authorities.

Bills

In the House of Lords, on July 9th, the Child Destruction Bill (formerly the Infanticide Bill) was recommended to a Committee of the whole House. Lord DALRYMPLE formally moved that the amendments which had been made by the Select Committee to which the bill had been sent, should be agreed to. This was done and the bill passed through Committee.

On July 9th the Dogs Bill was considered and passed through Committee in the House of Lords.

In the House of Lords, on July 10th, the Marriage (Prohibited Degrees of Relationship) Bill and the Reorganization of Offices (Scotland) Bill were read the first time.

Motor Traffic Danger

On July 10th in the House of Lords, Lord LAMINGTON asked what effect one way thoroughfares had had on the number of accidents to pedestrians in the metropolitan area, the number of accidents to pedestrians for the twelve months preceding the date of the last return, and if the Government had any proposals for making the thoroughfares less dangerous to people on foot. Lord DE CURTAIN said that a large percentage of people killed and injured by motor traffic were children and policemen should be posted outside all schools on main roads to assist the children in crossing. Strict tests should be imposed on every person who applied for a driver's licence. Lord MORRISON or BEAULIEU said that the report of the Commissioner of Police for 1927 showed that of 1,027 fatalities 528 were attributed to pedestrians crossing the road without due care and 116 to hesitation and faltering. There was such a thing as walking to the public danger as well as driving. Taken as a whole, the one-way system had been a success. Before long escalators would have to be provided either under or over the streets to enable pedestrians to cross with some convenience. The results of a very large number of coroners' inquests all over the country showed that 36 per cent only of the accidents were avoidable by drivers and 64 per cent were unavoidable. Earl RUSSELL said that the mortality among children was a very regrettable feature. A great deal had been done by giving instruction in the schools on this matter but it took time, probably a generation to get people used to the fact that the roads were now in reality unfenced railway tracks. The old bogey of a test for drivers had been considered by various committees for years and years and they had all come to the conclusion that skill in driving was not the same as care in driving. Viscount CURZ said it was a serious matter that in the whole country last year 4,000 people were killed and 160,000 injured by motor traffic. The great majority of these cases would not have arisen if the vehicles had not been driven so fast and if proper care had been taken by drivers. He asked the Government to appoint a departmental committee to go into the question of increasing the safety of the roads. Viscount PERT said that the question of street accidents was engaging the attention of the Home Office and the Ministry of Transport and was a very difficult problem to deal with. It was not the experience of the Ministry of Transport that many of the accidents had been due to the roundabout and one-way system of traffic. These systems had not been in force long enough to be judged in that respect. It was hoped that as the public became more familiar with them the number of accidents would be considerably reduced. In the effort to make the streets less dangerous, refugees had been provided and crossing signs which police had been stationed at the crossings. Special investigations were being made as to the streets where the greatest number of accidents took place. The London Traffic Advisory Committee was going into the question of accidents to children and hoped to be able to report on the whole problem very soon.

Voluntary Hospitals and Motor Accident Cases

Colonel ASKLES, replying to Mr. Horre Belshah and Sir J. Marriott on July 10th, said that he had received a copy of a resolution calling attention to the heavy and increasing burden imposed on voluntary

hospitals in the treatment and maintenance of motor accident cases. The compulsory insurance of all motor vehicles would involve great difficulties but even if they could be overcome he did not think that it would be practicable to make the cost of treatment and maintenance in voluntary hospitals a first charge on the insurance moneys. In order to bring the matter within the scope of a policy of insurance it would be necessary, in the first place, that the hospital should have an enforceable claim against the patient and in the second that the patient's injury, if he was a third party, should have been due to negligence on the part of the driver of the vehicle.

National Insurance Change of Doctor—Sir KINGSLEY WOOD told Sir H. Brittain on July 4th, that representations from the London Insurance Committee relating to the conditions under which an insured person who proposed to transfer himself from the list of one insurance practitioner to that of another could obtain immediate treatment from the second practitioner were received by the Minister of Health on July 3rd. He was not yet in a position to reply to the hon. member on the matter.

Industrial Poisoning—On July 4th Sir W. JOYNSON HICKS told Mr. W. Thorne that his attention had been called to the report of the Battersea coroner on the inquest on two girls who died in hospital following illness which they contracted while employed at a scouring powder works at Battersea. A full report had been submitted to him by the medical inspectors of factories who attended the inquest and investigated the circumstances. In the opinion of the medical inspectors these cases originated when the mixing and filling of the powder were done by hand. At the beginning of 1927, on the instructions of the district inspector of factories mechanical methods of working were introduced. The plant since that date had been totally enclosed and exhaust ventilation applied to all points where dust was liable to escape. He was advised that the present arrangements should prove effective, but they would continue to receive close attention.

Lead Poisoning—Sir W. JOYNSON HICKS, replying on July 5th to Lord H. Bentinck, said that 33 cases of lead poisoning among painters were reported in the first five months of 1927 and 40 in the same period in 1928. All cases of lead poisoning and complaints were fully investigated by the factory inspectors. It had always been recognized that on account of the special conditions under which the industry was carried on it would be necessary to rely to a large extent on the co-operation of the industry itself for securing general compliance with the regulations. With this object conferences were arranged with the employers and operatives' associations. Both sides had taken steps to impress on their members the importance of a strict observance of the regulations and had promised to assist the department in every possible way.

Vaccination—Mr. CHAMBERLAIN, replying to Sir B. Peto on July 5th, said that he had received representations from boards of guardians as to the risk to the community from unvaccinated persons. The question of making any change in the present facilities for the exemption from vaccination of infants in view of the spread of small pox would be considered in connexion with the report of the committee on vaccination about to be published.

Medical Examination of Vagrants—Mr. CHAMBERLAIN on July 5th told Captain Fairfax that he had received an appeal from the Norfolk Vagrancy Committee for assistance in providing extra remuneration for medical officers of Poor Law institutions now called upon by order of the Ministry of Health to examine all casuals for small pox. He could not however undertake to defray all or part of the additional fees involved in view of the fact that this work was outside the duties ordinarily performed by those doctors. There were no funds at his disposal out of which such a contribution as was suggested could be paid. Captain FAIRFAX asked if the Minister expected these doctors to do the extra work gratis or did he expect the local authorities to defray the extra cost. Mr. CHAMBERLAIN said that he had no power to make any contribution. Mr. SHEPHERD asked if the right hon. gentleman would see that the medical officers undertook the inspection of casuals in the evening and thus give some value to their inspection. Mr. CHAMBERLAIN replied that that would certainly involve a claim for an extra fee. Sir KINGSLEY WOOD informed Lieut. Colonel Troyle, on July 10th, that thirty-six boards of guardians had forwarded resolutions in favour of making the cost of inspection of casuals for small pox a national charge. In reply to the question whether he proposed to take any action in the matter he referred the hon. member to the reply given on July 5th.

Mental Deficiency—The DUCHESS OF ATROLL, replying on July 9th to Mr. Harris, said that the President of the Board of Education hoped that the report of the special committee set up in 1923 to investigate various problems relating to mental deficiency would be available before the end of the year and that it would be published.

Grants for Health Purposes—Mr. CHAMBERLAIN in a tabular answer to Sir N. Grattan Doyle on July 5th stated that the percentage grants to local authorities in England and Wales, for the latest year available for tuberculosis was £1,640,098, for maternity and child welfare £767,082, welfare of the blind £5,195, venereal disease £302,158 and mental deficiency £505,642—a total of £3,218,175. In addition percentage grants amounting to £317,775 were made to voluntary associations as follows: maternity and child welfare £197,119, welfare of the blind £112,062, venereal disease £152 and mental deficiency £28,422.

Maternal Mortality—Mr CHAMBERLAIN on July 5th told Mr Groves that in 1924 the deaths due to childbirth in England and Wales were 2,847 with a percentage of 3.90 per 1,000 live births. In 1925 the figures were 2,900 deaths percentage 4.03 1926 2,860 and 4.12, and 1927 (provisional figures) 2,690 and 4.11. In 1924 in West Ham there were 12 deaths with a percentage of 1.66 in 1925 20 deaths percentage 2.85 1926, 13 and 1.91 and 1927 (provisional figures) 18 and 3.00.

Defective Children—On July 5th the DUCHESS OF ATROLL in reply to Mr Harris said that according to the information in the possession of her department 240 local education authorities had provided no special schools of their own for mentally defective children and 257 had provided no special schools of their own for physically defective children but 131 of the former authorities and 221 of the latter sent children of these types to special schools provided by other authorities or by voluntary managers. Some 200 authorities made provision for the orthopaedic treatment of crippled children. In addition about 50 authorities had arranged for the supervision of mentally defective children in their areas. The Board of Education already had before it proposals for the provision of five new schools for mentally defective children and twenty-eight new schools for physically defective children.

Notifiable Diseases—Mr CHAMBERLAIN in reply to Mr Groves on July 5th said that his department received from the local medical officers of health each week particulars of the numbers of cases of notifiable diseases occurring in their areas and the crude attack rates for each year per 1,000 of the civilian population were worked out from the figures so supplied. Measles was not a notifiable disease in any of the administrative areas included in the West Ham Union but particulars of the numbers of cases and the attack rates of diphtheria and scarlet fever in each of these areas had been published for 1924 1925 and 1926 in the Registrar General's statistical review. Similar particulars for 1927 and 1928 would be published in due course in the statistical review for these years.

London Lock Hospital—On July 9th Sir KINGSLEY WOOD informed Mr Potluck Lawrie that he understood that the committee appointed by him last March to inquire into the management, administration and staffing of the London Lock Hospital, with special reference to the arrangements for the medical treatment of patients had held six meetings and had in addition visited a number of institutions. He was informed that the inquiry was approaching completion but that the committee was not yet able to say when it would conclude its labours.

Anthrax in Man—Sir W. JOYNSON HICKS in reply to Dr Salter on July 5th stated that the number of cases of anthrax in human beings which had been notified to his department in the years from 1923 to 1927 were 50 45 48 42 and 35 respectively of which 8 4 10 4 and 3 were fatal. In all except seven of the cases the patient was found to have been in contact with materials likely to be infected with anthrax. Sir W. JOYNSON HICKS also told Dr Salter that each of the cases of anthrax at Newcastle Warrington and Bolton reported this year had been investigated. It was found that in every case except one the workman had been in contact with hides imported from China. The question of further precautions had for some time past been under discussion with the employers and workers' associations but it was agreed that the only measure likely to be effective would be disinfection. Investigations for this purpose were commenced some time ago by the United Tanners' Federation and were being actively pursued but no satisfactory method had yet been worked out. The issue of a draft welfare order was now under consideration and he hoped that a decision would be reached very shortly.

Haydock's Infantile Mortality—Mr CHAMBERLAIN in reply to Mr R. Young on July 10th said that the attention of the Minister of Health had been called to the annual report of the medical officer of health for Haydock Lancashire which showed that while the death rate was slightly below the average for England and Wales the infantile death rate was 14 per 1,000 higher. He proposed to arrange for a local investigation of all the circumstances.

Prescriptions for Food Products—Mr CHAMBERLAIN on July 5th answering Miss Wilkinson who asked whether certain insurance committees had decided that insurance practitioners must not order for their patients vitamin preparations on the ground that they were not drugs but food while other committees allowed doctors to prescribe vitamin preparations and that the question whether any particular preparation could be regarded as a medicine within the meaning of the National Health Insurance Acts was one to be determined by the local Insurance Committee and would only come before him formally on an appeal from their decision. He was aware that there was a divergence of practice between committees on the point, and he proposed to issue a statement to assist insurance practitioners and committees in their consideration of it in future.

Overcrowded Dwellings—On July 4th Sir KINGSLEY WOOD informed Admiral Beamish that as the large numbers of houses which had been built in recent years had exceeded the requirements of the increased population it was obvious that they must largely towards the relief of overcrowding in the slums. He had no later information persons per room than the statistics contained in the census. Those figures were not confined to

Rating of Hospitals—Sir KINGSLEY WOOD on July 4th told Sir C. Rawson that the Minister of Health had received communications from the British Hospitals Association and from the authorities of certain hospitals as to the effect of the operation of the Rating and Valuation Act of 1925 on hospitals and similar institutions. He had received no such communication from local authorities. Sir C. Rawson asked if Sir Kingsley Wood was aware that the Sussex County Council had had its assessment raised from £100 to £1,600 and if the assessment committees of the different localities were justified in making nominal assessments, as they had done hitherto. He asked if the House would have any opportunity of discussing the matter at an early date, as it affected so many hospitals all over the country. Sir KINGSLEY WOOD replied that if assessment committees were not acting properly and within the law there was a remedy by way of appeal.

Income Tax Children's Allowances—During the discussion of the Finance Bill in the Committee of House of Commons on July 3rd Mr GATES moved a new clause to extend the allowance granted to parents of children receiving full-time instruction at a university college school or other educational establishment to parents obliged by their financial circumstances to apprentice their children to trades or to article them to professional people. He said that a great many professional people such as the widows of lawyers doctors and so on had to maintain their children at home while they were apprenticing them to business or articling them to lawyers or accountants. It was very unfair that the better class of parents who could afford to send their children to the university, should have the benefit of the allowance while parents of the poorer classes of professional people could not get it. Dr FLIORE resisted the new clause which would permit an allowance to be made indefinitely while the children of the claimant were learning a trade or profession. Mr GATES said who was a professional man would realize that even professional men were kept by their parents up to rather an advanced age. It was not supposed that a surgeon could make much more than his laundry bills until the age of 40 and it would be quite unreasonable to expect the Inland Revenue to keep track of such people up to such an age. The clause was negatived.

The Services

DEATHS IN THE SERVICES

Deputy Inspector General William Digby Longfield, R.N. (ret.) died at Plymouth on May 23rd aged 89. He took the T.R.C.S.I. in 1860 and entered the navy as assistant surgeon on October 4th 1861. He served in the Abyssinian war of 1868 in that rank, in the frigate *Octavia* and in the sloop *Spartan*. On May 1st 1875, he was promoted to surgeon and when serving in H.M.S. *Tenedos* landed in charge of the contingent from that vessel to the naval brigade in the Zulu war of 1879. He then served as senior medical officer first on the Lower Tugela and afterwards with the Ekowe relief column was dangerously wounded by a gunshot wound of the chest in the battle of Gungahlovo on April 2nd 1879 was twice mentioned in dispatches and received the Zulu medal with a clasp, also the thanks of the Commander in Chief, Lord Chelmsford and special promotion to fleet surgeon with seniority from July 31st 1879. In the same year he received the Gilbert Blane gold medal for the best medical journal of the year. In 1891 he was appointed fleet surgeon at Devonport Naval Barracks and retired on October 16th 1893 with an honorary step as D.I.G. On March 20th 1904, he was granted a Greenwich Hospital good service pension.

Colonel George Hutcheson, Bengal Medical Service (retired), died on May 21st, aged 83. He was born on June 27th 1844 the son of Mr John Hutcheson of Glasgow, took the Edinburgh double qualification in 1868, and graduated as M.B. and C.M. Glasgow in 1869, and as M.D. in 1871. Entering the Indian Medical Service as assistant surgeon on October 1st 1868, he attained the rank of surgeon colonel on October 1st 1897, and retired on October 1st, 1902. After a few years of military duty he was posted to civil employ in the North-West Provinces now the United Provinces of Agra and Oudh. There he served chiefly in the sanitary department becoming sanitary commissioner of the province in May, 1869. He was posted to the Central Provinces in May 1896, as acting inspector general of civil hospitals, confirmed in that post a year later and in May 1899 transferred in the same capacity to the United Provinces. He was the author of a work *Cholera its Causes and Mode of Dissemination*, 1885. His son entered the I.M.S. shortly before his retirement, and is now inspector general of civil hospitals in Assam.

Lieut Colonel James Stuart Brooke V.D., late of the East Indian Railway Medical Service died at Charlton Kings, Cheltenham on May 17th aged 71. He was educated at Trinity College Dublin and took the L.R.C.S.I. in 1880 and the L.K.Q.C.P. in 1881 also the F.R.C.S.I. in 1896. After qualifying he took an appointment in the medical service of the East Indian Railway, in which he served for about thirty

Mr Ganjee becomes substitute Member of Council for the late Mr Thelwall Thomas until July, 1935

Medical News.

THE secretary of the British Empire Cancer Campaign informs us that the number of those who have signified their intention of being present at the International Cancer Conference in London next week is already very large, and having regard to the limited space at the Royal Society of Medicine and the College of Nursing, where the scientific meetings are to be held, it will be necessary to confine admission (which will be by ticket only) to official delegates and to a small number of others who specially desire to be present. Those wishing to attend should apply to the secretary, International Cancer Conference, Royal Society of Medicine, 1, Wimpole Street, W 1.

THE annual meeting of the British Institute of Philo-sophical Studies will be held at the Royal Society of Arts, 18 John Street, Adelphi, W C on Monday July 16th, at 5.30 p.m., when the Earl of Balfour will preside and deliver a short address.

THE tenth annual meeting of the Mental Hospitals Association will be held at the Guildhall, London, on July 18th, at 11 a.m.

A MEETING of medical Freemasons interested in the formation of a British Medical Association lodge will be held in Manchester at 8, S. Peter's Square, on Wednesday next July 18th, at 4 p.m. The meeting has been arranged for the benefit of those who may not be able to attend the function at Cardiff owing to the distance. All medical Freemasons are invited. It is expected that Bro. Bristowe and Bro. Howell Evans, two provincial grand officers and leaders in the present venture, will address the meeting.

FOUNDER'S DAY will be celebrated at Epsom College on July 28th, when Lord Riddell will present the prizes. At midday there will be a service in the chapel, and in the evening a choral performance of *Isidore* by the College Musical Society.

THE Fellowship of Medicine and Post Graduate Medical Association announces that a special course in diseases of the chest will be given at the Brompton Hospital in the week beginning on Monday July 30th. A four weeks course in urology begins on August 7th at the All Saints Hospital, and a fortnight's course in diseases of infants begins on August 13th at the Infants Hospital. From August 27th to September 8th a "refresher" course in medicine, surgery, and the specialties will take place at Queen Mary's Hospital, Stratford, occupying the whole of each day with the entire hospital open to post-graduates during the course. Copies of all syllabuses and information regarding the Fellowship's general course may be obtained on application to the secretary to the Fellowship, 1, Wimpole Street, W 1.

ACTING on behalf of his father, the Duke of Connaught, who was absent through indisposition, Prince Arthur of Connaught, on July 10th, laid the foundation stone of the New Bethlem Hospital, which will stand on a site occupying 330 acres of the Monks Orchard Estate at Shirley, Surrey, and will permit extensive developments not possible at the existing institution in Lambeth Road. Sir Charles Wakefield, president of the hospital, mentioned that the Bethlem Royal Hospital was founded for the treatment of mental disease many centuries ago. It is intended to erect detached buildings for patients and a separate science and treatment unit containing the pathological, bacteriological, psychological, dental, electrical, x-ray, and operating departments. A gift of £25,000 from the president will provide the "Sir Charles Wakefield Science and Treatment Departments" and the "Lady Wakefield Chapel". Lady Cooper has given £5,000 for the main recreation hall in memory of the late Sir E. E. Cooper. An appeal for £120,000 is being made to permit the opening of the new hospital free of debt, and it is pointed out that this is the only appeal made for the hospital within living memory.

THE annual report of the British Science Guild was presented to the general meeting of the guild on June 21st. The report deals with the activities of three committees, one is engaged in inquiring into "the position of the teaching of introductory science and nature study in elementary schools and central schools," a second is studying problems of reform in the patent laws while the third is concerned with the alleged failure, both in Government departments and in industry, to make adequate use of the knowledge and abilities of technical experts. It is stated that elementary science occupies a worse position to day in most primary schools than it did twenty years ago. Industry is said to be hampered by the insecurity of British patent laws, and by the existence of large numbers of "paper" patents while inventors are burdened with charges some of which are absorbed, as with the taxes on motorists into revenue for general expenditure. With regard to technical experts the British Science Guild

considers that a "root and branch" reorganization of Government departments is necessary in order that proper status may be given to professional officers in the public services. As an addendum to the report short accounts are given of some recent developments in the application of science to national life. They include an account of the production of vitamin D on a large scale by irradiation of ergosterol.

NEW public baths, erected at a cost of £37,000, were formally opened at Lytham St. Anne's, Lancashire, by Sir William Milligan on June 9th. In addition to a large swimming bath the scheme comprises an extensive suite of remedial baths, designed to permit the development of the Lancashire borough as a seaside spa. Various types of douches, shower and needle baths, mustard, sulphur, and pine baths, vapour baths, etc., in fresh water and sea water have been provided, and there are also facilities for radiant heat and artificial sunlight treatment. Sir William Milligan, at the opening ceremony, emphasized the value of the baths and the auxiliary establishments as a treatment centre, notably for rheumatism, and suggested that they had in the new institution an opportunity for a great anti-rheumatic ellipse. He pointed out that the outcome of the corporation's venture would depend alike on the support of the public and the co-operation of the medical profession.

THE second summer meeting of the British Pathologists Association, held in the pathological department of the Royal Infirmary, Chester, on June 30th, with Dr. W. H. Grace in the chair, was devoted to the discussion of the methods used in the examination of the blood. Dr. J. C. Greenfield demonstrated the malug and staining of blood films, the differential count of the white cells, enumeration of the red and white cells, the estimation of haemoglobin by the Hellige method, and the reticulocyte count. Dr. A. Reashaw described the examination of the blood for parasites and the presence of organisms, and Dr. S. C. Dyke dealt with the platelet count, the grouping and matching of bloods, and the determination in the blood of cholesterol, bilirubin, and faecal phephates. Dr. W. H. Grace discussed the estimation of the blood sugar by the Folin Wu method and Dr. A. G. Shorlits estimation by MacLean's method and the determination of the blood urea by Kennaway's method. Dr. A. T. Sladden described the estimation of the blood urea by a modification of MacLean's method and Dr. W. E. Carnegie Dickson the estimation of the serum calcium. The staff of the Chester Royal Infirmary entertained the members of the association at dinner in the evening.

MR. W. P. SYMES, of Messrs. H. K. Lewis and Co. Ltd., delivered a lecture, on July 6th, at Gordon Hall School of Pharmacy for Women, Gordon Square, W.C., on medical book-keeping and the duties of a dispenser book-keeper in general practice. The lecture was illustrated by demonstrations and was followed by questions and discussion and the principals of the school decided to add this subject to their syllabus.

ON his retirement from office as surgeon to the "S" Division of the Metropolitan Police, Dr. James Manghan was on July 4th, at Albany Street Police Station, presented with a portfolio from the officers and men of the division. In returning thanks Dr. Manghan recalled that his connexion with the division began in 1886, and referred to the various aspects of his work, remarking upon the satisfactory nature of his dealings with the superior officials of the force, and stating that the relations between the inspectors, sergeants, constables, and himself had always been most cordial. He concluded by saying that he was proud of his long association with the Metropolitan Police, and of the fact that the best years of his life had been spent in its service.

DR. ARTHUR WESTERMAN has been elected president of the Hentorian Society for the coming year, and Mr. W. E. Tanner and Dr. D. C. Norris honorary secretaries.

A CIVIL list pension of £100 has been granted to Mrs. Strangeways in recognition of the services rendered by her husband, the late Dr. T. S. P. Strangeways, to the cause of medical science.

THE Mental Hospitals Committee of the London County Council has had under consideration the question of revising the salaries of the three technical assistants to the director of the pathological laboratory at Maudsley Hospital. The committee has come to the conclusion that the basic salaries, which were fixed in 1919 and 1925 are not adequate. It is proposed that for the chief assistant to the pathologist (a professional man with scientific qualifications) the basic rate shall be £400 a year (instead of £350) rising by annual increments of £25 to £600 a year. With regard to the second and third assistants, these have had a minimum respectively of £250 and £120, rising by annual increments of £20 and £10, to a maximum of £350 and £150. It is now proposed to increase the maximum basic salaries of the

present holders to £400 and £250 respectively. The salaries mentioned are subject to temporary additions on the basis approved by the Council in 1920, so that the total remuneration at £600 will be £776, at £400, £547, and at £250, £361.

THE third ordinary general meeting of the Ross Institute and Hospital for Tropical Diseases was held on June 28th. The chairman, Sir Charles McLeod, in dealing with the annual report, commented on the cancer investigation of Dr. Shaw Macleuzie, which had been continued by an independent investigator from the electro-physical standpoint. The chairman called attention to the appeal for an endowment fund of £250,000, and also to the need of obtaining £30,000 for extending the laboratories and hospital wards. He emphasized the importance of creating a central industrial antihumoral advisory board, and mentioned that it would be presided over by Sir Malcolm Watson, who intended to visit some part of the tropics each year for a short period.

A MEDICAL practitioner, Dr. C. H. Vernon, of Boscombe, Bournemouth, won the *Daily Telegraph* Cup at Bisley on July 9th, being the only competitor to secure a "possible" among about a thousand who entered. Dr. Vernon last year won the King's prize. He served during the war, first as a combatant officer with the Hampshire Regiment, later holding commissions successively in the R.A.F. Medical Service and in the R.A.M.C., having graduated M.B., B.Ch. Camb. in 1918.

THE proceedings of the Conference on Rheumatic Diseases, held at Bath on May 10th and 11th have now been published in book form by the Hot Mineral Baths Committee of the Bath City Council at the price of 5s. (5s. 3d. by post).

IN conjunction with the Second International Congress of Radiology, to be held at the end of this month at Stockholm, will be an exhibition of apparatus in the Parliament House, including an exhibit of British-made x-ray apparatus contributed by the leading firms in this industry. This is the first occasion on which it has been possible for British manufacturers to show their products on a large scale at such a congress outside Great Britain.

LONDON was to intend to visit the first International Congress of Oto-Laryngology, at Copenhagen, from July 30th to August 1st, are asked to forward their subscriptions without delay. If this has not already been done. As previously announced the membership subscription is 30 Danish kroner and 15 Danish kroner for each lady accompanying a member. Payment may be made by an English cheque, which should be forwarded to the honorary treasurer, Dr. Jørgen Vøller, Vestre Boulevard 13, Copenhagen. On receipt of this a programme of the festivities and excursions will be dispatched from Denmark, together with a form of application for tickets. Hotel accommodation may be obtained through Bennett's Tourist Office, 45 Raadhuspladsen, Copenhagen V, and particulars and tickets for the journey from Messrs. Bennett, 66, Haymarket, S.W. 1, or Messrs. Thomas Cook and Son, Berkeley Street, W. 1.

THE issue of *Upsala Lakareforenings Förhandlingar* (Proceedings of the Upsala Medical Association) for June 16th is dedicated to Dr. Ulfrik Quensel, professor of pathology at Upsala, on the occasion of his 65th birthday. It contains nineteen papers, fourteen of which are in German, three in Swedish, and two in English (Plagino in Sweden in 1927, by G. Naeslund and R. Strömar, and the genesis of tumours, by W. Bosmans).

A POST-GRADUATE course on balneology and balneotherapy will be held at Carlsbad from September 23rd to 29th, when lectures and practical demonstrations will be given. Professor Hugh MacLean will speak on the treatment of gastric and duodenal ulceration with large doses of alkalies, and Dr. George Graham will deal with the cause of the diminution of sugar tolerance in diabetes. Special travel and excursion facilities are available to medical practitioners and their friends attending the course. Further information may be obtained from Dr. Edgar Ganz, Carlsbad, Czechoslovakia.

A CONFERENCE of German societies concerned with the treatment of juvenile neuropathies will be held at Hamburg from September 13th to the 15th. Dr. Villiger of Hamburg will read a paper on the education of the public in this connection. Dr. Frankwood Williams of New York will describe the efforts made in America to prevent juvenile delinquency, and there will be short contributions on various aspects of education and preventive treatment together with visits to local institutions. Further information may be obtained from Professor F. Siegmund-Schultze, Potsdamer Strasse 118 C, Berlin W. 35.

THE tenth Congress of the Association of French speaking Physicians of North America will be held at Quebec, under the presidency of Dr. Duguean, from September 5th to 7th, on the occasion of the twenty-fifth anniversary of the foundation of the association. The two principal subjects for discussion will be puerperal infection and diphtheria.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to *The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C. 1*.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C. 1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

THE TELEPHONE NUMBERS of the British Medical Association and the *British Medical Journal* are JULY 1928 9561 9562 9563 and 9564 (internal exchange four lines).

THE TELEGRAPHIC ADDRESSES are EDITOR of the *British Medical Journal*, *Antology, Westcent London*.

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westcent London*. MEDICAL SECRETARY, *Mediscern, Westcent London*.

The address of the Irish Office of the British Medical Association is 16 South Frederick Street, Dublin (telegrams *Facilis Dublin* telephone 62550 Dublin) and of the Scottish Office 7 Drumheugh Gardens, Edinburgh (telegrams *Asoci Edinburgh* telephone 24361 Edinburgh).

QUERIES AND ANSWERS

COINS

H. A. wishes to learn of any suggestions for the relief of cure of corns on toes and soles of feet. He has found the usual remedies quite useless in most cases, as also the advice to wear sensible shoes.

VAGINITIS AND PROCTITIS IN CHILDHOOD

M. S. asks for suggestions for the treatment of vaginitis and proctitis in a healthy child of 2 years and 3 months. Investigation has shown gonococci and intestinal worms absent.

INJECTION TREATMENT OF VARICOSE VEINS

DR. GERARD STOT (London) writes in answer to G. W. I. S.' query (*British Medical Journal* July 7th p. 39) to say that the injection treatment of varicose veins is practised at the Royal Waterloo Hospital on Tuesday afternoons.

INCOME TAX

Benefit of Free Board and Lodging

SOME weeks ago a correspondent explained that he was engaged as a temporary assistant on terms which gave him free board and lodging at the expense of his principal though not under the latter's roof. The local income tax authorities had claimed to include the value of that advantage in his assessment to tax, but, acting on our advice, he contested the validity of that view and has now informed us that the issue has been settled by agreement to his complete satisfaction. With the best will in the world taxing authorities scattered about the country must no doubt be occasionally guilty of error, but there is one feature of this case which induces the opinion that it may be typical of others where the official error persists, and that is that unlike other errors against the taxpayer's interest it is not inherently unreasonable. From the assistant's point of view he may well regard the provision of free board and lodging to the value of £4 a week as equivalent to that amount in terms of income and as taxable accordingly from the principal's point of view it may seem only right that an expense which he is entitled to treat in his accounts as remuneration of the assistant should rank as part of the latter's income. However reasonable that view may be it is not sound in law. In one of the leading cases it was laid down many years ago that an advantage or benefit accruing by virtue of employment is not taxable in the hands of the employee unless it is received in money or in a form capable of conversion into money. This clearly covers the case of the provision of board and lodging which a man can benefit from but cannot sell or otherwise convert into money. It is, however, advisable to bear in mind the distinction between such a case as the above and one where the contract of service provides a monetary salary coupled with a condition that part of it be expended in a particular way. If for instance our correspondent's agreement had provided that he should receive £50 a

month but should reside under Mrs. Bardoll's roof and pay her £15 a month for board and lodging, then he would have been liable to income tax on the full £30 per month. It is a point which prospective assistants or their principals might keep in view when entering into a service agreement.

Income Taxed before Receipt

"V V V" explains that in declaring his private income, he gave the amount for the year ending December 31st, 1927, and has now received a letter requesting detailed particulars for the year to April 5th 1928 for his own and his wife's taxed income.

It is not quite clear by whom the request is made, but assuming that it is made by the authorities dealing with super tax we fear that our correspondent must comply. Where income of that kind is concerned, April 5th is the correct for naming date—the choice of December 31st or any other date applies to professional earnings. The authorities have no special authority to ask from what source "V V V's" daughter obtained her £400 capital, but a refusal to inform them that it represents gifts received in childhood—and thereby to dissipate any erroneous idea they may have—for example, that it represents accumulated earnings from some unknown source—is perhaps unwise.

Sale of Practice

"A M B" expects to transfer his practice as from August 1st next. His past returns have been calculated on the basis of cash receipts for the calendar year.

The precise method of adjustment depends to some extent on the decision of the Board of Revenue, who have some statutory authority in the matter, and as the question is a new one, we have as yet no definite guidance. It seems, however, probable that our correspondent's liability for the four months to August 1st, 1928 will be regarded as determined by four sevenths of his earnings for the seven months to August 1st, 1928, those profits being calculated on the cash basis as regards receipts. As regards the year to April 5th 1928, it is similarly probable that the revised liability—if an occasion for revision is considered by the authorities to have arisen—will be based on (1) the remaining three sevenths plus (2) one twelfth of the year to December 31st, 1927. "A M B" might usefully approach his local inspector of taxes to ascertain his views as to the basis and method to be applied.

LETTERS, NOTES, ETC

TREATMENT OF A SWALLOWED FOREIGN BODY

DR A. F. DOYLE (Wirksworth) writes: The following case is, I think, worthy of record since it provides an alternative treatment in the case of a swallowed foreign body, a very common occurrence amongst children. The patient, my own child, a girl, aged 4, swallowed a large gold sleeve link, one end of which was sharply pointed, I was very anxious on account of the risk of perforation of the gut. As an alternative to the steady and inelastic diet usually recommended in such cases I administered normacol in 2-gramm doses eight hourly. The foreign body was passed in thirty-six hours, without the least difficulty or pain, embedded in the gelatinous mass of normacol. This vegetable product I may add owes its laxative action to the fact that it swells to an enormous size on coming in contact with water.

TREATMENT OF PHTHISIS: A SUGGESTION

DR J. M. THORNE (Bletchworth) writes to suggest that in early pulmonary tuberculosis treatment by fresh air, rest, and clothing might be associated with the performance of incisions over one or more ribs the wounds being prevented from healing at once by the insertion of gauze strips thus promoting the free flow of lymph and serum. He thinks that the effect of healing wounds as in Albee's bone-grafting procedure, may be an important factor in the treatment of tuberculous foci, the formation of serous fluid with its antileptic content helping to check the progress of tuberculous disease elsewhere in the body.

SEA SICKNESS

FLEET SURGEON V. E. HOME writes: Dr. Elliott's letter on sea sickness (June 23rd, p. 1089) reminds me of old times. I was first sent to sea in a big steady battleship in the Mediterranean and suffered little, and was best treated with highly spiced food (cayenne pepper) after gastric relief had been attained. In a yacht where not being on duty I could treat myself as I chose. I found the hypodermic injection of 1/4 grain morphine a comfort, tiding one over till tolerance was attained. Later in a small gunboat in bad weather off the coast of Nova Scotia, I was very miserable one afternoon and promised myself that nothing should take me from the wardroom on the upper deck. However a marine wanted a tooth extracted, and I had to go down to the stuffy stateroom, inwardly protesting. The marine lost his tooth. I lost my sea sickness, and it has never come back so badly since, not even in the same gunboat hammering against the sea of the north-east trade on passage from Jamaica to Trinidad. Yet on our seventh day out an artificer complained

he had had no food since starting half an ounce of Worcester sauce put him right, also many patients subsequently. The service treatment for sea sickness is work and a good treatment too. As I found it, Lord Linnmouth in 1793 took the French *Cleopatre* with the *Symphie*, whose newly ruled crew were mostly laundries—Cornish minors. It was noted that during the action they forgot their sea sickness, but that they relapsed when the fighting was finished.

NEWSPAPER MEDICINE.

MR. BASIL HUONIS D.S.O. I.R.C.S. (Bradford) writes: Is not it time we called a halt to certain articles relating to health and disease which are appearing almost daily in the public press? These effusions nearly always involve mention of this name and opinions of some physician or surgeon who may or may not be known to the general public. The *Daily Mail* of June 19th contains a leading article emphasizing the views of Sir William Arbuthnot Lane on the method adopted by the Chinese in coping with illness. To quote a few lines: "The system of calling in the doctor when a breakdown occurs with the possibility of all the heavy expenses of operations, nurses, and nursing homes is one which as Sir William says may cripple for years the financial position of those who are in moderate circumstances. The alternative system avoids much of this heavy expense, and is specially welcome to the medical profession. Were these the views of Sir Arbuthnot Lane when he was in his hey-day as an operating surgeon, or are they his views of more recent years, or are they merely the *Daily Mail's* views of his views? Does the last sentence imply that the alternative system would be more welcome to the general practitioner when the surgeon's interference could be dispensed with? This would be, of course, the ideal."

POSSIBILITIES OF ORAL INFECTION

MR. A. T. SAWDAY F.R.C.S. Ed. (Dorset) writes: We hear much of the effects produced by organisms which enter the body via the mouth. I wish to draw attention to two factors, both remediable, which are possibly of no little importance in the spread of disease. It is a lamentable and disgusting fact that 99 out of every 100 shop assistants put their fingers to their mouths before picking up wrapping paper, and indeed in many cases before handling articles of food. Considering the prevalence of oral sepsis this widespread habit cannot fail to infect food with streptococci and other organisms and is possibly a factor in the spread of tuberculosis. The handling of food in shops at all is entirely undesirable and could easily be obviated by the provision of suitable tongs for this purpose. Another means by which disease may be spread is the use of infected spoons and forks. These receive a very perfunctory cleansing, which would be considered entirely inadequate for a spatula or other instrument used in the mouth. They could easily be boiled and I look forward to the time when all respectable restaurants and houses hold will keep a sterilizer for this purpose. Nails with metal handles could be similarly treated, but as they do not (or should not) enter the mouth they are of less importance. The spread of syphilis by infected spoons and forks is a very real danger.

TREATMENT OF CANCER BY INJECTIONS OF PERITONEAL FLUID

DR SIDNEY PHILL (Melbourne Australia) writes: In your issue of February 4th (p. 204) appeared a letter by Dr. J. B. Tomblason describing two cases of inoperable cancer greatly benefited by injections of blood or peritoneal fluid subjected to this tungsten ray lamp. In the hope that others will try the method I find I record the following case. The patient, aged 52, was found at operation to have an inoperable carcinoma, involving almost the whole stomach. When I saw him he could just swallow a few teaspoonsful of liquid and retain only a very little. His weight was 12st 8½lb on March 22nd when he received his first injection, on April 24th it had fallen to 11st 4½lb after the second injection. He was feeling better and taking more food. He had a distinct feeling of well being and his complexion was becoming pink instead of the previous very earthy colour. On May 21st, when he had his fifth injection his weight was 11st 8½lb. He was eating two eggs and a plate of bread and butter for breakfast and vegetables for dinner, could take a pint bowl of bread and milk at a sitting, eat a banana, take a glass of claret and enjoy a cigarette. From being hardly able to crawl he can now walk about for the best part of the day without fatigue. He has gained 4½lb in the last month and has had six teeth extracted in that time, two at one sitting and four at the other, which in his previously weak condition would have affected him seriously. He is retaining all his food now, but about once a fortnight he brings up some bile. What is going to be the end it is impossible to say, but I will report later.

CORRIGENDUM

DR C. MERRIN EYTON asks as to a correction mistake which occurred in the typescript of his memorandum published on July 7th (p. 14). The title should have read: "A case of musculo-cutaneous nerve paralysis."

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 48, 49, 52, 53, and 54 of our advertisement columns and advertisements as to partnerships assistantships, and locum tenentes at pages 50 and 51.

A short summary of vacant posts notified in the advertisement column appears in the *Supplement* at page 20.

Observations

ON

NASOPHARYNGEAL EPIDEMICS
IN PUBLIC SCHOOLS *

BY

J ALISON GLOVER, OBE, MA, MDCANTON,
MRCP, DPH

Certain semi isolated communities, which are under strict control, seem to be designed for epidemiological study, and of these the public schools of England offer a unique field for observation. Few communities are more comparable and homogeneous in the age distribution, in the nationality, and in the nurture of the individuals comprising them. Yet, with the exception of the classical work of Clement Dukes, little systematic epidemiological work seems to have been carried out with this matchless material.

Surgeon Commander Dudley has, however, shown what can be done with somewhat similar material, and his two reports on the Royal Naval School at Greenwich, based largely upon the careful records of Surgeon Captain P. M. May, R.N., and published by the Medical Research Council, are, I think, even more important contributions to school epidemiology than Dr. Clement Dukes's studies at Rugby.

As early as 1905 Dukes showed that the public schools were suffering an increased number of infectious diseases, this was largely due to the greater care exercised at home and at preparatory schools in preventing infectious disease, and to the consequent greater proportion of boys who reached public schools unprotected by previous attack. There is, I think, a general impression that a further post-war increase has taken place. Other factors may be concerned in this post-war increase, such as (1) the greater prevalence of influenza since the epidemic of 1918, (2) the great increase in the number of boys sent to public schools since the war, causing overcrowding in classrooms and dormitories, and perhaps (3) the greater attention paid to what we may term (with Dr. Simey) "febricula."

I think all agree that most of the infectious diseases now prevalent in public schools are spread by nasopharyngeal or "droplet" infection, but I doubt if we all realize the enormous proportion of the total illness caused by direct nose-to-nose and mouth-to-mouth infection. The accompanying diagram shows the number of boys

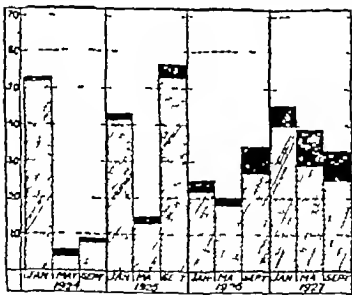


Chart showing the large proportion of admissions for diseases usually conveyed by nasopharyngeal droplet infection to total admissions for diseases of all kinds. Shaded portions—droplet infection; black portions—all other diseases and accidents.

all boys ill enough to go to bed being admitted direct to the sanatorium, this fact partly explains the somewhat high admission rates in this case.

Let us now divide the "droplet" infection into the several diseases. The figures are shown in Table I.

On the whole, the ordinary infectious diseases of child-

TABLE I.—"X" School "Droplet" Infections
Admissions per cent of the Total for each Term to the Sanatorium
School without House Sick Rooms

Year and term	Total admissions.	Due to other diseases and accidents (non-pharyngeal)	Total due to droplet infections	Droplet infections					
				Feverish cold P U O chill	Tonsillitis influenza throat post-nasal catarrh	Influenza	Measles	German measles.	Pneumonia.
1924									
1	53	1	52	1	4	18	21	—	5
2	6	2	4	1	3	—	—	—	—
3	9	1	8	8	1	—	—	—	—
1925									
1	43	1	42	1	1	40	—	—	—
2	15	2	13	8	5	—	—	—	—
3	57	4	53	7	1	—	—	44	1
1926									
1	25	4	21	8	2	—	10	—	1
2	0	1	19	3	15	—	—	—	1
3	34	7	27	8	3	1	—	—	—
1927									
1	46	7	39	1	1	34	—	—	3
2	39	10	29	5	23	—	—	—	1
3	33	8	25	7	13	—	—	—	—

hood occur less than would be anticipated, although measles comes twice in the four years, whilst German measles comes only once, diphtheria is absent, and mumps, chicken-pox, and scarlet fever are absent save for one or two sporadic cases. The absence of scarlet fever is remarkable in view of the fact that the tonsillitis at this school has been shown bacteriologically to be due mostly to infection by haemolytic streptococci, often of scarlatinal type.

Influenza, on the other hand, occurs in epidemic form in three out of four years in the Lent terms, and once as "gastro" influenza in a Christmas term. For comparison I will refer to a diagram from Dudley's statistics of the Royal Naval School, showing a somewhat similar epidemic prevalence of influenza, whilst there is a fair amount of tonsillitis, which was so prevalent at "X" (it must be noticed that tonsillitis has only been recorded from the summer term of 1916). There are several interesting differences: scarlet fever and diphtheria appear in epidemic form, but measles and chicken-pox are almost entirely absent (nothing under 1 per cent is shown) and German measles appears once, and then with an attack rate of only 5.5 per cent. This comparative absence of measles, German measles and chicken-pox may perhaps be explained by the fact that the Greenwich boys come from the public elementary day schools instead of from private boarding preparatory schools, and so probably have had most of these diseases before their entry at Greenwich, usually at the age of 12. The heading "feverish cold, chill, etc.," is apparently not recorded in the Greenwich statistics.

Dr. Dukes's Rugby statistics from 1871 to 1904 (*Health in Schools*, p. 467) have many points of interest, which include the absence of influenza before 1890, and even after that year the comparatively small size of the attack rates for this disease. Compared with Greenwich, the almost biennial visitation of measles, the frequent appearance of German measles, and the much greater prevalence of mumps, which all tend to offset the comparative absence of scarlet fever and the complete absence of diphtheria, are noticeable. The celebrated "fourth disease" appears in history in 1900.

Returning to the "X" statistics (Table I), large proportions of admissions are due to the following: (1) influenza (28 per cent), (2) feverish cold, chill, pyrexia, and bronchial catarrh (15 per cent), (3) tonsillitis 20 per cent of all admissions for the four years under review. The three added together and compared with Simey's published figures for "febricula" at Rugby (which term he uses to include all three), even after allowing for the absence of house sick rooms at "X" show an increase, due in part to a persistent infection with haemolytic streptococcus, which has been endemic at "X," but partly due, I think, to the three factors already suggested.

Some apparently regard it as almost impracticable to distinguish between epidemics of influenza and those of febrile colds, but we should try, though difficult often arises

Communicated on June 22nd 1928 to the Section of Epidemiology and State Medicine of the Royal Society of Medicine.

* Most of my information is confidential; the names of schools are given only when statistics are quoted from published work. I am thus unable to give the names of the many ladies and gentlemen to whom I am indebted for information but whose help I very gratefully thus acknowledge.

THE COMMON COLD

Dr Lempriere¹ states that colds and feverish catarrh account for 25 per cent of the admissions to the sanatorium—excluding epidemics of influenza. This agrees with the figures of the causes of absence for six public elementary schools in Sheffield, where 30 per cent of the attendances lost on account of illness were due to coughs, colds, bronchitis, etc. These figures covered a period of eight weeks in February and March, 1921, and showed that 80 per cent of the absence was due to illness, confirming the opinion that in public elementary schools roughly 10 per cent of school time is lost owing to illness. In Sheffield 10 per cent of the sick absence was due to zymotic diseases, 6.7 per cent to contagious diseases, and 30 per cent to coughs, colds, bronchitis, etc., while 3.8 per cent was due to sore throats. The period in question was not one of influenza prevalence in Sheffield.

Dr D. K. Brundage² has recently published a valuable paper analysing the sickness records of the Edison Company of Boston for the ten years ending December, 1924, and showing the comparative importance of the common cold and the other respiratory diseases in producing disability in adults.

These duration figures correspond fairly with figures in English public schools: the usual time in sanatorium for influenza cases being about ten days (1925, 10.35 days, 1926, 11.78 days, 1927, 9.36 days). Appended is a table of comparison between the Edison experience and that at "X."

Annual Experience per 100

	Edison Company Boston ten years ending Decem- ber 1924 all absences of one day or over due to sickness	X school four years ending December 1927 all admissions to sanatorium
Due to all diseases	104	95
Proportion due to re- spiratory diseases	54 per cent of all absences	68 per cent, or 83 per cent if measles and German measles be included
Days lost per absence for influenza	9.8	Approximately 10*

* Calculated from three years experience at X school.

INFLUENZA

We are often in doubt whether an epidemic of febrile catarrh is influenza or not, but, as a rule, when the real epidemic comes there is no doubt about it, the character of the epidemic is a better guide even than the clinical character of the case. The true influenza epidemic has an explosive character, which was early remarked upon. Sir Thomas Watson wrote, in 1833, "On April 3rd I saw the first two cases that I did see of the influenza, all London was smitten with it on that and the following day." A diagram was shown illustrating this explosive character in a school epidemic reported on by Dr Copeman.³ A similar explosive epidemic may be witnessed in a day school. In 1890, for example, half the boys of Chesterfield Grammar

School were attacked by influenza on the morning of Monday, January 27th.

High attack rates are very common, and in certain houses I have known the attack rate reach 95 per cent. There seems to be little or no correspondence between the height of the attack rate in an influenza epidemic and the prevalence of complications, such as pneumonia and otitis media. The pneumonia and otitis media are, in fact, secondary epidemics which may or may not occur. Thus, in 1890,⁴ on the training ship *Shaftesbury* 52 per cent of the boys were attacked with influenza in eight days, but no case of pneumonia occurred. In the following April (1891) there was another epidemic, only 25 per cent were attacked, but there were five cases of pneumonia. Dr Lempriere has said true influenza is beyond the control of the school medical officer, but that this ought not to apply to that most persistent endemic condition, pyrexia of unknown origin (P. U. O.).

We must now ask ourselves if there is any immunity to be obtained against influenza, does, for example, a previous attack, or the use of vaccine, imply immunity? In the great epidemics of 1918 and 1919 there seemed to be evidence that a previous attack did confer some immunity against one or more of the subsequent waves of infection. Thus, at King's College School, Cambridge,⁵ where 100 per cent of the boys were attacked by the epidemic in July, 1918, none were attacked in the epidemic of November, 1918, but 58 per cent were again attacked in March, 1919. A somewhat similar sequence occurred at Rugby.⁶ In the July epidemic of 1918, 37 per cent were attacked, in the November epidemic of the same year only 3 per cent, whilst in the March, 1919, 23 per cent were attacked, those who had the disease in the July, 1918, epidemic having practically the same attack rate as the school as a whole. These attack rates include only admissions to the sanatorium. Dr Simey,¹⁰ in 1922, considered that partial and temporary immunity is conferred by an attack of febrile catarrh against influenza, and by influenza against febrile catarrh. I am interested to know if he still holds this opinion, for in recent years it has seemed to me that no immunity is conferred by attack, but rather the reverse. In several epidemics recently there has been a tendency to a second attack only three or four weeks after the first, nearly 50 per cent of the boys in one house had definite second attacks in the same term in one epidemic which I investigated in February-March, 1925. Here is the experience of a preparatory school of fifty-eight boys. In the Christmas term of 1924, 52 per cent of the boys were attacked with influenza. In the Christmas holidays and the following Lent term twenty of those thirty who had been attacked in the Christmas term were again attacked by influenza, whilst of the twenty-eight who had escaped in the Christmas term fourteen, or 50 per cent, were attacked, so that the figures are against immunity being conferred by the first attack.

There is pretty general agreement that true epidemic influenza cannot be prevented by vaccines, but there is considerable difference of opinion as to whether the common or feverish cold, P. U. O., or febrile catarrh can be prevented,

TABLE II.—Influenza Attack Rates upon all Boys, Inoculated Boys, and Uninoculated Boys respectively

School Term and Year	All Boys				Inoculated Boys			Uninoculated Boys			Vaccines used and when given.
	No.	Per cent inocu- lated	No. attacked	Per cent attack rate	No.	No. attacked	Per cent attack rate	No.	No. attacked	Per cent attack rate	
Elou, Lent, 1927 [After Attlee]	1019	30	443	44	392	149	49	717	294	41	Various stock mostly in Christ- mas holidays
Halleybury, Lent 1927 [After Lempriere]	530	40	101	19	215	34	16	315	67	21	Parke Davis A.C. 95. Public School 120
X, Lent 1927	447	32	163	36	144	54	38	303	109	36	Various in Christmas holidays.
Y, Lent 1928	463	71	133	30	331	102	31	132	31	24	Special M of H in Nov 1927
Z, Lent 1928	380	55	44	12	212	27	13	168	17	10	Various in Christmas holidays
W, Lent 1927	383	91	72	19	347	62	18	36	10	28	Special M of H Vaccine given in November term 1927
Totals	322	48	956	30	1551	428	28	1671	528	32	

TABLE III—"X" School Bacteriological Findings

Year	No. of Swabs	Pfeiffer's Bacillus		Pneumococcus		Types I II III IV	Other
		Positive to	Carrier rate	Positive to	Carrier rate		
1920	19	6 (all serologically identical with 1 Lister strain)	32	11	58	Not determined	Meningococcus in 1
1925	43	20	46	27	63	1: 0 5 21	Meningococcus in 3 (8 per cent)
1926	52	25	48	24	46	0 0 2 22	Meningococcus absent haemolytic streptococcus in 1
1927	43	32 (27 very profuse of 72 per cent no indol formation)	73	28	65	1: 0 8 19*	Haemolytic para influenza bacilli in 2 haemolytic streptococcus absent meningococcus absent

* Of these 7, all titrated with monovalent serum prepared from strains isolated from cases of pneumonia 4 Pn 85 1 Pn 1 Pn 10 1 Pn 160 and the other 12 were not serologically identified.

† The two Type I pneumococcus were found in carriers who had not had pneumonia.

and whether the incidence of complications such as pneumonia and otitis media can be diminished.

As to the efficacy of vaccines in the prevention of influenza or febricula in public schools there is some little published evidence of a somewhat conflicting character. Dr Lempiere's¹¹ distinctly favourable observations at Haverbury, and Dr Attlee's,¹² at Lton, which are much less so. By the kindness of Dr Graham Forbes I have seen the summary of the evidence produced by a questionnaire sent out by the Medical Officers of Schools Association. In one or two epidemics, with the assistance of my colleagues Dr Griffith and Dr Scott, I have in two schools tried out special vaccines made from strains of organisms actually found at the schools in recent outbreaks. The evidence is conflicting and I think entirely inconclusive. One thing must, however, be remembered. The scales are weighted against vaccines by the fact that boys specially prone to influenza and colds are more likely to be vaccinated than boys who do not suffer from colds. In answering the questionnaire thirteen medical officers thought that vaccines did good and thirteen others considered them of little or no value. Strangely varying opinions were expressed. One medical officer, for example, says "Cases of catarrh are fewer than in previous years. I believe the inoculations have done much good." Whereas another says "No inoculations—only thirty-eight out of school, average four if the whole school had been inoculated low incidence would have been attributed to this. I do not consider prophylactic procedure justified by the figures." One observer considers that "vaccines are useless in the presence of chronic nasal trouble", whereas another observer states that he has "particularly noted good results from vaccines in adenoid cases." On the question of the prevention of complications, in one epidemic I had the opportunity of observing in the Lent term of 1927 a school of 450 boys among whom there were 163 cases of influenza (an attack rate of 36 per cent) and 15 cases of pneumonia, five (that is, all those which were typed) of which were due to Type I pneumococcus, whilst the attack rate of the inoculated (32 per cent of the total population had been inoculated with various stock vaccines) and of the uninoculated (68 per cent) was almost exactly the same. None of the boys, however, who developed pneumonia had been inoculated. In November, 1927, 71 per cent of the boys of this school were given a special vaccine* prepared in the Ministry's Pathological Laboratory, containing pneumococcus Types I and II, and although an outbreak of influenza occurred in the Lent term of 1928 with almost the same attack rate as in 1927 (36 per cent), no cases of pneumonia occurred. But the uninoculated 132 boys not only had a slightly lower attack rate for influenza (23 per cent) than the 319 inoculated boys, whose attack rate was 30 per cent (boys only inoculated once omitted), but they also, like the inoculated, had no cases of pneumonia. In another school in the same term, where 80 per cent of the total population had been vaccinated with a special vaccine of Pfeiffer's bacillus with pneumococcus Types I and II, prepared in the Ministry of

Health Laboratory from strains similar to those found in the previous year's epidemic, and administered in the previous November by the school medical officers, there was an almost complete absence of complications but that had been true also of two previous epidemics, in one of which stock vaccine had been used for 56 per cent of the total population, and also in much more severe previous epidemics of which we had no information as to the vaccinal condition. My own feeling with regard to vaccine against influenza and febricula is that the question is still entirely open, but if it is determined to recommend prophylactic inoculation against influenza, colds, and their sequelae, it is important that the course of vaccines should be given before the epidemic prevalence begins, preferably in November. This means that the injections should be given at school, and this requires a good deal of rearrangement of time tables, but my experience is that if the injections be left to the Christmas holidays they are as a rule deferred to the period of epidemic prevalence which usually begins about January 14th to 21st.

Bacteriological Findings

Drs Griffith and Scott have examined many nasopharyngeal and tonsillar swabs taken by me in school epidemics. At one school, "X," epidemics in four years were studied, the findings being set out in the following table.

Previous to the 1927 investigation a vaccine (Pfeiffer's bacillus with pneumococcus I and II) prepared at the request of the school authorities in the Ministry's Pathological Laboratory had been given in November, 1926—that is, before the epidemic season began—to 90 per cent of the boys.

It is interesting to note that at "X" in the Lent term, 1927, when some fifteen cases of pneumonia occurred in every class (five) in which the pneumococcus was typed, the type found was Type I. Type I is sometimes termed the "pneumococcus of youth."

PROPHYLAXIS OTHER THAN VACCINES AGAINST INFLUENZA

I am convinced that a more intensive prophylaxis against influenza and epidemic catarrh at the beginning of each Lent term (that is, during January and February) would well repay school authorities. Apart from the experience of most schools and all other experience, the Edison Company's charts, by Dr D. K. Brundage,¹³ show admirably the periods of maximum incidence in January and February, when it seems that our chief efforts should be made. I recommend a special letter to parents and a special form of certificate for the Lent term. I have not seen any health certificate that mentions influenza or feverish cold, and I suggest that the Lent term certificate might be printed on red paper to distinguish it, and should include a statement that the boy had not had a severe or feverish cold for a week prior to the day of return. I have seen three striking examples of the mischief that boys can do by returning to school prematurely after influenza. Here is one. One of two brothers contracted mild influenza at home in London on January 13th, 1925, the boy travelled by the ordinary school train on January 16th in a compartment with seven other boys, and had dinner in the dining car. The seven boys in his compartment (four

* This vaccine contained pneumococcus Type I 200 millions in 1 c.c.m. pneumococcus Type II, 100 millions. *Streptococcus haemolyticus* (Dochez) 60 millions. A form of tonsillitis due to infection with haemolytic streptococcus (Dochez) had been common in the November term of 1927. The following term tonsillitis recurred in epidemic form but Dochez's streptococcus was not identified, although several other strains of haemolytic streptococcus were.

belonging to his own house) and the boy who sat next to him in the dining car fell ill with influenza on the 18th or 19th. His brother, who may have been infected at home, became ill on January 17th. The boys of the house to which this boy belonged almost all suffered severely from influenza, the attack rate being 95 per cent, and many of the inmates had two attacks. The attack rate in this house was by far the highest of any house in the school.

Temperature Taking—I see no reason why the temperature of all boys should not be taken for the first three weeks of the Lent term, as is done in so many preparatory and girls' schools. Girls are certainly no less susceptible than boys, as is proved by evidence from conduction schools and from orphanages, etc., where boys and girls are under the same roof. Most of the evidence, including the Edison Company's experience before quoted, is, I think, that females are slightly more susceptible, yet the girls' schools appear to escape more lightly than the boys'. This is no doubt largely due to girls usually sleeping in cubicles, and that girls' schools are, as a rule, of more modern design than boys' schools, and partly to their being more under control than boys but it is also, I believe, very largely due to the practice of taking every girl's temperature every night and morning for the first three weeks of term and to the immediate isolation of any girl with a slight pyrexia. Why a scientific procedure like taking a temperature should be regarded as "coddling" or "fussing" I cannot say.

Isolation of Slight Pyrexia—The immediate isolation of any severe catarrh, or slight pyrexia, occurring within the first three weeks of term is of great importance.

Early School—I am strongly of opinion that there should be no work before breakfast during January, February, and probably March, though I should have no objection to a short sprint in the open air. Not only are boys' resistances, I believe, at a lower level before breakfast (admittedly a point difficult of demonstration), but the heating of the classrooms is usually at an even lower oblique—a point which can often be easily shown. I have seen classrooms which started the day at 36° F.

Nasal Douching and Sprays—Much previous experience with the meningococcus has rendered me sceptical as to whether good results follow the use of nasal douches or sprays. I have, however, met one schoolhouse in which their use appeared to be successful, and Dr O'Brien¹⁴ has expressed "a considerable amount of faith" in the power of an antiseptic oily spray to give a reasonable amount of protection. Gargling I regard as a harmless procedure in catarrhal conditions, and possibly useful in tonsillitis, but I should not recommend any form of nasal douche or spray as a routine measure for healthy boys, "nasal drill" is less objectionable, but I am not enamoured of it.

Baths—It seems probable that a proper skin reaction is one of our greatest defensive mechanisms against chill, and I strongly urge, with this end in view, that all hot baths or hot showers should be followed by cold showers. The Scotch douche (alternating hot and cold showers) might be well worth a trial as a prophylactic measure, especially for well-known susceptibles, and artificial sunlight might be worth trying for such boys as are known for their liability to colds.

Diet—It appears to me important that in the Lent term fresh fruit, particularly oranges, or fresh vegetables such as salads, watercress, etc., should be taken daily.

PREVENTION OF INFECTION

This is my main theme. Where does infection usually take place? There can be no doubt that by far the majority of infectious take place in the dormitories. I have investigated the possibility of infection in classrooms, dining halls, chapels, etc. In comparing class incidence in badly ventilated classrooms with that in better classrooms, I found that the attack rate in the poor classrooms was 38 per cent, in the good 32 per cent, but as the younger boys were, as a rule, in the poor classrooms, and the older classes in the better ones, the age distribution may have accounted for this difference, although it is not always the younger ages which suffer most heavily in influenza epidemics in schools.

In an epidemic which I investigated some years ago,

in a great public school, most of the infection apparently occurred in common rooms, which were used alike for meals, for preparation of work, and for the accommodation of convalescents from influenza, the windows of these rooms could be opened for only a few inches—conditions which not unmutually caused disastrous results, although the sleeping accommodation was admirable and on the cubicle system.

INFECTION IN SLEEPING QUARTERS

I am convinced that the main body of infection is conveyed in sleeping quarters. Where else do the infecting boy and the recipient of infection maintain close proximity for as long as the ten hours they spend in the dormitory? Again, the movement of air is less than during the day owing to the cessation of movement and the shut doors, and, unless the ventilation is really efficient, air pockets form (particularly in corners).

Many boys sleep open mouthed, the nasal filter is short-circuited, and the recipient receives the droplets of secretion containing the infection, particularly when sprayed by cough or sneeze through the open mouth. The way to minimize this infection is, of course, to keep the beds far apart with efficient cross-ventilation.

One of the things which have struck me in public and private boys' schools is the comparative crowding of beds which I have frequently encountered. The Royal Commission on Barracks which reported in 1861 insisted that there should be a distance of 3 feet between the edges of beds, 60 square feet floor space, and 600 cubic feet per bed.

The Board of Education in 1914, in issuing their Building Regulations for Secondary Schools,¹⁵ laid down the principle that there should be a space of at least 3 feet between beds, a floor area of not less than 65 square feet, and an air space of 700 cubic feet for each occupant, that ventilation must be adequate and that it is very desirable that a through current of air should be provided by arranging the windows on opposite sides of the room. Dr Dukes¹⁶ lays down the standard of 800 cubic feet. Nevertheless in my experience it is quite an exception to find 3 feet space between beds. I have found, for example, six beds in 27 feet of wall space, and thus in dormitories which were not cross-ventilated, and I have found dormitories ventilating into each other, and even into classrooms, dormitories with fifteen beds only 1 foot 4 inches between beds, with 52 square feet of floor space. In these crowded rooms direct bacteriological evidence of cross infection with haemolytic streptococcus was found, reminding one of the cross infection with meningococcus which one used to find in an overcrowded barrack room.

In the bed plan of a certain public school dormitory showing the grouping of cases of influenza (attack rate 50 per cent), it may be coincidence, but the beds are less than 2 feet 6 inches apart, ventilation is "end" and not "cross," and there is much "dead space." In a dormitory from another school the beds are 22 to 18 inches apart, the ventilation is poor, the total floor space only 48 square feet per bed, the effective floor space less. Eleven of the fifteen boys were swabbed, and five of the eleven were carrying haemolytic streptococcus, a carrier rate (non-contact) of 45 per cent. [Both of the plans were shown to the meeting.]

TONSILLITIS

I have investigated persistent epidemics of sore throat in three schools. In one the condition seemed due to non-haemolytic streptococci and there was a possible connexion with some sanitary defects, the infection at least cleared up immediately these conditions were rectified.

In the other two the infection was due to haemolytic streptococci. In one of these schools it was a long series of "dropping" cases of scarlet fever that caused attention to be drawn to the infection, in the other the tonsillitis was the feature of the cases which attracted attention, and there was only one sporadic case of scarlet fever, although many of the patients with tonsillitis carried strains of haemolytic streptococci which were serologically identified by Drs Griffith and Scott with strains obtained from cases of scarlet fever. In one term nearly all the cases examined carried a haemolytic streptococcus identical with a strain isolated in New York by Dochez, this strain is associated with scarlet fever, but not, so far as is known, with it in

epidemic form. It seemed possible at the school where the dropping cases of scarlet fever occurred that we were seeing a phenomenon ("the warning rise") rather similar to that seen in cerebro-spinal fever¹⁷ (and possibly in diphtheria)—that is to say that when the carrier rate (that is, the carrier epidemic) reaches a certain height (namely, 20 to 30 per cent) clinical cases may occur. The observations were, however, too fragmentary for this to be anything but a surmise.

In this school thorough "spacing out" of beds was carried out, together with improvement of the ventilation of the dormitories, and since then no more cases have occurred, six months having now elapsed.

This infection with haemolytic streptococci was in one or two instances, I think, definitely due to unsatisfactory conditions (overcrowding and poor ventilation) in sleeping quarters.

In connexion with tonsillitis the question of milk must be raised. I have only dealt with three samples of public school milk, and all were definitely dirty and bacteriologically bad. Other evidence seemed to show that the milk was not responsible for the tonsillitis, but, apart from this, I should not feel happy as a school medical officer unless either pasteurized or Grade A milk were in use. Pasteurization is best done on delivery at the school premises, as at Dartmouth.

I trust that medical officers of schools will forgive me if I suggest that there are great opportunities for interesting epidemiological study still unexplored in public schools. I suggest as examples

(a) The epidemiology and bacteriology of otitis media in relation to scarlet fever, measles, influenza, and febricula.

(b) Relative sickness rates of boys' and girls' schools, and of day and boarding schools.

(c) Relative incidence of droplet infections upon children whose tonsils have been enucleated and whose adenoids have been removed, compared with children who have not been operated upon.

The adoption or recommendation of some uniform system of medical records by the Medical Officers of Schools Association would be of great service. I hope that association will renew its activities, which have been so helpful to me in preparing this paper, and keep before its members their paramount duty of devoting as much time and thought to the preservation of health in schools as they do to the care and treatment of the sick pupils. I urge, too, that the modern boy or girl is an intelligent being, and should be treated as such, and encouraged to take an interest and pride in keeping fit. This can be attained without fussing or coddling; public opinion nowhere has greater influence than in schools, and it should be formed to regard the training of the body against infection as being as mainly on aim as its training to achieve athletic success or to endure fatigue.

SUMMARY

In the following summary of my points I advance them not as "conclusions," or as proved by my observations, but merely for convenience.

1 "Droplet" infections are responsible for at least 80 per cent of all sickness in our public schools. There is a well marked "danger period"—that is, the first two months of the Lent term.

2 It is probable that no immunity to influenza or febricula is conferred by previous attack, and evidence of the protective value of vaccines is inconclusive. There is, however, slight evidence that some protection may be afforded against complications, particularly pneumonia, the subject deserves more systematic study. Vaccines if given should be administered well before the beginning of the danger period, probably best in November.

3 Intensive prophylaxis during the first half of the Lent term would probably amply repay the trouble. It should include

(a) Special efforts to prevent boys returning to school after the Christmas holidays infected with influenza or febricula.

(b) Temperature-taking for three weeks.

(c) Immediate isolation of all pyrexias and catarrhs.

(d) No work before breakfast for at least the first six weeks of the term.

(e) All hot baths and showers taken during the day or after games to be followed by cold showers.

(f) Prevention of chill in watching matches, sports, etc.

(g) Increased provision for drying clothes, uniforms, and boots.

4 Infection mainly takes place in sleeping quarters, and proper spacing-out of beds and thorough "cross" ventilation in dormitories is of paramount importance. No school authority has done its duty to its pupils unless it has provided dormitory accommodation sufficient to allow of at least 3 ft clear space between the edges of beds and thorough and through ventilation. Until these essential wants are met the provision of properly sited, amply spaced, and "cross"-ventilated dormitories should take precedence of all building requirements.

5 Milk should be pasteurized.

[Dr Glover exhibited a large number of diagrams of these it has been possible to reproduce one only.]

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TREATMENT OF BURNS AND SCALDS BY TANNIC ACID*

BY

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BURNS and scalds are accidents of great importance in domestic and industrial life. They are often fatal, or inflict serious incapacity and deformity on those who survive. These serious consequences, together with the comparative frequency of the accidents, constitute a grave problem for the medical profession. The object of this paper is to give a very brief account of the more important studies which have been made in the subject, to review our present knowledge of it, and to inquire into the results of treatment. More especially the recently introduced tannic acid method of treatment is discussed and described, and the results in a series of personally observed cases are presented. For ease of description thermal injuries, either by scalding or by actual burning, will be included under the term "burns."

CLINICAL COURSE AND PATHOLOGY

A consideration of the clinical course and pathology of the condition is essential to a discussion of its treatment. It is customary to divide the clinical course into three stages, thus: (1) shock, (2) inflammation, (3) healing.

This classification is inadequate and misleading, and we prefer a division into four stages in the following way:

- I Shock ("initial or primary shock")
- II Acute toxæmia ("secondary or toxic shock")
- III Septic toxæmia
- IV Healing

Before proceeding to a consideration of these stages we shall refer briefly to the nature and causation of "shock." For a more complete account of the condition reference should be made to the numerous and exhaustive papers published by the Medical Research Committee.¹² The question has been reviewed by Cannon⁴ in relation to experimental traumatic shock, and the conclusion seems warranted that shock resulting from severe trauma, such as war wounds, is of two kinds—namely, "initial or primary shock" and "late or secondary shock," and these

* From the Surgical Clinics, Royal Hospital for Sick Children, Edinburgh, and the Clinic of Professor D. F. D. Wylie, Royal Infirmary, Edinburgh.

two conditions differ in causation, severity, and consequences. "Initial shock" is of nervous origin, is similar in nature to fainting or syncope, but longer in duration, and is due to a primary disturbance of the nervous vaso-motor mechanism. "Late shock," on the other hand, is due to the action of a toxic agent absorbed into the circulation from the site of injury. This toxin apparently is a product of protein disintegration at the site of injury. In a later section we shall show that the acute toxæmia ("secondary or toxic shock") which follows injury by burning is of similar origin. The term "shock" will be reserved for the condition of "initial shock." It appears more appropriate to designate the "late or toxic shock" as acute toxæmia, for it is essentially comparable in origin, pathology, and consequences with other acute toxic conditions.

STAGE I—Stage of Shock ("Initial or Primary Shock")

The main clinical features are prostration, subnormal temperature, pallor, low blood pressure with a small rapid pulse and cold skin. It arises immediately after the injury, and in the majority of cases is transient and slight in degree, and is of no serious significance. During the period 1913 to 1925 at the Royal Hospital for Sick Children, Edinburgh, 80 cases of burns terminated fatally. Of these, only 2 (2½ per cent) died during the stage of shock. In the case of burns the source of shock is probably widespread damage to the numerous nerve-endings in the skin.

STAGE II—Stage of Acute Toxæmia ("Secondary or Toxic Shock")

There is no doubt that this toxæmic phase is the real danger period in the clinical course, and is largely responsible for the high mortality of burns. It commences between six and twenty-four hours after injury, and in a large majority of fatal cases terminates in death within forty-eight hours from the time of injury. Of the 80 fatal cases previously mentioned 64 (80 per cent) died in the stage of acute toxæmia, and of these 50 (78 per cent) died within forty-eight hours from the time of infliction of the burn. Between the stages of shock and acute toxæmia there is usually an interval during which the patient looks well, even in cases of extensive lesions.

With the onset of toxæmia the temperature rises, often abruptly, and, more especially in children, it may attain remarkable heights—106° F. is by no means an uncommon level, and it may reach 110° F. shortly before death. The patient becomes restless, the expression is anxious, the pupils dilated, and the colour dusky or livid. Vomiting is a common feature of this as of other toxic states, and the vomitus is frequently "coffee ground" in character as a result of hæmorrhagic gastritis. The blood pressure is low, the pulse rapid and small, and the respiration rate increased. Death is usually preceded for a few hours by coma, convulsions, in our experience are rare.

It is obvious that since acute toxæmia is the most serious danger to life in injuries by burning a knowledge of its origin is of great significance.

Since Cumins¹ of Glasgow, in 1823, published reports of post-mortem examinations on a series of five fatal cases many theories have been propounded to account for the fatal issue. Such theories are now of historical interest only, the original references can be obtained from Bardeen's² admirable article.

Avdakoff,³ in 1876, was the first to suggest that a specific toxin entered the circulation after the injury. Since then evidence of a most conclusive nature has been forthcoming in support of his contention. We may cite as especially significant the work of Ajello and Panscandolo,⁴ who first practised experimentally a modification of "exsanguination-transfusion", that of Kijanzin,⁵ the parabiosis and other experiments of Vogt,⁶ the histo-pathological studies of Bardeen,⁷ McCrae,⁸ and Weiskotten,⁹ and the recent researches of Robertson and Boyd.¹⁰ These researches proved conclusively that a toxin appears in the circulating blood within a few hours of the infliction of the burn. The toxin is formed at the burned area, is absorbed into the

blood stream, and gives rise to the symptoms of acute toxæmia. The exact nature of the toxin has not yet been determined, but it is probably a product of protein disintegration occurring under the action of excessive heat,¹² and it is said to consist chemically of primary and secondary proteoses.¹³

Stages III and IV need not be discussed in this paper. In the collection of 80 fatal cases 12 (15 per cent) died during the third stage.

TREATMENT

The principles of treatment as indicated by the pathological condition in each stage will now be considered.

Stage I—In shock the main lines of treatment are to avoid undue exposure to cold and restore normal body temperature, to administer fluids, and to relieve pain. Pain is frequently severe, and for this drugs of the morphine group should be given to adults. The depressant effects of morphine or heroin in young children, however, must be borne in mind. Treatment of the injury by local measures is begun at the earliest possible opportunity, which is frequently during the first stage, and involves cleansing and dressing of the affected area. Experience has convinced us of the value of a light general anaesthetic when the areas are being cleansed.

Stage II—In this stage the primary indication of treatment is to prevent the absorption into the circulation of the toxin which is produced in the burned area. No antitoxin is available. To Davidson⁴ belongs the credit of showing that absorption of the toxin may best be prevented by inducing coagulation of the damaged tissue, thus rendering the toxin non-soluble. For this purpose he employed a local application of tannic acid and found that it minimized acute toxæmia or prevented it entirely.

Stage III—The treatment is that of a septic wound and need not be elaborated here. After primary tannic acid treatment, however, the management of this stage is considerably modified in these circumstances, since the application of wet dressings may be a source of danger.

Stage IV—The treatment in this stage is that of a healing sore.

PERSONAL OBSERVATIONS

Our series consists of 42 cases in children and 8 in adults, in which the principles of treatment outlined above were adhered to.

Details of Management

On admission the patient is put to bed at once. From the commencement of treatment the burned area is exposed to the air. No dressings are applied and the bedclothes are supported on a suitable "cage," inside which electric lamp bulbs are fitted. If shock is present, the foot of the bed is raised and artificial heat administered by means of the electric bulbs. Subcutaneous saline infusion is given if shock is severe. Morphine or heroin is prescribed for the relief of intense pain.

Cleansing—Having secured these arrangements, cleansing of the burned area is carried out immediately. Under a light gas and oxygen or other anaesthesia any blisters are opened and evacuated and all epithelium which is loose or raised by blistering must be completely removed, in order that the tannic acid may come into direct contact with the damaged tissue beneath. It is in this tissue that toxin formation and absorption occurs, and of it coagulation must be secured. The area is rapidly cleansed with ether, which exerts a drying and purifying effect and is specially useful if oily or greasy substances have been previously applied, for grease prevents effective contact of the watery solution of tannic acid.

Application of Tannic Acid—An aqueous solution of tannic acid (25 per cent in warm sterile water) is now applied. It must be freshly prepared for each application, since tannic acid in solution is rapidly changed to gallic acid, which has no power to precipitate or coagulate protein. The warm solution is sprayed on the affected areas from an ordinary nasal spray atomizer, and the parts are then dried by means of the electric lamp bulbs in the bed-cage. Spraying and drying are carried out at frequent intervals until all the burned area is covered by a thin

layer of brown coagulated tissue. In hospital practice we have found it most convenient to carry out the spraying at intervals of one hour, but, if practicable, as, for example, where a special nurse or attendant is available, the length of the interval may be considerably reduced. Coagulation may occur more rapidly in some areas than in others. So soon, therefore, as the desired result is observed in any part, that part should be protected by gauze during subsequent spraying. Application of tannic acid is stopped when a thin coagulum has formed, in order to avoid a too deep corrosive action of the acid. The risk of such an action is extremely slight when a weak solution is used, and can be entirely obviated by frequent observations of the area. The periphery of the burned area affected by a first degree lesion frequently shows a light chocolate brown after about eight applications. In the case of second and third degree areas a satisfactory coagulum is usually obtained after eight to twelve applications. Areas more deeply involved may require several further treatments.

Special Circumstances.—Special care is necessary in treating burns of the face. The eyes, the nostrils and the external auditory meatus must be protected during spraying by means of pledgets of moist wool, and in this region it is convenient to dispense with artificial drying. In any case if the temperature be above 101° F, drying the parts by artificial heat is both unnecessary and inadvisable. In some cases it is not practicable to use the spray method of application to the whole of the burned area, as, for example, when both front and back of the trunk are involved. We employ the method of the spray and free exposure for the more extensively affected area and the method of tannic compresses to the less extensively injured surface which cannot be simultaneously exposed. The details of the latter method are as follows.

Sterile gauze swabs very lightly wrung out of the warm solution of tannic acid are applied to the burned area and covered with a light layer of sterile wool and a bandage. The part is examined at the end of eight, twelve, sixteen and twenty hours from the time of the first application and when a light brown coagulum has formed the dressings are removed. To avoid the risk of pulling off the coagulum when removing the dressings they should first be moistened with fresh solution. Coagulation may not be uniform and it will be necessary in such a case to apply fresh compresses to areas which are not sufficiently tanned such areas being examined subsequently at intervals of four hours. When compresses are used the formation of coagulum is usually satisfactory in from twelve to twenty hours. The parts are then protected by a thin layer of dry gauze covered by cotton wool. We have also used this method of compresses in cases when the lesions were not extensive and the patients were not admitted to hospital.

Local Effects.—The immediate local effects of tannic acid treatment may now be enumerated. At an early stage of the process of coagulation frequently after the first application, pain is relieved and rapidly disappears. Application by the spray is painless and, indeed, can sometimes be carried out without rousing a sleeping patient. The entire affected area becomes covered by a thin brown, or brownish-black leathery coagulum, which when dry is perfectly insensitive and can be handled freely without fear of damage to it or of conveying infection to the underlying tissue. By virtue of its tough rigid character the coagulum acts as a splint and ensures the best conditions for the healing processes which are in progress beneath it.

Cure of Burned Area.—From the time when the coagulum has completely formed until it is removed no special local treatment is necessary. The bedclothes are supported and the areas exposed directly to the air. Several important points in the care of the area, however, require mention. As is well known, burns are, as a rule, more extensive than appears at first sight to be the case, and blisters frequently develop in areas which initially presented the characters of a first degree lesion. These are dealt with in the usual way and the raw areas sprayed with fresh solution. Occasionally fluid accumulates under the coagulum, and such a collection should be at once evacuated through an aperture cut for the purpose with scissors. Very little care is necessary in adults to protect the coagulum from trauma. As has been mentioned, parts subjected to pressure are covered with dry gauze, and in children recumbency is secured by tying down the limbs. If the perineum is

involved the bowels are regulated by rectal lavage, and nursing is facilitated if the patient lies in the prone position with a pillow supporting the pelvis. Soiling of the areas by urine may give rise to release of toxin and sepsis.

Treatment of sepsis in the third stage is the most difficult problem in the tannic acid method. Signs of a mild degree of infection, as evidenced by a discharge of a little sero-purulent fluid from the edges and some reddening of the surrounding skin, are occasionally seen at different parts of the area. In this case no active treatment is necessary, and the parts may with safety be left alone. Gross infection is fortunately a very rare occurrence, and is usually associated with the formation of sloughs in more deeply burned areas. In such a case a collection of pus may float up the coagulum, which can then be easily stripped off, or, should the coagulum continue to adhere firmly, it should be softened by vaseline and is then readily removed.

In no circumstances whatsoever should wet dressings be applied over the coagulum. We have observed on several occasions that, while the coagulum is present, and particularly during the first week, the presence of moisture, whether in an unopened blister or in dressings applied over the area, is associated with some signs and symptoms of acute toxæmia. Apparently in these circumstances the toxin, previously imprisoned in the coagulum, becomes released and gains access to the blood stream. Only when all coagulum has been removed may wet dressings be employed in the treatment of sepsis. On this point we have confirmed the observations of Davidson.

In the uncomplicated case the process of healing advances under cover of the protective coagulum layer. In superficial lesions, such as those of second and third degree, epithelium covers the raw surface completely in from eight to fourteen days. In deeper lesions the coagulated layer remains firmly attached to the subcutaneous tissue until loosened by the growth of granulations, usually between the eighth and sixteenth days. The coagulum should be left until it can be easily peeled off. Then an ointment dressing should be applied to any areas which are still uncovered by epithelium. The most satisfactory is sterile vaseline prepared in the following way. Squares of gauze or lint are laid out flat in a tin box along with a quantity of vaseline sufficient to ensure a generous impregnation of the material, and the whole sterilized in the autoclave. The squares can be removed one by one as required and applied directly to the area.

Lastly, the tannic acid method can be commenced as late as seventy-two hours from the time of injury, whether or not other methods of local treatment have been previously used. After this period the toxæmic danger has largely passed, and in the untreated case frank sepsis will be manifest. The lesion should then be treated as an infected wound.

GENERAL TREATMENT

Abundant fluids are given. Oral administration of fluids is, as a rule, sufficient, since toxæmia is mild or absent. In the severest cases, where a considerable quantity of toxin enters the blood stream before coagulation of the injured tissues has been effected, the procedure of "exsanguination-transfusion," as recommended by Robertson,¹⁴ is a valuable accessory method of dealing with the toxic state. A quantity of toxic blood is removed from the patient by bleeding, and is replaced by an equal, or slightly greater, quantity of fresh blood from a suitable donor. We found that removal of 120 to 150 c.c. in an infant and of 250 to 300 c.c. in a child of 3 years, was sufficient exsanguination. In an infant exsanguination and transfusion can easily be carried out by puncture of the superior longitudinal sinus through the fontanelle, preferably with a special needle, described by Dott.¹⁵

In young children, and especially in infants under the age of 1 year, it is of the utmost importance to estimate the temperature frequently. If toxæmia is severe the temperature may rise rapidly to 106° F or higher, and, as a consequence of this high temperature, death will shortly ensue unless active measures are taken to reduce it. Personal clothing and, if necessary, the bedclothes, should be lightened or removed, and tepid sponging may be required. Artificial cooling is a life-saving measure in

these cases. In our experience of the tannic acid treatment of burns hyperpyrexia has been almost unknown, largely because acute toxæmia is usually mild or absent, but also in part because the procedure of supporting the bedclothes on aengo and exposing the parts to the air assists natural regulation of the body temperature.

RESULTS OF THE INVESTIGATIONS

Our personal experience of the influence of the tannic acid treatment on the clinical course, the mortality, and prognosis in these cases will now be summarized.

Clinical Course

Stage I—It was almost invariably noted that application of tannic acid was followed rapidly by the relief of pain. From the first, therefore, this form of treatment promotes analgesia, and is associated with no discomfort whatsoever.

Stage II—The action of tannic acid in preventing or minimizing the absorption of toxic products from the burned area has been amply proved in this series. Of 50 cases only one died in the stage of acute toxæmia, and this unfortunate result was probably due as much to severe prolonged shock as to toxæmia *per se*. The incidence of acute toxæmia in cases treated by tannic acid before the onset of this stage may be shown in tabular form.

Treated before Onset of Stage II—40 Cases

	No. of Cases	Average Surface Involvement
No toxæmia ..	20	11 per cent
Mild toxæmia ..	16	12 " "
Moderately severe toxæmia ..	1	27 " "
Dangerous toxæmia ...	2	40 " "
Fatal toxæmia ..	1	27 " "

In the patient suffering from moderately severe toxæmia the burns were very extensive and coagulation proved slow. The general condition, however, gave rise to no anxiety. Dangerous toxæmia was the result of special circumstances. In one case the lesions involved 60 per cent of the total surface of the body. The other was a case, probably unsuited to the tannic acid method of treatment, in which the tissues of one limb had been broiled by slow heat while the patient was unconscious from carbon dioxide poisoning. The case of fatal toxæmia has already been mentioned. In 8 cases treatment was commenced during the toxic phase, and in all the symptoms and signs disappeared rapidly when coagulation of the injured tissues was effected. When it is recalled that 80 per cent of deaths from burns occurred in this stage with previous methods of treatment the significance and importance of these results will be appreciated.

Stage III—The incidence of sepsis in cases treated by tannic acid is shown in tabulated form.

Patients treated by Tannic Acid before onset of Sepsis—48 Cases

	No. of Cases.
No sepsis	32
Mild sepsis	12
Moderate degree of sepsis	2
Severe and fatal sepsis	2

The incidence of sepsis increases with the depth of the lesion, the presence of fluid, especially in blisters, which appear at the edges in the first few days, and the number of hours between the time of injury and commencement of treatment. In one or more of these factors was found the explanation of sepsis of mild or moderate degree. Severe sepsis was due to special circumstances, and occurred in the same cases in which severe acute toxæmia was observed. In both death resulted from sepsis.

Stage IV—The protection afforded to the growing epithelium and the splint-like action of the coagulum, as well as the low incidence of sepsis, have been important factors in minimizing scar tissue formation and preventing contractures. In only one case has skin grafting been necessary.

Mortality and Prognosis

The total number of deaths in the series was 7, of which only 4 were directly attributable to the injury. The remaining 3 deaths were in children, of whom 2 succumbed to virulent acute enteritis during epidemic periods and 1 to broncho pneumonia following whooping-cough. The death rate was, therefore, 8 per cent. Three children and one adult were

victims. Of the children, one died from severe shock, one from acute toxæmia after prolonged shock, and one from sepsis and exhaustion. Death in the adult occurred in the fifth week from sepsis.

It is obvious that a prognosis based on the extent of the area affected, relative to the total surface of the body, is very considerably influenced by the use of the tannic acid method of treatment. Observations by Fraser⁴ and Klauder¹⁰ indicated that in children the prognosis was bad when 11 or 12 per cent of the entire surface of the body was involved. In this series of 42 cases in children, 20 suffered from lesions involving 12 per cent or more of the total body surface, and of these 17 recovered. Moreover, in the great majority the clinical course was marked, not as in the past by severe and prolonged illness, suffering, and distress, but by an appearance of comfort, health, and well being from the commencement of the treatment.

CONCLUSIONS

1 Fifty cases of burns have been treated by tannic acid.
2 It has been shown that this method of treatment promotes rapid analgesia, there is complete absence of pain and discomfort while the coagulum is present, and during this time there is no necessity for dressing.

3 In many cases tannic acid prevents acute toxæmia and invariably lessens the severity of this phase when it develops. The prognosis as to life, especially in children injured by extensive burns, is thus greatly improved.

4 Sepsis is usually avoided in superficial lesions treated by the tannic acid method, and when sepsis occurs in deeper lesions it does so late in the course of the case and is of a mild degree.

5 Scarring is probably less marked than in other forms of local treatment on account of the protection afforded to the growing epithelium, the diminution of sepsis, and, hence, the minimization of granulation tissue which is the precursor of scar.

6 The death rate from burns in this series was 8 per cent, the figure compares very favourably with any which have been quoted from the results of treatment by other methods.

7 A prognosis based on the extent of the injury is considerably influenced by the tannic acid treatment. The outlook in children is not necessarily grave even if 40 per cent of the entire surface of the body is affected.

8 In view of the success with which this treatment has been attended we would recommend that its use be extended.

Tannic acid should form part of the armamentarium of the country practitioner.

In mines, factories, etc., it should find a place in the first-aid equipment, and its application by the compress method could be included in first-aid training.

Thus valuable time could be saved during transport of patients to hospital and the maximum benefits be derived from its life-saving properties.

Tannic acid can be conveniently kept in powder form, made up in packets containing 110 grains. One such packet dissolved in half a pint of water gives a 2.5 per cent solution.

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SICKNESS ABSENTEEISM

A PRELIMINARY STUDY

BY

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SICKNESS records in industry are becoming of increasing interest. Firms having a well-staffed and well-equipped medical department are naturally desirous of knowing the results of its operation, and it is disconcerting to some to find that the expense of the medical branch increases year by year, and *pari passu* the sickness absenteeism, while with others the reverse happens. Explanations vary, it may be that as the medical work becomes more effective, people are discovered who need treatment, but who in the absence of such a department would carry on until overcome by some serious disease,* or the other hand, workers inclined to sickness may take advantage of an inexperienced or overcautious medical officer.

The difficulties of obtaining adequate standards of comparison and, even when records are available, of interpreting the results have been discussed in a report to the Industrial Fatigue Research Board.

This paper presents the results of a preliminary study of the sickness records of a few firms. We have not attempted to deal with the data available to the various approved societies, we have studied particular firms in order to bring into relief individual problems masked in such data. The firms in question all had medical and welfare departments, and employed large numbers of men and women of the same age groups some were predominantly clerical, while others, besides clerical staffs, included factory workers, maintenance staffs, selling staffs etc. The figure used for comparative purposes was the average number of days lost through sickness per year per 100 workers. This is crude, but useful practically.

A study on this basis of about ten firms revealed some striking differences and suggested some serious problems. The range proved to be unexpectedly wide even within the narrow limits of this survey, and varied from two days per worker per annum in one firm to eighteen days in another. There is also a tendency for the remainder to cluster round those two extremes rather than to form a series. This phenomenon may be due to the limitation of the sample, we have no decisive evidence as yet.

In the case of three firms situated in different towns, each with at least four departments doing different classes of work, data were available for working out the monthly variations. Each department with two exceptions, averaged more than 500 workers. While the actual amount of sickness varied from firm to firm, and from department to department within the same firm, the seasonal variations were of the same type throughout. From about the beginning of March to the end of August, with slight individual variations, there is a gradual and significant decrease in the sickness, from August onwards there is a gradual increase. This variation is true of clerical workers, shop assistants, factory workers, workroom staffs, and general staffs—that is, engineers, transport workers, cleaners etc. In the case of those firms where medical diagnoses are available the increase is largely accounted for by influenza and allied disorders, the other ailments being fairly distributed throughout the year.

Comparing different departments within the same firm we find significant differences. In two large stores in different towns the workroom staff has less sickness than either the clerical or the selling staff. This is in line with the very low sickness rates in some factories.

Although as yet we cannot account for these differences, the following points are worthy of consideration.

1 It is frequently asserted, (a) that the factory and workroom make greater demands on the physical health

of the worker while the office demands more intelligence, so that the physically strong children go to the factory and the less robust to clerical work, and (b) that the clerical worker is more intelligent. This assertion, though decidedly popular, distorts many facts. Much factory and workroom work is quite light and physically unexacting and requires for its successful performance quite as much intelligence as do many forms of routine clerical work. Selection does however, take place in some schools in so far as the children who are better at examinations are often advised to take up clerical work, and in some factories we have interviewed workers who say they would have taken up clerical work had they been able to pass examinations. If it were true that those who could pass examinations were mentally superior and physically inferior to those who could not, then it might be that the factory and workroom selected the physically as opposed to the mentally superior or rather that the range of choice was affected by the absence of the brighter children who had gone to clerical work. The degree to which this selection is operating cannot be determined. Experience of workers in modern factories and in offices indicates that the difference in social class, education and intelligence is less than is commonly supposed. The clerical occupations it is true, may be attracting those who wish to be "genteel" and the mental conflict involved may add to the stress of life and play its part in determining sickness.

2 There may be greater satisfaction to the worker who is actually producing something or organizing its production, than to the clerk who records the results of the work of others. There is a considerable difference in experience between actually making 20 as against 200 articles, and recording in a column 20 or 200—a difference of time muscular activity, emotional excitement, etc. Certainly, so far as we have been able to get evidence the clerical worker tends as life goes on to become more dissatisfied with his work than does the producer. Some types are more likely than others to be thus affected.

3 With the shop assistant, as compared with the clerical and workroom worker, there enters another factor. Unlike the others, he is always in contact with an incalculable variable—namely some other person. Like the telegraphists and telephonists (both of whom have a high sickness rate) he is always adjusting to some other person. Even machines have moods, and raw material is not always up to standard but there is a limit to the possibilities of variation—a limit easily learnt by the machinist. The salesman however, has to be constantly adjusting to an almost limitless range of variation in his customers. This adjustment is a source of interest to some people, but certain types may find in it considerable strain which may find its expression in sickness.* The man or woman who reacts emotionally to the reactions of a customer, or who feels a sense of guilt if he fails to please or who worries at night over the work of the day, is more likely to break down as a shop assistant than as a workroom worker.

4 The borderline between sickness and health is a narrow one, and no observer can fail to see mental factors operating as well as physical. In one department of a large establishment were two rooms containing an equal number of workers, selected by the same tests and doing the same work. The head of one room was competent and mentally well balanced, the head of the other was nervous and difficult. Towards the end of a week during a mild influenza epidemic about 10 per cent of the workers of the one room were away and over 80 per cent of the other. It is true it might have been a chance occurrence, but in the light of the known effect of the particular persons in charge one may at least consider whether mental dissatisfaction had not played a part in determining the borderline people.

Types of authorities who are irritable, difficult, or somewhat overwhelming are not a negligible factor in determining absenteeism, particularly where the conditions of work involve practical security of tenure.

* Although this depends upon the assumption not yet established that attention devoted to trivial illness in adults does actually reduce the incidence of serious disease.

† The workroom staff is occupied in a wide range of activities comprising all branches of the sewing trades some engineering cookery etc.

* The selling staff might be supposed to be more in contact with infection than the workroom staff. When, however, it is considered that a worker in a factory or workroom may be in contact with hundreds of others the apparent difference is not so real. Nor is the proportion of infectious disease higher in the selling staff.

No one wants to keep a sick person at work, but prevention of sickness by any means available is a good thing. A "breakdown" may conceivably bear some relation to being "fed-up."

NATURE OF THE SICKNESS

So far we have considered the amount of sickness in some cases it has been possible for us to compare the medical diagnoses. Such diagnoses would in all cases be made by a large number of different panel doctors in different neighbourhoods, so that no one doctor's finds of nomenclature can be represented. We have only considered the diagnoses for people on long sick leave—that is, over thirty days. These show extraordinary diversity, not only in the gross amount of illness, but in its nature, as indicated by its diagnostic classification. Here are the details of cases involving long sick leave during one year in two firms.

Firm—F C		Firm—H W	
Days Lost	Diagnosis	Days Lost	Diagnosis
A 222	Sarcoma of ilium	A 278	Dyspnea and nervous debility
B 126	Motor accident	B 243	Pyrexia hydrocephalus
C 168	Pulmonary tuberculosis	C 181	Cough, high blood pressure, bronchial catarrh
D 98	Renal calculus operation	D 159	Influenza, influenza debility, nervous debility, nervous exhaustion
E 90	Pulmonary tuberculosis	E 156	Influenza and pleurisy
F 72	Appendicitis operation	F 140	Rhinitis
G 48	Cold, abscess of thigh	G 124	Nervous debility
H 43	Duodenal ulcer operation	H 123	Nervous breakdown
I 42	Influenza	I 109	Cardiac and nervous overstrain
J 38	Motor accident	J 105	General debility
K 33	Appendicitis operation	K 94	Debility
L 30	Influenza	L 92	Debility after appendicitis, influenza, and lambago

Average days sick leave per head per annum for men and women = 3.6

Average days sick leave per head per annum = 7.7 for men and 14 for women

It is clear that there is considerable difference between the two firms, though both do the same kind of work, and both employ numbers of men and women. H W is remarkable for the number of diagnoses of the type called nervous breakdown, whereas that type is absent in F C. With regard to these two firms we are able to throw some light on the difference.

In the course of an investigation into telegraphists' cramp² we had occasion to inquire into the type of person who got cramp, and were able to show that a majority of cramp subjects were of a psychoneurotic or "nervy" temperament—that is to say, that fear in some form played an undue part in their mental make-up. Continuing the problem of the incidence of the psychoneurotic temperament in the ordinary population, we have investigated sample groups of workers in several firms, among which are F C and H W. F C is remarkable in having a higher percentage of people free from psychoneurotic symptoms, and those with such symptoms had them to a lesser degree than any other group. This is correlated with the absence of psychoneurotic illness. Circumstances peculiar to the firm directed the attention of the medical staff to the importance of excluding the temperamentally as well as the physically unfit, and their success in that direction is verified by the results. A study of the medical diagnoses of H W showed that at least 51 per cent of the long sick leave was psychoneurotic in character. F C had also a large percentage of employees—84 per cent—who said they were interested in, and satisfied with, their jobs. H W had only 60 per cent who were satisfied.

So far we have not investigated any shop assistants, so we do not know to what extent, if at all, their relatively high sickness rates are due to the presence of psychoneurotics or to the nature of the work. It is

to be noted that although the variation within these few firms is great, both as to quantity and quality of the illness, yet all have good material conditions.

There are many problems in connection with this subject, some of which are in the process of investigation.

1. What part is played in the mind of the doctor as well as of the patient by the knowledge that there is practical security of tenure? There seems to be a tendency in such a case for a lengthier convalescence than where the position is risky, and that is not always beneficial.

2. What conditions affect the so-called nervous disorders? What occupations are most suitable for a "nervous" person, or will he break down in any occupation whatsoever?

3. In firms where there is a yearly increase in sickness, why should that increase be in disorders of a psychoneurotic type and not in those of an organic nature?

4. In determining the incidence of disease, what part is played by the knowledge that "compensation" may be obtained? Where this factor has resulted in an increased rate, what type of person has been affected? What is the effect of allowing full payment for a fixed number of days?

5. Does the size of the firm make any difference? In a small firm a worker often feels more important, and knows that his work falls on someone else in the case of absence, he therefore may hesitate to stop away for trivial reasons.

6. Do people who do not stay away for trivial illnesses actually develop more serious illness than those who do?

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FULMINATING DYSENTERY IN A CHILD, CAUSED BY B. DYSENTERIAE SONNE

BY

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SINCE Sonne (1915) first isolated and described the organism now generally associated with his name as a frequent cause of dysentery in Copenhagen, it has been very widely recognized in other countries. Thus its occurrence has been reported by d'Herelle, Franco (1916), Ohsell, Sweden (1917), Thjotta, Norway (1919), Mita, Japan (1921), Patterson and Williams, Australia (1922), South, Scotland (1924 and 1926), Channon, England (1926), and Nabarro, England (1927).

In several of the reports it is specifically stated that the disease commonly produced by the bacillus is of mild character. Thjotta states that the organism would be more frequently found but for the fact that the only symptoms are those of a mild diarrhoea which does not require medical attention. Fraser, Kinloch, and Smith (1926), in reporting 33 such patients in Aberdeen, none of whom died, state that while in exceptional cases the symptoms are of urgent description, in the "vast majority" of cases the disease is relatively mild compared with Flexner dysentery. The present case is therefore exceptional in regard to the severity of the symptoms and the rapidity with which death was brought about.

The patient, E. B., aged 10, was a strong and apparently robust schoolboy. He went to school as usual on the morning of September 8th, 1926, and at 10.30 a.m. vomited. He was sent home, and at 2 p.m. severe and frequent diarrhoea began, persisting until the evening, when the child appeared so ill that at 10 p.m. he was taken to the Royal Liverpool Children's Hospital. Death occurred at 3 a.m., September 9th—that is, sixteen and a half hours after the onset of the first symptoms.

On admission to the hospital the child was unconscious and dehydrated. Temperature 105° F., pulse 150. No stools were passed while in the hospital.

Necropsy, September 9th, 2 p.m. (eleven hours after death). The body was that of a well-grown boy of 10, but showing marked dehydration. The large intestine and lower part of the ileum were intensely congested, and contained reddish fluid and mucus. The mesenteric glands in the ileo-caecal angle were soft and red, and the Peyer's patches in the terminal part of the ileum were slightly swollen and red. The proximal part of the small bowel was practically unaffected. There was no ulceration in any part of the intestine. The thymus and other lymphoid tissues were normal for the age of the child.

Microscopically the intestine showed nothing beyond intense congestion and catarrh. Death was therefore due to an intense intoxication, there being no time for structural changes to be produced.

Cultures from the contents of the large intestine and from the ileo-caecal lymphatic glands yielded abundant and almost pure growths of the Sonne bacillus, but cultures from the contents of the ileum, spleen and heart blood were negative.

The bacillus had the following characters. On the MacConkey plate it formed rather large, opaque, rounded colonies, which at first remained colourless. Subcultures into the fluid sugar media gave the results tabulated below.

Lactose	Acid on 6th day
Glucose	Acid in 24 hours
Mannite	Acid in 24 hours
Maltose	Acid in 72 hours
Saccharose	Unchanged
Gelatin	No liquefaction
Indol	Negative
Motility	Negative

It was not agglutinated by Shiga, Flexner, typhoid, and paratyphoid antisera, but it was strongly agglutinated in the first subculture by a Sonne antiserum obtained by the kindness of Professor Cruickshank of Aberdeen. Later, at the request of Dr A. D. Gardner of the Standards Laboratory, Oxford, the strain was sent to him and its serological identity independently confirmed.

There are two difficulties in connexion with this organism which probably account for its infrequent recognition in the past. When first isolated the majority of the strains ferment lactose very late—six to ten days—and are therefore regarded as non-lactose fermenters. As they are not agglutinated by the usual standard antisera, as detailed above, they have been frequently regarded as "inagglutinable Flexner" strains. On the other hand, as pointed out by Thjotta, the strain may ferment lactose in two or three days, and may therefore not be distinguished from colon bacilli growing on the same plate. Final proof can only be obtained by serological tests, and fortunately the group specificity is very high.

Inquiries entirely failed to elicit the source of the infection. No further case occurred in the child's family or apparently in the school.

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LIMITATIONS OF THE AGGLUTINATION REACTION IN THE DIAGNOSIS OF BACILLARY DYSENTERY

BY

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A RECENT outbreak involving 120 cases afforded an opportunity of further investigating the reliability of the usual routine agglutination tests in the diagnosis of bacillary dysentery. Standardized cultures and the technique recommended by Professor Dreyer were employed for estimating the agglutinin in the absorption tests; the procedures detailed in the Medical Research Council Special Report Series No. 51 were followed, and each absorption experiment was controlled by comparison with known dysentery strains. Blood samples were examined from 47 affected individuals, of which 19 were positive to the Flexner group and 28 were negative.

Ten cases, positive later, were negative at the first examination. The duration of disease at the first and second tests in these ten cases was as illustrated in the following table.

Table showing Duration of Disease at First and Second Tests in Ten Cases of Bacillary Dysentery

At Time of Negative Reaction		At Time of Positive Reaction	
Duration of Disease	No. of Cases	Duration of Disease	No. of Cases
3 days	1	5 days	1
8 "	3	16 "	2
11 "	1	30 "	1
12 "	1	32 "	1
15 "	2	33 "	1
16 "	1	34 "	1
17 "	1	38 "	2
		39 "	1

Predominant agglutinins for Flexner's bacillus Type V were present in the ten specimens, and ranged from 4 to 114 units per cubic centimetre of serum, five of them which showed 23 units or over were from patients who had been ill for thirty days or longer. One case of thirty-eight days' duration showed only 4 units, and the remainder reacted in the neighbourhood of 11 units. Agglutinins were also present for Type W, but to a less degree in 7 of these cases. Two of the sera showing 114 units to Type V contained 65 units to Type W. Of the three samples negative to Type W one showed 4 units and two 11 to Type V. Agglutinins to Type Y were present in all ten, and ranged from 4.4 to 8.8 units. Completely negative results were obtained with Sonne cultures and with Types X and Z. Absorption experiments pointed to a Type V infection, the reactions to the other types being attributed to the phenomenon of coagglutination. This diagnosis was supported by the isolation of Flexner's bacillus Type V from some of the cases in the same outbreak.

As the investigation proceeded it was noticed that all the specimens did not react in a similar manner to the first batch, and although a Type V culture was still agglutinated in the highest dilution, on translating the results into agglutinin units it was found that some of the specimens contained more agglutinins to Type W than to Type V, the suspension factor for the V culture was 11, while that for the W culture was only 1.9.

A Flexner bacillus was now isolated from the faeces of one of the cases, which proved on absorption to be Type W and not Type V. This point was verified by immunization tests. It was agglutinated by several of the positive sera, whether from the Type V or Type W cases, but without marked predilection, except that the serum of the patient from which it was recovered agglutinated it up to 1 in 5,000. This serum presented a peculiar anomaly—showing more agglutinin units to Type V than to Type W in the routine test, but absorption tests conducted on it with known V and W cultures were inconclusive. There was insufficient serum to repeat the investigation, and, owing to circumstances over which there was no control, a month elapsed before another specimen could be obtained. By that time the agglutinins had greatly diminished, and those to Type W were principal and predominant. This isolated bacillus only agglutinated the three stock standard antisera V, W, and Y up to a dilution of 1 in 125, but all the agglutinins were removed from the W antiserum by absorption with it, while the V and Y antisera were but slightly affected.

An important fallacy in the routine test was discernible in some of the early and late cases in which the agglutinins were not present in high amount. For instance, an established Type W infection reacted in late convalescence to Type V 1 in 25 and 1 in 50, and was negative to Type W in these dilutions, but reacted to it in lower dilutions. This effect was due to the great difference in the agglutinability of the respective cultures. The discrepancies which may arise when using dilutions of serum below 1 in 25 are recognized, but the example is tentatively put forward to illustrate what may happen when working with cultures possessing widely different suspension factors.

Taking the total 19 positives, 10 worked out as a Type V infection, and 2 were established as due to Type W. There were probably other cases of Type W among the 7 remaining positives and the 28 negatives, but owing to difficulties in procuring repeat specimens, and the fact that the Type W infection was not diagnosed until late in the

epidemic, further investigations in this direction were hampered. The 7 remaining serums, though positive for the Flexner group, were equivocal as to type by ordinary agglutination methods, and the amounts of the serums did not permit of absorption tests.

In four instances bacilli showing the morphological and cultural characteristics of the dysentery group, but not agglutinating with any of the stock antisera except the patients', were isolated. One of these organisms was also well agglutinated by another patient's serum. None of the serums in this epidemic agglutinated Shiga cultures, and none of the principal bacilli isolated were agglutinated with Shiga serum. In a few cases typhoid infection was coincident with the dysentery, but the agglutinins of the one infection were uninfluenced by absorption with the other micro organisms.

COMMENT

It will be seen that one negative agglutination reaction does not exclude acute bacillary dysentery, and this remark applies much more to these infections than to those of the typhoid-paratyphoid group. In typhoid infections the appearance of agglutinins with a few exceptions is constant about the seventh or eighth day, but in acute dysentery they may appear earlier in a few cases, though in many instances they are much later. Sir Leonard Rogers¹ states that "agglutination may occasionally be obtained as early as the third or fourth day, but it is not until about the tenth or fourteenth days that a larger proportion of cases, such as 50 per cent, yield positive results, while by the third or fourth week as many as 82 per cent of successes have been reported." Keersmakers² obtained positive agglutination tests in 75 out of 170 affected cases. W. Moodie³ infers that agglutination may be delayed for several weeks, and is of little diagnostic use. The literature abounds with divergent opinions as to the value of agglutination tests, and one is obliged to judge by one's own experience. In the epidemic under review the tentative diagnosis of a Flexner infection was made on repeated agglutination tests from a fair number of cases, but while a main group diagnosis, such as that of Shiga or Flexner, can be arrived at by this means, it is obvious that agglutination alone is not a valuable means of distinguishing between the various types of Flexner's bacillus, and even when the varying agglutinability of the cultures are known and taken into account such procedures must be supported by isolation of the micro-organism and absorption tests.

The duration of agglutinins resulting from these infections varies enormously, and in some of the cases under consideration they had practically disappeared within six weeks of recovery. They may, however, last for years and cause confusion, but such persistent agglutination can be distinguished from that resulting from active disease by repeated estimation of the titre, when it will be found to vary very slightly, if at all, when resulting from an old infection which is not active.

The presence of different types of Flexner's bacillus in this outbreak is not unique. Difficulty has at times been experienced by some observers in fitting the causative organism into the present recognized types even by absorption tests. This difficulty was experienced in one of the cases, in another, from which a definite Type W bacillus was isolated, agglutinins to Type V appeared to be the most prominent in the patient's serum, and the absorption tests were inconclusive. This may have been a double infection, but the last word has not been said on typing, and it is quite likely that organisms can exist showing a mixture of the antigenic properties of the several strains at present recognized.

The difficulty of giving an outbreak a type designation may be realized by the experience of Amako,⁴ who recovered five different types from a local epidemic, but the organisms isolated in his outbreak were so far removed from one another as to include members of the main Shiga and Flexner groups, and their main means of separation was by cultural reactions. While this observer's findings support the possibility of multiplicity of types in the same outbreak the development and improvement of serological technique since the time of this investigation must not be ignored. Modern serological procedures show that cultural characteristics must take second place.

In this outbreak the occurrence of several types could be reasonably expected, since dysentery has been endemic in the institution for years, and there are probably several sources of infection.

With reference to the strength of the agglutination reaction which is deemed diagnostic the Medical Research Council⁵ states that the presence of 10 or more "standard agglutinin units" per cubic centimetre of serum in a male, and of 20 or more units in a female, is for all practical purposes diagnostic of acute bacillary dysentery infection caused by the bacillus agglutinated—that is, if old infection or previous inoculation can be excluded. The presence of 6 to 8 units in a male and 12 to 16 units in a female justifies a strong suspicion of dysenteric infection.

CONCLUSIONS

1 Owing to lack of any correlation between the day of disease and appearance of agglutinins a negative agglutination reaction, even if shown by several affected cases, does not exclude bacillary dysentery.

2 If the serums from a number of cases are repeatedly examined for the presence of agglutinins it is often possible in the event of positives to place the cases in the main Shiga or Flexner group, and such findings may be further refined by absorption tests on these serums with known dysentery bacilli, but for exact work isolation of the causative micro organism from the patient is essential.

3 The possibility of the multiplicity of types of Flexner's bacillus in an outbreak is again established, but it has not been settled whether the lack of correspondence between the agglutinins as found in some of the patients' serums and the type of bacillus recovered from the faeces was the result of a double infection or the outcome of the close relationship of the W and V strains. The possibility of intermediate strains must also be borne in mind, but further work in this direction is necessary.

My thanks are due to Mr. F. W. Duke for the assiduous manner in which he helped in this investigation.

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PATHOGEN SELECTIVE CULTURES AS AN AID TO THE DIAGNOSIS OF INFECTIVE FOCI *

BY

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(Abridged)

THE bacteriological examinations carried out in this work do not refer to findings in acute infective or septic conditions, in which the causal organism is indisputably present in the pathological material and frequently isolated in pure culture, but to the more difficult matter of attempting to determine in a subacute or chronic case if any bacteria pathogenic to the patient are present in the specimens examined. In the bacteriological overhaul of any one case many specimens of possibly infective material may be examined in the search for the infecting organism. Improved technique and differentiating media have increased the possibility of isolating with greater precision organisms which may have pathogenic importance. This elaboration means that an increasing number of bacteria have to be considered in any case under examination, and the result of this has been to add to the difficulty of deciding as to which, if any, of such an assortment of isolated organisms are pathogenic to the patient and which are not.

Many serological tests are available to decide this question, such as agglutination, precipitation, haemolysin, and absorption tests, etc., but, except for special conditions, are either too elaborate or indefinite to be applied as a routine test in clinical bacteriological examinations. They all, however, indicate that serum or blood, preferably that

* Read before the Liverpool Medical Institution on March 29th 1928.

of the patient concerned, does contain some factor which is utilisable to decide this question of pathogenicity, if it can be applied practically.

Various workers have shown that natural immunity in animals is associated with the presence in their blood of bactericidal action to the organism concerned. **AGENT**

Black, Fowler, and Pierce conclude that an estimation of the bactericidal power of the blood "is the most dependable criterion of immunity in an animal."

In 1927 Solis Cohen³ of Philadelphia published a paper on "Accentuating pathogenic organisms in culture," which utilized this bactericidal power of blood as a means of differentiating the pathogenic from the non-pathogenic bacteria present in any specimen as far as the patient under examination was concerned, and called his method of doing this "Pathogen Selective Culture."

During the past year, with the hope of determining the relative pathogenic importance of organisms isolated from various foci in the same patient, this pathogen selective culturing method has been resorted to in over 600 specimens. As far as it has gone the findings of Solis-Cohen have been fully confirmed, and one or two other points which were not mentioned in his paper have been emphasized.

By this method an equal quantity of any specimen to be examined is inoculated, as far as possible simultaneously, on to suitable media on the one hand, from which, after incubation, will be obtained the ordinary direct or "A" cultures, and on the other hand into 5 ccm of the patient's own blood (freshly drawn), which, after incubation and subsequent subculture on to similar media, will provide the pathogen selective or "B" cultures, according to whether the patient's blood happens to be able to inhibit, or otherwise, any or all of the bacteria shown by the "A" cultures to have been present in the specimen.

The principal point of difference between this method of pathogen-selective culturing and others which attempt to obtain evidence of pathogenicity of the organisms present is that

1. The original material under suspicion is used as the inoculum of the patient's blood, and not the isolated bacteria from such infected material.

2. That the whole blood, and not the serum, of the patient is used.

3. It is important that equality of distribution of inoculum between the "A" and "B" cultures should be ensured, so that the results may be reasonably comparable, for it is obvious that the implantation of infected material into the patient's blood specimens should not be unduly heavy.

One has, therefore, as far as possible, standardized the emulsion of faecal and urinary deposits to be not greater than a strength approximately similar to a bacterial emulsion of 2,000 million organisms per cubic centimetre from which three loops are inoculated into 5 ccm of blood freshly drawn from the patient.

In the case of sputum, catarrhal discharge, and tonsillar and dental infective material the specimen to be inoculated has been thoroughly mixed in a few drops of broth, and from this equal quantities have been inoculated on to the direct "A" plates and into the freshly drawn blood. An analysis of 400 specimens shows that the results of the pathogen-selective cultures fall into one of the following five groups.

1. Similarity of results in the "A" and "B" cultures. This might be expected to be the most common result of such a procedure, and the opinion has been expressed by several critics that such findings would be usual. On the contrary, it has occurred in only 6 per cent of examinations in this series. The explanation of this is that the blood of the patients in this series of tests was deficient in normal bactericidal power and failed therefore, to inhibit any of the organisms present, thereby suggesting marked absence of general immunity.

2. A selection of more than one organism out of the many present in the specimen, as shown by the results of the direct cultures. This result was obtained in 30 per cent of the tests.

3. The selection by the "B" cultures of a single organism out of the several shown to be present in the

direct "A" cultures. This result was found in 35 per cent of examinations and constitutes the largest group of findings, which means that the most common result of culturing pathological specimens by this method is that the patient's blood will suggest that only one of the many organisms present is pathogenic to him and that the others are non-pathogenic, in that the specific bactericidal action of the blood is adequate to inhibit them.

4. That in 18 per cent of the specimens examined by this blood selective method organisms were isolated in the "B" cultures which did not appear in the direct "A" cultures. Solis-Cohen says of these findings—that "ordinary cultures may fail to contain the etiological factor in an infection," and suggests that these are either outgrown by the more luxuriant non-pathogenic organisms present in the specimen, or that the inhibition by the patient's blood of such non-pathogens has actually encouraged the growth of the pathogenic organisms, which are thereby readily recognized.

5. In the fifth group of findings, in spite of there being many possible pathogenic organisms present in the specimens as shown by the direct "A" cultures all of these were completely inhibited by the patient's blood cultures, suggesting that as far as bacterial contents of such specimens were concerned, the organisms were not pathogenic to the patient. This result obtained in 22 per cent of the examinations, and is of equal clinical importance to the previous positive findings, for when it comes to evaluating the pathogenic importance of the bacteriological findings of several specimens from one patient, it would appear reasonable to exonerate areas from which no pathogenic organisms can be isolated, and blame those in which such can be demonstrated as harbouring foci of infection capable of producing systemic infection in the patient concerned.

In classifying the findings of 400 examinations of various specimens into the five groups already detailed it is found that in over 50 per cent of the examinations pure single cultures of organisms pathogenic to the patient were differentiated by this method from the many present in the specimens, and in 88 intestinal examinations the striking result appears that all the organisms present in the faecal emulsions of 32 per cent of these were completely inhibited, suggesting that the intestinal flora, however important its bacterial content might appear to be, was not likely to be a source of infection to the patient concerned.

The same applies to the urine cultures, out of 20 cases showing bacilluria in carefully collected catheter specimens, in 14, or 70 per cent, the organisms present were shown to be non-pathogenic to the patient. This is quite in keeping with clinical experience, and while it is probable that in such cases the bacteria may be producing local irritation of the urinary passages, which requires local treatment, these organisms are not causal of systemic infection if such exists, and vaccine treatment prepared from such cultures (which are thus proved non-pathogenic to the patient) is not likely to be of any value, which probably accounts for the occasional disappointment attending vaccine treatment of such cases.

Several control experiments have been made to ascertain whether this pathogen selection would allow of accurate repetition, and equal quantities of the same specimen were planted into more than one sample of the respective patient's blood. The result was the selective isolation of the same bacteria only in each case. These findings appear to confirm the contention that the pathogen selection on the part of the patient's blood is associated with some want of specific bactericidal power.

The clinical importance of this method of bacteriological examination is the possibility of utilizing it to differentiate the pathogenic importance of organisms isolated from various areas which are suspected of harbouring a focus causing generalized infection. Space will only allow of three examples being given.

The examination of post nasal tonsillar sputum and faecal specimens in a case of chronic catarrhal asthma demonstrates that the patient suffers from infection of the respiratory tract, probably associated with some dental condition requiring treatment, but with no evidence of intestinal infection.

In a further case *asthma* alternated with urticaria and vaginitis, and the examination of sputum, urethral, vaginal, urine, and faecal specimens suggested an intestinal origin of the whole condition as probable, subsequent treatment seemed to confirm this conclusion.

A case of severe subacute infective arthritis gave a history of commencing as a result of puerperal infection accidentally contracted at a first confinement. Post nasal, tonsil, cervical, urinal, and faecal specimens were examined, and it was found that in spite of there being many organisms present in the ordinary cultures which might have been accredited as likely infective agents in such a case, the only strain that the patient's blood selected from them all was the comparatively simple *Streptococcus faecalis* from the faeces. It is, however, most likely that this would be the organism capable of infecting her at the confinement, and against which she had not yet regained an adequate immunity. It is further suggestive that this is so, in that she has proved disturbingly sensitive to the smallest doses of a simple autogenous vaccine prepared from this organism, but is slowly improving under this treatment.

In conclusion, the findings in over 600 examinations by the pathogen-selective culturing method confirm the opinion expressed by Solis-Cohen, that

1 Cultures as ordinarily made fail to differentiate organisms that are pathogenic for the host from those that are non pathogenic for him

2 Ordinary cultures may fail to isolate the etiologic factor in an infection in certain cases

3 In the pathogen selective culture the patient's fresh blood is used to inhibit organisms that are non pathogenic for him, thus permitting the free growth of organisms that are pathogenic for him

4 To these I would add, that this form of culture will also differentiate between foci in the same patient, and indicate those which contain organisms that are pathogenic for the patient and which are only of local infective importance

5 That such positive pathogen selective cultures when obtained from dental, tonsillar, or sinus material indicate the need for radical removal of such a focus of infection, if this is clinically possible

6 That when similar positive findings in intestinal specimens are associated with any clinical evidence of appendicular trouble the same radical attitude should be adopted

7 That negative pathogen-selective cultures suggest that the focus of infection from which the specimen was collected, while probably requiring local treatment, is not causal of systemic infection if such exists

8 That this pathogen-selective culturing method is only applicable to the bacteriological examination of cases in which some focal infection is causal of a systemic infection. Where the condition is a purely local infection, as occurs in many cases of chronic catarrh, cystitis, or colitis, the negative selective cultures will demonstrate this fact, and for such, if vaccine treatment is to be employed at all, the preparation should be made from the ordinary direct "A" cultures. Nor does this method apply to the preparation of ordinary prophylactic vaccines. It is essentially a means by which the selected pathogen represents the required antigen for the patient concerned.

The pathogen-selective culture method is therefore suggested as a valuable contribution to clinical bacteriological investigation, both as regards the presence of focal infection and as a guide to the treatment required for such a condition.

I wish to thank my colleagues of the Southport Infirmary and the Liverpool Eye and Ear Infirmary and the many clinicians who have allowed me to examine their cases by this method, also I wish to express my appreciation of the detailed and accurate work of my two assistants Mr. P. H. Osmond and Mr. L. H. Bennett which has added value to the conclusions drawn from these pathogen selective cultures.

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A CASE OF PERTHES'S DISEASE OF THE HIP

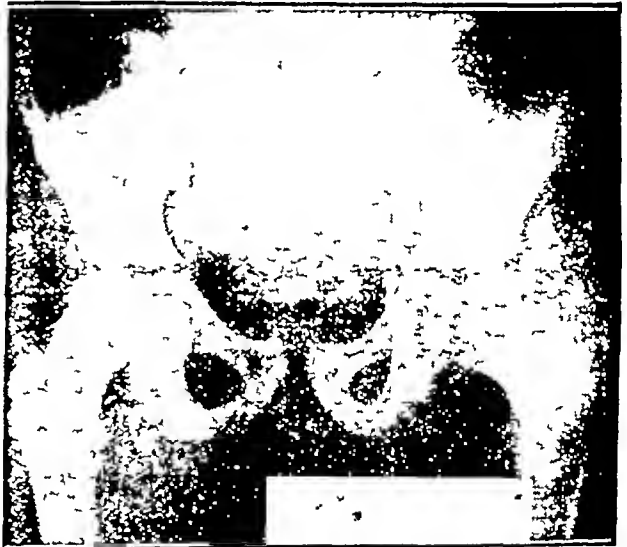
BY

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The patient in the case here recorded was a boy, aged 8½ years, who attended for examination on June 20th of this year.

The family history is good. He has a brother aged 5, and a sister aged 4, both of whom are fit. His father and mother also are well. There is no history of a similar condition in any other member of the family.

History of Present Condition.—His mother states that eighteen months ago, while running and playing about, he strained his left thigh and complained of pain in his left knee, and limped a little. He was kept resting in the house for a week, and had massage. At the end of a fortnight he appeared quite well again. Three weeks ago he stumbled over a molehill, and has complained of pain in the left thigh and knee ever since, and the limp returned. Some nights the pain has been severe enough to make him cry. Eight weeks ago he walked a distance of two miles, and the pain and the limp have since been worse.



The general condition of the patient on June 20th was good. He is a little undersized for his age. He walks with a definite limp on the left side, but he is able to walk and even run about with comparative ease. His mother states that he complains of pain around the knee and over the middle of the thigh in front. There is a quarter of an inch wasting of the left calf, and three-quarters of an inch wasting of the left thigh. No definite shortening of the left lower limb could be made out. While resting on the couch it was noticed that the left thigh was held slightly flexed and rotated outwards. Marked muscular spasm could be detected on manipulating the left hip, but the patient did not complain of any pain, and appeared quite cheerful. Flexion and extension of the hip were good, but definite limitation, though slight in extent, could be made out on careful examination. Abduction and external and internal rotation of the hip were very limited.

X-Ray Examination.—The x-ray appearance of the left hip-joint, as shown in the radiograph, is typical of Perthes's disease. The epiphysis of the head of the femur is much flattened and elongated, it appears to creep over the outer part of the neck of the femur. There is x-ray evidence of fragmentation of this epiphysis, the normal single ossific nucleus being broken up into numerous nuclei, which vary in density and shape. Towards the centre of the epiphysis can be made out a large and markedly denser bony nucleus, and on either side are tiny nuclei scattered irregularly. When compared with the normal

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side it can be seen that the outline of the acetabulum on the affected side is distinctly irregular. There is definite increase in the vertical depth of the neck of the femur (general rarefaction of the neck can also be seen). The whole of the shaft of the femur shows rarefaction.

Treatment—Mr J. B. Hayercraft, who also examined the patient, was of opinion that complete fixation of the hip in plaster was not necessary, he advised that a walking calliper splint would give all the necessary rest to the joint and protection from weight-bearing.

Conclusion

The recognition of Perthes's disease as a pathological entity became possible only through x-ray examination. Practically all our information regarding it has been arrived at by radiological investigation. Previously these cases were not recognized, and were usually classified as tuberculous joints.

It is very probable that some of the cases diagnosed as osteo-arthritis of the monarticular variety occurring in adult life have been cases of Perthes's disease, and that the secondary arthritic changes have been due to using an injured joint.

In my opinion the case recorded, if examined a year and a half ago, would have shown changes in the hip-joint, and the prognosis would have been more favourable. The symptoms in this case are comparatively slight, but serve to bring into prominence the importance of an x-ray examination of any joint trouble in a child. I hope to examine this patient at six monthly intervals for several years, and at a later date to give an account of the changes that have taken place in the joint.

I am indebted to Dr William Murphy for his kind permission to publish this case.

Memoranda: MEDICAL, SURGICAL, OBSTETRICAL

AN UNUSUAL CAUSE OF PAIN AND HAEMATURIA

THE ultimate fate of a "buried" silk ligature is that it becomes encysted, extruded, or absorbed. The last result has only been observed in the case of very fine silk ligatures, such as the four "O" size. Inversion of the tissue in which this silk had been placed twelve months previously, with subsequent microscopical examination, failed to discover any trace of the ligature material.

It is very well recognized that any infection of a ligature will lead to its ultimate extrusion. In the case of an

Cystoscopy—The mucous membrane of the bladder was healthy. About half to three-quarters of an inch above the right ureteral orifice the ends of a ligature could be seen projecting into the bladder like a villous papilloma. The ligature was coated with crystals and the appearance is well shown in the beautiful drawing by Mr Thornton Shells. With a ureteral forceps used through an operating cystoscope the ligature was seized and removed without much difficulty. This was followed by a moderate amount of haemorrhage. In withdrawing the ureteral forceps the ligature was dropped in the bladder but was voided by the patient shortly afterwards. Since the removal of the ligature the patient has been quite free from pain, and has had no recurrence of the haematuria.

It must be very seldom that one has the opportunity of seeing a case similar to that described above, although I have removed from the bladder a calculus the nucleus of which was a silk or linen thread ligature. The patient in this case had had hysterectomy performed four years previously.

London W.

FRANK HARVEY, F.R.C.S.Fd



infected ligature near the skin surface, a "stitch" abscess results, but if the ligature is in proximity to a hollow viscus and originally included either the mucous or submucous coats then, if it becomes infected, it will ulcerate through into the lumen of that viscus.

In the case to be described the ligature must have been passed through the mucous or submucous coat of the bladder.

On July 5th 1926 Dr Churchill David of Camberley referred to me a patient who had had hysterectomy performed for fibroids in February, 1925.

History—The patient, a woman aged 49, stated that she had suffered from severe pain on micturition from the day of her operation. The pain was paroxysmal in character, worse after micturition with occasional haematuria. For six weeks after the operation the pain was very severe but after that time it became gradually less severe and almost entirely disappeared.

March 1925 when the pain returned and persisted. The patient stated that she suffered from an aching pain lasting from five to ten minutes after micturition. The urine on examination was smoky and microscopic examination showed many triple phosphate crystals were seen.

THYROID SIMULATING ABDOMINAL TUMOUR

The rarity of the condition to be described and its clinical features make it of special interest.

A male child aged 2 years and 5 months was admitted to Falkirk and District Infirmary with a history of progressive swelling of the abdomen of one month's duration. Three weeks before admission the child had fallen and bruised the anterior abdominal wall.

When first seen the child who was very well developed was sleeping peacefully. The respirations were slightly increased and mainly thoracic in type. The abdomen was markedly and uniformly distended. Palpation of the abdomen showed it to be neither rigid nor tender but on deep pressure a mass could be felt which resembled enlarged abdominal glands. The note all over the abdomen was tympanitic. There was some dullness and rales were heard at the bases of both lungs posteriorly. The pulse rate was 112 per minute and the volume good. There was no sign of bruising of the anterior abdominal wall. A provisional diagnosis of enlarged abdominal glands with broncho-pneumonia was made and medical treatment was prescribed.

The subsequent clinical history presented no features inconsistent with this diagnosis. There was no diarrhoea or vomiting and the temperature was irregularly febrile. On the second day in hospital fluid of a serous nature was withdrawn from both sides of the chest, a total of 20 c.c.m. being obtained. By this time the respirations had become very laboured and the child had to be propped up in bed. The abdomen was still much distended but there were no signs of free fluid. The patient given rapidly worse and died on the fourth day of residence in hospital.

At the necropsy there was no fluid in the abdominal cavity and the liver was fairly firm consistency and pale appearance. A globular mass of fairly firm consistency and occupying the mesentery of the small intestine. There was no mucous or fluid in the abdomen. Both lung were collapsed and there was much serous fluid in the cavities. Pale-coloured tissue resembling that found in the abdomen was present in the anterior mediastinum although the mass was not much larger than a normal thyroid gland. It was adherent to the pericardium and the diaphragm. The spleen and liver were apparently normal but a nodule of the same pale tissue was found in the cortex of the left kidney. Portions from the abdominal and mediastinal masses from a discrete gland in the mesentery and from the nodule in the left kidney were sent to the Royal College of Physicians, Edinburgh for the following pathological report was received.

Sections show the tumour to be a sarcoma (thyroidoma) with origin in the thymus (reticulum) with metastases to mesenteric glands and kidney. The tumour cells are large in parts and the picture in many respects resembles that of Hodgkin's granuloma.

It is interesting to note the fact that the clinical picture in this case was dominated by the abdominal mass due to lymphatic

spread, it is of interest to note the presence of a distant metastasis in the kidney, especially in view of the resemblances to Hodgkin's granuloma.

I am indebted to Mr Tennant and Dr Hunter for permission to publish this case and to Dr Simpson for confirming the history of the patient prior to admission to hospital.

Falkirk.

WILLIAM BROWN, M D Glas

TABES DORSALIS AND GUMMATA OF THE TESTES

THE following case presents certain unusual features (a) the association of tabes dorsalis with gummata of the testes, (b) the complete absence of findings for syphilis in the blood serum and the cerebro spinal fluid.

A man, aged 64, was admitted to St Paul's Hospital under Mr W K Irwin on August 19th 1927. He stated that a slightly painful swelling had suddenly appeared a week previously in the right testis and four days later in the left. The urinary symptoms, which were of a fortnight's duration were straining, slight dribbling, and incontinence during sleep. He had Argyll Robertson pupils, and there was some inco-ordination of the limbs. Romberg's sign was present, and there was marked hypotonia of the lower limbs. The outer borders of the feet and the ulnar borders of the forearms were insensitive to tactile stimuli, and there was extreme hypoaesthesia to pressure of the larynx and the testes. The epigastric and abdominal reflexes were present, but the cremasteric reflexes were absent. The plantar reflexes were flexor. All the deep reflexes were absent. The bladder reached to the umbilicus and contained 32 ounces of foul alkaline urine. Rectal examination revealed little if any enlargement of the prostate, which was soft and mobile.

No scar of a previous chancre could be detected on the penis. Both spermatic cords were thickened, the constituent structures being matted together. The left scrotum and testis were adherent, forming a firm mass—hot, red, and enlarged to the size of a large goose-egg. The opposite side was in a similar state. In addition there was present on the anterior aspect of the right scrotum a fluctuating area in the centre of which the skin had broken down leading to the body of the testis. On dilating the skin opening with forceps the base was seen to be yellowish and sticky. Both testicles were absolutely painless to pressure. There were no enlarged inguinal or lumbar glands. The temperature of the patient on admission was 100°F and the pulse rate 90.

The diagnosis made was tabes dorsalis and gummata of the testes. He was given 0.45 gram of novarsenobillon and 0.2 gram of bismuth. The bladder was slowly emptied and washed out with 1 in 10,000 silver nitrate solution, and this was repeated daily. The right testis was packed every four hours with gauze soaked in eusol.

On August 24th there was a distinct area of softening in the left testis, which by the next day had broken down giving exit to much foul pus. The appearance then presented was identical with that of the right side on admission, and similar treatment was adopted.

The laboratory reports were to the effect that the Wassermann reaction in the blood was negative and the cerebro-spinal fluid healthy. The Wassermann reaction of the blood repeated six days after the provocative injection of novarsenobillon was negative.

Injections of novarsenobillon and bismuth equal to the first given were repeated weekly. By September 1st both testes had become much cleaner and were healing rapidly, by September 20th healing was complete. The condition of the urine also improved remarkably.

The Wassermann reaction of the blood was tested for the third time on September 19th and was again negative. The cerebro-spinal fluid remained healthy. On September 21st Mr Irwin on cystoscopic examination found the typical appearances of atonic bladder as seen in tabes. There was no intravesical enlargement of the prostate.

The patient was discharged from hospital the next day.

I desire to thank Mr Irwin for his kind permission to publish this report and also to acknowledge my indebtedness for his help and advice.

J GABE, M B, B S Lond,
Resident Medical Officer St. Paul's Hospital for
Genito-Urinary Diseases London

EXTENSIVE EPITHELIOMA OF THE CHEEK AND LOWER JAW TREATED BY DIATHERMY

THE following case appears to be of sufficient interest to record, in view of the fact that growths of a smaller size are often pronounced inoperable.

A olergyman, aged 70, was sent to consult me on March 20th 1925. About eighteen months previously he had consulted his doctor on account of pain in the mouth on the left side at about the angle formed by the ascending and horizontal rami of the jaw but there was nothing to be seen or felt at the time of the examination. He said that some time later a small sore appeared but he did not consult his doctor again until two or three days before he was sent to me. During this time the ulcer had gradually extended until the condition at the time of

the examination was as follows. There was very slight limitation of movement of the jaw. When the mouth was opened an ulcer was seen extending over the cheek from the junction of the ascending and horizontal rami of the jaw to within half an inch of the angle of the mouth. It is edentulous, and the upper limit could be seen a little below the level of the upper alveolar margin, and from there it extended downwards and on to the outer aspect of the lower jaw. Clinically and microscopically the condition was malignant.

At first it appeared beyond the limits of any operation, but there were certain points which made me decide to use diathermy. The growth had not appeared till the patient was old (69) and although extensive it did not appear to infiltrate to any great extent. It had extended slowly and there was no glandular enlargement. The patient was in very good condition.

Operation.—The whole growth was coagulated with the button electrode and the coagulation was carried deeply on the jaw. In the anterior part the coagulation was carried out more lightly in order to avoid, if possible, making a perforation.

A month later it was apparent that a certain amount of growth remained, particularly anteriorly, and the whole area was again gone over with the button electrode and in addition the knife was used, criss-crossing through the tissues. When the sloughs separated a perforation about the size of a threepenny piece appeared close to the angle of the mouth, and radium was applied.

When he left the nursing home he went away to the Midlands and the surgeon who looked after him informed me that a sequestrum separated from the lower jaw and after that he healed rapidly. The hole near the angle of the mouth at first caused considerable trouble owing to the escape of saliva but a piece of oiled silk strapped over it gave considerable relief, and I proposed closing it later. I did not see him again till April, 1926 when there was no sign of a recurrence and the hole had become so small that it gave no trouble. He is still free from any recurrence and carrying out his parochial duties.

W J HARRISON,
Surgeon Ear, Nose and Throat Hospital,
Newcastle-upon-Tyne

Reports of Societies.

SOCIETY OF BRITISH NEUROLOGICAL SURGEONS

THE summer meeting of the Society of British Neurological Surgeons was held in Edinburgh on June 8th and 9th, under the presidency of Mr WILFRED TROTTER.

Mr NORMAN DOTT opened the proceedings by performing an operation at the nursing home in Great King Street, when he removed an osteoma from the roof of the orbit by means of an osteoplastic craniotomy. Dr LOVIN TURNER gave an account of his work on the paths of intracranial infection, demonstrating the meningeal and vascular connexions, particularly those in relation with the nasal passages. In the afternoon Professor Sir L. SHARPEY-SCHAEFER reported a study of nerve section and regeneration in his own hands. This was followed by a discussion introduced by Drs TRAQUAIR and SINCLAIR on the relations of ophthalmology to neurological surgery, with special reference to visual field defects. Dr GRAHAM and Mr DOTT showed some cases illustrating this subject. Professor EDWIN BRAMWELL described a case of intracranial aneurysm and showed a specimen. The Society's dinner was held the same evening at the North British Hotel.

On Saturday morning a demonstration of radiograms of the skull was given by Drs WOONBURN MORISON and HOPE FOWLER. Dr Hope Fowler discussed the radiotherapy of intracranial tumours. Some of Mr DOTT's cases thus treated were shown. Professor D P D WILKIE contributed an account of a case of intracranial dermoid cyst, successfully operated on by himself, and a case of acoustic neuroma in which a cerebellar decompression operation had been performed. Professor JOHN FRASER showed a case of injury to the brachial plexus, associated with a fracture of the clavicle by direct violence, and a case of elephantiasis and trophic disturbance of a lower extremity in a child affected by spina bifida. Mr W W WAGSTAFFER read a paper on the incidence of traumatic epilepsy after gunshot wounds of the head, and gave figures of the frequency of Jacksonian and generalized epilepsy after these injuries.

A most instructive meeting was concluded by a demonstration of various kinds of cranial anomalies by Mr D M GREIG, curator of the museum of the Royal College of Surgeons of Edinburgh, in the beautiful hall of the College.

Rheubius.

RHEUMATIC DISASTERS

THOSE who took part in the Conference on Rheumatic Diseases at Bath last May must have felt aware that the success of the conference was due, not merely to the very signal hospitality of the City Council, but largely to the thoughtful preparation and plentiful hard work undertaken by the organizing committee. The same readiness to spare no pains is evident in the volume of the *Proceedings* of the conference, which has now been published.¹ The constituent addresses and papers together form an excellent survey of the subject of the conference, with a minimum of overlapping or padding, and the editor, Dr R G Gordon, is to be complimented on the fact that the work of the conference is presented to us in a form which enhances its scientific value and also makes, for many, a pleasing moment.

In our issue of May 19th we published full accounts of the individual contributions to the conference, and thus in noticing the volume of the *Proceedings* there is no need to refer to these again in detail, nor to rehearse the names of the many authorities whose views are to be found in this book. Rather does this seem the opportunity now that the conference can be reviewed as a whole, to try to see what lessons it has for us and for the future.

The scope of the conference included all conditions called "rheumatic," and it is evident that in one respect at least those who confined their attention to acute rheumatic infection enjoyed an advantage over others dealing with muscular and chronic joint conditions. At the least they had a "disease" to speak on, and when they used the term "rheumatism" everyone understood them. And here, though we digress, we cannot forget the pleasure of praising Dr Carey Coombs's paper on "The bacterial factor in the rheumatic infection of childhood." When heard in the rather hurried circumstances of the conference it was generally recognized as a little masterpiece and now, having read it at full length, it would be difficult to overpraise it. It is rare to find in medicine a writer who can unfold the drama of an infective disease in this way in a style so sure, so light, and so convincing and yet with such modesty that the last thing that strikes the reader is the amount of personal work upon which all is based.

Outside the group of acute rheumatic infection the term "rheumatism" was indeed allowed its fling not, we fear, for the last time. It may well be that the atmosphere of a celebrated spa is not a favourable one in which to attempt to restrict the use of a popular term, yet it would seem as though, at the conference, even the non-committal word "fibrositis" was almost forgotten. Taking the *Proceedings* as a whole, it becomes apparent that this meaningless nomenclature is now no little drawback, and that a real effort should be made to insist on a classification on more correct lines. Such would at present necessarily be very incomplete, but if started on the right lines expansion as accurate knowledge increases would not upset it. Another matter, not altogether dissociated from that of nomenclature, is the possible connexion between the true rheumatic infection and the various more or less chronic disorders still grouped as rheumatic. Very little light was thrown on this subject, important as it is, by the conference. It seems hardly to be doubted that there must be a chronic form of true rheumatism, yet at present we do not recognize it with any certainty, indeed, we do not yet know by what tests we are to attempt such recognition.

Perhaps it is not unfair to say that in the more chronic and crippling forms of "rheumatism" the matter of treatment claims attention more insistently than any other aspect of the problem and in this volume there are the experiences of many in the various forms of treatment in current use. The amount of attention paid by some of the writers to the influence of the endocrine glands and the skin is striking. It is not altogether clear on what grounds the endocrine "factor" is classed as among the causative

factors rather than as a secondary phenomenon. On this particular subject the amount of disagreement shown in the various papers is considerable.

England is the home of the "rheumatic diseases," and, we hope, of rheumatic research. It is gratifying that the meeting at Bath drew together not only workers and observers in this country, but also from the Continent and America. That the conference was a success and did good to the study of "rheumatism" we do not doubt. The volume of the *Proceedings* is of great value, for it shows us, as perhaps nothing else could have done, where there is agreement, where there is doubt, and where there is almost complete ignorance.

DISORDERS OF THE HEART

THE appearance of a posthumous edition of *The Sensory and Motor Disorders of the Heart*,² by Dr ALEXANDER BLACKHALL-MORISON, is sure to be appreciated by a wide circle of admirers. Those who are not able to accept his point of view will find in his work much that is stimulating and something to emulate in the constancy with which he pursued his investigations and the vigour with which he has presented his case. Unlike many books that appear from time to time, in this the reader will seek in vain for any suspicion of plagiarism. Where authors are quoted it is more frequently to contest their views than to accept unconfirmed their opinions. Dr Blackhall-Morison placed himself among the "neuralists" and while recognizing that they are in the minority as compared with the "muscularists" believed that the disparity will gradually be reduced.

The arrangement of the book is well defined. The opening chapters deal with the development of the heart and the nature of the cardiac musculature and innervation and the coronary circulation, many of the arguments being deduced from the author's observations in the embryo fish. The section on sensory disorders of the heart, dealing as it must with cardiac pain and the various forms of angina pectoris is well worth perusal by all who are interested in a branch of the subject which has attracted many of the great physicians of modern times. This section closes with a discussion of such surgical procedures as precordial thoracotomy and nerve section for the relief of pain, the latter of which the author considers unjustifiable. The section on the motor disorders is perhaps a little more difficult to follow as he tends to depart from generally accepted terminology, and likewise from many of the views generally held as to the basis of the disordered mechanism. In the management of the case however and its medicinal treatment the fruits of a wide experience are displayed.

While we are unable to agree with many of the views expressed or to accept the arguments upon which these are based the perusal of the book has supplied both pleasure and profit. It is refreshing to read a work in which the personality of the author is so clearly portrayed on the printed pages.

THE ART OF OBSTETRICS

Dr W G LEE the author of a book entitled *Childbirth*,³ died before completing its revision for the press and no one who reads his posthumous work can but feel deep regret that an original thinker, gifted with a rare power of clear exposition should have thus early been lost to medicine. His style is simple and so unencumbered with medical idioms and phraseology that, as his colleague who supplies the prefatory note remarks, "a layman with sufficient interest in the subject would find most of the book within his grasp." But it is not easy to discover the precise object of the book or place it in any definite category. The impression obtained from its opening chapter is that the author had struggled against certain tendencies, especially allowing the science of medicine

¹ *Proceedings of the Bath Conference on Rheumatic Diseases*. Bath: The Hot Mineral Baths Committee of the Bath City Council. London: IL & Lewis and Co., Ltd. 1928. (Demy 8vo pp xi + 292. 5s net 5s. 3d. by post.)

² *The Sensory and Motor Disorders of the Heart*. By Alexander Blackhall-Morison. M.D. FRCP. Second edition. Foreword by Sir John Rice Bradford. KCMG FRSE MD London. Baillière Tindall and Cox. 1928. (Demy 8vo pp x + 362. 11s 6d net.)
³ *Childbirth*. By William George Lee. A.B. MD Chicago. The University of Chicago Press. London: Cambridge University Press. 1928. (Roy 8vo, pp xi + 230. 15s net.)

to far to outstrip the art. In his own words, the mass of detail in the heavy tomes written from a narrow technical standpoint has put the student in the place of Yankee-Doodle who "couldn't see the town, there were so many houses." He thinks the teachers of obstetrics are to blame for keeping new wine in old bottles and could put the time allotted to them in the curriculum to more advantage by greater concentration on principles and practice.

The care of the pregnant and lying-in woman is regarded as consisting largely of an application of the principles acquired in the study of general medicine and surgery, whereas in parturition special knowledge and training are required because of the rapidly succeeding and striking changes that occur then and which may endanger the life of mother and babe. It is here that the general practitioner is prone to deviate from the high plane of his art. His judgement and skill are not apt to work swiftly, for the restriction upon his time prevents the constant observation necessary for proper obstetrical care. During the period of short and rapid change "many women suffer, either from failure to recognize in time progressively increasing peril or from subjection to a needlessly early operative attack." The need for continued and careful observation throughout the whole course of labour is stressed, and full instructions are given as to accurate record keeping. The chapters on the forceps and its use will be found of particular interest. The agitation for an undue limitation of the forceps and the search for inferior methods of delivery the author considers to be due to a lack of knowledge of the mechanical principles involved, and he therefore devotes much space to a consideration of these principles and how they are applied in specific conditions.

The book is beautifully turned out and a pleasure to read. Its paper, type, and wide margin do credit to the Chicago University Press. It may be prescribed with confidence as an antidote to the heavy tomes that drove the author into other paths, and will repay study by those interested in obstetric problems.

EXPOSURE OF LONG BONES

In the pre-anæsthetic days, when surgical procedures were comparatively few and well defined, each step in an operation was clearly described and taught to the student in the practice of operations on the dead body. The immense extension of the field of operative surgery since the introduction of anaesthetics and asepsis has led perhaps to some neglect of exact teaching of this subject, in view of the multiplication of procedures and the magnitude of the task of teaching all of them. Professor ARNOLD K. HENRY's book will be welcomed as supplying a want in this connexion as well as introducing some novel operative measures and appliances. In *Exposure of the Long Bones and other Surgical Methods* he describes ways of gaining access to the shafts of long bones with the least damage to the soft parts, and with the fullest possible exposure of the field of operation. For instance, the usual lateral incision for plating the shaft of the femur necessitates much division of muscular tissue and takes little heed of the presence of important blood vessels, while it is awkwardly situated unless the patient is laid on his side. Professor Henry's methods minimize all these drawbacks, and their adoption should increase the security of patients from the risk of hæmorrhage. In the second part of the book are described original methods of approach to the cervico-dorsal ganglia of the sympathetic in Jönnesco's operation for angina, and to the vertebral and subclavian arteries from behind, and also an original apparatus for the practice of pituitary surgery by a new method. The author's cup-and-ball aneurysm needle for deep ligations appears to us to be an ingenious and practical appliance of considerable value. As Sir WILLIAM WHEELER says in a foreword "Professor Henry's book not only is full of good things, but overflows with practical information which cannot be obtained from any other source." The illustrations render the descriptions effective beyond any doubt.

Exposure of the Long Bones and other Surgical Methods. By Arnold K. Henry, M.D., N.C.H. Univ. Dublin. Foreword by Sir W. I. de C. Wheeler, Bristol. J. Wright and Sons, Ltd. London. Simpkin Marshall Ltd. (M.D. 8vo pp. xii + 80, 51 figures, 10s. 6d. net.)

PHYSIOLOGY

PHYSIOLOGY must, on the whole, be accounted fortunate in the excellence of her teachers. Prominent among these must rank Professor WILLIAM H. HOWELL, whose *Text-Book of Physiology*, which now appears in a tenth edition,¹ has won for him a great body of students vastly out-numbering those who have been privileged to attend his classes at Johns Hopkins University. In these days, when the bulk output of the research laboratories of the world continues to increase on a curve which gives no indication of a slackening rate, and when the literature of science becomes more and more highly specialized, the value of the "old fashioned" comprehensive textbook should, and we believe does, become more fully appreciated, it is indispensable. At the same time the labours of its author are correspondingly increased, so that, indeed, it is now well-nigh beyond human powers to be familiar at first hand with all the original literature which deserves a place in such a book. Professor Howell acknowledges that he has only been constrained to revise once more his book by the appreciation of "a certain obligation, in the case of a book already established, to maintain its usefulness as far as possible by the preparation of new editions at frequent intervals." It is our obligation to acknowledge with gratitude the magnitude of the labour involved. In the case of this latest edition our thanks are unqualified, since it indicates a very patient, enlightened, and judicious revision of the text. The chapter headings remain unchanged, the new matter being skilfully woven into the text so that the fabric bears no patent signs of renovation. That new cloth can be sewn into an old garment is a pretty compliment to the garment.

Under the title of problems of the moment in physiology² Professor LÉON BINET publishes the substance of a series of "conférences" held by the Faculty of Medicine of Paris during the academic year 1925-26. So much is indicated by the preface, but it is difficult to comprehend the precise character of these "conférences." Twenty-four chapters deal with twenty-four more or less distinct problems, fourteen of these occupy less than ten pages, and in the form in which they are here presented they could have occupied an audience only a few minutes. It will be clear, therefore, that they make no serious attempt to survey the present state of the physiological problems with which they are concerned. Indeed, the majority of the chapters represent brief summaries of a variety of researches upon which members of the faculty have recently been engaged. Much of it has been published already in the scientific journals in more adequate detail, and actually some of the lectures have already appeared in *La Presse Médicale*. The book scarcely justifies its attractive title, and appears to serve no useful purpose other than to survey the recent activities of this prominent French school of physiology. The problems to which the various chapters are devoted are too numerous and unconnected to allow brief review. They range from histological studies of the lungs, various respiratory and excretory questions, digestive functions of the pancreas, to thirst, sleep, and tobacco smoke.

APPLIED CHEMISTRY

THORPE's *Dictionary of Applied Chemistry*³ seems to touch upon every subject to which chemistry has been applied. It may fairly be said that there is hardly anything comprised in the term chemistry that is not effectively described and explained in its pages. One of the most remarkable articles is that on water, it treats of the chemical purification of water, indicating the subtle nature of the impurities which are most difficult to detect and remove in preparing water of absolute purity, it gives the physical properties and constants connecting pressure with freezing and boiling points, and describes varieties of ice.

¹ *A Text-Book of Physiology.* By William H. Howell, Ph.D., Sc.D., LL.D. Tenth edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company. (Med. 8vo pp. 1681, 308 figures, 50s. net.)
² *Questions Physiologiques d'Actualité.* Par Léon Binet, Paris. Masson et Cie. (6½ x 9 pp. 221, 65 figures, 18 fr. sans majoration.)
³ *A Dictionary of Applied Chemistry.* By Sir Edward Thorpe, O.B., LL.D., F.R.S., assisted by eminent contributors. Vol. vii revised and enlarged edition. London and New York: Longmans, Green and Co., Ltd. 1927. (Med. 8vo, pp. viii + 763, 60s. net.)

which are heavier than water. All these matters are discussed with a wealth of detail, much of which is of absorbing interest, such, for example, as the fact that but for the compressibility of water, slight as it is, the mean sea level would be 116 feet higher than it now is, and about 4 per cent of existing land would be submerged. Viscosity, surface tension, refractive index, magnetic and electrical properties, are a few of the many items relating to water on which detailed information is given. One section treats of the constituents of natural spring waters, another of potable waters and the various forms of pollution, their causes and the means by which they may be detected. The article on water is typical of the whole character of the dictionary. All the different aspects of every chemical subject are adequately noticed, and the interest is not restricted to any particular section or group. Pure chemistry, inventions, medicines, and the arts are all represented, and what is lacking in the text of the work is made accessible by the copious references to original publications. The seventh volume, now published, makes the new edition complete. It is an invaluable work to those whose occupation is concerned in any way with applied chemistry.

NOTES ON BOOKS

Diabetes, its Treatment by Insulin and Diet,* is a handbook prepared for the instruction of diabetic patients by Dr O. H. PERRY, who is professor of diseases of metabolism in the University of Pennsylvania. The purpose of the book is to provide the patient with the information necessary to enable him to make an intelligent choice of diet. The author emphasizes the point that this volume is in no way intended to act as a substitute for medical advice, but merely aims at providing the information essential for the intelligent carrying out of medical instructions. Its success is indicated by the fact that it has passed through four editions since its appearance in 1924. The present edition has been somewhat enlarged and certain sections have been rewritten. Perusal of the work shows that care has been taken to bring it completely up to date.

We have received a copy of Professor RICARDO JANCE's work on alastrim and post-vaccinal encephalitis,† which first appeared in the *Archivos do Instituto Central de Higiene*. The work is divided into two main parts. The first, which deals with the relation of alastrim to small pox, contains Professor Jorge's address on this subject delivered before a meeting of the International Office of Public Health in Paris in October, 1924, followed by a slightly abridged translation which appeared in the *Lancet* of December 20th and 27th, the correspondence in subsequent numbers of that journal and the discussion which ensued at the meeting in Paris. The second part deals with the occurrence of encephalitis following vaccination in Holland, Great Britain and Switzerland, and contains two papers presented respectively to the International Office of Public Health in October, 1925, and a special conference convened at the hospital under the auspices of the League of Nations in January, 1926. Epidemiologists will be glad to have collected in book form these important papers by a leading authority, though it is obvious that in neither of the subjects discussed has finality been reached.

How to Drive a Car,‡ by the editor of *The Motor* and his staff, suffers from the effort to make the book fool proof. Hence much vain repetition and a multiplicity of words, wherein the would-be motorist may become befogged. Many of the dangers and emergencies of driving are depicted in illustrations, but for acquiring the art of skidding round corners the reader is left to letterpress which is not a model of lucidity. Early in the book it is stated that a driver must possess not only a licence, but also a knowledge—by heart—of the rules of the road, most of which would be pointed out in a later chapter. We have been unable to find this chapter, perhaps because when the editor got to it, he discovered that no proper index existed.

* *Diabetes, its Treatment by Insulin and Diet*. By Orlando H. Perry, M.D., F.A.C.P. Fourth revised and enlarged edition. With an introductory foreword by John D. Deaver, M.D. Philadelphia: F. A. Davis Company, 1928. (51 x 74 pp. 152 figures. 2 dollars net.)

† *Alastrim et Varicelle—Encephalites post-vaccinales*. By Ricardo Jorge. Lisbon: Instituto Central de Higiene, 1927. (Sup. 8vo. 80 pp. 1r + 183.)

‡ *How to Drive a Car*. By the Editor of *The Motor*. Tenth edition completely revised. London: Temple Press, Ltd., 1928. (Cr. 8vo. pp. 311 + 144 illustrations. 2s. 6d. net.)

INTERNATIONAL CONFERENCE ON CANCER.

MEETING OF DELEGATES IN LONDON

THE International Conference on Cancer, arranged by the British Empire Cancer Campaign, has been held in London this week. Delegates attending from abroad numbered just over one hundred, representing fourteen European countries, the United States, China and Japan, and six British Dominions, in addition, more than two hundred representatives of British hospitals, medical societies, public departments, and branch sections of the Cancer Campaign were registered. The British Medical Association was represented by Mr R. G. Hogarth, Past-President, and Sir Thomas Horden.

Reception by the King

On the day of assembling (Monday, July 16th) the delegates, from abroad, together with the officers and members of the Grand Council of the Empire Campaign, were received by the King at Buckingham Palace. In reply to an address presented by Sir John Bland-Sutton, President of the Conference, His Majesty said:

I thank you very sincerely for your address and I am happy to welcome the delegates of the International Conference on Cancer. It is both gratifying and encouraging that representatives of universities, medical schools and other learned bodies and men who have won distinction in all parts of the world by their work in research medicine and surgery, have been able to attend this Conference. We in this country are indebted to the British Empire Cancer Campaign for much useful service in the field of cancer research and particularly for organizing this Conference to take counsel together for the relief of suffering humanity. This large and distinguished assembly is a happy omen for the final success of the campaign for they will have opportunity of looking from every angle at this great and complex problem of contributing to the general knowledge any light upon the subject gained by individual experience and of discussing and comparing the various practical methods for combating the disease. In struggling against so powerful and insidious an enemy there is need for the most efficient staff work and the closest co-operation between all arms of our forces.

I note with interest that your object is research both into the cure and causes of cancer. No doubt in the last resort the discovery of the cause is the only certain and absolute means of cure. But I am glad that you have not ignored the practical side of the problem. Remembering the thousands of sufferers from cancer I feel that if your discussions lead to advance in diagnosis, treatment or even palliation of the disease, this Conference will have justified itself and earned the gratitude of mankind.

I am grateful for the assurance that you recognize my sympathy shared also by the members of my family with the work upon which you are engaged. Throughout his life my father was deeply interested in all hospital work and especially in cancer research, and I myself as President for several years of the Cancer Research Association know the value of their labours and am glad that my second son is now President of the British Empire Cancer Campaign.

I appreciate your pledge to pursue your quest to the end and wish you God-speed in your arduous and beneficent work, trusting that in years to come men may be able to look back to the deliberations of this International Conference as the beginning of ultimate triumph in the long war against cancer.

In the evening a reception to the delegates and their ladies was given by Sir John and Lady Bland-Sutton at their house in Brook Street.

Opening of the Conference

The delegates met on Tuesday morning at the house of the Royal Society of Medicine when a letter of welcome was read from the Duke of York, who expressed the hope that the united experiences of those attending the Conference would mean that a stimulus was given to the hospitals, institutions and research centres from which they came, and to which they would return refreshed with new ideas and more intimate knowledge. He added that although he and the Duchess of York would entertain the delegates at Lancaster House, St James's, on the following evening, he could not let the opening of the Conference pass without wishing God-speed to all concerned.

SIR JOHN BLAND-SUTTON contented himself with the briefest of opening addresses. It was recognized by wise men who studied nature closely, he said, that living matter manifested an innate rhythm which induced insects to swarm and vertebrates to congregate, this irresistible impulse was for the welfare of the species, and was

manifest also in human beings "We are to-day in the midst of a swarm of able men keenly interested in a disease which, if we may believe the alarmist reports of irresponsible writers in the lay papers, threatens to exterminate civilized human beings. In this hive of busy men we have physicians, surgeons, pathologists, bacteriologists, radiologists, physicists, and statisticians—indeed, as much subdivision of labour as may be found in a hive, a foramen in a, or a terminus. Out of this world-wide swarming we hope much good may come to allay public anxiety in regard to this puzzling disease. The profession is neither torpid nor asleep in regard to the importance of grappling with the problem, and I offer in the name of the British Empire Cancer Campaign a hearty welcome to all delegates, many of whom have travelled long distances over sea and land to help in devising means for the conquest of cancer."

After these opening proceedings the delegates divided themselves into two sections, some remaining at the Royal Society of Medicine for a discussion on "The relative values of surgery and radiation in the treatment of cancer of the cervix uteri, rectum, breast, and buccal cavity," which was arranged to occupy two mornings, while other delegates went to the College of Nursing, where a discussion was held on "The etiology of cancer."

RELATIVE VALUES OF SURGERY AND RADIATION

In the first discussion, which was presided over by Sir JOHN BLAND-SUTTON, the general subject was opened by Professor C. REGAUD, of the Radium Institute, Paris. The radio-sensitivity of cancers, he said, was extremely variable. In Paris the term "epidermoid epithelioma" had been used to describe a stratified pavement epithelioma, which structurally exhibited in some degree the morphological changes or manner of growth peculiar to the epidermis. Such epidermoid epitheliomata of the skin, mouth, cervix uteri, and vagina formed a homogeneous pathological group and displayed a similar behaviour towards radiation. Of the two different species of cancer, epidermoid and glandular, in the same situation—the cervix uteri—cures by selective radiotherapy had been obtained only in the former. The cause of this difference of behaviour appeared to depend on the activity and rhythm of division on the one side and the secretory function on the other. In addition, many other factors independent of radio-sensitivity influenced the results of radiotherapy, such as the extent of the primary cancer, its distant spread, its accessibility to the various radiotherapeutic procedures, and the variable robustness or radio-resistance of the tissues and organs through which the rays had to travel before acting on the tumour. Ray action could be brought to bear on a small neoplasm which was out of the question in one more extensive. His conclusion was that none of the methods of treating cancer could promise uniform success, the judgement must remain impartial, and the various fields of technique continually compared.

Cancer of the Cervix Uteri

Dr MALCOLM DONALDSON (St Bartholomew's Hospital) gave the following grounds for definitely deciding in favour of radiation as against hysterectomy:

- (1) The negligible mortality due to the radiation treatment.
- (2) The fact that statistics of survival rate are in no way inferior in the case of radiation to those following hysterectomy.
- (3) By improving the technique of radiation treatment the number of patients who seek advice early will be increased and the results will correspondingly improve.
- (4) It will bring into general use radiation treatment for those cases which have passed the possibility of being completely restored to health.
- (5) It will encourage the younger generation of gynaecologists to adopt a method of treatment which the greater number will be able to carry out more successfully than Wertheim's operation, recognized as one of the most difficult operations in the whole domain of surgery.

Dr Donaldson suggested that an international bureau of medical statistics should be set up by the League of Nations

whereby certain standards might be recognized with which surgeons would have to comply if they desired universal acceptance for their figures, also that much might be done for the education of the public if insurance companies would give special terms for those who presented themselves every six months for medical examination. Dr A. LACASSAGNE (Paris) held that correct treatment in every case must comprise irradiation by multiple foci. Four very variable factors conditioned the success of radiotherapy—namely, the extent of the disease, the quality of the treatment, the histological variety of the tumours, and any associated infection. Dr W. P. HEALY (Memorial Hospital, New York) said that epidermoid carcinoma of the cervix might be classified histologically into three grades, based primarily upon the degree of anaplasia. These groups corresponded with three degrees of potential malignancy, as well as with three grades of radio-sensitivity (low, medium, and high). The factors which determined prognosis in carcinoma of the cervix, as in other diseases, were multiple, the most important were the clinical stage of the disease at which treatment was instituted and the radio-sensitivity of the tumour. When surgery was employed the important factors in prognosis were early diagnosis and the degree of malignancy as indicated by the cell type in the individual tumour. He believed that the treatment of carcinoma of the cervix by radium and x-rays offered better results than surgery, without the attending operative mortality. Dr MAX CHEVAL (Brussels) described how, for two years, he had used a device containing 4 grams of radium element to treat deep-seated tumours by means of large fields, as usually practised in x-ray therapy, and he reported continuing good results. Just as better results had been obtained in surgery by extended operations as against the old-fashioned technique of parsimonious excisions, so, he believed, in radiotherapy the same thing would occur. Dr ZWEIGEL (Munich) compared the results of various workers—mostly German—in treating cancer of the uterus by radiation and by surgery. The percentage results of the two methods worked out to about the same.

The discussion of this part of the subject was concluded by two British surgeons. Mr COMPTON BERKELEY gave figures relating to his experience of radical operation for cancer of the uterus. He had analysed the notes of more than 600 cases operated on by himself and Mr Victor Bounce, and going back to before the radiation era. The immediate mortality was 17 per cent, but he pointed out that such mortality was largely a matter of fortune, he had operated on two series of 36 and 22 cases without a death, followed by 9 deaths in 18 cases. It was his custom to remove all glands, large or small. In 616 cases, 276 had carcinomatous glands, and 340 had not. From a study of figures at his disposal, if the glands were carcinomatous the immediate operative mortality was raised from about 12 to 20.6 per cent. Of 240 patients alive at the end of three years, out of a total of 517, 36 per cent had had carcinomatous glands, and out of 162 alive at the end of five years, 37.8 per cent had had such glands. Mr Victor Bounce remarked that he was not there to defend surgery as against radiation. He had always said that when radiologists proved by figures that they got better results than surgery, he would abandon surgery and take to radiation. But it was a question of classification. Instead of splitting up figures into a dozen categories it would be better for the radiologist simply to present the sum total of the cases he had treated by radiation and those that had survived five years. For himself he thought five years not enough, ten years should be taken before absolute cures were claimed. With regard to his own figures, up to the end of 1926 he had operated on 332 cases and had had 52 deaths—an operative mortality of 15.9 per cent. There were 137 deaths by recurrences, and of the remaining 143, 13 died of other diseases, but 6 of them after the five-year period had passed, 30 had been lost sight of, but 17 of these had been under observation for at least five years and 100 of the total number were still known to him, and of these 64 had passed the five-year period. Further, 51 patients were alive and well from ten to nineteen years after operation, out of this total of 332.

Cancer of the Rectum

Sir CHARLES GORDON WATSON, opening this part of the subject, said that his experience of the use of radium for cancer of the rectum by open operation dated only from a visit to Dr. Neuman's clinic in 1925. Since then he had himself treated 27 cases of cancer of the rectum, employing radium salt in platinum needles. He described in detail his methods of approach by open operation from the perineum and by direct barrage through the abdomen, with radium barrage per vaginam and radium in bulk in the lumen of the rectum. In his opinion the whole future of successful radiation of cancer tissue would depend upon the possibility of administering an optimum dose in any individual case at the present time empiricism was the main guide, and standards must necessarily be rough. Of the first 15 of the 27 cases, 2 were taken to be cures, and of the more recent cases there were several which he hoped would be cured. With one exception, all the cases had shown a period of improvement. The time might come when there would be such control of the action of radium that it would be possible to say that a case, though suitable for a radical surgical operation, could be cured with greater certainty and less risk with radium.

Mr. W. FINEST MILES, with the aid of some excellent schematic illustrations, described the method of cancer spread from the primary growth in the rectal wall to the parts outside the rectum. He showed that the dissemination of cancer cells by what he called the extramural lymphatic system was more widespread and of much greater consequence than that which involved the intramural lymphatics, and that of the three zones of possible extramural spread the upper zone was the most important. Since 1907 he had consistently employed the abdomino-perineal operation in all suitable cases, planning it so that the tissues comprising the upward as well as the downward and lateral zones of spread could be widely removed. The survival rate was infinitely better than in the case of the operation performed from the perineum alone. Mr. J. P. LOCKHART-MUNTER gave particulars of 223 patients who had survived operation for cancer of the rectum, of whom 130 were operated on more than five years ago. When operation was performed under most favourable conditions the mortality was about 35 per cent, and the cures on a five-year basis 50 per cent. He thought it could be said that the best method of treatment for cancer of the rectum was by operation, that the prospects of cure were good, and in early cases excellent, and that no facts had as yet been brought forward to justify the recommendation of radiation treatment in place of operation where the latter was possible. The final contribution of the morning was that of Dr. DOUGLAS QUICK (New York), who spoke of radiation methods, preferably radium, in inoperable cases.

THE ETIOLOGY OF CANCER

The second discussion was presided over by Lord DAWSON of PENN, who said that medicine, above all other callings in the world, was a cementing force between the nations. Physicians and surgeons were gathered during this week as comrades to try, by the exchange of ideas, to do something towards removing one of the great scourges of the world. In a problem of such magnitude there were many and great difficulties, and so those attending the meetings did not come in any spirit of light-hearted optimism, thinking that by the exchange of a few words the gigantic problem would be removed, all that could be hoped was that this conference might do something to promote a further stage in its elucidation. Only by a summation of the results of the efforts of workers of all nations could real advance be made, only by treading the narrow road of patience and perseverance would victory eventually come.

Professor JAMES EWING (New York) opening the discussion, said the problem of the origin of tumours was different from that of their continued growth. Therefore one question concerned the exciting factors the other the nature of the tumour process itself. The exciting factors of cancer did not act alone, but always with predisposing causes. The most important and oldest conception of the origin of cancer was that of chronic irritation, and the supervention of cancer in previously normal cells through

a series of complex tissue changes, had been experimentally proved. Some irritants excited only a slowly progressive process, so that it was a long time before the stage of actual cancer was reached, as in the case of leucoplakia following excessive smoking. Soft x rays and to a less extent sunlight and heat produced cancer, and carcinoma had been known to develop after a single burn of the skin. Cancer of the penis, unknown in Jews, could result from the irritation of decomposing smegma and infection. The older physicians were probably correct when they said that cancer of the mouth would probably disappear if tobacco, bad teeth, and syphilis could be eliminated. A fruitful field of research lay in the analysis of the factors of irritation surrounding the inception of such acinar structure as the pancreas, liver, salivary glands, prostate, and thyroid. The question of trauma as a producer of cancer was still a highly controversial one, but the doctrine of precancerous lesions was an essential part of the irritation theory. It seemed clear that cancer arose only on tissue which had become altered by chronic irritation.

Referring to heredity, Professor EWING said generalizations on this matter were unsafe, each form of cancer must be regarded as a problem by itself. No satisfactory evidence was forthcoming of a hereditary predisposition to cancer in normal tissues. Miss SLYE of Chicago had clearly shown that selective breeding in mice might intensify the hereditary tendency. So far there was no complete answer to the query as to how the cells acquired the property of absorbing nutriment and multiplying incessantly to the great detriment of the body. The most profitable field of research dealt with the presence of growth-stimulating substances in embryonic and tumour tissue. Warburg, in his researches on the tissue respiratory rates and the lactic acid content, had contributed a valuable chapter on this subject. Professor EWING declared that there was no one exciting cause of cancer, nor one great secret in the cancer cell.

Professor F. BLUMENTHAL (Hamburg) pointed out that not all cancers arose from a parasitic origin, and said that cancer belonged to the category of malignant blastomas. All cancer stimuli seemed to be exerted by way of an inflammatory stage.

Professor ARTHUR LEITCH (London Cancer Hospital) said that in the last twenty years two outstanding discoveries had intrigued the minds of experimental pathologists, the first of which was due to Rous and Murphy and the other to the late Johannes Fibiger. The latter was the first to produce cancer experimentally. It seemed now necessary to modify considerably the theory of irritation in respect of cancer as originally stated, since only a few irritating substances seemed able to induce tumour formation. For example, a pyrogenous extract of tobacco was applied to the skin of mice for a long period, and though chronic ulcerations resulted, at no time did neoplastic growth occur. Moreover, what would produce cancer in one species of animal would not do so in animals of a different species. All carcinogenic agents acted slowly, the fact that cancer was a disease of middle or old age could not be attributed to mere senility of tissues, it was those who had reached that period of life had allowed the necessarily long time to elapse. Even when it was clear that some biological change had occurred the cell was anatomically normal. He discussed the claims of Gie and Barnard to have discovered a cancer virus from fowl tumour, which he negatived. He thought that the "growth substance" might yet come within the range of experimental investigation.

Professor A. BONNEL (Strasbourg) showed a large series of slides illustrating his investigation of the rat liver sarcoma, and the adeno-carcinoma of the mouse. The cancer age, he pointed out, coincided with the age of whitening of the hair, at which time the trophic system became a phagocytic system.

Professor H. T. DEELMAN (Groningen) discussed the question of leucoplakia and its relation to cancer in a woman aged 72, who had a small cancer on the mucosa of the mouth, but it was not ulcerating. Microscopically the tumour tissue passed gradually into the surrounding leucoplakia, there was no sharp boundary between the two. There seemed to have occurred a gradual change of the

pre-existing epithelium into cancer cells in a centrifugal direction. In the very early stages of the growth there were appearances only explicable on the assumption of inductive growth.

Dr J B MURPHY (New York) said that now, after many experiments of a crucial character, the real nature of the cancer agent seemed to be emerging. Two striking facts seemed, he thought, to indicate that one had to deal with endogenous chemical substances rather than with extrinsic living viruses. The first of these was the selectivity of the tumour agents. His chicken tumour No. 1 at first would grow, for four generations, only in blood-related animals of a special strain of Plymouth Rocks, for another eight generations it grew only in another pure-bred Plymouth Rock strain. Only after many generations would it grow in any other variety. The second point concerned the specificity of the types produced. The parasitic theory of cancer formation he regarded as highly improbable, from several considerations which he enumerated.

Professor J MURIN (Louvain) dealt with the question of metabolism and experimental cancer, and related the research he had conducted with the electrolyte ionium. This disintegrated slowly, giving off only alpha rays. Injected in large doses before commencing tar applications, and in moderate doses during them, it resulted in a reduction of the time needed for the induction of cancer in mice, and in tar cancer in rabbits it prevented the regression of the cancers after tar applications had been discontinued. He was still working on the influence of various albuminoid substances on tar cancer, and had tried the effects of various diets in this form of cancer. So far the effect of the liver diet of Whipple and Minot was seen to be to accelerate the evolution of tar cancer, and an effort was being made to determine the nature of the active substance.

Professor RHOEA LOEWY spoke of her attempts to produce cancer in animals by giving them diets which were over-rich in certain constituents, such as vitamins B and D. In giving such foods it was found that the respiration quotient was altered—namely, from the average of -0 to -4 . It was clear from her work, she said, that cancer was not a local disease, but a change in the whole body metabolism, a change which could be brought about by a variety of means.

Professor J MCINTOSH (London) said that the various theories which had been put forward in explanation of the development of cancer could be collected under two groups: biological and parasitic. He dealt shortly only with the virus theory. If a virus was so small that it could live and multiply in the interior of cells it was well situated for influencing such cells. Hitherto, he thought, the virus theory had been regarded too lightly, as the evidence had not been well balanced. The evidence that the Rous sarcoma was due to a filterable virus the speaker regarded as good, though, so far, there had been no experimental evidence that ordinary mammalian tumours contained a virus. Attempts to cultivate the activating agent had been inconclusive.

Dr TEUTSCHLAENDER (Heidelberg) said that three important factors had to be understood in attempts to prevent cancer—that is, (1) the exogenous agent in relation to the cells capable of growth, (2) the disposition (local and general) of the organism concerned, (3) the exposition. All three must be present, though their relative degree might vary. In the case of endogenous cancers, irritation played a secondary role in comparison with that in irritation cancers. He dealt at length with the question of the long exposure of healthy cells to cancerogenic agents as a necessary preliminary to the onset of true cancer.

Professor BIERICH (Hamburg) referred to the accumulation of lactic acid in cancer tissue, all cancer tissue was rich in this acid, and it proceeded to invade neighbouring tissues, so breaking down barriers which might otherwise have hindered the progress of the disease.

Professor PROUST (Paris) concentrated on cancer of the skin, and suggested that public authorities in all countries should closely watch the cultivation and handling of vegetables eaten by the people.

MEDICINE AND DIAGNOSIS

On Wednesday morning the conference met in four sections—Medicine and Diagnosis, Surgery, Radiology, and Pathology and Public Health. In the first section, over which Sir WILLIAM WILCOX presided, a discussion took place on "Some present-day medical aspects of cancer."

Cancer Cachexia

Sir THOMAS HONNER pleaded for a policy of more activity in very many cases of cancer cachexia. Too often one saw a meagreness of effort to combat the condition which betokened the doctor's hopelessness. Even when the growth was inoperable the treatment of the cachexia must be faced, and the attitude of the medical man should be to prolong life by all means in his power without adding to the patient's discomforts. The treatment of the general health in cancer was important as an adjunct to whatever was being done for removal or resorption of growth. The intrusion of the hyman with his pancreas was a tiresome obstruction, and the gratuitous advertisement given him by certain of the medical profession was an almost intolerable nuisance. In the matter of diet a wave of enthusiasm was now being witnessed in favour of vegetables and fruit, but the testing of diets at the Cancer Hospital led to the conclusion that patients suffering from inoperable cancer maintained their weight, general tone, and morale much better on a mixed diet than on the type of dietary just mentioned. Of the relief of cachexia after radiation treatment in some inoperable cases there could be no doubt. The keen practitioner would watch his patient carefully for the possibility of helping him by means of limited operations, if he could not control sepsis by this means he might do so by diathermy, by light, or by the use of antiseptics. Antigen therapy was sometimes of definite assistance in this connection.

Dr WILLIAM HUNTER remarked that cancer cachexia now was not comparable with what it was thirty or forty years ago, when a truly ghastly picture was presented.

Primary Carcinoma of the Lung

Dr ROBERT HUTCHISON (London Hospital) opened a discussion on the alleged increased frequency of primary carcinoma of the lung. He gave figures from his hospital records from 1907 to 1925, which suggested that there had been a steady increase in such cases during the last decade—not only an absolute increase, but a relative increase to carcinoma in general. His study of the records did not lend much support to the idea that the increase was to be attributed to the great epidemic of influenza. Nor was there any clear evidence in favour of the theory that the cause was irritation of the lungs by dust and fumes, though it was certainly suggestive.

Dr L S T BURRELL (London) spoke of each of the three groups in which malignant disease of the intrathoracic viscera was seen by the physician—namely, endothelioma of pleura, carcinoma of lung, and sarcoma of mediastinum—and indicated some possibilities which should not be forgotten in the diagnosis of intrathoracic neoplasms. Dr POWELL WHITE (with Professor Shaw Dunn) brought forward the results of an inquiry made by the Manchester Committee on Cancer into the incidence of primary intrathoracic cancers at various large hospitals in Great Britain. A clear and steady rise in the percentage of these cases as revealed at autopsies was shown. Of the six large cities taken, Manchester showed the highest percentages and the most consistent increase. Professor T SHENNAN (Aberdeen) described, with the help of some beautiful photomicrographs, twenty-two tumours of the bronchus and lung removed *post mortem* from adults. He mentioned that a factor possibly of very considerable etiological importance was the presence of old standing pulmonary disease. Professor W G BARNARD (London) described certain growths frequently called "out-celled" tumours, which had in the past, with few exceptions, been regarded as sarcomata of the mediastinum, and showed that they were in reality medullary carcinomata.

In the course of more general discussion Dr LEONARD HILL gave an account of some feeding experiments on

mico. Large numbers of the animals developed papillomata of the lung, especially as age advanced—that is, in the second year—but the quality or the adequacy of the diet appeared to have nothing to do with the incidence. Professor DUNCAN GRAHAM (Toronto) testified that in his city a definite increase in primary cancer of the lung had been noted during the last ten years. He had no suggestion to offer as to the cause. Dr J G TULL said that in Singapore no increase in primary cancer of the lung was observed, but secondary infections of the lung were seen following the widespread frequency of primary cancer of the liver. Dr JOHN ANDERSON (Hong Kong) said that among 5,000 autopsies he had only seen primary carcinoma of the lung in one case. Dr A T TONN (Bristol) mentioned the possibility of arsenic as a cause of cancer, in view of the widespread use of arsenic in treating syphilis. Dr W C MACCARTY (Mayo Clinic) also had experienced an increase in primary carcinoma of the lung. Sir WILLIAM WILCOX said that at St Mary's carcinoma of the lung certainly appeared to be much more frequent than formerly.

SURGERY

Bone Sarcoma

The Section of Surgery met, under the chairmanship of Sir CHARLES GORNO-WATSON, to consider the classification and treatment of bone sarcoma. The discussion was opened by Professor JAMES EWING (New York), who presented a classification of bone sarcoma into osteogenic, giant-cell tumours, myeloma, and liposarcoma, with subdivisions of the first three. He supported his classification by the presentation of typical cases, and then proceeded to demolish it by the presentation of atypical cases which apparently did not come into the categories cited. Nevertheless, Professor Ewing thought that certain exceptions and intermediates did not destroy the value of the classification. With regard to methods of treatment, he considered that osteogenic sarcoma of the periosteal, medullary, and subperiosteal, telangiectatic, and sclerosing types were best treated by immediate amputation. It would, however, be possible to obtain a certain proportion of successful results in periosteal sarcoma by radiation, and this applied also to fibrosarcoma. Giant-cell tumours, with certain exceptions, were best treated by radiation. He did not think there would be any great improvement in therapeutic results in the group of bone sarcomas so long as those concerned followed the plan of waiting for the full development of the disease so that it could be recognized in the radiograph or by clinical observation. The time had arrived when surgeons and pathologists should recognize that osteogenic sarcoma should be treated on suspicion.

Mr SAMUELSON HANDELY said that for periosteal sarcoma of the long bones he had adopted radium treatment of the tumour, using heavy doses, the technique of which he described to the Section. He was able to point to quite a small group of cases in which that treatment, repeated once or more, had been successful over periods of time up to nine years. In the radium treatment of periosteal sarcoma it was necessary to ignore the danger of producing a limited necrosis of the normal bone in the neighbourhood of the tumour. Unless that risk was taken it was probable that the dose given would be insufficient to destroy the tumour. He confessed that such a method of deliberate risk was far from ideal, but he anticipated that with improved technique it would be possible to avoid the danger. Dr W B COLEY (Cornell University) described his toxin method of treatment of malignant bone tumour by selective poison, many of his patients remained well from eight to eleven years after treatment. Mr R C EASLIE thought curretting a more hopeful procedure in endosteal tumours than was generally realized. In diagnosing endosteal tumour only one method was safe—namely, exploration and careful microscopic examination. Even then it was necessary to remember that the cellular structure of endosteal tumours varied so enormously that mistakes arising from hurried microscopic examination were not uncommon. Professor M J STEWART (Leeds) spoke on giant-cell tumour and myeloma of bone, and the discussion was continued by Mr JULIAN TAYLOR (University College Hospital) and Dr

CHANNING SIMMONS (Harvard), the latter describing the results of amputation in cases of giant-cell and other tumours. Professor FICHERA (Italy) spoke of the necessity in diagnosis of recognizing atypical conditions.

In the Section of Radiology a discussion took place on biological effects of radium and x rays, and in the Section of Pathology, Statistics, and Public Health the subject of occupational cancer was debated by many speakers. Reports of these discussions will appear in our next issue.

MIDDLESEX HOSPITAL BANQUET

On Tuesday evening the Board of the Middlesex Hospital and the Middlesex Cancer Hospital and the Council of the Medical School and Bland-Sutton Institute of Pathology entertained a large company to dinner at the Savoy Hotel. Prince Arthur of Connaught, Chairman of the Hospital, presided.

The main toast, that of 'Cancer Research', was proposed by Mr ERIC PEARCE GOULD, Dean of the Medical School, who welcomed the distinguished workers in all branches of the field of cancer research now gathered in London. He said that the Middlesex Hospital was proud to think that so far as the special study of this disease in recent times was concerned it had been early in the field. The charity of Samuel Whitbread (1720-1796), whose portrait appeared on the dinner programme, gave to the Middlesex Hospital its first ward set apart for cases of incurable cancer. The first notable work on cancer was published by members of the hospital staff in 1857. He believed that any success that had attended cancer research since those days at the Middlesex Hospital was due in no small measure to the fact that the work had been carried out in an institution which combined under one management a general hospital with a complete medical staff, a medical school with teachers of distinction, and complete departments for all its branches, and special personnel and laboratories for research. From this combination arose the possibility of co-ordinating cancer research in all its branches—clinical, pathological, biological, radiological, and statistical. In the belief that there were special opportunities for doing valuable work at hospitals where the clinical and experimental aspects could be studied side by side, they recognized with peculiar satisfaction that the British Empire Cancer Campaign—to which they owed the conference that occasioned the dinner—had seen fit to support in the most handsome way the progress made before the Campaign was founded, at the Middlesex Hospital and the Cancer Hospital, and, further, that the Campaign had made possible the institution of cancer investigation work at many other important London and provincial hospitals. The lay public were perhaps impatient that the lavish expenditure of effort of which it read, and the money it was asked to provide, had as yet apparently resulted in so little. Workers on the problem of cancer did not share that impatience, believing two things—that Nature revealed her secrets only to the importunities of patient, unwearying, honest endeavour, and that in the case of cancer research the goal at which they aimed was worth generations of this toil. In conclusion Mr Pearce Gould asked the company to drink with him in silence to the memory of the great men upon whose early labours they were now building, to the successful progress of those now striving in this field, and to the ultimate success of cancer research. The toast was briefly responded to in excellent English by Dr H T DEELMAN, Professor of Pathology in the University of Groningen, and Dr RAFFAELE BASTIANELLI, Professor of Surgery in the University of Rome, who each paid compliments to British work and British workers in the realm of cancer investigation. Mr W SAMUELSON HANDELY, Senior Surgeon to the Middlesex Hospital, in proposing the health of the many distinguished guests from abroad and at home, said that cancer could not be fought by a small professional army alone but was everybody's affair. Professor C REAULT, Director of the Radium Institute Paris replied in graceful terms in French, and Dr JAMES EWING, Professor of Pathology in Cornell University, who also responded said that it was now recognized that the cancer patient must be the subject of careful comprehensive study and consultation by workers in many departments of medical science. Sir JOHN BLAND SUTTON, Consulting Surgeon to the Middlesex Hospital and President of the Conference in proposing the health of the chairman, spoke of the great services given to the Middlesex Hospital by Prince Arthur of Connaught and other members of the Royal Family, and the CHAIRMAN, in his reply expressed the hope that this conference in London would advance materially the cause they all had at heart.

PUBLIC HEALTH TEACHING

A GUIDE TO COURSES AND TESTS

It is more than three years now since the Current Resolutions and Rules for Diplomas and Degrees in Sanitary Science, Public Health, and State Medicine, as adopted by the General Medical Council, came into operation. It is to be presumed that within that period the various teaching and examining bodies have either amended old ways or adopted new ones, with the object of giving due effect to the changed requirements. Many persons, interested either directly or indirectly in public health work, have doubtless speculated from time to time as to the probable scope of the new courses as contrasted with the old. Many young medical graduates, both at home and abroad, desiring to take a special qualification in public health, have felt the need of guidance and information as to the institutions which are best fitted to give the new teaching. The needs of both of these classes will be well served by the Guide to the public health regulations, courses, and examinations prepared with praiseworthy thoroughness by Dr. Andrew Balfour, and published by the British Medical Association.

It appears from this valuable compilation that degrees in sanitary science are conferred in England by the Universities of London, Durham, Liverpool, and Birmingham; in Scotland by the Universities of Glasgow and Edinburgh; and in Ireland by the University Colleges of Dublin and Cork. In London and Durham the course is one year; in Liverpool and Glasgow two years. It is advanced as a special feature of the London degree that its conditions preclude its being taken by a part-timer. This is true, but surely not distinctive. Any course nowadays, under the new regime which admits the part-timer to either a degree or a diploma in public health, must be rather illusory. In London a sanitary survey, in Liverpool a report on hygiene, and in Glasgow an investigation in applied hygiene form part of the course for the degree. These are special features.

Diplomas in Public Health are granted in England by the Universities of Oxford, Cambridge, Durham, Leeds, Liverpool, Manchester, and Birmingham, and by the English Conjoint Board; in Scotland by the Universities of St. Andrews, Glasgow, Aberdeen, and Edinburgh, and by the Scottish Conjoint Board; in Ireland by Trinity College, Dublin, the University Colleges of Dublin and Cork, Queen's University, Belfast, and the Irish Colleges; and in Wales by the University of Wales. The examination for the diploma, in terms of the regulations, is required to be in two parts, the second of which may not be taken prior to the completion of two years from the date of obtaining a registrable medical qualification. No partial pass in either Part I or Part II is permitted. In each part all the specified subjects must be taken and passed at one sitting. The course of actual study from start to finish must not be less than one year, and, given application and good fortune, need not exceed it.

One of the differences between the old system and the new is the reduction of the time devoted to chemistry. Another is the expansion of bacteriology to keep pace with progress. Another is the introduction of parasitology as a named subject, generally regarded as including protozoology, entomology, and helminthology. Another is the elevation of meteorology jointly with climatology into a subject of Part I in which a separate pass is required. The changes in Part II mainly consist in the more precise delimitation of subjects and courses, most of which had been previously taught. Dr. Balfour's comments upon the extent to which the teaching and examining bodies have complied with requirements under these heads are apt and to the point.

As regards his comparison of the universities and other bodies with one another, were it not for Dr. Andrew Balfour's modest disclaimer of any pretension to completeness, and his statement that here and there, with some object in view, he has considered it desirable to expand, the critical reader might be disposed to express surprise at the differences in the space which he has allotted in

different cases. He quotes some courses with a wealth of detail extending to a number of pages, and dismisses others with a summary. Some of the full descriptions cited are admirable, others are merely lists of the obvious. Dr. Balfour is inclined to allow credit to bodies which name port hygiene in their curricula, but for universities situated in maritime cities port hygiene is so much a matter of routine that it has not apparently occurred to them to mention it in their syllabus or prospectus. They have, however, themselves to thank if they have failed to receive their due. They should cultivate the art of self-expression.

The second part of this handy guidebook gives information about qualifications in tropical medicine and hygiene. A degree or diploma in tropical medicine is granted in England by the Universities of London, Cambridge, and Liverpool, and by the English Conjoint Board, and in Scotland by the University of Edinburgh. Among the institutions which provide qualifying courses is the London School of Hygiene and Tropical Medicine.

Dr. Balfour's compilation is a most helpful piece of work, and carries us as far as we can go for the time being. As the various courses proceed and develop the test of their merit will effectively be made in two directions: first by the judgement of the General Medical Council, which has more direct control over these curricula than over undergraduate medical teaching, and second, by the record of the various graduates or diplomates as they make their places in the administrative field. As regards the result of the former test we do not presume to speak, as regards the latter we hazard the conjecture that the public health courses whose scientific training is soundest and most exacting will, in the end, produce the medical officers best qualified to win distinction and serve the community in positions of trust.

ILLEGAL TRAFFIC IN DANGEROUS DRUGS

BRITISH REPORT TO THE LEAGUE OF NATIONS

THE report to the League of Nations by the British Government on the traffic in opium and other dangerous drugs for 1927 is accompanied by an official communique which states that the extent of the traffic illustrates the need for the application in all countries of the methods of control laid down in the International Opium Convention of 1925, which is discussed elsewhere in this issue (p. 117). Regarding smuggling the report records that there is nothing of special interest to relate in the year under review, during which there were a few unimportant cases. The communique, however, adds the information that two important seizures of smuggled cocaine have already been made in London this year. One consignment, of Japanese manufacture, was brought into this country by a lascari seaman, the other, of German manufacture, had been exported from that country to Lithuania, whence it was smuggled into Great Britain by a Lithuanian resident in London. Proceedings under the Dangerous Drugs Acts were initiated against 60 persons (compared with 95 in 1926 and 68 in 1925), of whom 45 were convicted and sentenced, or dealt with under the Probation of Offenders Act. The commonest offence was "unauthorized possession." No information was received during 1927 that any firm in Great Britain had been engaged in smuggling drugs abroad, nor have any seizures of drugs of British manufacture been reported.

In connexion with the international illicit traffic in drugs, information regarding 47 cases was transmitted to the League's Opium Advisory Committee, particulars being supplied also to any other Governments concerned. A large number of seizures were reported from British territories in the Far East. The direct interchange of information with other Governments proved valuable, and arrangements for an interchange agreement were made with the United States authorities. Action was taken in several cases to prevent vessels engaged in the opium traffic in Chinese waters from enjoying the protection of the British flag.

Statistics of the manufacture and export of morphine and heroin show that the production of morphine decreased from 97,502 oz. in 1926 to 80,103 oz. last year, and the export from 73,289 oz. in 1926 to 66,107 oz. last year. The production of heroin, however, rose from 11,113 oz. in

¹ Guide to Regulations, Courses, and Examinations for Qualifications in Public Health, in Tropical Medicine and Hygiene in Great Britain and Ireland. A Compilation and Brief Review, with Notes and Comments by Andrew Balfour, M.D., C.M.G., M.D., D.P.H. London: British Medical Association, 1928. (Post 8vo, pp. 176, 3s. net.)

1926 to 17,427 oz last year, and the export from 6,799 oz in 1926 to 11,165 oz last year. The export of heroin to France increased on the year by 4,610 oz, while the export of morphine fell by 5,595 oz.

Imports of cocaine amounted to about 16,000 oz. The report records the fact that for the first time in history the manufacture of cocaine by any firm in Great Britain has been permitted. During 1927 a licence to carry on experiments in the manufacture of this drug was issued to Messrs May and Baker, Limited, of Wandsworth, by the Home Office. The firm was not originally allowed to sell its product, but since the beginning of this year permission to do so has been granted.

STANDARDIZATION OF THERAPEUTICAL PREPARATIONS

THE League of Nations has just published the report* of this year's meeting of the permanent Commission on the standardization of serums, serological reactions, and biological products. The problems dealt with by the Commission are highly technical, for the bio-assay of drugs involves methods in which every detail has to be regulated exactly if reliable results are to be obtained.

The work of the Commission is, however, of great service to the medical profession. In the first place it secures international agreement regarding the units of measurement to be used. This alone is a great advance, for medical literature is international, and the use in works of reference of units which differ in value in different countries may lead to dangerous confusion. In the second place it is most important to have really trustworthy methods for measuring the activity of biological products, and the Commission is doing valuable work by its careful and critical examination of the numerous methods of standardization that have been evolved.

The following is a summary of the more important conclusions arrived at by the Commission.

I—STANDARDIZATION OF ANTIGENS AND ANTIBODIES

(1) *Anti diphtheritic Serum*

In view of new facts brought to light by the phenomenon of flocculation occurring in the mixture of specific toxin and anti diphtheritic serum the Commission decided to study the evaluation of anti-diphtheritic serum and of diphtheritic antigen (toxin and derivatives) by the flocculation method.

(3) *Anti tetanus Serum*

The Commission now proposes to adopt the following anti tetanic unit.

The unit is to be determined with a standard serum in such a way that its relation to the American unit is exactly 2 International to 1 American unit.

(4) *Anti dysentery Serum (Shiga)*

The Commission proposes to adopt a standard serum prepared and distributed by the Danish State Serum Institute to establish the international antitoxic unit.

The serum is prepared for distribution in such a way that 1 unit is contained in 1/200 of 1 c.c.m., and that a dilution in the proportion of 1:200 contains 1 unit in 1 c.c.m.

A test dose of a dysentery toxin shall be defined as such a quantity that, when 1 c.c.m. of this serum dilution is mixed with it, the mixture shall cause death in one third of the mice receiving it by intravenous injection.

When a toxin is standardized in this way it may be used in titrating the serums.

(8) *Blood Groups*

The Commission

learns with satisfaction that, on the initiative of the Health Organization of the League of Nations, the nomenclature proposed by von Dungern and Hirsfeld for the classification of blood groups has been generally adopted, and recommends that this nomenclature shall be adopted for international use, as follows:

O A B AB

To facilitate the change from the nomenclature hitherto employed the following is suggested:

Jansky	O(I)	A(II)	B(III)	AB(IV)
Moss	O(IV)	A(II)	B(III)	AB(I)

II Recommends the adoption of the following method of designating test serums:

Test-serum A (anti B)
Test-serum B (anti A)

II—STANDARDIZATION OF THERAPEUTIC SUBSTANCES BY BIOLOGICAL METHODS

(1) *Salvarsan*

The Commission endorsed the recommendation made at the Geneva Conference of 1925 with certain modifications. The chief alterations were that it was decided to recognize a test for experimental action on animals infected with spirochaetes as an alternative to that in which trypanosomes are used.

The Commission recommends that a 20 per cent excess of toxicity above that of the standard would be a suitable limit for tolerance. It also recommends that the standard samples for neosalvarsan and sulpharsphenamine provided by Professors Kolle and Vogtlin respectively for trial are suitable, as regards toxicity and experimental therapeutic activity, for adoption as the basis for the international standards.

(2) *Digitalis*

"No 3. The Commission considered that they had now sufficient evidence before them to justify a somewhat wider recommendation with regard to comparative methods of testing than that adopted by the Geneva Conference of 1925. It considered that the following methods might be recommended as suitable:

"(a) The frog method in the form recommended by the Geneva Conference, or in its other modifications.

"(b) The method using intravenous infusion in the mammal as described by Hatscher and modified by Magnus and his colleagues for the cat by Knäfl-Leuz for the guinea pig or by Tiffeneau for the dog.

"(c) The Commission considered that the methods described by Mansfeld, using portions of the isolated sinus venosus of the frog, and by Trevan using the isolated auricle of the rabbit merited further investigation with a view to consideration on a future occasion."

The Commission also recommended:

"That, when the dosage of digitalis or its preparations is expressed in units of activity, the unit employed for any preparation and in any country should be an international unit which should be defined as the specific activity contained in 0.1 gram of the international standard powder."

(4) *Insulin*

The Commission found that the results obtained by the use of the standard preparations recommended in 1925 were uniformly favourable, and that the unit adopted and recommended by the Geneva Conference of 1925 was now in use all over the world as the only unit of insulin. In view of this satisfactory position the Commission decided to adopt the recommendations of the Geneva Conference of 1925 as regards the standard of insulin without modification.

That the dry preparation of insulin hydrochloride, prepared by the Medical Research Council of Great Britain, at the request of the Edinburgh Conference should be accepted as the international standard preparation of insulin. That 1 milligram of this standard contains 8 units of insulin (or 1 unit=0.125 milligram), as provisionally defined by the Insulin Committee of the University of Toronto.

(5) *Pituitary Extract*

The Commission accordingly recommends, in the light of the uniformly favourable experience obtained since the Geneva Conference of 1925, that the dry preparation of the acetone-extracted fresh posterior lobe substance of ox pituitary be now definitely adopted as the international standard preparation for the biological evaluation of preparations of the posterior lobe of the pituitary body, whether containing all the active principles of the lobe, or the pressor or oxytocic principle only, in separate solution.

None of these conclusions requires much comment. In general it may be said that three years' experience in the use of the methods of standardization recommended at Geneva has shown that these are sound, and require only minor modifications.

It is interesting to note that as regards biological standardization experience has confirmed the finding of the Geneva Conference that the only sound method of standardization is to compare the activity of the preparation to be tested with a standard preparation of the same substance. For example, preparations of digitalis and the pituitary gland have to be standardized against standard preparations of these drugs, and experience has shown that it is not safe to attempt to standardize them against simpler chemical substances of known composition. For example, the methods by which digitalis was standardized against ouabain, and pituitary extract against histamine, are now recognized as unsound.

OXFORD OPHTHALMOLOGICAL CONGRESS

THE eighteenth annual meeting of the Oxford Ophthalmological Congress was held at Oxford on July 5th, 6th, and 7th. The attendance was well over a hundred, in matter for congratulation, since there were hardly any members from abroad present, owing, no doubt, to the fact that the International Congress of Ophthalmology will be held next year at Amsterdam. Members met informally at dinner on July 4th in the Hall of Keble College, which again offered its hospitality, as in former years. The advantage gained by residence in college, where each member is assigned rooms and becomes for the time being a student, is a prominent feature of this successful annual gathering of ophthalmic surgeons. When not occupied in the formal proceedings members exchange views on every aspect of the specialty, while friendships are formed or renewed in a manner rarely possible otherwise. This companionable informality is what was always in the mind of the founder of the congress, the late Robert W. Dayne, a brilliant and original thinker.

The proceedings of the congress were held in the Department of Human Anatomy of the University, kindly lent for the purpose by Professor Arthur Thomson, to whom the congress owes much. Year after year Professor Thomson has granted the use of his department, so that it may almost be regarded as the "home" of the congress. In addition to the scientific museum a commercial museum was established, in which fourteen well known firms of ophthalmic instrument makers exhibited the latest forms of apparatus and instruments.

ULTRA-VIOLET RAYS IN OPHTHALMOLOGY

The proceedings were opened on the morning of July 5th by a short address of welcome by the Master, Mr. PHILIP H. ADAMS, Reader in Ophthalmology in the University of Oxford. Immediately following this Professor LEONARD HILL opened a symposium on ultra-violet rays.

Professor Hill dealt with the biologically active rays, their measurement, and then penetration of the skin and eye, the theory of their action and of immunity to them, the comparison of sun and lamps as sources, and the action of rays as evidenced by erythema, he touched also on haemobactericidal power, rickets, ergosterol, vitamin D, and pigment formation. Some interesting slides of the effect of erythema by ultra-violet ray were shown.

Dr. G. M. B. DODSON discussed the effect of atmosphere, of the altitude of the sun, and of the presence of ozone on the transmission and the energy of ultra-violet rays. Curves and photographs illustrating these effects were shown. Dr. W. J. TURRELL related his clinical experiences of the practical administration of ultra-violet rays, emphasizing the importance of the regulation of dosage. The lamp he favoured was the tungsten arc lamp, which he had used for thirteen years. Mr. W. R. ACKLAND dealt with phototherapy in the treatment of dental disease, referring especially to pyorrhea and its relation to ocular diseases. Dr. N. S. LUCAS described his very interesting experiences of the treatment of rickets in marmoset monkeys by ultra-violet rays, using a mercury vapour lamp. An important point observed was the effect upon the eyes when exposed to the rays, a reaction came on much more rapidly—namely, in from one to two hours—than in the human subject, but passed off more quickly. Dr. Lucas considered that some ultra-violet ray dosage was essential to monkeys not living in their natural state. Mr. G. O. HUMF spoke on the local application of the rays to the eye in certain conditions, emphasizing the importance of selection of cases and dosage. Mr. A. F. McCILLAN, while recognizing the beneficial effect of phototherapy, urged the need for a continued search for causal conditions, notably septic foci in the teeth and tonsils. Owing to illness Mr. W. S. DUKE-FELDER was unable to be present, but his paper will appear in company with the full report of the proceedings of the congress in the *Transactions* of the Ophthalmological Society of the United Kingdom.

OPHTHALMOLOGICAL DEMONSTRATIONS

The afternoon of July 5th was devoted to demonstrations and the examination of ophthalmic apparatus in the scientific and commercial museums.

Mr. J. L. MADDON showed an accommodation balance test, a new fixation site for the globe in intracapsular cataract extraction, and an ingenious apparatus for training amblyopia in squint on a new principle involving hand and eye.

Mr. RAYNER BATES showed an interesting collection of fundus drawings of diseases and anomalies of retinal and choroidal vessels.

Dr. MARGARET DONKIN showed a test for astigmatism in which the diachrome principle was applied to the Maddox "V" test.

Mr. GEORGE YOUNG demonstrated the instruments he now uses in the operation of double sclerectomy for glaucoma which he has devised, and also a number of slides in which the effect of the operation could be seen.

Mr. W. NICCOLI showed slides of a carcinoma of the choroid secondary to carcinoma of the breast, and Mr. B. CRIMLAIN exhibited a test type for children.

The proceedings on the morning of Friday, July 6th, opened with a preliminary report by Mr. BURDON-COOPE on spectroscopy of the crystalline lens, in which he gave, with a lantern demonstration, the results of the spectroscopic examination of normal and cataractous lenses. The spectrograms showed that in cataractous lenses potassium was diminished and calcium increased.

Mr. T. HARRISON BUTLER read a paper on sympathetic ophthalmia, which was discussed by Messrs. S. H. BROWN, MALCOLM HENDER, H. M. TRAQUAIR, and A. W. ORMOND.

THE EYES OF BIRDS

Then followed the Dorne Memorial Lecture, which is undoubtedly the most important contribution to the proceedings of the congress. Instituted in 1916 in memory of the founder, the late Robert Walter Dorne, these lectures have proved the occasion for the appearance of much valuable and original work. This year the lecture was by Professor ARTHUR THOMSON, Lees professor of human anatomy in the University of Oxford, and was no exception to the rule.

Professor Thomson, who took for his subject observations on the eyes of birds, reviewed the literature of the past 250 years on the study of the pecten, and gave an exposition of the anatomy of this little understood portion of a bird's eye, aided by some excellent slides and models. It was shown that the most prominent portion of the pecten which projected furthest into the globe was more closely attached to the hyaloid membrane overlying it than it was at its sides. The hyaloid lying upon this black pigmented structure acted as a dark mirror, and Professor Thomson suggested that its function might very reasonably be one of elimination of dazzle from the direct rays of the sun, with reflection of objects from the upper field of vision to some other part of the retina. The value of this in the case of all birds other than birds of prey would be at once recognized. A bird of prey hovering with its back to the sun and in the region of dazzle so far as the ground bird was concerned was in a position of distinct advantage, while the latter with its enemy in the region of dazzle, and thereby difficult to see, was greatly handicapped. If, however, it was true that the bridge of the pecten was a dark mirror, which could eliminate dazzle and reflect the image of the prey-bird, Nature had provided the ground bird with a suitable means of defence.

Some excellent photographs were shown imitating these conditions as far as possible and undoubtedly supporting this fascinating and reasonable explanation of the function of the pecten. The subject is one which has received little attention since the days of Petit, some two hundred years ago, and Professor Thomson is to be heartily congratulated on his work. The lecture, delivered in a very clear and lucid manner, commanded the greatest attention, and at its conclusion Professor Thomson was presented with the Dorne Memorial Medal for the year.

VARIOUS PAPERS AND REPORTS

Mr G R DE BEER, lecturer in comparative and experimental embryology in the University of Oxford, then gave a most interesting paper on some original work on the development of the vertebrate eye. It was agreed that this paper was a most important contribution to the subject, and that its publication would enable it to receive the thoughtful attention it deserved.

On July 7th the session opened with a speculative paper by Lieut-Colonel HENRY SMITH, I.M.S. (ret.), on the nutrition of the lens and the vitreous. Comparing the uterus with its rhythmic contractions as a means of maintaining circulation, and thereby nutrition, he suggested that a sluice-like action of the ciliary muscle of the eye occurred whereby the canal of Schlemm and neighbouring spaces were opened and relaxed, so aiding the circulation of the aqueous humour.

Reports of a series of interesting clinical cases were then given by the following: Miss IDA MANN, a congenital abnormality of the retina; Mr JOHN ROWAN, a case of glomata of the retina (both eyes removed for glomata at 1 year and 5 months, no recurrence after over three and a half years); Mr GEORGE YOUNG, a case for diagnosis (enuresis up to the age of 17, which disappeared after correction of some hypermetropic astigmatism); Mr J A ROSS, keratitis with intranasal causation (keratitis of fifteen years' standing cured after treatment of an anterior ethmoiditis); Mr C G RUSS WOOD, case of Mikulicz's disease with complications; Mr W NICCOL, a case of recurring membranous conjunctivitis; and Miss MARION GILCHRIST, a case of keratitis marginalis profunda occurring in both eyes. All the cases were freely discussed by members.

SOCIAL EVENTS

At the conclusion of the afternoon's proceedings on July 5th members and their friends visited the gardens of Trinity College for tea, where they were welcomed by Professor and Mrs R A Peters, who kindly acted as host and hostess.

The annual dinner of the congress was held in the evening in the Hall of Keble College, and was unusually well attended. Among the guests were the Regius Professor of Medicine Sir E Farquhar Buzzard, K.C.V.O., Professor Arthur Thomson, Miss Kirkaldy, Dr W J Turrell, Dr G M B Dobson, F.R.S., and Dr N S Lucas.

Speaking on behalf of the congress, the Master, Mr PHILIP H ADAMS, mentioned that eighteen new members had been elected during the year, the total membership being now 414, including eight honorary members. The attendance at the meeting in 1927 was 104, and included many well-known ophthalmic surgeons from the Continent and America, some delegates had even come from Australia, India, and South Africa.

The toast of the visitors was proposed by Mr R J COULTER, who paid a tribute of thanks to all who had helped the congress in various ways. He referred especially to the interest which Professor Arthur Thomson had always displayed in the meetings since their foundation, and which had been no small factor in their success. In conclusion, he welcomed the Regius Professor of Medicine in this his first year of office, and coupled his name with the toast Sir E FARQUHAR BUZZARD, in acknowledgement, mentioned that not for 250 years—that is, since the Regius Professorship had been held by Dr Bailey—had there been one elected who was so closely connected with ophthalmology as himself.

On the afternoon of July 6th the scientific and commercial museums were again available, but as an alternative a visit to the Morris Motor Works had been arranged and the majority of the members availed themselves of the opportunity to see the mass production of motor cars.

It was generally agreed that this congress had been as valuable and as pleasant a meeting as had ever been held. Although its international character was less pronounced on this occasion than in 1927 yet the increase in the attendance of ophthalmologists from Great Britain and the maintained usefulness and interest of the discussions are matters for congratulation.

Nova et Vetera.

KIDNAPPING

In an article under the heading of 'Nova et Vetera,' entitled "A surgeon enslaved," in our issue of September 17th, 1927 (p. 511), an account was given of the way in which some of the prisoners taken at the battle of Sedgemoor were disposed of. There was nothing new in the proceeding which sent Henry Pitman a slave to Barbados. A large number of the Scottish prisoners taken at Dunbar by Cromwell were sent to the plantations of Virginia or elsewhere in America and Africa, and after the battle of Worcester the same method of disposal of prisoners was resorted to. Their lot—like that of all prisoners and captives in those days—was a hard one. It was referred to in moving terms by Sir Walter Besant in his book on Westminster. Speaking of Tothill Fields, now represented by Vincent Square, which is still known as "Fields" to all Westminsters, old and young, he wrote:

The saddest of all memories connected with Tothill Fields is that of the triumphal entry of Cromwell into London after the crowning mercy of Worcester. He brought with him the miserable prisoners he had taken on that field. There were four thousand of them in all. They camped at Mile End Green when Cromwell drove into London the next day they were marched right through the City and along the Strand to Westminster and so to Tothill Fields. On the way they received alms oatmeal and biscuit from any who were moved of their pity to bestow something upon them. So they lay in the marshy fields where many died until they were sold as slaves to the merchants of Guinea.

The churchwardens' accounts of St Margaret's Westminster, exhibit according to Wheatley and Cunningham's *London Past and Present*, a payment of thirty shillings to Thomas Wright, for sixty-seven loads of soil 'laid on the graves in Tothill Fields, wherein 1,200 Scotch prisoners, taken at the fight at Worcester, were buried.' How the prisoners from the Western Midlands came to be at Mile End on the east of London Besant does not explain.

Prisoners taken in battle, however, were only occasional windfalls to the American or African employer, and this source dried up after the revolution of 1688, for we do not hear of any large number of Jacobite rebels being transported after the rebellion of 1745. The regular supply of white labour was maintained by the transportation of criminals and by kidnapping young persons—indentured apprentices, the wiser called it—for which Bristol, then the great port for the American and African trade, became notorious. In that erudite and entertaining work *The Annals of Bristol in the Seventeenth Century* Mr Latimer has thrown a good deal of light upon this practice. It appears that in the year 1654 a corporate ordinance was adopted by the magistrates:

'It premises that many complaints had been made of the unreviling purloining, and stealing away boys maids and others, and transporting them beyond seas and there disposing of them for private gain without the knowledge of their parents and friends. This being a crime of much villainy it was ordered that all boys maids and others thenceforth transported as servants should before shipment have their indentures of service enrolled in the Tolsey Book. [The Tolsey was a kind of meeting place Exchange or Townhall.] A penalty of £20 was imposed on any ship captain or officer receiving persons not so enrolled. The offence was however too profitable to be suppressed by a mere by law and it is certain that kidnapping was habitually encouraged by many merchants throughout the century and was not uncommon even later.

Moreover when offenders were caught they were treated with remarkable leniency by a sympathetic bench, and it is therefore not surprising that the practice was persisted in. This infamous traffic had attracted the notice of the Privy Council. Mr Latimer states that:

In July 1680 their Lordships had received information that children were being daily snatched away from their parents and servants from their masters being caught up by merchants and ship captains trading to Virginia and the West Indies and there sold as merchandise. From the order which follows for the

searching of three ships then in the Thames and the rescue of the children they contained the system appears to have been as common in London as in Bristol.

The evil name of the Bristol Corporation in this matter of kidnapping did not escape the notice of Chief Justice Jeffreys. When he came to Bristol to carry out his mockery of a trial of the Sedgemoor prisoners he used the rough side of his very foul tongue on the mayor and aldermen.

"Sir, Mr Mayor you I mean, kidnapper! and that old justice on the bench, (Alderman Lawford) an old knave, he goes to the tavern and for a pint of sack he will bind people servants to the Indies! A kidnapping knave! I will have his ears off before I go forth of town."

It would be refreshing for once to feel sympathy with Jeffreys, could one but be sure that his indignation was genuine. He made the mayor enter the dock, and charged him and five aldermen with felony, but the prosecution seems to have been dropped, probably because the accused bribed the judge. It is well known that in this commission in the West Jeffreys made large sums from bribes received from wealthy prisoners.

In the seventeenth century Scotland had no share in colonial trade, but after the Union certain Scottish ports did a brisk trade with Virginia and the West Indies. It should be noted that in the sixteenth century, and later, the whole eastern seaboard of what are now the northern United States was included in the name of Virginia. In the eighteenth century kidnapping was frequent in Aberdeen. A strong light is thrown upon the state of things in that city by a curious pamphlet, published first in York in 1757, and entitled *The Life and Various Vicissitudes of Fortune of Peter Williamson, A Disbanded Soldier Containing a particular Account of the Manners, Customs and Dress of the Savages, etc., etc.* The author, who afterwards became well known in Edinburgh, was born in the parish of Aboyne, near Aberdeen, and when "under the years of pupillarity," probably at the age of 10, he was kidnapped—that is to say, he was enticed on board a vessel at Aberdeen, where he was detained with other children for about a month, until the ship sailed. She was wrecked "off Cape May near the Capes of the Delaware," but the human cargo was safely landed and finally taken to Philadelphia, where the captain sold them at about £16 a head. Peter was very fortunate in being bought by a certain Hugh Wilson, a North Briton, for the term of seven years. Wilson had himself been kidnapped from St Johnstone in Scotland, but had become well-to-do. "Happy was my lot," says Williamson, "in falling into my countryman's power, as he was a humane, worthy, honest man." The boy offered to serve for one year beyond his contract if Wilson would send him to school. To school accordingly he went every winter for five years. When he was 17, and his servitude presumably was over, his master died, leaving him £200 currency, worth about £120 sterling, his best horse, a saddle, and all his wearing apparel. After another seven years of various employment Peter married and settled down as a farmer near the forks of the Delaware river. At first all went well, but on October 2nd, 1654, when luckily his wife was away on a visit, he was attacked by twelve Indians, who offered him quarter and carried him off prisoner, having destroyed everything that they could not remove. At length he escaped from the Indians and joined General Shuley's regiment of the British army serving in America, from which he was invalided with a damaged hand after many strange chances, on its return to England, at Devonport.

"For want of a certificate from my Colonel or some other necessary qualifications," he says, "I could not get any provision made for me by pension or otherwise. Indeed as a reward for my sufferings and services I had the favour of a pass allowed and the sum of six shillings paid to carry me to Aberdeen about eight hundred miles only from the place where I was discharged."

Somehow or other he managed to get as far as York, where he got the first edition of his pamphlet (it contained 156 pages) printed as a means of making a little money which carried him on to Aberdeen. What happened on his arrival there is told in later editions of his *Life*, one of which "printed for and sold by the booksellers" in

Edinburgh in 1792, is now in the British Museum. The title-page runs as follows:

"French and Indian Cruelty/exemplified in the Life and Vicissitudes of Fortune of Peter Williamson/ who was carried from Aberdeea in his Infancy, and sold for a slave in Pennsylvania/ Containing/ The History of the Author's surprising Adventures in North America his Captivity among the Indians/ and Manner of his Escape the Customs, Dress etc of the Savages Military Operations in that Quarter, with a Description of the British Settlements, etc., etc."

"To which is added/ An account of the Proceedings of the Magistrates of Aberdeea/ against him, on his Return to Scotland, a brief History of his Process against them before the Court of Session, and a short Dissertation on Kidnapping."

It seems to have been reprinted often and to have become quite a popular chap-book in Scotland. The first (York) edition contained statements about his being kidnapped which grievously offended the merchants and Corporation of Aberdeen, who seized his books and had them burnt by the hangman, and put him in prison until such time as he should recant his statements about them. This he at length did as the only means of obtaining his freedom. He found friends in Edinburgh and able lawyers to take up his case. The result of his appeal to the Court of Session was that their Lordships were pleased on February 2nd, 1762, to pronounce the following interlocutor:

"The Lords having advised the state of the process and the libel relevant and proven and find the Defenders, conjunctly and severally, liable to the Pursuer in damages and modify the same to the sum of 100£ Sterling and decern and find the Defenders also conjunctly and severally, liable to the Pursuer in the expenses of the process, etc."

In vain the magistrates presented a reclaiming petition against this. A letter, signed by William Davidson and James Jopp, late bailies of Aberdeen, to Walter Scott, Writer to the Signet, has survived. In it they, of course, protest their innocence and ask his help, displaying a quite amusing dismay at the idea of having to put their hands in their pockets. This Walter Scott was the father of the novelist.

In his dissertation on kidnapping as practised at Aberdeen Williamson says:

"The trade of carrying off boys to the Plantations of America and selling them there as slaves was carried on at Aberdeen as far down as the year 1744, with an amazing effrontery. It was not carried on in secret or by stealth, but publicly and by open violence. The whole neighbouring country were alarmed at it. They would not allow their children to go to Aberdeen, for fear of being kidnapped. When they kept them at home, emissaries were sent out by the merchants who took them by violence from their parents and carried them off. If a child was missing it was immediately suspected that he was kidnapped by the American merchants and upon inquiry that was often found to be the case, and so little pains were taken to conceal them, when in the possession of the merchants, that they were driven in flocks through the town under the inspection of a keeper who overawed them with a whip, like so many sheep carrying to the slaughter. Even the tollbooth and the public workhouses were made receptacles for them and a town officer employed in keeping them. The practice was but too general. The names of no less than fifteen merchants concerned in this trade are mentioned in the proof."

In the *Social Life of Scotland in the 18th Century*, by Henry Grey Graham, vol. II, 1899, the practice in Scotland of selling children is said to have arisen out of the terrible poverty caused by the famine of 1740, at about which date Williamson was carried off. Mr Graham quotes entries in the *Book of Bond Accord* such as "To R. Ross for listing his son 1s. To Maclean for listing his son 1s. 6d." If these sums are to be taken as Scots currency, in which a shilling equalled an English penny, the poverty of the people is terribly emphasized.

The *Dictionary of National Biography* tells us that Peter Williamson was successful in a second suit brought in 1765 against the parties engaged in kidnapping. He settled in Edinburgh and became a bookseller and printer, and keeper of a tavern known as "Indian Peter's Coffee Room." In 1773 he issued the first street directory of Edinburgh. He also published a weekly periodical, *The Scots Spy or Critical Observer*, and later *The New Scots Spy*. He established a penny post, which was taken over by the Government in 1793, for which he was awarded a pension of £25 a year for life. He wrote many pamphlets. A portrait of him in the dress of a Delaware Indian is affixed to the *Life*

British Medical Journal.

SATURDAY, JULY 21st, 1923

THE PROBLEM OF SERUM SENSITIZATION

WHEN giving antitoxic serum the medical practitioner has always more or less definitely in his mind the possibility of "anaphylaxis." The phenomena of anaphylaxis in the guinea pig are well known and fairly well understood. A guinea-pig which has been "sensitized" by the injection of any foreign protein such as horse serum will, if injected several weeks later with the same protein, die in a few minutes with intense dyspnoea. It was at first generally assumed that human beings would be affected in the same way, and great fear of sensitization by the administration of serum arose. Experience has, however, taught that the average human being is incomparably less prone to develop anaphylaxis than the guinea pig. In years past large numbers of people have been inoculated more than once with diphtheria antitoxin for protection against diphtheria; many soldiers were given antitetanic serum repeatedly at long intervals during the war, yet anaphylactic death, with the characteristic sudden dyspnoea, was very rare. Louis Martin,¹ after the war, went so far as to express his conviction that repeated subcutaneous injections of serum never provoked those grave anaphylactic crises in man that have been produced experimentally in guinea pigs. Lamson,² who reviewed the literature in 1924, points out that most of the rare tragically sudden deaths that startle the physician follow a first injection of even small amounts of serum in those peculiar individuals who have a natural intense sensitiveness to horse serum. Boughton³ records death in less than an hour following the intravenous injection of 5 minims of horse serum into an asthmatic subject, such patients are always liable to manifest acute or even fatal dyspnoea after injection of serum. Other authors⁴ describe sudden death after the intramuscular injection of a few cubic centimetres; Park⁵ found seven instances amongst 350,000 injections of diphtheria antitoxin—that is, 1 in 50,000—and some figure of this order agrees with general experience. But dangerous sensitization by a previous dose of serum, though it must be very rare indeed in human beings, far rarer than is generally supposed, does occur. Careful records of deaths following the re-injection of serum into patients who had shown no unusual symptoms after the first injection have been published by Tuft⁶ (first reinjection) and Dean⁷ (fourth reinjection).

What, then, is the practitioner to do when, for example, a child who has received scarlet fever antitoxin some months previously is admitted with severe diphtheria and antitoxic serum clearly must be given? Can he test whether the child is sensitive, and, if so, can he desensitize? It was at one time hoped that the response to a drop of serum injected intracutaneously would give satisfactory guidance, but unfortunately, though it is broadly true that patients whose skin shows a positive reaction with oedema and flushing after the intradermic test are more likely to suffer from urticaria and arthralgia some seven days after the injection of serum than those showing no reaction, this is not as Park⁸ pointed out, an invariable rule. Some who show a positive

reaction take serum without incident, others who fail to react may, when given the main dose of serum, become alarmingly ill. Coca,⁹ who probably goes further than most would follow, writes "It is useless to apply the cutaneous test or the procedure of sensitization." An anaphylactic guinea pig can be desensitized by careful dosage, and it has been assumed that by several half hourly subcutaneous injections of serum human beings also may be desensitized. There does not seem, however, to be any satisfactory evidence that this is true. Indeed, Blankenhorn¹⁰ and Tuft,⁶ who reviewed the literature, recorded instances in which the procedure definitely failed. But it may be anticipated that the injection of 0.5 c cm of serum subcutaneously an hour before the main dose will justify itself in practice, not as a method of desensitization, but as a test for extreme sensitivity. It is probable that those few patients in the past who died after the injection of a few cubic centimetres intramuscularly would have been detected had this test been known and used. Where intravenous injection is in question Besredka¹¹ recommended the gradual introduction of large quantities of saline solution, the first volume of 1 c cm which flows into the vein containing perhaps 0.1 c cm of serum and the next twice as much. An injection of a dose of 50 c cm of serum would require from half to one litre of saline solution, and would probably take an hour. Tuft recorded an instance which suggests strongly that if it is proposed to give serum intravenously—and the wider use of this method would probably reduce the present death rate from diphtheria—no trust can be placed in a preliminary subcutaneous injection of a small quantity of serum, an intravenous sensitivity test appears to be required. Besredka's method may be adopted, or 10 c cm of saline solution containing 0.1 c cm of serum may be injected intravenously an hour before the main injection. We may conclude that the practitioner pictured above would inject half a cubic centimetre of serum subcutaneously and, in the absence of alarming symptoms within an hour, would give his main injection intramuscularly. If he decided that intravenous injection was necessary his preliminary test must be an intravenous one. Should his patient prove to be acutely sensitive the doctor has an anxious prospect, and if he cannot avoid giving serum he has no alternative but to introduce it very slowly, avoiding the intravenous or intrathecal routes. It may be pointed out in passing that it is a wise precaution to have adrenaline always available for immediate use, either intramuscularly or intravenously, should disconcerting symptoms arise, for an injection of 1/2 to 1 c cm of the usual 1 in 1,000 solution may abolish the dangerous respiratory symptoms almost instantly. Adrenaline also has been used in the treatment of serum sickness arising a week or more after an injection.

Problems of sensitization arise also in connexion with the use of toxin antitoxin mixtures in America, and toxoid antitoxin in England, with which large numbers of children have of late years been injected. The amount of serum in 1 c cm of the prophylactic is usually one thousandth of a cubic centimetre or less. Several American writers have described in persons who had previously been immunized with toxin-antitoxin mixture immediate reaction (Stewart¹²), severe local reaction to intradermic serum injection (Lathrop¹³) a superficial local necrosis—the Arthus phenomenon (Gatewood and Baldrige¹⁴)—or a high percentage of serum sickness a week after the administration of serum (Gordon¹⁵). Exact details of the composition of the prophylactics and the serum used

by these authors are not given. It is evident that this suggestion that the injection of toxin-antitoxin mixture causes dangerous sensitization is not generally accepted in the United States. W. H. Park, who has had experience of 800,000 Schick tests or immunizations in New York, tested by the intradermic serum method children who had been immunized with the New York mixtures. He confirmed the finding that an increased percentage showed a positive reaction, but is of opinion that the sensitization given by toxin-antitoxin is in all probability a clearly negligible factor and that any fear of apparent sensitization may be dispelled from the mind of physicians. Dr. Sophie Spicer,¹⁰ working in the Willard Parker Hospital in New York, has recorded the results of injecting concentrated serum into 237 successive patients; serum sickness followed in 13 per cent of 164 patients who had never received serum injections or toxin-antitoxin mixture, in 17 per cent of 45 patients with a previous experience of antitoxin injection, and in 14 per cent of 28 children who had previously received toxin-antitoxin prophylactic. So far as we can trace, no similar groups of figures have been published in this country, but inquiries addressed to several experienced superintendents of hospitals for infectious diseases lead us to believe that the figures given by Spicer, and not the higher figures quoted by Gordon, would represent the average experience in Britain. There is here no evidence that the administration of mixtures of the type used by Park or of the English toxoid-antitoxin prophylactic produces any sensitization, in the sense in which this word is ordinarily used in everyday medical practice. Some of the American writers suggest the use of toxoid alone or of sheep and goat antitoxin in mixtures. Formalinized toxin—that is, toxoid or anatoxin—is being tried in America and England, and has been used on a considerable scale in Europe.

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OUR BRETHREN OVERSEAS

In another part of this issue Mr. Victor Bonney gives an eloquent account of his experiences in New Zealand and Australia, to the former of which Dominions he went, as official delegate of the British Medical Association at home, at the conference of the New Zealand Branch in February last. His is the latest of a number of successful visits which have been paid overseas by representatives of the Association, with the intention of maintaining contact and strengthening and multiplying the bonds between the profession at home and in the Dominions. In 1914 the late Dr. J. A. Macdonald, then Chairman of Council, paid an official visit to Australasia which had the happiest effects, and after the war, in 1920, he visited South Africa on his retirement from office. The visit of that great surgeon Sir William MacEwen to Australia just after the end of his year of office as President of the Association, could not fail to

assure the members of the profession there of the regard felt for them by those at home. He was warmly welcomed at the first Australasian Medical Congress in Melbourne and later in New Zealand. At the next Congress, in Dunedin in 1927, Dr. Cooper Paton of Norwich represented the Association. In 1924 the visit of Sir Jenner Verrall and the Medical Secretaries, Dr. Alfred Cox, to Canada did much to bring about that affiliation between the Canadian Medical Association and the British Medical Association which will be cemented by the Annual Meeting at Winnipeg in 1930. Again, Dr. Cox's tour of the Union of South Africa during the winter of 1926-27 was largely instrumental in the formation of the Medical Association of South Africa (British Medical Association) out of the two pre-existing rival bodies, and in the early part of this year the present Chairman of Council, Dr. Brackenbury, visited that Dominion and further strengthened the ties between us.

This brief record of recent official visits shows that the Association here has been awake to the need of maintaining official personal contact with our brethren overseas, but we agree with Mr. Bonney that more than this is needed. Australia and New Zealand are, as he points out, much nearer in distance to the United States than they are to Great Britain, and America can in some sort be considered as the half-way house on the journey between the Antipodes and this island, so that there may be some danger that the spiritual home of Australasia may some day be transferred from Europe to America. It must be admitted by all of us that such a transfer would be regrettable, for the people of Australia and New Zealand are of almost pure British inheritance, while the population of the United States has for some time ceased to be predominantly British in blood. More and more, in all probability, will the Southern European elements in the United States assert themselves in future generations, despite the present regulation of immigration by means of quotas. Australians and New Zealanders show in many ways their affection for the Old Country. Many of them come here to complete their professional education and many of them have earned our respect and affection and proved their worth as holders of posts in our hospitals. Sentiment, however warm and sincere, must nevertheless in the long run be vanquished by self-interest, and if young medical men from overseas do not find what they want here they will seek it elsewhere. The most crying professional need in this country is for a post-graduate hospital and school whither not only visitors from overseas, but our own graduates, could resort for the higher medical education. In New York there is a large and well equipped post-graduate hospital, and the Johns Hopkins Hospital in Baltimore, of world wide fame, also offers openings to graduates. Here in London the Fellowship of Medicine is worthy of support as a co-ordinating body, but its scope is too limited at present.

Mr. Bonney comments on the small number of British practitioners who visit Australasia as compared with the number of Australasians who come to these islands. It is not to be expected that the numbers of visitors from both sides should balance, but there is no doubt that the disproportion should be reduced. The inducements which New Zealand offers to the visitor are either little known or little understood here. The most beautiful and varied scenery of mountain, lake, forest, and river, with volcanic phenomena which are of great interest without danger, and with a temperate climate comparable with our own but more sunny—all these and more will well repay a visit, to

six nothing of the warm welcome which the medical tourist may safely count upon from our professional brethren overseas. No doubt the length of the sea voyage, and consequent time occupied in travel, has deterred tourists from going to Australasia, but if the aspirations of armen are fulfilled it may soon be possible to make the journey between London and Auckland in as many days as it now takes weeks. In the meanwhile, we may be sure that the Council of the British Medical Association, with so many proofs before it of the value of official visits, will not be behindhand in furthering this good work on behalf of professional solidarity throughout the Empire. The Council is always on the look out for prominent members of the Association who are thinking of visiting the Dominions, as it is often possible to nominate them as official delegates, and thus not only benefit the Association, but add much to the personal comfort and education of the visitors themselves.

INTERNATIONAL CONTROL OF THE TRAFFIC IN DANGEROUS DRUGS

According to the last report of the Advisory Committee of the League of Nations on the traffic in dangerous drugs, it is anticipated, as recorded in our issue of June 30th (p. 1119), that the Convention drawn up at Geneva in February, 1925, "may begin to operate before the end of 1928." It will be remembered that this Convention was the outcome of the prolonged and contentious "second conference" held at Geneva in 1924-25 to implement the provisions of Chapter III of the Hague Opium Convention of 1912, which dealt with the control of traffic in medicinal opium, morphine, cocaine, heroin, etc. The later Convention was not to come into force until it had been ratified by ten Powers, including seven of the States in respect of which the proposed central board is to be appointed two of these to be Powers having permanent seats on the League's Council. When the Advisory Committee made its last report fifteen ratifications had been received four being those of members of the Council, including France and Great Britain, which are permanent members. It was then anticipated that Canada, the Netherlands, Japan, Switzerland, and Rwanda would shortly deposit their instruments of ratification. The central control board, when constituted, is to consist of eight persons to be appointed by the Council of the League, the United States, and Germany. This board is to collect information as to the amount of drugs required for medical and scientific purposes in each country for internal consumption, and also as to the raw materials imported, the amount of drugs manufactured, and the stocks in hand. If excess of stock is proved export to such country is to be suspended. Import and export of the drugs are to be effected only under Government certificates. Factories are to be licensed, and persons engaged in the traffic registered. The board is to receive statistical and other information annually from the contracting parties: it may ask for explanation of, and call attention to, illicit or excessive traffic, and may make recommendations as to the limitation of traffic, while a Government not disposed to act on the recommendation may invoke the Council of the League. The Advisory Committee is of opinion that "very little progress can be made in the direction of suppressing illicit traffic until the Convention of 1925 comes into force." This traffic "continues on an enormous scale," and the position in regard to it "is still highly unsatisfactory." The committee are still very imperfectly informed as to the manufacture of morphine and the sources from which illicit traffickers in this drug draw their supplies." While much is hoped for from the setting up of the board as the "mechanism for realiza-

tion" of the Geneva Convention, which "mechanism" the Hague Conference was by instructions precluded from discussing, it must be remembered that such producing countries as Turkey and Soviet Russia are not members of the League, and that "it is particularly unfortunate that certain (other) producing countries, as Bolivia, Greece, Peru, and Persia, have not yet seen their way to supply the committee with information." It is satisfactory, however, to note that a point of procedure, upon which the Italian delegates, Messrs Cavazzoni and Scialoja, have insisted, has been satisfactorily settled, and further, that the close association of the central board with the secretariat of the League is to be secured by making the secretariat of the former an integral part of the latter, and by the provision that the staff, nominated by the board, are to be appointed by the Secretary-General of the League and subject to the approval of the Council.

THE OSLER CLUB

THE anniversary of the birthday of Sir William Osler was celebrated in London on July 12th by the Osler Club. This club, which was founded in his memory and under the inspiration of his writings in April last for the study of the history of medicine, entertained a number of guests at an informal meeting. A reproduction of the Sergeant crayon sketch of Sir William Osler, lent by the Royal Society of Medicine, occupied the place of honour, and through the kindness of several London librarians pictures of the triumvirate of British Medicine—Linnæus, Harvey, and Sydenham—were displayed, together with some of Osler's favourite books—*Religio Medici*, the *Anatomy of Melancholy*, *Lettres de Gui Patin*, and works by the Swiss Osler, Conrad Gesner. Sir Wilmot Herringham, delivering the first Oslerian Oration, spoke of Osler's love of rare cases, not because they represented extremes of normal physiology, but because their rarity appealed to him as an artist. He told how the young Osler, inspired by the German educational "system" and by what he had seen of practical training here, completely altered the outlook of medical teaching in America, how later he was responsible for the establishment of clinical units in this country, and of his part in the launching of the *Quarterly Journal of Medicine*. Dwelling happily on Osler's personal charm and affectionate nature, Sir Wilmot Herringham closed a speech notable for its genuine feeling and its dignified simplicity. Dr. McEwen, representing the German Ambassador, in proposing a vote of thanks, wished particular success to a club one of whose aims was the promotion of international goodwill, and the name of whose patron saint was held in such reverent esteem in Germany. Sir Humphry Rolleston pronounced his Oslerian Eulogy on "Osler as a human being." It was, he said, the combination of so many different personalities in one body that made Osler the beloved man that he was. No report could do justice to the charm of the eulogy, the final words of which summed up the spirit of the whole evening—"We shall never look upon the like of such a man again." Professor D. Fraser-Harris opened the symposium with a paper on Osler as physiologist. Dr. H. H. Scott spoke on Osler as naturalist and comparative pathologist, Dr. Andrew Balfour on Osler and tropical medicine, Sir Squire Spriggs on Osler as a literary man. Sir Walter Fletcher on Osler as a friend, Dr. Franklyn Martin President-elect of the American College of Surgeons, on Osler as an organizer, Dr. J. D. Rolleston on Osler as epidemiologist. Dr. Friest Jones brought the symposium to a delightful conclusion with some personal reminiscences. The exhibition of a selection of Osler's writings, literary and scientific, of biographical appreciations, and of books inspired by him, bore further witness to the breadth of the man and to the

many-sided nature of his interests and enthusiasms. Among other guests of the club were Sir Thomas Lewis, Dr. Burton Haseltine of Chicago, Messrs. Geoffrey Keynes and S. Damiani, Dr. Henry Viets of Boston, and Mr. Philip Franklin.

ANAEMIA IN INFANCY

In the June issue of the *Archives of Disease in Childhood* Dr. Helen Mackay describes the results of a most extensive investigation of the anaemias of infancy between October, 1925, and December, 1927. Four groups of cases were taken: (1) artificially fed infants without special treatment, (2) breast-fed infants, (3) infants receiving light therapy, and (4) infants under treatment by iron. 541 infants were observed, and 2,561 haemoglobin estimations were made. The economic status of the infants selected was very poor, their ages varied from 3 weeks to 18 months, none being over 2 years at the end of the period of observation. Their general physical condition was subnormal, but no infants with acute illnesses were included. Dr. Mackay came to the conclusion that there was a typical haemoglobin age curve for the first year of life. Shortly after birth the haemoglobin fell steadily up to the age of 2 months. It then improved up to the age of 5 months, after which it declined steadily up to the age of 1 year. All the children investigated showed a very gross anaemia, in fact, in very few cases was the haemoglobin more than 75 per cent. The author concluded that the normal haemoglobin percentage in the blood in infancy from 4 months upwards was about 80 per cent, as estimated by Haldane's haemoglobinometer. She emphasizes the fact that the majority of artificially fed infants and many breast-fed infants in London are anaemic, and that treatment with a mercury vapour quartz lamp did not prevent or cure this anaemia, which was similarly unrelieved by outdoor life. The anaemia developed on a large variety of diets, and there seemed no relation between it and vitamin deficiency. It appeared to be definitely due to an iron deficiency, and Dr. Mackay was able to cure it by a soluble iron salt given by the mouth. Iron and ammonium citrate was administered in doses of from 4½ to 9 grains daily, this was either dissolved in the milk feed or was given incorporated in the dried milk, so that in measuring the milk powder the mother included a portion of iron in it. The effect of this soluble iron on the infants investigated was striking, and the percentage of infants reaching 80 per cent of haemoglobin was eleven times as great in the group receiving the medicated milk as in the control group. The author concludes that iron should be administered to artificially fed infants from the first months of life, and especially to those who are small at birth. Such iron-fed infants showed improvement in general health and resistance to infection, in this group the incidence of infection was only half that in the control group. The practical suggestion of the author that iron should be incorporated in dried milks by the manufacturers is of considerable interest. Doubtless the manufacturers only require a lead from the medical profession, and confirmatory evidence of Dr. Mackay's experience, before they embark on the "ironization" of their wares.

THE DEVELOPMENT OF FILARIA PERSTANS

ONE by one the filaria worms parasitic in man have yielded up the story of their life-cycle as the result of patient work of scientists in the tropics. The first to do so was *Filaria bancrofti*, which, as the result of Manson's brilliant hypothesis, was found to be conveyed from man to man by the common mosquito—a hypothesis, incidentally, which proved to be the starting point of the development of the whole modern science of tropical medicine. This was

followed by the work of Leiper, and later the Connals, on *Filaria loa*, the cause of Calabar swellings, which proved that this species reached its infective stage in certain species of Tabanids. Two years ago Blacklock was able to demonstrate that the nodular worm (*Filaria colubilis*) had as its vector a minute fly called *Simulium damnosum*. The life story of the last of the common filarial worms in man—*Filaria perstans*—has now been unravelled by Dr. Dyeo Sharp, working in the British Cameroons. This is the persistent filaria found by Sir Patrick Manson in the blood of an African negro in London nearly thirty years ago. Unlike *Filaria nocturna* (*F. bancrofti*), the larvae of which appeared in the blood stream mainly at night, and *Filaria diurna* (*F. loa*), the larvae of which appeared by day, this species could be found at any hour, although it is true that it was rather more numerous, as a rule, at night. It is, moreover, essentially a parasite of dark-skinned races, and is rarely, in West Africa at least, found in white men. From this fact Dyeo Sharp deduced that, since day-biting flies and night-biting mosquitos attack all colours impartially, the vector must be an object to light even at night, and so, with the assistance of his native boys, he commenced a search for such a fly, which he almost immediately found in the local species of *Culicoides*—a minute midge less than two millimetres long, with a hump back and dappled wings. This species objected to even one-quarter of a candle power at a distance of seven feet, it exhibited a decided preference for a black skin, and refused to feed, even when hungry, on a white one. Using native boys as the hosts, the flies were readily infected, but difficulties were immediately encountered in keeping the flies alive in captivity. Even after the necessary information about feeding and housing was acquired, trouble was caused by ants. To avoid these pests the cage containing the flies was suspended from a string, but the ants dropped off the ceiling and, climbing in, removed the flies! Finally, success was obtained by the use of test-tubes plugged with cotton-wool. In the *Culicoides* the life-cycle appears to be similar to that of the other filariae. The microfilaria becomes very active immediately after entering the stomach of the insect, and within six hours after ingestion it moults and passes into the stomach wall or fat-body. Its movements become lethargic and its body shortens and broadens at first, but later increases greatly in length. As it grows older the larva migrates into the thoracic muscles, and finally, in seven to nine days, reaches the head. When the fly bites a host the larva passes down the proboscis, the distal end of which it dilates and finally ruptures. How it actually enters the host, and, once there, how it reaches its adult habitat at the root of the mesentery or in the peritoneal tissue, is a problem which has still to be solved.

THE ROCKEFELLER FOUNDATION AND THE ROCKEFELLER INSTITUTE

THE review of the activities of the Rockefeller Foundation during 1927 by its president, G. E. Vincent, and an account of the organization and equipment of the Rockefeller Institute for Medical Research,² recently issued, show the admirable manner in which the funds of this wonderful benefaction are utilized in very widespread directions. During 1927 more than 11 million dollars were distributed in various ways, the last of these twenty categories being surveys of health conditions and of medical and nursing education in no fewer than fourteen countries. The question whether chief reliance should be placed upon private initiation and management, as in the United States, or upon Government control, as in Russia, is discussed, and it is then pointed out that the health of the

¹ *Archives of Disease in Childhood*. Issued by the British Medical Association. Yearly subscription (six numbers) 5s., a single number 6d.

² N. A. Dyeo Sharp. *Trans. Roy. Soc. Trop. Med. and Hyg.* 1928, xli, pp. 371-396.

³ The Rockefeller Foundation. *A Review for 1927*. By George E. Vincent, President. New York, 1928. (Pamphlet pp. 64 illustrated.)

⁴ The Rockefeller Institute for Medical Research. *Organization and Equipment*. New York, 1928. (Pamphlet pp. 25, 2 plates.)

public is primarily a governmental responsibility, and that the policy of the Rockefeller Foundation has from the start been to build up official health organizations by government authorities—national, state or provincial, and local. An account follows of the emergency relief given in connexion with the devastating floods in the lower Mississippi basin in 1927, where at one time more than 600,000 persons were dependent upon public support. The Foundation gave 2 million dollars to enable the Bloomsbury site to be acquired by the University of London, and so to erect "a shrine of learning worthy of the city and of the academic traditions of England." The account of yellow fever research contains a sympathetic notice of the late Professor Adrian Stokes. In a section headed "The migration of man and the spread of ideas" it is mentioned that in 1927 funds for fellowships were given to 864 persons from fifty-two different countries. The Rockefeller Institute for Medical Research is divided into three departments—the general laboratories, the hospital under the direction of Dr Rufus Cole, and the department of animal pathology, over which Dr Theobald Smith presides. Dr Simon Flexner directs both the Institute as a whole and the general laboratories, which are grouped in several divisions and subdivisions, thus subdivisions in pathology were conducted by Dr Noguchi, whose recent death from yellow fever is a terrible blow to medical science, by Drs Peyton Rous, Olitsky, Sabine, Cowdry, and Gates. The main problems now under investigation at the Rockefeller Hospital are the acute respiratory diseases, acute rheumatism, cardiac disease, nephritis and blood chemistry, respiration, and chicken-pox.

THE MAN WITH THE BARROW

CONTINUING its efforts to lighten the burden of human labour in industry, the Industrial Fatigue Research Board has published a report entitled *The Physiological Cost of the Muscular Movements Involved in Barrow Work*,¹ by Dr G. P. Crowden. Two earlier reports conducted for the Board dealt with the carrying of loads by hand, one of them, relating to the physique of women in industry, was discussed in our issue of December 17th, 1927 (p. 1155). The preface to the report under review disarms one of the most obvious criticisms that might be directed against the choice of such subjects for research—that the amount of purely manual labour is constantly decreasing with the extended use of labour-saving appliances and mechanization generally—by the statement that there remain many occupations, especially within the "heavy" industries, in which the demands made on the worker are mainly muscular. Dr Crowden's paper deals primarily with the physiological cost, as measured by oxygen consumption, of the muscular effort involved in heavy barrow work in the movement of bricks. His experiments were carried out near Peterborough, and his recommendations have been subjected to the test of actual working conditions, with satisfactory results. In effect the report offers a technique for barrow work, with details regarding the design of the vehicle used, the most favourable relation between its dimensions and the stature of the worker, the optimum load and best method of arrangement, the speed in transit, and the general working conditions. To the man in the street barrow work is just barrow work to Dr Crowden it has presented a whole series of physiological and mechanical problems requiring scientific investigation. Doubtless research on similar lines in other directions would bring about a very considerable amelioration in the lot of the manual labourer, and a substantial economy in effort. There is, however, one factor which seems to lessen the practical value of such investigations. It was found,

in the brickworks in the area where these experiments were made, that with a normal load there was one method of arrangement which was invariably adopted by the workers. Now it is true that in this case, as the result of the inquiry and subsequent recommendations, workers are being advised to vary the load arrangements as suggested in the report. The fact that until outside influence had been brought to bear neither the workers nor the management had apparently considered the possibility of change, serves to remind us how intensely conservative most men are with regard to their working methods. No one will suggest that such investigations as Dr Crowden's, which appear to have been executed with laborious care and considerable ingenuity, are superfluous, but at the same time it is impossible to escape the conclusion that much good work of this nature is wasted, owing to the reluctance of those most directly concerned to profit by the fruits of scientific effort. It is probably easier to show that, as in the present case, the comfort and efficiency of barrow workers can be improved by taking thought than to convince employers and workmen that this is so.

OPHTHALMOLOGY IN EGYPT

Mr A. F. MacCALLAN, who was for long Director of Egyptian Ophthalmic Hospitals, communicated at the end of last year to the *British Journal of Ophthalmology* an interesting article on the history of ophthalmology in Egypt. Much of the material under review was collected by Dr Meyerhof, whose researches were presented to the annual congress of the Ophthalmological Society of Egypt. The record of mediæval times is of particular interest, for in these we see the gradual appreciation of the grossness of eye disease, so common in that land. In 1598 a Bohemian doctor visited Cairo, and first described the masses of flies on the eyes of the children, and expressed the opinion that the flies were the cause of the ophthalmia, "as they soil, eat, and infect them." A Frenchman in 1745 dubbed Egypt the "land of the blind." In the nineteenth century Europe knew only too well the ill effect of Egypt upon the eyes, for nearly all the European armies that sojourned there during the Napoleonic wars were attacked, and many of the soldiers brought back the disease to their home lands. It was a mixture of trachoma, blennorrhoea, and more harmless forms of conjunctivitis, probably due to infections by the Koch-Weeks bacillus. The Italian and German oculists shared the British opinion as to the contagious nature of the disease, which was constantly denied by the French and by several of the Belgian and Russian observers. The French scholars who accompanied Napoleon found no trace of scientific medicine in Egypt, the old Arab traditions had been lost. There was a hospital in Cairo—the only one in Egypt—which had been founded in the thirteenth century, it was a dirty prison where a few insane patients were kept in chains and treated with whips. The French introduced sanitary institutions, but as soon as they left the country these were all destroyed. To Mohammed Ali, the Albanian adventurer who became Pasha of Egypt and founder of the present dynasty, belongs the credit of beginning modern sanitation in Egypt. He had his daughter vaccinated after Jenner's new method, and by spreading vaccination attacked one of the principal causes of blindness. The needs of his army demanded a sanitary service, and this was organized for him by a Frenchman, Clot, who founded a large military hospital and medical school. So great was the prejudice that Clot's life was attempted in the anatomical theatre while he was performing an autopsy. Clot adhered to the non-contagious view of ophthalmia and plague, and himself suffered seventeen attacks of ophthalmia during his twenty-five years' residence. To him is due the credit of introducing silver nitrate and sulphate of zinc into the therapy of eye diseases. German influence was mainly dominant

¹ *The Physiological Cost of the Muscular Movements Involved in Barrow Work*. By G. P. Crowden, M.Sc. M.R.C.S. L.R.C.P. Industrial Fatigue Research Board Report No. 50. London: H.M. Stationery Office, 1928. 1 net.

between 1850 and 1880 Koch, during the study of cholera in Alexandria, not only discovered the comma bacillus, but found the gonococcus in many cases of summer ophthalmia, and also discovered the Koeli-Weeks bacillus, which was at one time thought to be the cause of trachoma. Morax of Paris, working in the same city a few years later, found another organism, which is the cause of a specific form of chronic inflammation of the conjunctiva—the Morax-Axénfeld bacillus. Subsequently there came the British period of organization, marked by the gradual spread of hospitals over the land and the introduction of travelling clinics, financed out of a fund provided by Sir Ernest Cassel. Now there are a hundred ophthalmic surgeons in the country, and in recent years there has been a notable decrease in the number of blind persons.

PAY BEDS IN LONDON HOSPITALS

THE Pay Beds Committee, appointed by King Edward's Hospital Fund for London in May, 1927, has issued its report this week.¹ The committee consisted of the late Viscount Hambleden (chairman), Sir John Ross Bradford, President of the Royal College of Physicians, Sir Bernard Mallet, Mr V. Warren Low, F.R.C.S., and Professor Winifred Cullis, D.Sc. Its reference was to inquire into the question of hospital accommodation in London for persons prepared to pay more than voluntary hospital patients. The report strongly recommends the provision of beds on an extensive scale at from 4 to 6 guineas a week for the benefit of the professional and middle classes, whose position as regards medical attention in serious illness is much worse than that of the poorer classes. There are at present 1,055 pay beds in the London hospitals, a larger number than is generally supposed but still falling far short of the requirements. The committee recognizes that this shortage cannot be met at once, and it suggests a steady extension of present accommodation by way of now wings to existing hospitals, and possibly of separate hospitals for patients who would pay fees on a graduated scale. As foreshadowed in our last issue (p. 73), the committee strongly advises the introduction of a mutual insurance scheme to help persons of moderate means to meet the cost of maintenance and medical fees when in hospital. In general it recommends that the voluntary hospitals should make it a recognized part of their function to provide pay beds for the middle classes by means of fresh accommodation, and not using the beds now occupied by the working classes and the poor. For the well-to-do, who cannot obtain even in the most expensive nursing homes all the advantages of a fully equipped hospital, it is proposed that the hospitals should provide accommodation at charges which will show a clear profit, and thus provide a new source of revenue. By these various means, it is suggested, the voluntary hospital system would become a great co-operative effort for the benefit of all classes of the community.

THE GENERAL MEDICAL COUNCIL.

It would be well if the attention of the public and of the medical profession could be directed to an article in the July number of the *Empire Review* by Mr Norman O. King, Registrar to the General Medical Council, in which he expounds the composition, the duties, and the limitations of that Council. It is true that this task has previously been undertaken, and sometimes admirably performed, by various people on a number of occasions, even officially in the public addresses of the President of the Council, and in a "Memorandum as to the constitution, functions, and procedure" of the Council by the Registrar himself, published not long ago.² The present

article, however, in a popular review, is calculated to reach a different, possibly a wider, audience. It is, of course, authoritative, and remarkably clear and effective in spite of, or perhaps because of, its brevity. Mr King points out that the Council was not created to promote the welfare of professional men or professional corporations, or to put down quackery or to advance medical science, but simply, as the preamble of the Medical Act, 1858, says, "that persons requiring medical aid should be able to distinguish qualified from unqualified practitioners." The unqualified practitioner is left free in this country to practise for gain amongst those who choose to employ him, but he is forbidden, under penalty, to pretend that he is qualified. Qualified men, on the other hand, are subjected to the educational and disciplinary control of the Council. The Council consists of thirty-eight members, together with three dentists appointed for dental business only. Of these thirty-eight, only six are elected by members of the medical profession as a whole, and with regard to no fewer than twenty-three there is no obligation that they should even be members of the profession. The principal functions of the Council are three: first, to keep the *Medical Register*, secondly, to see that the name of no one is entered thereon unless his professional education has been adequate, or remains thereon when he has ceased to be entitled to public confidence, thirdly, to provide for the publication of the *British Pharmacopoeia*. The limitations of the power possessed by the Council in respect of both education and discipline are explained in the article, and the facts are emphasized that in considering charges made against practitioners the procedure of ordinary courts of law is followed as far as possible, that all the statutory powers are exercised for the protection of the public, and that there are special clauses in the Medical Act of 1858 which prevent the name of a practitioner being erased on the ground of his having adopted any special theory of medicine or surgery, and which prevent the licensing bodies from imposing on candidates any obligation to adopt, or refrain from adopting, any particular theory. These facts are well known to most members of the medical profession, but they seem to be but little understood by the public, and Mr King and the editor of the *Empire Review* have performed a very useful service by the publication of this article.

DAWSON WILLIAMS MEMORIAL.

FINAL LIST OF SUBSCRIBERS

SINCE the last list of subscribers to the Dawson Williams Memorial Fund was published in these pages cheques have been received from the following

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The fund is now closed. The total number of subscribers is 400, and the total amount contributed is £885 14s. An account of the general meeting of subscribers held on July 10th was published in last week's *British Medical Journal* (p. 65).

¹ Published for King Edward's Hospital Fund by G. Barber and Son Ltd., Finsbury Street, Holborn, E.C.4. (1s., post free, 1s. 6d.)
² *British Medical Journal Supplement*, March 20th 1926.

AUSTRALIA AND NEW ZEALAND, AND OUR DUTY THERETO.

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As the official delegate recently returned from the Annual Conference of the New Zealand Branch of the British Medical Association held last February in Hamilton, it was my privilege to present to the Council here a beautiful inkstand as a token of the loyalty and affection of the Branch for its parent body. Inscribed on the plinth are the words of Horace, "*Coolum non animum mutant qui trans mare currunt*," the sense of which has been happily paraphrased by Kipling in the lines

"They change their skies above them
But not their hearts that roam."

My journey to the antipodes, which officially took me through practically all the larger towns in New Zealand, and later, but not officially, into all the principal cities of Australia, and brought me into contact with a large proportion of the medical men in both countries, has given me an understanding of the deep meaning and beauty of the words of Horace obtainable in no other way. Loyalty and affection to a degree impossible to appreciate without such a visit sum up the attitude of the profession in these great Dominions towards the "Old Country," and this by men separated from the mother-soil sometimes by as much as three generations, and always by twelve thousand miles of sea.

Listening to the brotherly words of greeting that were showered on me as representing "Home," and noting the living interest taken in our work, our problems, and our difficulties, the question arose in my mind: Are we on our side doing all we can in return, and not trusting too much to the call of British blood, strong though it be? Our attitude, in fact, reminds me of that so commonly seen between brothers living a distance apart, between whom a strong affection subsists, though they see little of one another and correspond less. Each is occupied with his own business, each has his own circle of friends and acquaintances, and each treads his own furrow, feeling certain the while that in that undemonstrative affection lies the surety of aid in difficulty and misfortune. This is good enough between brothers, but is it good enough between cousins and second cousins and connexions still more remote? The answer is that, as far as families are concerned, it certainly is not. The basic affections and tendencies that characterize men and women of British stock are among the most unchangeable things in the world, but the pressure of geographical, economic, and racial environment is a great moulding force, which, left to act uncountered, may eventually produce wide differences in national outlook and national "culture." The antidote is closer contact and more intimate understanding, and in this matter the deficiency lies wholly on our side, for whilst, at a rough estimate, one out of every ten New Zealanders and Australians sooner or later visit the Old Country, one in a thousand would, I think, be a liberal estimate for the number of Englishmen and Scotsmen who visit the southern Dominions. The adage that seeing is believing is truest of all in its application to travel, and no amount of reading or hearsay can give that intimate vision which is essential if our duties to these great Dominions are to be grasped in full perspective.

New Zealand, which I visited first, is a country of beauties more varied than any other patch of land on the surface of the globe. Mountains throughout its length and breadth, it yet contains rich agricultural plains very much like England and the Scottish lowlands. Rolling, sheep-carrying uplands adjoin them, and from thence you

pass into high mountains which, in rock and glacier-type, more resemble Norway than Switzerland, though the peaks are of Alpine magnitude. From them, and from the great lakes that lie under them, rushing rivers proceed, which the angler at first glance perceives to be ideal salmon and trout waters, and the engineer vast potential sources of power. Across the North Island stretches the great thermal area with innumerable geysers, hot springs, and fumaroles, the medicinal value of which has only very partially been exploited. In the centre of it lies Lake Taupo, an inland fresh-water sea thirty miles long and broad, where anyone ambitious to catch a ton of trout can do so for a small licence fee. At its southern end stand three noble snow-covered volcanoes, one of them still active. One hundred and twenty miles south-westward is the extinct cone of Mount Egmont, which rivals Fuji in perfection of form, and sixty miles north-westward are the Waitomo caves lit up by millions of glow-worms, a unique and amazing sight. The vegetation covering both islands is rich and varied, the coast scenery everywhere beautiful, and the climate delightful.

The million and a half people of almost pure British stock who live in this gifted land have driven roads and railways throughout it and dotted it all over with well built modern towns and townships, of which the largest, Auckland, has close on 200,000 inhabitants, and it is in such surroundings that medical practice is carried on. At Dunedin, in the South Island, is the very up-to-date medical school which forms a part of the University of Otago, the standard of whose training will bear comparison with any other medical school in the world. The bulk of its graduates settle in the numerous towns as general practitioners, and, without making very large incomes, do well, for although the number of very rich people is small in New Zealand, yet, on the other hand, poverty is rare, and while certain articles are dearer there than here, yet on the whole the standard of luxury is lower, and there are less incentives and opportunities for spending money. General medical practice in New Zealand differs from that in England in that the distances from big centres are much greater, and the doctor has got to depend on himself to a much larger extent. Hence it comes about that nearly all general practitioners undertake not only minor, but major, surgery, and this is the more easily done because the Government has erected all over the islands small hospitals which, on the average, are much better equipped than the small hospitals here. In the larger towns there are finely equipped, big hospitals, also provided out of Government money, and certain of these are staffed, like our municipal infirmaries, by a paid superintendent and assistants under him, the local practitioners having no place in them, a bad system both for the profession and the community. The four capital cities possess big general hospitals with complete honorary staffs.

For those of us who cling to the voluntary system, the drawbacks of State maintenance are well exemplified, for not only is private charity almost non-existent where hospitals are concerned, but, being State supported, there is a strong body of lay opinion in favour of anybody and everybody being eligible as patients. This exploitation of the doctor is being strongly combated by the profession, but it is in the difficult position of one who, having got someone else to pay the piper, wants to call the tune. The easy route for obtaining medical ideals by getting the Government to pay for them is alluring to those impatient for such, but the price ultimately paid is the loss of autonomy and the selling of professional birthright.

Specialization is only possible in the capital cities, not merely because in these alone are there populations sufficient to maintain a specialist, but because to make a man an expert, and keep him an expert, a stream of cases sufficient in number from which to acquire and maintain

the necessary experience must be constantly forthcoming. In child welfare and district nursing New Zealand may be said to be one of the leaders of the world, and during the last year or two the question of how to reduce maternal mortality and morbidity has been receiving very serious attention.

The difficulties that confront the country practitioner in New Zealand in this matter are great, for not only is he himself isolated from professional assistance, but his patients frequently live at great distances from him, and to reach them he has often to motor twenty, thirty, or forty miles along bush tracks which we, accustomed to our good roads, would consider impassable by a car. Statistics in this and other countries clearly show that the risks of child bearing are greatest in districts where medical assistance is least easily available. To cope with these difficulties, to educate the public in the wisdom of placing women about to be confined in lying-in hospitals within easy reach of medical assistance, to encourage obstetrical research and to stimulate interest in all that pertains to the advancement of midwifery, and particularly to move the Government to create an obstetric professorship at the University of Otago, the Obstetrical Society of New Zealand has recently been formed. It has already done much useful work, and may confidently be expected to do much more in the future.

Australia is a land of such enormous distances that of its stupendous carpet I merely traversed a small part of the outer fringe. That part of the coastal zone that I saw is beautiful and of a pattern peculiar to itself. Ranges upon ranges of big hills covered with bluish green "bush" are interspersed with great grass and bush covered plains, shimmering under the brilliant sun. The impression is one of vastness, both of space and potentiality. The cities are large and beautifully spaced out, with every house standing in its own tree and flower-covered ground. Melbourne and Sydney hold between them over two millions of people, and, viewing them from within, you might imagine yourself in Liverpool or Manchester, rebuilt on a cleaner, finer scale. There are large medical schools in both of them, and also in Adelaide, staffed by men of the first rank and splendidly equipped, the department of anatomy and physiology at Melbourne, for instance, being by itself as large as any two London medical schools put together. The conditions of medical practice resemble those of New Zealand in some respects, and differ from them in others. Isolated from expert assistance as many New Zealand practitioners are, many of those in Australia are still more remote from it, and therefore have to equip themselves for, and undertake, every variety of work. Unlike New Zealand, however, the hospital system of Australia is largely voluntary, the Government merely supplementing the efforts of charitable subscribers, and the medical profession therefore is free of those handicaps which beset its brethren in the smaller Dominion.

The principal cities of Australia being as large as ours (London excepted), specialism obtains in them to the same extent that it does with us, and the average calibre of the men who staff the big hospitals and teach in the medical schools is also equal to ours. In both countries, but in New Zealand in particular, it is usual for the best of the younger men, after qualifying and holding house appointments, to spend a year or more in Great Britain and the Continent for the purpose of post-graduate study and the holding of house appointments in England, and a considerable proportion of them take the Fellowship of the English or Scottish College of Surgeons. As is well known, the average standard of those who take house appointments here is very high.

As regards surgery, Australia and New Zealand are in somewhat of a transitional state. In a new country, whose population is sparsely spread over great areas its medical

men have to undertake every sort of work, for specialists are few and not as a rule available by reason of the distances. As the population increases and large cities and better means of communication arise, the necessity for men in general practice to undertake major surgery becomes less and less, until at last the ideal stage is reached in which every person requiring an operation can, without difficulty or delay, be operated upon by a fully trained surgical specialist. Between the first and last stages lies an intermediate one in which both the general practitioner-surgeon and the surgical specialist have a place, and at which point this intermediate stage should pass into the last or ideal stage is a matter on which opinions differ. In order to produce a fully trained surgical specialist a large amount of clinical material, allocated to him alone, is required, and it is obvious, therefore, that the number of such men capable of being turned out year by year in any given country depends on the size of the population, assuming, of course, that the total clinical material is used to the full. In the intermediate stage, therefore, it becomes a question whether it is better for the community to have a large number of lesser-trained mediocre surgeons or a smaller number of fully trained first-class surgeons. It is for the purpose of regulating the growth of surgery and cultivating and maintaining the highest principles of surgical practice and ethics that the College of Surgeons of Australasia, which includes New Zealand, has been formed, and its inaugural meeting, which was opened by the Governor General, Lord Stoneham, at Canberra last March, marked an important step forwards.

I have thus briefly reviewed the medical profession in the two Dominions, and the conditions and circumstances under which it trains and works, in order that those of us over here, who perhaps have not given the matter much thought, may realize the importance of maintaining to the full, and increasing if possible, the spiritual alliance which binds them to us. Medicine, like the body, is both spiritual and material. In so far as it is material it is cosmopolitan, for there is no difference in its technique throughout the world. On the spiritual side, however, there are wide differences depending on national outlook, national circumstances, and national character, and the spirit of practice is far more important than the method of practice.

Australia and New Zealand are an enormous distance from Great Britain, and unless we are prepared to overcome that disadvantage by more deliberate efforts than have yet been made, there is a possibility that the pressure of their more immediate environment may cause their spiritual outlook to become in time deviated from ours. The United States of America are comparatively near neighbours to them, and of recent years there has become apparent in certain quarters a tendency to look to that great country for material help and spiritual guidance. The American outlook necessarily differs from the British outlook, and whether one is better than the other is a matter of opinion, but there can be no doubt as to the desirability of British nations being guided by British ideals. A tour such as I have made leaves one with the impression that in this matter Great Britain is singularly supine. For one Englishman who visits the Dominions twenty Americans go, and of every twenty motor cars in Australasia nineteen are American, whilst, coming down to our own profession, all the radiological plant and most of the medical books, operating tables, and instruments are American, and this among peoples who ardently desire closer community with us. The necessity for a revision of our methods appears to me to be urgent, and as far as our own profession is concerned, two things are quite clearly called for: first, an improvement in the facilities open to Australians and New Zealanders for post-graduate work in this country, and secondly, personal visits to the Dominions by representatives of the profession at

homo to promote better understanding and more intimate relations

The need to improve our post-graduate facilities is very great. Much admirable work has already been done by the Fellowship of Medicine, but we are still far behind. In the American and Continental clinics all the post-graduate work is under one roof, and classes, demonstrations, and courses in special work are without difficulty and without delay at the service of those seeking them. The graduate from abroad is deliberately catered for by well-organized arrangement, and, more than that, he is received with open arms as a visitor much to be desired, and all manners of kindness and hospitality are showered on him. London, with its widely spread hospitals and its multiplicity of staffs, is admittedly a knotty problem from the point of view of post-graduate education, and the more so because all the larger hospitals have their own medical schools, and it is difficult to organize post-graduate clinics without interfering with the education of the students. The primo requirement is a large hospital devoted solely to post-graduate work, but pending this a great deal more could be done by concerted effort if only the urgent need of such effort, not merely for professional but for national reasons, was grasped by all concerned.

Finally, I want to press the importance of personal visits, not for the sake of what the best of us can teach these brethren of ours, if it be anything at all, but for the sake of the gesture that the visit implies. Many of us visit America and the Continent, but those great lands wherein lies the ultimate hope of our race have first claim on us, and he who journeys out to them in interest and good fellowship puts another rivet in the great chain, and is an ambassador needing no other credentials for his welcome than that he comes from "Home."

ROYAL SANITARY INSTITUTE

THIRTY-NINTH CONGRESS

THE thirty-ninth Congress of the Royal Sanitary Institute opened at Plymouth on July 16th, under the presidency of Viscount Astor. Its work, which continued throughout the week, has been conducted in seven sections, dealing with various aspects of hygiene and sanitation, and in seven conferences of groups of workers and representatives of authorities. Lord Astor, in his address, contented himself with what he described as a superficial review of modern developments in preventive medicine and hygiene, and pointed some contrasts between present and former times. He declared that fewer lives were lost by plagues, including small-pox, in a year than were lost through accident on a fine Bank holiday.

The Tuberculosis Problem

In the Section of Preventive Medicine, over which Dr L. RAJCHMAN, medical director and secretary of the Health Committee of the League of Nations, presided, a discussion on the present position of the tuberculosis problem was opened by Dr F. J. H. COURTS of the Ministry of Health. The factors which had brought about the decline in mortality from tuberculosis, he said, were certainly not due solely to special measures taken against the disease. Nor could he agree that mysterious cosmic forces over which we had little or no control were concerned. The progress of sanitary reform and social well-being greater appreciation of the value of fresh air, sunlight, and exercise, as well as special measures for prevention and treatment, had all played a part. He pointed out, however, that the recent figures showed that the age period 15 to 25 had failed to share in the general reduction of mortality, and that female mortality at this period had actually increased of late years. Dr ERNST WIND (tuberculosis officer, Devon County Council) said that the best line of attack was preventive measures, and, above all, avoidance of infection. If public health officers collaborated on the lines with each other and with the general practitioner,

tuberculosis should become a rare disease within two generations. Dr LEONARD KEITH (M.O.H., Bethnal Green) spoke on tuberculosis as a family and economic problem, and advocated subsidized employment schemes. In another section Dr W. G. SAVAGE (M.O.H., Somerset) criticized the working of the Tuberculosis Order, 1925, from the point of view of milk infection. He said that the cattle were for the most part only notified and slaughtered in the late stages of the disease, when they had already been infective for long periods.

Rheumatism

In the Maternity and Child Welfare Section Dr R. C. LIGHTWOOD (Kensington) discussed the question of juvenile rheumatism from the point of view of public health administration. He said that voluntary hospitals—especially the children's hospitals—were seeing the gradual disappearance of groups of cases as they came under the organization of various State and municipal schemes, such as tuberculosis and venereal diseases centres and school clinics. This had obvious disadvantages, the remedy for which was to keep such centres and clinics in close association with hospitals. He urged that rheumatism supervisory centres should be, as was the case in Kensington, under consulting physicians who were attached to the hospitals, so as to ensure unity of control. He disagreed with the term "cardiac centres," holding that the idea of the prevention of juvenile rheumatism should be in the forefront. No scheme was complete without adequate provision of convalescent accommodation; public money might be wisely spent in providing hospital schools. Dr MARGARET DASHLE said that in the rear of the acute alarms of the rheumatic condition lurked a state of ill health and cachexia, in itself very possibly not specific until a specific infection was grafted on to it, and in this background vitamin deficiency was very likely to be an important factor. Dr FLORA SHEPHERD (Hornsey) protested that the classical teaching that rheumatism was a disease non-existent in infancy and very rare in pre-school age had prevented its recognition at a time when this would have been most valuable. Dr A. P. CWARDIAS advocated the claims of spa treatment even for the slighter forms of rheumatism, and urged that children belonging to families in which chronic rheumatism prevailed should be sent to spas. In another section the relation of rheumatic heart disease to industry was discussed. Dr CAREY F. COOMBS (Bristol) pleading for more careful consideration of the possible organization of suitable employment for persons with advanced cardiac disease, while the value of the factory clinic in dealing with industrial invalidity, one-sixth of which was said to be due to the "rheumatic" group of complaints, was emphasized by Dr L. P. LOCKHART (Nottingham).

Immunity Methods in Scarlet Fever and Measles

The Section of Preventive Medicine also discussed immunity methods in scarlet fever and measles. Dr W. A. LETHBRIDGE (Ministry of Health) suggested a scheme for the general use of convalescent measles serum, which, he said, had proved to be an effective weapon of defence. It was worth while for medical officers of health and public authorities to go to some trouble and expense to provide this protection in time of need. Dr W. T. BENSON (Edinburgh) said that in scarlet fever the Dick test and the subsequent active immunization of susceptible individuals was worthy of more general application, while in certain limited fields, more particularly in hospitals or institutions for children, the method of sero-prophylaxis or sero-attenuation of measles was also of undoubted value. The limited source of supply of the immunizing serum, however, practically invalidated the general application of the method to the child population. Dr J. P. KINLOCH (Aberdeen) considered that the available scarlatinal toxins could be used with advantage for purposes of community immunization. Even though complete immunity might not be achieved in all individuals taken, nevertheless the primary stimulus would have the effect of making the patient's immunity mechanism respond with greater strength when sub-infectious—or even infectious—doses of

streptococci were received. With regard to measles, certain work in Aberdeen indicated that, apart from the promising but limited field within which convalescent serum might be used for inducing a passive immunity, the prophylaxis of measles on a comprehensive scale awaited the confirmation of the findings of Degkwitz (1927), whose extensive researches the speaker summarized. Dr L. H. R. HARRIES (Birmingham) added a note on the serum prophylaxis of measles with special reference to two horse antiserums, as to which his verdict on the results was "not proven", and Dr R. A. O. BRIEF (Wellcome Research Laboratories), in another paper, claimed that it could fairly be said that the basis of a sound means of prevention, diagnosis, and treatment of scarlet fever had been laid. As for measles, the utility of convalescent serum for conferring either temporary blood protection or for giving active lasting immunity, dependent on the time of giving, was accepted. The problem for public health authorities was to provide and maintain a supply of serum by appeals for volunteers.

National Health Insurance

A discussion on this subject was to be opened yesterday (Friday) by Mr. HENRY LEFFLER (president of the National Association of Insurance Committees), an advance copy of whose remarks shows that his general line of argument was that the State insurance system contained within itself elements of a much larger growth than was apparent to-day. He demurred to the title "national". It was not a national service to enter insurance; a man or woman must first be employed; individuals were brought within the scheme, not as citizens but as wage earners. It was this industrial character of the scheme which distinguished national health insurance from other public health services. Industry, it would appear, was bearing more than its fair share of the cost. Parliament might not unreasonably have increased the State grant, but decided instead, under the Economiser Act, 1926 to reduce it. It might be true that in times of national stringency the nation must turn from "searching its conscience to exploring its purse," but with the growth of democratic institutions human values could not for long be underestimated without danger to society. Mr. W. M. MURRAY (Scottish Association of Insurance Committees) held that sooner or later the Government must provide, where necessary, specialist and consultant treatment, and must face the difficult and perplexing problem of hospital accommodation. The approved societies must answer the growing demand that in respect to treatment benefits all insured must share alike, and the medical profession would require to realize "in a much greater degree that the granting of public moneys and the assumption of public service carry obligations which involve restraint and discipline on those of their number who are impatient or careless." Mr. STANLEY L. DUFF gave an account of the development of approved societies, and cited some figures relating to additional benefits, from which it appeared that dental benefit covered approximately 12,700,000 persons and involved appropriations of £2,642,402, and ophthalmic benefit 11,900,000 persons and appropriations of £421,199. A further paper was by Mr. GILL HOBSON (clerk to the Liverpool Insurance Committee), who said that there appeared small likelihood of an extension to dependants being made for some time. In his judgement the present service should be made efficient and complete before any further classes of persons were brought into the scheme. Mr. E. F. SPRUNGEON (Prudential) spoke of the seriousness of the present high level of sickness experience. It was possible that the experience might be lightened by improvement in industrial conditions, but the progress of claims on the fund from year to year was not encouraging, and there was need for constant watchfulness on the part of approved society officials, for strict conscientiousness in the granting or withholding of certificates by practitioners, and for cordial co-operation between approved society officials and the medical profession. Resolutions were before the conference favouring the extension of the scope of medical benefit and urging the immediate provision of expert medical advice and treatment—alike for people able and unable to travel to meet the specialist—and laboratory services, and also (in the name of Dr. F. G.

Bushnell) urging that the Ministry of Health be asked to make provision to enable insurance committees to promote or assist local anti-cancer centres on approved lines.

Among other communications presented to the Congress were a number of papers on light treatment and the experience of municipal authorities in its provision, several on recent advances in research on puerperal fever, and a number of papers dealing with the less directly medical side of the Institute's activities, of interest more particularly to sanitary inspectors, health visitors, and veterinarians.

BEIT MEMORIAL FELLOWSHIPS

At the twentieth annual meeting of the trustees of the Beit Memorial Fellowships for Medical Research, the appointment as trustees was recorded of Mr. W. Ormsby Gore, M.P., and Lord Onslow, in the place of the late Sir Arthur Shrapley and the late Lord Cave.

In his annual report the honorary secretary, Sir James K. Fowler, M.D., said that the Advisory Board was able to record that the high standard previously reached by candidates for election to fellowships had been maintained. Moreover, reports from the directors of laboratories showed that, as in previous years, the Beit Fellows had been actuated in their work by the true spirit of research and were endeavouring to carry out the primary object of the Trust—"the advancement by research of medicine and of the sciences allied therewith." The extreme subdivision of these sciences had now made it very difficult to present in a manner intelligible to those not engaged in such studies a summary of the advances in knowledge made during the past year by the Fellows, owing to the wide field covered by their researches. To this general statement, however, one exception might be made—that of Dr. Edward Hindle on yellow fever—a disease to which unusual attention had lately been drawn by the lamented deaths of Adrian Stokes, Hideyo Noguchi, and William Alexander Young, while engaged in its study on the West Coast of Africa. Dr. Hindle, who was appointed last year to the newly established Beit Fellowship in Tropical Medicine, began work in January, 1928, and in the short period that had elapsed since then had obtained results in the course of a research on yellow fever which gave good ground for the belief that a vaccine had been discovered which would afford protection against that disease. It had been long known that the causative agent was carried from patient to patient by *Stegomyia fasciata*, a mosquito with many aliases. To Adrian Stokes and his fellow workers at Lagos the credit was due of having shown that by mosquito infection the disease could be transferred from man to the Asiatic monkey *Macacus rhesus*. African monkeys, on the other hand, were known to be immune. Dr. Hindle and Dr. A. W. Sellards (*British Medical Journal*, April 28th, p. 713) proved that the virus would bear carriage by sea in a refrigerator for twelve days or more and still maintain its virulence, and that it belonged to the group of filterable viruses. Dr. Hindle, working independently, had since shown (*British Medical Journal*, June 9th, 1928, p. 976)—

- (1) That the virus could be preserved when present in a portion of liver or of the blood of a monkey dead from the disease by drying it in a vacuum and that as a dried paste or as a powder it retained its virulence apparently for an indefinite period.
- (2) That if an animal were admitted to the containing vessel the virus was still active after a period of certainly three weeks or a month.
- (3) That a very minute dose of the virus was invariably fatal in from four to seven days to monkeys of the species *Macacus rhesus*.
- (4) That a vaccine prepared from the livers of infected monkeys would protect a monkey from the effects of a dose of the virus ten thousand times as great as the fatal dose and the monkey continued to be healthy and lively.

There are many points [the report continues] still to be decided during the further course of Dr. Hindle's research, such as (a) the best methods of preparing and of administering the vaccine, (b) the dose necessary to afford protection, (c) how long does the protection last? (d) will the vaccine keep? (e) the best form in which to transport it to the countries where it is wanted, (f) are the results obtained with monkeys also true of man? Dr. Hindle's research at every stage in the process of manufacture and testing of such a vaccine will require the closest possible supervision by men skilled in laboratory technique. It may prove advisable that it should be made in a country free from yellow fever and from the presence of the mosquito (*Stegomyia fasciata*) certainly capable of acting as

a carrier. The benefit conferred by this discovery, assuming its value to be ultimately established, will not be limited to Europeans living in a country where the disease is endemic or in which it appears at intervals. It will be shared by the native population, who are not immune, as some, in spite of what should be convincing evidence to the contrary, still appear to believe.

The following were elected to Beit Research Fellowships

Senior Fellowships (value £700 per annum), fourth year Fellows elected to Senior Fellows—(1) Alan Sterling Parkes, subject 'The proportion of the sexes' (2) Miss Honor Bridget Bell, subject 'Experimental studies on the differentiation and dedifferentiation of animal tissues'

Junior Fellowships (value £400 per annum)—(1) Juda Hirsch Quastel, D.Sc., Ph.D., (2) Percival Walter Clutterbuck, M.Sc., Ph.D., (3) Bryan Harold Cabot Matthews, B.A., (4) Douglas Roy McCullagh, M.Sc., (5) Wallace Ruddell Aykroyd, M.D.

England and Wales.

Centenary of the Sheffield Medical School

The centenary of the Sheffield Medical School was celebrated on July 11th by a special degree congregation, over which the Marquess of Crewe, Chancellor of the University, presided, in the presence of a large assembly of members of the University and of the public in the Fifth Hall. Lord Crewe expressed the regret of the University at the loss by death of Dr. Dyson, late professor of medicine, and after welcoming the delegates from other universities he said that the growth of the medical school and its development into the medical faculty of the University was a singular case of one limb of a great organism being more than four times as old as the organism itself, and yet not, in any sense, the parent of the organism. The medical faculty, he continued, was, in fact, an integral part of the University, it was an advantage to the school of medicine to have become a department of the University, and no less an advantage to the University to possess so distinguished a medical faculty. The representatives of other universities were then presented to the chancellor and tendered congratulatory addresses. Sir E. Farquhar Buzzard, Regius Professor of Medicine, Oxford, referred to the somewhat turbulent beginnings of the Sheffield school, largely due, he said, to the methods—necessarily secretive and sometimes unseemly—at which the profession was in those days forced to connive for the sake of promoting the study of human anatomy. In recent years, he added, the contributions of the Sheffield school to the advancement of medical knowledge had been numerous and valuable, and the names of its professors and teachers had become familiar to the profession throughout the world. The record of the school was one to be proud of, as an earnest of even greater achievements in the future. Sir Humphry Rolleston, Regius Professor of Physics at Cambridge, said that one hundred years ago medical matters were in a state of turbulence, the Cambridge medical school was in low water and came near to being abolished about the time when the Sheffield school was born. Both schools could now look back with gratitude to the determined men who had made their present position possible. Sir Humphry recalled the fact that the first regius professor of physics at Cambridge, who was appointed in 1540 was John Blythe, a native of Sheffield. He then paid a very high tribute to Professor Arthur Hall, who for forty years had served the Sheffield Medical School and the University as teacher and administrator in many capacities. The honorary degree of doctor of science was then conferred by the Chancellor on Dr. H. Hallett Dale, Professor Arthur J. Hall, Sir Frederick Gowland Hopkins, and Sir Thomas Lewis. Professor Hall, as was to be expected, was received with enthusiasm, being known personally to every member of the audience, not only as a distinguished physician, but also for his outstanding services to the University—in the creation of which he played a leading part—in, successively, the chairs of physiology, pathology, and medicine, and, latterly, as dean of the medical faculty. After the congregation the representatives of the city, of Sheffield University, and of other universities were enter-

tained at an official luncheon by the faculty of medicine, and in the evening a large party attended a *conversazione* at the University.

Welsh Board of Health

The Minister of Health, on July 11th, received a deputation of Welsh members of Parliament, who waited upon him to discuss certain recent changes in the Welsh Board of Health, notably his decision not to appoint a successor to Sir Thomas Hughes, who was until recently chairman of the Board. Mr. Lloyd George said that there was a very strong feeling throughout the whole of Wales regarding the matter, and went on to refer to the effect of the changes in relation to national health insurance administration, saying that he had been under the impression that Wales was in the same position as England, Scotland, and Ireland in respect of the autonomous administration of its affairs under the Insurance Act. The Minister's decision, he suggested, had the effect of drawing a distinction between Wales and the three other countries, and the deputation felt that this was a detriment to the Principality. This feeling of indignation was shared by members of all parties in Wales. Mr. L. Lougher and Mr. Will John supported this view. Mr. Nevill Chamberlain replied in terms similar to those he employed in explaining the change in answer to questions in the House of Commons, as reported in our Parliamentary Notes on July 7th (p. 38). The view that the recent changes affecting the Board would diminish its powers was, he said, an entire misapprehension. He had in his mind no policy the effect of which would be gradually to diminish the powers of, and possibly ultimately to abolish, the Welsh Board of Health. The steps objected to had been taken solely in the interests of good administration. Wales had never been in the same position as Scotland or Ireland. The Board was not an executive board in the ordinary sense of the term, its work was, in fact, done by its individual members in their separate individual capacities. He had considered the question and had come to the conclusion that, for one reason or another, none of the existing members of the Board could be regarded as suitable for the post of chairman, he had considered whether he should appoint some person who was not now a member of the Board, but such a man could not be found without causing inconvenience elsewhere, and, moreover, it would have involved expense which did not seem to him to be justified. He had therefore decided to make no appointment. The deputation indicated that in view of the Minister's statement they would like to discuss the matter further themselves, and would then, if necessary, approach the Minister again. Mr. Chamberlain said that he did not feel that any of the representations made would justify him altering his decision, but he would be pleased to consider any further points the deputation might raise.

University College, Nottingham. Opening of the New Buildings.

On July 10th the King and Queen opened the new buildings of University College, Nottingham, of which an account appeared in our issue of July 7th (p. 20). Popular enthusiasm was heightened by the announcement made by the King on reaching the city boundary that, in consideration of the antiquity and importance of Nottingham, the chief magistrate should in future be entitled "Lord Mayor." The King was received at the east end of the college quadrangle by the Duke of Portland, who is president of the Court of Governors, and Alderman Huntsman, Lord Mayor of Nottingham, who is chairman of the College Council. They were accompanied by the President of the Board of Education, and a guard of honour of the University College Training Corps was mounted in the East Court, where also was the band of the Sherwood Foresters. Their Majesties were then conducted to the main doorway in the quadrangle, above which is the inscription *Ad gloriam Dei et homines artibus instruendos has aedes curavit aedificandas Iesse Boot Baronettus MCMXXIII*. Here several presentations were made, including Lady Boot, Professor W. H. Heaton, Principal of the University College, Dr. Frank Granger, Vice-Principal, and Mr. Morley Horder, the architect. The King then opened the

main doorway with a gold key, passing through the new buildings into the great hall, where a prayer of dedication was said by the Vicar of St Mary's. The chairman of the College Council read an address in which the history of the institution was traced from the year 1877, when it was established as a direct result of the Cambridge University Extension Movement. Reference was made to the Royal Charter granted in 1903, and to the rapid progress since that date. The part played by Sir Jesse Boot since 1921, in enabling the institution to accord the increased facilities for instruction which were urgently demanded, was then detailed, and mention was made of the hall of residence for some eighty women students, which Lady Boot had presented and which was nearing completion. Grants had also been received towards the assistance of students in poor circumstances. The chairman mentioned that, as the result of a public appeal, over £130,000 had already been received as the beginning of an endowment fund, and the hope was expressed that at no distant date Nottingham would be able to take its place among the fully chartered universities of the country. In reply to the address the King voiced his especial pleasure in opening the new buildings, and congratulated those concerned on the support that had been received from all classes of the population of the city. He added that in the prevailing conditions no nation could afford to withhold from its citizens the fullest measure of training and culture. The college was in a very real sense the child of the corporation, under the watchful and generous care of which it had thriven, so that it was now able to establish itself outside the city in magnificent buildings and grounds, with ample lecture rooms, laboratories, library accommodation, and extensive playing fields. The King referred particularly to Lady Boot's generous gift of the new hall of residence for women students. Their Majesties then proceeded to inspect the new buildings, including the lower hall, the library, the refectory, and the terrace, subsequently taking tea with Sir Jesse and Lady Boot.

Presentation to Dr D S Davies

On his retirement from the post of medical officer of health for Bristol, after over forty years' service, Dr D S Davies was presented by his numerous friends and colleagues with a portable wireless set and a cheque. The ceremony was provided over by Dr Kenneth Wills, president of the Bristol Medico-Chirurgical Society, in the unavoidable absence of Professor Hey Groves, president of the Bath and Bristol Branch of the British Medical Association. The chairman voiced the regret felt at the retirement of Dr Davies, and wished him long life, health, and happiness. Dr Wills alluded to previous positions held by Dr Davies, including those of president of the Bath and Bristol Branch of the British Medical Association, of the Bristol Medico-Chirurgical Society, and of the Society of Medical Officers of Health. Dr Davies has also been a member of Lord Trevethin's Commission on Venereal Diseases in 1922, and an examiner in State medicine for London University, and for the diploma of public health examinations in connexion with the Conjoint Board and the Universities of Bristol, Cardiff, and Belfast. He received the honorary degree of LL.D. from Bristol University in 1912.

The Cicely Northcote Trust

The admirable service rendered to St Thomas's Hospital by the Northcote Trust is made the subject of a foreword to the present report by Mr G Q Roberts, the hospital's secretary. The activities of the Northcote Trust are already widely known. It was established in 1909 by Mr Hugh Northcote, and one of the conditions of the trust was that the same measure of assistance already being given to the out-patients of the hospital should be available for the in-patients and their families. In 1904 the governors of St Thomas's appointed a lady inquiry officer to be known as the lady almoner. This appointment foreshadowed a very wonderful development of the hospital work, and led to the establishment of a staff of lady almoners, whose duties, however, were confined until 1909 solely to the investigation and relief of the social conditions of the very many out-patients in attendance. The medical staff quickly

realized the great value of this assistance, and heartily welcomed the extension of the scheme to the in-patients and their families, as was made possible by the generosity of the Northcote trustees. Many instances are given in the present report to show the very great benefit afforded to the in-patients as a result of inquiry and help by the lady almoners, and it may now be said that there are few patients in the hospital whose circumstances are not sufficiently well known to obviate any possibility of hardship to them or to their families through neglect. Medical practitioners are well aware of the difficulty often encountered of inducing many patients, especially mothers, to come to hospital in the early stage of an ailment, as, for example, an incipient cancer. A wife, perhaps, says she cannot leave her home. Who is to look after her children? It is just here also that the services of the lady almoners' staff are so valuable. Arrangements are made with an employer to keep a situation open, or with someone to take the place of the worker at home, to carry on during the patient's stay in hospital. The most delicate and difficult duties of the lady almoners' staff, however, are concerned with the help and rehabilitation of patients suffering from mental ailments. In any large general hospital there are always to be found a number of patients who suffer from neuroses or from more serious mental disorder. It is not surprising that in cases where home conditions are particularly trying and disagreeable such patients should look on the hospital as a quiet haven from the struggle of life outside, and find it extremely difficult to return to their hard daily routine. In many cases it is the task of the lady almoners to find fresh environment, new purposes, and interests which may open fresh avenues to a normal healthy life. The report refers to the need for full and adequate treatment in the early stages of mental disorder, and to the fact that the task confronting the Northcote Trust worker in these cases would be far less complicated if patients came for treatment before they had taxed to the utmost the resources and understanding of their family and friends. One of the chief difficulties in dealing with the re-establishment in the outside world of patients with long histories of neuroses is the inadequacy of the information as to their previous admissions to hospitals or clinics, and it is urged that some machinery for passing on the histories from treatment centres be evolved. It is only by such means that the hospital after-care worker can hope to achieve her object.

Scotland.

Small-pox in Scotland

THE outbreak of small-pox mentioned in the *Journal* of July 14th (p 72) is attracting considerable attention from local authorities in Scotland. In Brechin investigation of cases notified as chicken pox has resulted in the discovery that a certain number are in fact small-pox, similar to the type of which there were some 150 cases in Dundee last year. In Glasgow a warning has been issued by the medical officer of health advising Glasgow people who may be arranging to spend a holiday in the district where small-pox has broken out to be vaccinated before going there.

Harvey and Aberdeen

At the June meeting of the Aberdeen Medico-Chirurgical Society, with Dr Thomas Fraser in the chair, Professor J A MacWilliam, FRS, gave an address entitled "Reflections on Harvey's work." After some remarks on the life and personality of Harvey, he sketched the long-established views associated with the name of Galen, and the contributions of some of the precursors of Harvey—Servetus, Leonardo da Vinci, Fabricius, and others. The fundamental observations and animal experiments were reviewed, and also the reasoning which led Harvey to the idea of "a movement, as it were, in a circle," together with the work of the successors of Harvey (Malpighi, Leeuwenhoek, and others) in demonstrating the capillary circulation. The profound significance of Harvey's great achievement was emphasised, not only in its obvious applications of fundamental importance in physiology and

medicine, but also as regards the change which it had induced in the general attitude of mind towards the problems of the animal organism, introducing a new spirit and method in the study of the relation to the forces and processes of the external world. Dr W. Clark Souter read a paper on the visit to Aberdeen in 1641 of William Harvey, when he was made an honorary burgess of the city. Dr Souter showed a number of lantern slides illustrating this and other Harveyian topics, together with a number of Harvey portraits, he gave his views on the authenticity and origin of the Harvey portrait in the society's possession, a gift from Sir Walter Traquair in 1815.

Tuberculosis in Aberdeenshire

The annual report of Dr H. J. Rao, medical officer of health for Aberdeenshire, dealing with the year 1927, is specially concerned with the question of tuberculosis. It is stated that, in this country, institutional treatment is provided on a most generous scale, and patients after treatment in an institution are offered the use of shelters which can be erected in rural areas and other places where open space is available. While it is agreed that efforts at eradicating tuberculosis have met with a considerable measure of success, which institutional treatment has undoubtedly helped, it is suggested that institutional treatment can never eradicate tuberculosis, for, although an expensive therapeutical method, it occupies a relatively short period in the patient's life. Tuberculosis is a social problem intimately related to heredity, wage-earning capacity, and social and housing conditions, and it is really a disease of the home. Institutional treatment, however, teaches the patient how to live and regain some degree of working capacity as well as how to avoid a recrudescence of the disease.

Edinburgh Post-graduate Courses

The syllabus of post-graduate courses for the approaching vacation term has been issued by the committee appointed by the University and School of Medicine of the Royal Colleges to arrange them. These courses have now been given since 1906, except for the period of interruption during the war. The syllabus announces courses in tuberculosis, venereal diseases, surgical pathology, diseases of the nose, ear, and throat, and ophthalmoscopy, to be held at various times of the year at fees ranging from two to ten guineas. The special vacation courses now commencing include the following: A course in obstetrics, gynaecology, and diseases of children will be held from July 16th to August 11th, and includes daily clinics at the Royal Maternity Hospital and in the gynaecological wards at the Royal Infirmary, attendance at child welfare clinics, ante-natal clinics, and clinics on diseases of children in the Royal Hospital for Sick Children, and a series of lectures upon such subjects as infant feeding and ophthalmia neonatorum, the fee for this course is ten guineas. A general practitioners' course will commence on August 13th and continue for four weeks till September 8th, it will include demonstrations upon applied anatomy, but will be mainly clinical, with meetings in the Royal Infirmary for clinical medicine and clinical surgery daily, clinics twice weekly in the Royal Hospital for Sick Children and special clinics once weekly upon infectious diseases, gynaecology, diseases of the eye, diseases of the throat, and dermatology, in the afternoons demonstrations will be arranged with reference to bacteriological diagnosis, morbid anatomy, lupus, radiology, ultra violet light treatment, dental treatment, and venereal diseases, the fee for this course is ten guineas. A general surgical course runs concurrently with the last and includes demonstrations in applied anatomy, the surgical diagnosis of renal disease, abdominal surgery, orthopaedics, and surgical pathology, there are also clinics relating to general surgery, surgical out-patients, gynaecology, surgical diseases of children, venereal diseases, and radiology, the fee for this course is ten guineas. Various special courses at individual fees can be taken at the same time if desired in such subjects as vaccine therapy, medical chemistry, and diseases of the blood. Application to join any of the courses should be made to the Secretary, Post-graduate Courses in Medicine, University New Buildings, Edinburgh.

Correspondence.

CARBOHYDRATE METABOLISM IN HYPERTHYROIDISM

SIR,—Dr Henry Moll has recorded in your issue of July 14th (p. 51) the beneficial effects of a diet rich in carbohydrates in cases of Graves's disease. These clinical observations confirm the conclusions, arrived at by me ten years ago as the result of observations in experimental hypothyroidism in animals, that "in Graves's disease a carbohydrate-rich diet is indicated to counteract the loss of flesh which is one of the features of the disease." Since most writers on the relation of the thyroid gland to carbohydrate metabolism find it difficult to correlate the known facts, this may be a suitable opportunity to give a brief re-statement of a conception which I have put forward in a number of papers, and which, so far as I can see, affords an adequate explanation of the various apparently paradoxical features of hyperthyroidism.

In hypothyroidism, however induced, there is a stimulation of the glycogenic functions of the liver in the sense that more sugar is being passed into the blood and more glycogen is being formed by the liver. The sugar which is passed into the blood is oxidized away so that the blood sugar shows no marked deviations from the normal. As the result of the increased formation of glycogen the liver begins to attack the protein of the body and transforms it into glycogen. Hence the increased nitrogen excretion and the loss of weight. It is logical, therefore, to counteract this effect by increasing the available carbohydrate in the diet.

This statement refers to the simple uncomplicated conditions of hypothyroidism in which there is never a glycosuria. But hyperthyroidism, if prolonged, may be complicated by secondary changes which manifest themselves clinically by more severe disturbances in the blood sugar or even by the development of diabetes mellitus.

Experimentally Burn and Marks have recorded the paradoxical behaviour of the blood sugar occurring in rabbits which had been kept in a condition of hyperthyroidism for several weeks. Prolonged thyroid feeding produces changes in the suprarenal glands which I have interpreted as an inhibition of the gland, and I suggested that Graves's disease may be due to a breaking down of this inhibiting mechanism in the suprarenal gland. It also produces definite changes in the islets of the pancreas, the significance of which is yet obscure. In pathological hyperthyroidism, as it occurs sometimes spontaneously in mice, I have recently been able to observe definite changes in the suprarenals of four such cases. These mice, which were put at my disposal through the kindness of Professor L. Hill, showed a very pronounced exophthalmos and had greatly enlarged thyroid glands. In three the suprarenal medulla was greatly hypertrophied and was actively secreting. In the fourth animal the medulla of one suprarenal was greatly hypertrophied while the medulla of the other gland was almost completely atrophied.

The observations indicate that in pathological hyperthyroidism the suprarenal gland is frequently, if not always, involved, but that the extent to which it is involved differs greatly in different cases. At first there is stimulation, but, as the one case referred to shows, this may be followed by degenerative changes. The condition of the carbohydrate metabolism will vary accordingly. With a hyporeactive suprarenal the glycogenic function will be stimulated, when the gland degenerates it will be inhibited. In pathological hyperthyroidism, in which there is always a prolonged activity of the thyroid gland, the metabolic condition cannot be explained entirely by reference to the state of the thyroid gland. The state of the suprarenals, and probably also of the islets of Langerhans, have to be considered. A more detailed statement will be found in my recently published book, *Fever, Heat Regulation, Climate and the Thyroid Adrenal Apparatus* (Longmans, Green and Co.)—I am, etc.,

London WC1 July 16th.

W. CRAMER

A CAROTID RESPIRATORY REFLEX

SIR—In your interesting annotation on the work of Danilopolu and his collaborators at Bucarest, under the above heading in the *Journal* of July 7th (p. 25) you state that "the reflex is started in the tunica intima of the artery, and at a particular spot in the carotid sinus." Further on "So far very little study has been undertaken of the relation of the reflex to pathological conditions." If this observation is correct—that the reflex is started in the tunica intima—it may be of great importance, especially in its relationship to the causation of sudden death.

In an investigation¹ of 100 cases of sudden death under anaesthesia and unexplained deaths in circumstances which called for examination by the Crown authorities, Dr. John Anderson and I drew attention to the frequency with which cholesterol deposits were found in the intima of the carotid sinus, even in very young infants. "The degenerative changes in the vessel wall are usually seen to the naked eye, the carotid vessels in a number of cases showing rows of fatty elevations of the intima as large as a pin head. These vessels, often omitted from routine *post-mortem* examination, show changes more commonly than others in status lymphaticus, especially at and just above the bifurcation."

As no agreement about the size and weight of a "normal" thymus is ever likely to be achieved, and as the trend of all modern opinion is against the thymus gland having any immediate relationship to the cause of death in cases of this kind, investigation of how far the involvement of the tunica intima by pathological infiltrations would alter this reflex during anaesthesia or under other strain, might provide a most fertile field for study and from a medico-legal point of view might be of far-reaching importance and value.

There are probably other areas of the arterial tree where similar reflexes have their origin, for instance, where the coeliac artery divides. This is another situation where involvement of the arterial wall is often found in sudden death—I am, etc.,

Victoria Infirmary, Glasgow, July 26th

J. A. M. CAMPLING

PROTECTION OF THE MEDICAL PRACTITIONER
SIGNING LUNACY CERTIFICATES

SIR—The first resolution of the Bournemouth Division—

"That in regard to Section 330 of the Lunacy Act 1890—(a) the onus of proof of want of reasonable care and want of good faith should be on the plaintiff, (b) unless the plaintiff can satisfy the judge that he is able to prove in a court of law the want of reasonable care and good faith the case should not proceed to trial, and (c) the judge should be able to call in expert opinion on the point of reasonable care in respect of medical certificates if he himself is in any doubt—"

does not give the protection which was intended when the bill was introduced, nor that which medical men are entitled to demand. When the Act of 1889 was introduced into the House of Lords Lord Halsbury said that one of the points in the bill was the protection of medical men and others against vexatious actions where they have acted in good faith, and the Home Secretary Mr. Matthews, stated on June 3rd, 1889, in the House of Commons, that a new feature had been introduced into the bill—namely, that there should be an inquiry before a permanent judicial tribunal. In order to obviate the evils of vexatious actions against medical men, and also to provide a security against any possible abuse of the anomalous privilege which medical men have so long enjoyed, it is provided that a judicial inquiry shall be held and a judicial decision obtained before a person can be permanently confined as a lunatic.

It is clear, therefore, that it was the intention of Parliament to give complete protection to the medical man signing a lunacy certificate, and apparently it was needed then, for Dr. Farquharson said that doctors at that time were in such dread of legal proceedings that they hardly ventured to certify lunacy at all. This is exactly the position we are in now, and the judicial tribunal which was set up to protect us and to ensure that our certificate might

not be the cause of the detention, has failed, because under Section 330, Clause 2 states that in order to arrest proceedings we have to satisfy the judge that there were no grounds for alleging want of good faith or reasonable care. "Reasonable care" was a most unfortunate phrase, for what might appear as reasonable care before an event might look very foolish afterwards. It would require something approaching infallibility to be able to convince the judge that there was no want of reasonable care, there have been, consequently, quite a number of vexatious actions.

I trust, therefore, that the Bournemouth resolution will be so strengthened that when a medical man has undertaken the unpleasant duty of issuing a lunacy certificate in the interest of his patient and the public he will be able to feel confident that while he acts in good faith he will not be liable to vexatious litigation, even if he has made an error of judgement—for who is infallible?—I am, etc.,

W. R. WILSON, D.P.H., F.R.C.S.I.

Bournemouth, July 10th

THE MERCURY BAG

SIR—Dr. Douglas Smith, in his interesting note (July 14th, p. 53), draws attention to a method which is capable of rendering wider service than he indicates. It has been used in Dundee Royal Infirmary since, about twenty-five years ago, I took it to replace compression by a shot-filled condom for persistent pelvic infiltrations such as haematomata. It has been employed with success for such cases and also as Dr. Smith uses it for the incarcerated retroplaced uterus. On one occasion it enabled me to return an inverted uterus. The large Barnes's bag is suitable, and is easily laid transversely in the posterior fornix. The barrel of the old glass methral syringe is a convenient funnel by which to pour the mercury into the tube. In using the method the fact that mercury in bulk feels rather cold is worth remembering. The available stock of mercury should be about four pounds—I am, etc.,

Dundee, July 16th

R. C. BUIST, M.D.

RESULTS OF TREATMENT OF UTERINE CANCER

SIR—I have received by post a pamphlet entitled "The Radium Treatment of Cancer of the Uterus," published by the Cancer Research Committee of the London Association of the Medical Women's Federation, which is said to be a report of that committee to the Medical Research Council and the British Empire Cancer Campaign. On page 8 is a table giving certain statistics relating to the radical surgical treatment of cancer of the cervix. In that table I am stated to have operated upon "90 cases out of a total of 150 cases seen, with a primary mortality of 20 per cent and a five-year cure rate of 40 per cent, and an absolute cure rate of 26.6 per cent." In a bibliography appended a few pages later my report is stated to have appeared in the *British Medical Journal*, 1925, vol. II, page 282.

Being unable to recognize the figures attributed to me, I looked up my original article according to the direction in the bibliography. I delivered it at Bath in 1925 at the Meeting of the British Medical Association, where I introduced the subject of the surgical treatment of malignant disease of the uterus at the Section of Obstetrics and Gynaecology. The figures that I gave on that occasion were as follows: 182 operations out of 303 cases seen, with an operative mortality of 16 per cent, a five-year cure rate of 40 per cent, and an absolute cure rate of 25 per cent. These figures are given so clearly that no one reading the paper, even hurriedly, could be in any doubt about them.

Under the table referred to it is stated that "records of more recent cases by Wertheim and Bonney give the primary mortality as 8 per cent and 16 per cent respectively." As regards Wertheim's figures, all that can be said is that as he died many years ago, and his latest results were published many years ago, there seems no legitimate reason why they should not have been quoted in preference to those older figures which appear with his name in the table referred to. As regards myself, it would appear that the writer of the pamphlet knew that in 1926 I read at the Section of Obstetrics and Gynaecology, and subsequently

¹ Status Lymphaticus and Sudden Death. *Glasgow Medical Journal*, September 1927.

published in the *Proceedings of the Royal Society of Medicine*, an article dealing with 214 patients operated on out of 340 patients presenting themselves, with an operative mortality of 15.8 per cent (12 per cent in the last 114), a five-year cure rate of just under 40 per cent, and an absolute cure rate of 25 per cent.

The pamphlet in question, since it was accompanied by a leaflet making a special appeal for money for which a form of donation was attached, has presumably been circulated with its inaccurate figures amongst the general public. This is bad enough, but, more than that, it is a report to the Medical Research Council and the authorities of the British Empire Cancer Campaign. At the outset of the pamphlet it is stated, "*great care* was necessary in making a comparative study of the reports of the surgical and radium treatment of uterine cancer." This is perfectly true, and therefore the least that can be said is that these misstated figures are an instance of gross carelessness.

I seem to be unfortunate in this matter, for it was only in August last year that I and my colleague Mr Comyns Berkeley had to protest in your correspondence column against the inaccurate use made of our figures in the review of cancer of the uterus published by the Ministry of Health, and written by Miss Lane Claydon, M.D.—I am, etc.,

London W, July 17th.

VICTOR BONNEY

THE ETIOLOGY OF MONGOLISM

Sir,—The great majority of the cases of Mongolism which I have observed can be placed in one of the following groups: the first child of a very young mother, the first and only child, often, but not always, born of a late marriage, the last child of a family, generally born of a mother nearing the menopause.

I suggest the theory that there are five phases in the life of each ovary: (1) The period of immaturity. (2) A short period of pre-maturity, in which the ovum is fertilizable but incapable of developing into a perfect embryo. (3) The period of sexual maturity. (4) A short period before the menopause in which the ovum is still fertilizable, but no longer capable of producing a perfect embryo. (5) The period of final degeneration after the menopause.

The phases (2) and (4) are obviously those in which there is a risk of producing the Mongolian type; pathological degeneration of an ovary might occur at any period of the sexual life, thus accounting for the relatively common Mongol only child. There is no reason to suppose that both ovaries must degenerate simultaneously, so the occurrence of two, but only two, Mongols in one family is theoretically possible.

Dr Armstrong (whose paper appeared in the *Journal* of June 30th, p. 1106) will be interested to know that I have such a case under observation at the present time. There were seven children of the marriage, the fifth and seventh were typical Mongolian imbeciles, but the sixth was a normal child. The mother was 40 years old at the birth of the fifth child.

The theory which I have vaguely outlined would be invalidated by a proved case of uniovular twins, of which the one was a Mongol and the other a normal child—I am, etc.,

Leicester July 1st.

J. M. MACKINTOSH

SHOCK AND ABORTION

Sir,—In view of the letters on this subject published on February 25th (p. 327) and March 3rd (p. 375) the following occurrence may be worth recording.

The coroner asked me to investigate the cause of death in a woman, aged 36, who was found dead in her bedroom with a bowl containing soap solution and a Higginson syringe under the bed.

At the necropsy she was found to be a healthy woman and the stomach contained a large undigested meal. In the uterus was a foetus of the age of 15 weeks. Between the membranes and the uterine wall there was a full half pint of soap solution, containing some undissolved soap shavings. The solution was so strong as to be like a thick paste. The

os uteri was undilated, and there was no haemorrhage. Except that the blood and endocardium had a lavender-like tinge, there were no macroscopic changes in the organs.

The history was that she ate a meal at noon and went to her bedroom. At 1 p.m. she said she was not well, she asked for tea, but died before it was prepared, giving a few gasps and falling back on the bed.

It seemed incredible that undissolved soap shavings should pass the valve of a Higginson syringe and an undilated os, but I find that it will—I am, etc.,

London E.13 July 8th

A. C. KENNEDY

VOLUNTARY HOSPITALS AND THE STATE

Sir,—The agenda for the meeting of the Marylebone Division on June 28th had the following item:

ANNUAL REPORT OF COUNCIL (in large type)

Adjourned discussion

Notice of Amendments have been received from

1 Dr David Roxburgh

2 Dr Graham Little, M.P.

Mr Eccles suppresses the material fact that my amendment was, as announced, an amendment to the Annual Report of Council, and describes it as "cryptic" and "secret." Of course, I am not responsible for the form which the agenda took, but I do not think that his epithets are justified.

The figure of 1,500 as being the number of invitations sent out was given to the meeting by the secretary and quoted by me on that authority. Since that date the secretary has informed me that the number was "nearer 1,200 than 1,500." It is Mr Eccles who is in greater need of correction on this point than I.

With the agenda paper a leaflet was issued notifying these 1,200 recipients that the Division would proceed to nominate two direct representatives upon the General Medical Council. The business of the meeting, therefore, was perhaps of rather especial importance, and I submit that an attendance of 11 out of 1,200 summoned demonstrates a regrettable indifference, almost amounting to a boycott of the Marylebone Division by the practitioners residing in Marylebone, who consist so largely of consultants.

Mr Eccles claims that the scheme of the Hospitals Committee over which he presides restricted the functions of the "Central Authority" to advice only. Unfortunately for his contention, however, the Appendix to the Annual Report of Council goes on to say that the "hospital grouping which the Association envisages would be on lines similar to those suggested in the Interim Report of the Consultative Council on Medical and Allied Services, 1920." Reference to the report thus named, I think, disposes of the suggestion that the Central Authority would be content with giving advice only, whatever might be the desire of the Hospitals Committee. It is expressly set out in the recommendations of that Interim Report that by the operation of the scheme recommended, all the medical services, including the teaching and other voluntary hospitals, would be "brought together in close co-ordination under a single Health Authority for each area." Again, "It is vital to the success of any scheme of Health Service that there should be unity of idea and purpose, and there will be need for a new type of Health Authority to bring about unity of local control [the italics are mine E.G.L.] for all health services, curative and preventive." The composition of the health authority recommended by the Interim Report is set out in Section 28: three-fifths of the membership was to be constituted "by representatives elected by popular vote" (presumably by the same method as Poor Law guardians have been elected), and the other two-fifths, it was suggested, "should be persons whose special knowledge of health questions would be of value." The report expressly says "By such an arrangement the elected representatives would hold the majority of votes and the nominated members would contribute to the skilled knowledge necessary for successful deliberation." Inasmuch as the Ministry of Health inherits the wide powers of the Local Government Board the "representatives elected by popular vote" would be under the authority of the Ministry. Surely my view that the control of all the

hospitals thus co-ordinated would under this scheme ultimately pass to the Ministry of Health is amply justified.

The discussion at the Marylebone Division disclosed some interesting discrepancies in the views of the two protagonists of the Council who were present. The Treasurer described the scheme detailed in the Appendix as "a subtle manoeuvre," as "an astute political move," designed rather to outwit the enemy than to afford a really satisfactory solution of the problem, statements for which he was reprimanded by the Chairman of the Hospitals Committee, whose overweening self complacency prevents him from seeing the report of his committee otherwise than as a "carefully thought out scheme for the co-ordination of hospital provision." But if the Hospitals Committee can do nothing better than to reproduce in its essential features a scheme for co-ordination of medical services which fell stillborn upon its production in 1920 and has never exhibited any signs of life since then, they surely write themselves down as being singularly empty of initiative or statesmanship. By resuscitating this scheme the Hospitals Committee are doing their best to supersede the voluntary system by bureaucratic and ministerial control.

It is interesting to note that the signatories of the much more important letter which follows that of Mr.icles in your issue of July 14th from the President, Chairman of the Council, and Chairman of the Weekly Board of the Chelsea Hospital for Women, take the view which I have ventured to urge. They say "The time would seem to be ripe for the representatives of the London hospitals to devise a scheme under which the voluntary and municipal institutions could work together without the loss of the voluntary management and support." It is with the object of stimulating the "representatives of the London hospitals" to combine in opposition to these insidious attacks upon the voluntary system that I am moving my amendment at Cardiff. I have received notice that the Hampstead Division has instructed its representatives to support that amendment, and I hope other Divisions will take the same action—I am, etc.,

London, W 1, July 16th.

E. GRAHAM LITTLE

CARE OF THE HEALTH OF MERCHANT SEAMEN

SIR,—I venture to submit again that the British Medical Association should consider the case of merchant seamen, and adopt some means for forcing the hand of the Board of Trade to compel the Board to hand over the responsibility for the health of the 200,000 merchant seamen to the Ministry of Health.

Merchant seamen, as regards their health, are hardly treated fairly by the State. No one is made definitely responsible for their health, but the Board of Trade has for years recorded their deaths, and, by its surveyors, exercises control over the building of ships and so over the accommodation and sanitary conditions under which seamen live. Their deaths are reported to the Board of Trade, but come under no medical scrutiny, the Board having no medical official of the standing of a medical officer of health. As a result, no annual report about their health is published—nothing resembling the annual reports of the chief medical officer of the Ministry, or the health reports of the services, which reports, between them, cover the health of all men in England and Wales except the merchant seamen.

No valid excuse for such neglect can be seriously offered to the medical profession, particularly as the enteric death rate of seamen has only fallen by 50 per cent in twenty-five years, but everywhere else in this country, in the same period, by 90 per cent, as I hope to show in a paper to the Royal Sanitary Institute this week.

The deaths of landsmen assist the sanitary branch to lower the death rates of their successors, but it is not so in the merchant service, where death rates fall by reason of sanitary research conducted in relation to people on shore, not among seafarers, there being no co-ordinating authority to study the diseases of merchant seamen as a whole. The fullest knowledge of the diseases of seamen and the measures due for their prevention is that possessed by the medical officers of health of the port sanitary authorities, who hear from each ship as she arrives what

diseases have occurred during her voyage, and learn, by then on immediate inspection, the sanitary state of the ship when she is working (Board of Trade surveyors are by their own instructions forbidden to inspect ships unless they have been cleaned). Now these medical officers of health are officers reporting to the Ministry of Health, not to the Board of Trade, and they publish most valuable reports, but there is no superior co-ordinating official to furnish each year a summary of the conditions most usually or, as the case may be, exceptionally found—a health report, in fact, for the merchant service. I submit that a health superintendent is needed for the merchant service, to whom the Board of Trade would communicate the reports of deaths as they arrive, and he will do better work at the Ministry, among professional brethren, than if he were to be marooned at the Board of Trade. From next year on it will be easier, I understand, for him to prepare an accurate death rate, for the seamen's national health insurance organization will be able in that year to state the number of crew days served on articles, and a death rate for the merchant service will be as attainable as now for the Royal Navy.

I submit that a report published annually on the health of the merchant service will cause greater advance in ten years than without it will come in fifty. All changes are difficult. The slightest would be to have the Board of Trade send the notices it gets of seamen's deaths over to the Ministry of Health, to be considered there by a skilled official to collate with them the reports of the medical officers of health of port sanitary authorities into an annual report on the health of the merchant service. Why should the Registrar General be able to say, as he does in his last decennial supplement, "the seaman's mortality from disease exceeds the average by 48.8 per cent, and his mortality from violence by 430 per cent"? Surely it is work for the medical profession to stop that—I am, etc.,

W. E. HOME,
Fleet Surgeon.

New, July 16th.

DIRECT REPRESENTATION ON THE GENERAL MEDICAL COUNCIL

SIR—I must apologize for sending such a long list of "experience in public and medico-political work" for inclusion in your columns with the list of nominations for election to the General Medical Council (Supplement, July 14th, p. 18). Apparently the exigencies of space required considerable curtailment, and unfortunately, in pruning the tree, some branches were lopped off which to me appear to be of prime importance. I would therefore ask you to be good enough to supplement the record you kindly inserted by adding to it the following items.

I have been in general and surgical practice for upwards of thirty-four years.

As well as being on the staff of the Victoria Hospital for Children, Hull, and that of the Hull and Sculcoates Dispensary, I am a member of the boards of management of both institutions, and a trustee for the latter.

I was a founder of the Hull Medico-Ethical Society (now Medical Society), and president in 1897 and a founder (and trustee) of the Medical Benevolent Society for the North and East Ridings of Yorkshire.

I served on the Medical Acts Amendment Bill and on the Coroners Act Amendment Bill Committees of the British Medical Association.

I was a D.C.M.S. and liaison officer between the Ministry of National Service and the Central Medical War Committee, British Medical Association, and was Commissioner of Medical Services and Deputy Regional Director for the Yorkshire Region, Ministry of Pensions.

The most important of the omitted items is that I am a vice-president and have been for many years a member of Council (with 100 per cent of attendances) of the Medical Defence Union. Thus, I submit, in conjunction with my membership of the Central Ethical Committee, British Medical Association (also with 100 per cent attendances), has given me experience in considering, and dealing with, cases of alleged professional misconduct which I do not believe any other candidate has had, except Mr. E. B. Turner, when he was previously a member of the General Medical Council—I am, etc.,

Harrrogate July 14th.

C. H. MILBURN

Obituary.

WILLIAM DYSON, M.D.,

Emeritus Professor of Medicine, Sheffield University, and Consulting Physician, Sheffield Royal Infirmary

By the death of Dr. William Dyson on July 9th the city of Sheffield loses a useful citizen, the medical profession a recognized leader, and the University an Emeritus Professor of Medicine of distinction. His death at this time cast a gloom over the celebration of the centenary of the medical school to which he had given such great service in the past.

William Dyson was born at Thurgoland, Yorks, on July 15th, 1849. He was one of a large family well known in Wesleyan circles, being the son of John Dyson, J.P. He was educated at the old Wesley College, Sheffield, and graduated B.A. Lond. in 1868 in his nineteenth year. He entered University College, London, in the following year as a student of medicine, his career there was most successful, and he had as fellow students Sir Thomas Barlow and the late Professor W. S. Greenfield of Edinburgh. He was a favourite pupil of Sir William Jenner, and in after years he often spoke in affectionate terms of his famous teacher of clinical medicine. He graduated M.B. Lond. in 1873, with honours in medicine and midwifery, and obtained the diploma M.R.C.S. in the same year. For a time he held the posts of physician's assistant and obstetrical assistant at University College Hospital, and in 1874 he proceeded M.D. Lond. He next practised in his native village for a short time, but removed to Sheffield in 1875, by the time he was 30 he had acquired a large consulting practice in this town and the district around. In 1876 he became physician to the Sheffield Hospital and Dispensary (now the Sheffield Royal Hospital), in 1885 he was appointed physician to the General Infirmary (now the Royal Infirmary), and for twenty-seven years rendered great service to this institution, retiring in 1912 as consulting physician.

In the Sheffield Medical School, which has just celebrated its centenary, he took a lively and practical interest. After holding positions of a minor nature he became lecturer in physiology in 1882. In 1885 he was appointed joint lecturer in medicine, and in 1886 was elected president of the school. It was during this period (1888) that the old school in Surrey Street was transferred to more commodious quarters in Leopold Street. In 1897 the school became part of the new University College, and Dyson was appointed the first professor of medicine. Together with the late Simon Snell and the present professor of medicine, Dyson played a prominent part in the attempt made to obtain a charter for a university in Sheffield. The project materialized in 1905, and Dyson, having already resigned his chair, was appointed Emeritus Professor of Medicine as an acknowledgement of his great services to the school in the past. As a teacher Dyson was deservedly popular, and a strong bond of affection was formed between "Billy" and his students. At the celebrations on July 11th many of his old students were present, and numerous kindly remarks of sorrow were voiced at his passing at this time. The Chancellor of the University (the Marquess of Crewe), before formally opening the congregation, paid a graceful tribute to the service that Dr. Dyson had rendered to the University.

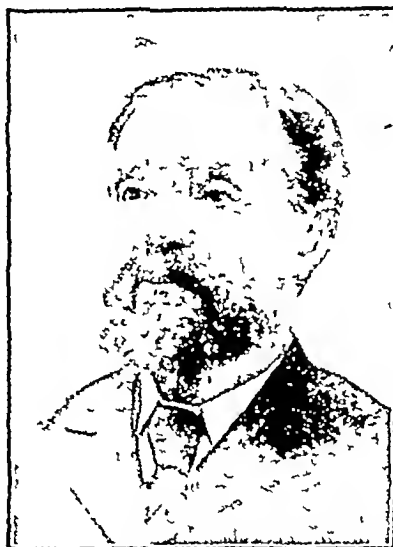
In the British Medical Association he was always to the fore. He was a member of the Central Council from 1896 to 1903. This was an important period in the history of the Association, which was then being reorganized into the splendid body which it is to-day. The great interest which Dyson took in the decisions of that time is well remembered. He was also president of the Yorkshire

Branch in 1895, having been a member of the Branch Council since 1888, and a vice-president from 1897 to 1925. In 1908, when the Association met in Sheffield, he was president of the Section of Medicine, and in 1881 he was president of the Sheffield Medical-Chirurgical Society.

Dyson was specially successful as a diagnostician, and was rarely at fault. His methods resembled those of the clinicians of last century, and he relied chiefly on his powers of observation and his great experience. His contributions to medical literature include the report of a case of haemoglobinuria (*British Medical Journal*, 1885), and a paper on acute dilatation of the stomach. He was also an early writer on myxoedema and acromegaly when these diseases were exciting great interest in the early nineties. For many years he had the bulk of the consulting field to himself, travelling many miles daily in Sheffield and the moorland districts around in all sorts of weather. In this connexion the older men will remember "Joe," his coachman, who was with him for over thirty years, and who, with his "wo" when answering inquiries, was a well known character.

In the public life of Sheffield Dr. Dyson played a prominent part. He was made a magistrate in 1902, and was also a member of the Town Trust.

Generous to a fault, he supported every good cause, many a lame dog has been helped over a stile by a timely cheque from Dyson. His hospitality in private days—particularly to country doctors who seldom met their colleagues—was bountiful. About 1912 his health began to fail and he gradually withdrew from practice. He lived, however, almost to his eightieth birthday, and saw nearly all his contemporaries pass away before him. He was fond of music, and was an accomplished organist. He composed one or two settings for hymns which were published, his musical ear enabled him to imitate many of the calls of the commoner birds. In his earlier years he was a cyclist, especially during his holidays. He married Miss E. J. Andrews, daughter of Thomas Andrews of Wortley, and sister of Thomas Andrews, F.R.S., the well known engineer. They celebrated their golden wedding in 1925. He is survived by his widow, one daughter, and



William Dyson, M.D.

Another son in the medical profession. Another son was killed in the war.

Dr. Dyson was interred at Ecclesall Church on July 11th in the presence of many public men, old friends, and patients. Many of his old students absented themselves from part of the centenary celebrations in order to pay their last tribute to one who played a great part in the development of the School of Medicine of Sheffield.

The photograph reproduced is by G. T. Y. Dickinson, Sheffield.

We regret to record the death, on July 2nd, of Dr. JOHN INGLIS PARSONS, at his residence in Bournemouth, at the age of 71. He received his medical education at Guy's Hospital, graduating M.B. at the University of Durham in 1883, and proceeding M.D. in 1886, six years later he obtained the diploma M.R.C.P. Lond. After serving as house-surgeon at Guy's Hospital he was appointed assistant surgeon to the Chelsea Hospital for Women in 1886, and throughout the remainder of his life maintained the keenest interest in this institution, to which he was subsequently appointed surgeon, and later consulting surgeon. He published numerous articles in the *British Medical Journal* and elsewhere on gynaecological subjects. He also took particular interest in the applications of electricity to treatment, particularly in gynecology, and was a member of the American and French Electro-Therapeutic Societies. Other appointments held by him included those of surgeon to the Royal Maternity Charity, and lecturer on medicine to the Zenana Medical College.

Dr JAMES DEWAH, who died at St Margaret's Hospo, in the Orkneys, on July 11th, had spent nearly sixty years as a practitioner in those islands, and retired only a few months ago, when he took up his residence at Pochahers, Morayshire. After graduating in arts at Aberdeen University in 1866 he pursued his medical studies in that city, graduating M.B., C.M. in 1870. He then, following the custom of the times among newly qualified medical men in the North of Scotland, undertook a voyage to Greenland as surgeon in a whaling ship. On his return he commenced practice in South Ronaldshay, in the Orkney Isles, where he was provincial medical officer for the exceptionally long period of fifty-six years. When he retired last May his services were recognized by his island patients and friends by the presentation of an illuminated address and other gifts. He was a member of the British Medical Association.

Dr JOHN TAIT, whose death occurred suddenly at his residence at Moffat, in Dumfriesshire, on July 12th, was the son of a solicitor in that town, and was born in 1861. He received his medical education at Edinburgh University and Owens College, Manchester, and in 1893 obtained the diplomas L.R.C.P., L.R.C.S. Ed., and L.R.F.P.S. Glas., subsequently commencing practice at Altham, in Pethshire, where he spent the greater part of his professional life. He was for many years a keen member, successively, of the Volunteers and the Territorials, and attained the rank of lieutenant-colonel in the Royal Army Medical Corps, serving in this capacity throughout the war. After the conclusion of hostilities he gave up his practice, and was employed by the Ministry of Pensions. His later years were spent at the place of his birth.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

In the House of Lords, on July 16th, the Reorganization of Offices (Scotland) Bill was read a second time.

On July 17th the House of Commons read the Rating and Valuation (Apportionment) Bill a third time. On subsequent days the Racecourse Betting Bill was considered, and the week closed with a debate on the reports of the tribunal of inquiry into the examination of a witness at Scotland Yard.

The Parliamentary Medical Committee met at the House of Commons on July 17th. It discussed the rating of hospitals, which had been debated in the House of Commons on the previous day. The committee decided to approach Mr Chamberlain and ask him to institute an inquiry into the dangers arising from artificial sunlight treatment and into the frauds sometimes associated with its commercial exploitation, with a view to the control of such treatments by registration or otherwise. The committee discussed the Chiropractors Registration Bill, which has been introduced in the House of Lords, but decided to take no action.

Dogs (Amendment) Bill

In the House of Lords, on July 16th the third reading of the Dogs (Amendment) Bill, which has passed the House of Commons, was moved, and a debate arose on vivisection.

LORD BANBURY moved the omission of Clause 2. He said that under the Act of 1906 Clauses 3 and 4 must be read together. This bill proposed to leave out Clause 4 and to substitute for it another clause which he (Lord Banbury) proposed to leave out. That would leave the law in exactly the same position as it was now. Clause 4 of the Act of 1906 said that 'Any person who takes possession of a stray dog shall forthwith either return the dog to its owner or give notice in writing to the chief officer of police of the district where the dog was found.' Clause 3 which must be read in conjunction with it said 'Where a police officer had reason to believe that any dog found in a highway or place of public resort is a stray dog he may seize the dog and may detain it until the owner has claimed it and paid all expenses incurred by reason of its detention.' Subsection (5) said 'No dog so seized shall be given or sold for the purposes of vivisection.' That was the law as it stood now. In February of this year a bill was introduced in the House of Commons the chief object of which was to make owners of dogs liable for injury to poultry. To that he had no objection. But it then went on to repeal Section 4 of the principal Act, which he had just read and to substitute this: 'Any person who takes possession of a stray dog shall forthwith either return the dog to its owner or deliver the dog to a police officer of the police area in which the dog was found and inform that officer where the dog was

found.' The clause further said 'A dog which has been delivered to a police officer under this section shall be treated as if it had been seized by that officer in pursuance of Section 3 of this Act.' That was to say that if any dog was seized by a police officer it should be treated in pursuance of the Act of 1906 with the result that no stray dog or lost dog which was taken to the police would be used for the purpose of vivisection. That was the bill as introduced in the House of Commons and as it passed the second reading and the Committee stage. On the Report stage, however, an amendment was moved to leave out the clause and insert another one which was in the bill now before their lordships. The effect of that clause was that the protection which existed at the present moment against the use for vivisection purposes of a stray or lost dog was done away with. Under the clause which he proposed to leave out there were two alternatives. A person who found a stray dog had to take it to the police station. If that person did not want to keep the dog the police took possession of it and they could not sell it for the purposes of vivisection. On the other hand, if the person who found the dog was a person whose object it was to look for stray or lost dogs in order to make money out of them by keeping them for a month and then selling them for the purposes of vivisection what was to prevent him? If a person was not very scrupulous, and he found a dog with a collar on it he could remove the collar and throw it away before taking the dog to the police station. In that case the identification of the dog was to a certain extent lost and the profit which the man was going to make was pretty sure. Knowing human nature and bearing in mind a case that occurred not very long ago when two dogs were found in a sack and another case in which a dog had been taken off the doorstep of its owner, and where they were all found at an institution where vivisection was carried on he said that it was pretty certain that under this alternative of the law there would be people who would take advantage of it for the purposes which he had suggested. He hoped the House would support him because this was an insidious attempt to do what had been attempted for some time and had failed—that was to obtain all stray or lost dogs for the purposes of vivisection.

LORD DAWSON OF PENN said that they had to consider two varieties of dogs. One was the owned dog. Was there any member of that House who would not take any precaution necessary to preserve the owned dog to its owner? Then there was the stray dog which wandered about asking out such a living as it could, uncared for a misery to itself and a danger to the community. Each year something like 30,000 stray dogs were destroyed in the city of London alone. Was it not obvious if there was to be the same provision for both varieties of dogs that the owned dog would suffer? If they put an embargo on the use of the stray dog for experimental purposes would they not correspondingly endanger the owned dog? The bill provided extremely well for that contingency. Its provisions would help in the identification of the owned dog and diminish the chances of mishap. Therefore it deserved the support of that House. It was clear that the object of Lord Banbury was not the protection of the owned dog. Underlying all Lord Banbury's remarks was this, that he was making this an opportunity for a flank attack on the use of dogs for experimentation. He (Lord Dawson) would take up his challenge for it was clear enough that the question of experimentation on animals stood or fell by the use or not of dogs. Which ever way they approached this question of experimentation on dogs surrounding it by as much misrepresentation of fact as they would—and there was no subject he knew of which was more misrepresented—they always arrived at two aspects of the question. The first was 'Do material advantages accrue to mankind from experimentation on dogs and experimentation on animals in general?' The second question a totally different one, was 'Whatever those advantages may be is it ethically justifiable that mankind should take advantage of them?'

The first question, whether material advantages accrued to mankind, was surely a question for those people with skilled knowledge. There was no one else who could give the answer. Yes or 'No.' Supposing, for example, that they were building a bridge across a river. They might decide the policy as to whether the bridge should be built or not but whether the bridge should be built of chrome steel or manganese steel or whatever the distribution of the stresses should be would be left to the engineers. The problem of the engineer was nothing in comparison with the problems which arose in connexion with the body and mind of man. It was a remarkable fact that while it was usual to find experts differing materially on this question of experimentation on dogs there was such a consensus of opinion among the medical men of the civilized world that it amounted to practical unanimity. They had recently had a conference representing every aspect of medicine and surgery and of the sciences on which medicine and surgery rested. A more representative conference there could not be and that conference said this to the British nation. 'That without experimentation on animals medicine and surgery could not carry on. He did not mean that they would not carry on—of course they would do their best—but intellectually we should come to stagnation. He would put the matter in another way. Supposing he was asked to find a staff for a hospital of, say, 200 beds in London and had to find surgeons and physicians of sufficient standing for the purpose who would embrace the principles that Lord Banbury advocated. He had to tell the House that he could not find such a staff. It did not exist. That would indicate to what extent unanimity existed among members of the medical profession on this question.'

The only honest opponents were those who approached the question from the ethical standpoint. He had in mind the man who said 'Whatever the advantages that accrue to mankind, it is ethically unjustifiable that you should make use of them.' He respected that man provided that he did not himself make use of those remedies in his time of trouble. It was a question

for the public. They invited the public to answer that question. It was for them to say "Yes" or "No." If they said "Yes" by all means let them have the legislation which would make all these things illegal. That at any rate would be an honest and straightforward course. If on the other hand the answer was "No" no one would wish to stop these things, then he said:

For Heaven's sake leave us alone to go on with our work and do not harass us day by day and year by year. What was true of the dog was true of other animals. The medical profession told the House, with a real sense of responsibility, that they could not do without dogs—that they could not substitute other animals in every case. Their universal rule was that they never used an animal higher in the scale of creation than was absolutely necessary. They used the lowest animal possible compatible with doing their best and getting successful results.

In order that the public might be in a position to answer the question whether it was ethically justifiable, it would be of some profit if he tried to clear away a few misconceptions. Take the question of pain. Was it likely that those whose upbringing had been in association with pain from their student days were going to do anything which would needlessly increase pain when their whole careers were spent in assuaging it? They were not likely to be less sensitive than Lord Banbury on the question of inflicting pain. On the contrary, they knew more about it and what it meant. Therefore he would not waste time in dwelling upon any question of indifference of the medical profession to pain. As to the 30,000 animals that were anaesthetized every year, all they asked was that they should be made of use not only for the benefit of mankind but for themselves. It must be borne in mind that the large majority of experiments on animals were carried out under anaesthesia and the dogs and other animals were completely ignorant of what was going on.

He would admit that there were a minority of cases where animals were given diseases in order to aid in the diagnosis of disease in man. He admitted further that there were from time to time what they called survival experiments. He would tell their lordships exactly what survival experiments meant. The greater part of the treatment of gastro-intestinal disease in modern times depended mainly upon experiment on animals. One of the most distinguished men of modern times was Professor Pavlov of Russia. As an example let them take the case of a man who was going to be short-circuited for duodenal ulcer. They might take his pain and distress and divide them into three parts. There was first the stage of anticipation. There was that stage when he had to make up his mind to face the risks to himself and his family. All these agonies of mind far exceeded distress of body. Man had to go through all that, not the animals. The animal had none of that. He had no power of anticipation whatever. The second stage was that of the actual operation of short-circuiting. There the man and the animal were on a par. They were both under anaesthesia and both felt nothing. The third stage in some respects the most distressing of all, was that terrible process of building up the man's health after illness the time of shock, of convalescence. Let them contrast man and animal there. The man might be weeks and months before he was well. In the case of the animal what happened? They might have an operation on a dog for short-circuiting and the same day it would be playing about with its owner. In the case of an experiment on a monkey he had himself seen the animal within twenty-four hours sitting on his perch eating a banana. That horrible process of getting well of recovering from shock was entirely unknown to the animal.

The fact was that it was a slavery of terms. If they read in the papers that one of their lordships had been vivisected and that his appendix had been removed they would be distressed and horrified. But if they read that he had been operated upon they would think nothing of it. There was no difference between the one and the other. What had happened to the animal had happened to the man, but what happened to the man was tenfold or a hundredfold greater than what happened to the animal.

It was necessary to understand what the implication would be if a measure for suppressing experimentation on animals were passed. It would affect the whole range of medicine—the diseases of the gastro-intestinal tract, typhoid, lockjaw—he could go on with a list which would occupy too much of their attention on an afternoon like that. Much of what we knew about gall-stones dogs had told us. Take jaundice including the malignant jaundice of dogs. Whereas at one time a dog stricken with malignant jaundice nearly always died, since the discovery of trypan blue the majority of dogs stricken with this disease were saved. In the investigation of disease that animal had to be used which the particular problem required. For instance for the investigation of infantile paralysis the monkey was the only animal which it was of use to employ. Again take the case of tetanus. In the war they had more experience than they wanted of that terrible disease. He would not wish that anybody should experience what that disease was. It was important for people to know the consequences of removing from medicine all these results based on experimentation on animals. They had only got to be understood by the public, and then he had no doubt what the public would say. This result would have happened long ago but for the fact that the propagandists against vivisection were not themselves subject to their own gospel. If a propagandist against vivisection was stricken with any of those diseases he gave an implicit, if not an explicit consent to vivisection. If those who were against all experimentation on animals were in their own persons or in their own families afflicted with disease did their lordships for one moment suppose that they did not adopt the remedies which were based on experimentation? He could assure them that with few exceptions they did adopt them and was it to be wondered at? Imagine the crisis of love and life in the

balance, the crisis of anxious illness. At such a time the theories of the comfortable armchair gave place to more common-sense and reasonable ideas. He would not be hard on their inconsistencies. After all, one did not expect human beings to be consistent. Life would be a drab and dreary business if we were always consistent. If the uses of new drugs could not be worked out on animals, the alternative was to work them out on human beings. Perhaps Lord Banbury would form a band of people of conscientious convictions who would allow the medical profession to work out new drugs on them! When it came to working out new drugs like pituitrin, adrenalin, and digitaline, the question was whether it was better to work them out on animals before they transferred their use to human beings. He would not say anything against inconsistency if in the hour of trouble the philosophy of antivivisection broke down. He would think humanly of that, but what surpassed the limits of tolerance was that these people could get these remedies when they liked, and yet they were constantly disturbing the minds of unknowing and innocent people in our hospitals in order to prevent these remedies reaching them.

All hospitals in this country were up against the difficulty of getting funds at the present time. They made an appeal in their distress and then along came these fanatical people. They put advertisements in the daily press they inveighed against the hospital, they sent letters to all the subscribers, and they did their best to spoil the appeal for funds. They appealed to the ignorant and the heedless by misrepresentations which might be called gross and by that means they were destroying the flow of charitable funds. Yet let one of these propagandists himself be ill and all he had to do was to go to a private doctor and not suffer at all. They might take it that that was the general rule. He would give an example. They had the terrors of lockjaw in the war when they found people dying of convulsions which could only be described as agonizing because they were continuous right up to the point of death and consciousness was preserved up to the point of death. They adopted the plan after most interesting investigations, of using a serum against lockjaw. The effect on the mortality from tetanus in the war was that it came down to quite small proportions. Since the war it had been the practice for all well-ordered hospitals to have constantly in stock antitetanic serum because street accidents were brought in from time to time and it was the rule that directly a street accident was brought in antitetanic serum was injected. That was contrary to the principles of the antivivisectionist. There was a hospital in London where they would not use antitetanic serum. A street accident was brought in and they refused to give the serum and the patient died of lockjaw. What was more two other patients subsequently died of lockjaw at this hospital, and they called that hospital a charity! He called it a place for propaganda and nothing more and he hoped that King Edward's Fund would take note of this episode and would not give that hospital a certificate that it was a charity ready to treat the maimed and the wounded by the best methods known to science at the present time. At the same time as these poor people the workers who had no choice where they should be taken were taken to this hospital would the governors of the hospital or their children if they got an injury in a street accident go without antitetanic serum? Not at all they would go home and call in their private doctor and it would be given.

The fact was that it was an impossible situation. What it amounted to was that these people were practising their theories on the dog only this time it was being tried on the human dog and the world suffered thereby. He put it to their lordships that the health of the nation was a momentous matter not to be treated lightly, but to be treated seriously and not made the playing ground of vain imaginings of misguided thought, and he asked the House to reject Lord Banbury's amendment.

Lord DAINESFORD asked the House not to allow Lord Dawson, on an occasion like that, to use the debate for the purpose of justifying the vivisection of stray dogs and introducing a totally irrelevant question into the discussion.

The EARL OF STRATHMORE said that the clause which Lord Banbury desired to eliminate was inserted after very careful consideration with various associations connected with the protection and care of dogs. He thought they would agree that the clause as it now stood gave a stray dog a better chance. The societies that discussed the question of this clause and agreed upon it were the Royal Society for the Prevention of Cruelty to Animals, the Canine Defence League, the Battersea Home for Lost Dogs, and the Glasgow Dogs Home. Up to the present no objection had been lodged at the Government department against this clause and therefore it was a surprise that this amendment should have been put down to eliminate it from the bill. It was the Government's view that the bill would be better as it stood.

Lord BANBURY said that though he was against dogs being vivisected he was not an antivivisectionist. He did not raise the question. If a noble lord wanted to buy a dog in a legitimate way the law allowed him to do so but it was another thing to say that if he (Lord Banbury) lost his dog it was to be a chance for some person who found it to keep it for a month and then sell it for vivisection.

The MARQUESS OF SALISBURY opposed the amendment. He said that if Lord Banbury had proposed to replace the clause with another which would have equally achieved his end and perhaps secured the particular view he held on vivisection that would have been a very different case but what he did was to vivisect from the bill one of its essential clauses without putting anything in its place.

The amendment to omit the clause was rejected by 33 votes to 5. The bill was read the third time and passed.

Industrial Accidents and Diseases

On July 11th the House of Commons discussed the estimate for the salaries and expenses of the Home Office, and Mr RHYS DAVIES moved a resolution of the vote

He spoke of the increase in accidents in the factories and work shops of the country. In 1927 there were 156,974, of which 973 proved fatal being increases of 17,011 and 165 over the accidents and fatalities recorded in 1926. He connected this increase with the inadequate number of inspectors employed by the Home Office. There was a substantial increase from year to year in the number of persons employed but although in 1914 there were 222 inspectors at the end of March 1928 the number was only 206. The number of female inspectors had remained almost stationary for seven or eight years. He asked for information about the working of the Act of 1926 which prohibited the use of white lead in interior painting. The figures relating to lead poisoning generally were alarming. The deaths in 1927 were reduced to 14 but the reported cases numbered 249, an increase of two over 1922. Forty cases of lead poisoning among house painters were reported in 1922, with 12 deaths but in 1927 there were 98 cases and 21 deaths. Had the Home Secretary sufficient inspectors to see that the Act of 1926 was carried out? What had become of the recommendations made by the committee appointed in 1921 to inquire into artificial humidity in textile and non-textile factories? He would like to know the figures for miners' nystagmus in 1927. In 1914 the new cases were 3,218, in 1926 they numbered 1,771 but the pits were stopped for seven months in that year. He understood that the Home Office was conducting an inquiry into silicosis among miners was not yet scheduled for workmen's compensation and some sufferers got no benefit from any source. He was pleased to say that the cases of anthrax coming under the purview of the Factories Department of the Home Office had fallen from 45 with 5 deaths in 1922 to 31 with 2 deaths in 1927. The Home Office recently appointed a committee to inquire into the cost of disinfecting East India wool but the Government disinfecting station at Liverpool had no control over the hudds and skins which had caused an outbreak at Bermondsey. He regretted that the report of the Factories Department for the preceding year was never ready in time for the discussion of this Vote in the House of Commons.

Mr HOLLINS said the process of getting an Order for any industry under the Silicosis Acts was very cumbersome and only a fraction of the total number of workers affected had been brought under a scheme since the first Act was introduced. Silicosis should be scheduled as an ordinary occupational disease. At present only organized bodies could apply for an Order and thousands of unorganized workers were beyond the scope of any possible inquiry. He pointed out also that if a worker had left a lead process for twelve months, or if the factory had given up the lead process for that period it was impossible for that worker to claim compensation. Sometimes persons showed symptoms of the lead poisoning several years after they had left the lead process. The period allowed for applications for compensation should be extended to three or five years. Mr Hollins contended that the present method of appointing certifying surgeons was not the best. Surgeons were not appointed because they were experts in the knowledge of lead poisoning or silicosis or anthrax. In the pottery industry they were paid one shilling for an examination with the consequence that twenty workers had passed before a certifying surgeon in as many minutes. Certifying surgeons should be whole-time men without private practice. This had been successful in the refractories industries scheme.

Mr MACRINDER said it was impossible for the present staff to inspect the factories and workshops in the West Riding of Yorkshire. In textile factories no adequate provision was made for the eating of meals. The only places where such provision was compulsory were those in which anthrax wools were handled. It was possible to disinfect such wools in the country of origin. The public was running a tremendous danger from the use of shaving brushes made of what was called Chinese hair or man hair, a material liable to be infected with anthrax. That hair was made into the cheapest imitation badger hair shaving brushes. The Departmental Committee on anthrax had proved that it was possible to have these brushes and materials disinfected and made safe.

Dr FREMANTLE supported the request of Mr Rhys Davies that the annual report of the chief inspector of factories should be issued in time for this debate each year. The figures of lead poisoning given in the report for 1926 were disconcerting. He objected to prohibition if it could be avoided. The methods of the Home Office inspector were those of the adviser and the friend who could help the employer to put things right. Already under the law the sanitary officers and medical officers of health did a certain amount of inspection and he urged that this should be considerably extended. Parliament would be on the wrong line in seeking to increase the centralized bureaucratic inspectorate. It should open up the factory inspection system to local people, who would gladly take an interest in it. Certifying factory surgeons ought to be given the opportunity of being more useful than they were at present. The suggestion of Mr Hollins that they should be whole-time men was impracticable. Welfare work in factories was extremely beneficent. Statutory welfare orders had been made for fourteen industries. Were they to be extended?

Mr JERKINS said the miners had appealed to the Home Office for years asking it to schedule silicosis as an industrial disease. The Home Office had done nothing since the introduction of machinery for boring though when boring was done in narrow working places the dust came back on the men and a large number particularly in South Wales were unable to work in consequence. No compensation was paid to them. The Home Office had instructed one medical man to inquire into silicosis in

the mining industry and other industries, and to report on cases. That was totally inadequate. A number of men who had worked where the dust came from the screening of coal had developed chest trouble from the dust they inhaled. Not one of these men was entitled to compensation. The Home Secretary should order that it be investigated.

Dr VEARON DAVIES speaking as an old certifying surgeon of over twenty years' experience in textile mills said the complaint against the small number of factory inspectors was justified. It was a physical impossibility for the inspectors adequately to inspect all the factories and workshops under their control. The Home Office had taken a retrograde step during the war in cancelling the reporting of accidents to certifying surgeons. Before the war the certifying surgeon had to visit the factory see the place where the accident occurred get a report from the injured person and get his or her report and finally to issue a report to the factory inspector and to the Home Office. That ensured that the mill managements reported the majority of their accidents because they never knew when news of an accident might leak out and get to the factory surgeon. The mill authorities knew that the factory doctor might be in the mill any day and it kept them up to the mark. The factory doctor was a sort of unofficial inspector and if he saw things which were not right he could say

'You must not do this or I shall have to report the matter to the factory inspector.' To save £7,000 a year the Home Office decided to do away with this reporting of accidents to the certifying surgeon and accidents were only reported to the factory inspector, who might live fifteen miles away. It was possible to report an accident so as to create a false impression and there might be many accidents which ought to be inspected by the factory inspector, but were not. Dr Davies recalled an instance in his own experience when by inquiring into an accident at a mill he had discovered that guards of a new type had been removed from every mule by the workers. Unfenced machinery was not always due to the fault of the employer. Dr Davies remarked that the figures for nystagmus were going up. In Belgium where there was not the same increase as in this country, compensation for nystagmus was only given for a definite time after which for some reason the cases improved. He drew an analogy with the old cases of 'railway spine' where after railway accidents people who got concussion of the spine never improved till the cases were settled by the railway companies. They were not malingering but some psychological condition prevented them getting better till their claim was paid. He wondered whether the giving of a lump sum by way of compensation for nystagmus might not have some effect on the recovery of the patient. The question of silicosis had been grossly neglected in this country. The mining industry had been run without the slightest medical supervision and children whom he had refused to certify as fit for work in the cotton mills had got work in the pits without any examination at all.

Sir VIVIAN HENDERSON intervening said that though the Home Office had power to make schemes in relation to silicosis in any industry the inspection of mines was a matter for the Mines Department. The question of allowing children to work in mines without examination was not a matter for the Home Office.

Dr DAVIES said silicosis by itself was not very dangerous. At the worst it caused shortness of breath and a little difficulty in breathing. The danger was contamination or infection with tubercle. That combination was extremely dangerous and fatal. Considering the risks miners ran from rock dust regulations should be made by the Home Office to deal with the problem. Certain people were more liable to infection by tubercle than others so in any scheme the health of the miner prior to and during his employment should be an important consideration. Examination of patients for silicosis should not be given to ordinary medical men but should be done by Home Office specialists because the disease was extremely difficult to diagnose accurately in the early stage. It was essential to have an expert radiographer and the Home Office should consider appointing a few specialists in silicosis to go round the country examining patients at different mines at regular periods. It was necessary not only to examine the mines where there was a large proportion of silica. Coal dust itself did not produce silicosis. It did good by lessening the liability to consumption. Colliers were less subject to pulmonary tuberculosis than any other grade of workers except agricultural workers. Apart from accidents the miners was a fairly healthy life.

Mr TAN SHAW praised the Home Office museum of safety appliances for machines. He thought that the Home Office could deal by administrative order with the practice known in Lancashire as shuttle-kissing. The trade unions could never get a body of medical opinion to say the practice was dangerous, but he associated it with the fact that nearly every weaver in Lancashire had badly decayed teeth or was wearing artificial teeth. Shuttle-kissing was a disgusting dirty and dangerous habit. If a weaver went off work with influenza the substitute who took the loom also quickly went off work with influenza. Sometimes three or four weavers used the same shuttle and went off work one after the other. It was impossible for the shuttle to remain clean. When bleeding colours were used in the yarn any weaver who used web of that kind had his lips teeth and inside of the mouth dyed. Years ago a committee on which Home Office representatives sat with representatives of the workers and of the employers had agreed that shuttles of the hand threaded type did exist and were practical. Since then the employers had retracted a little but at Colne one firm was issuing hand threaded shuttles with an artificial silk web.

Mr REGINALD SMITH spoke of the application of the 1927 silicosis scheme to the metal grinding industries. He understood the regulations debarred from benefit any men who after July 1st 1927 had been employed on a new process, however long before that

data they might have used the sandstone grindstone, and however neuro the silicosis from which they suffered. In the Sheffield district there had been a considerable removal of sandstone machinery about July 1st and a man whom the local doctor said was suffering from silicosis could not have a medical reference. The Home Office should make the regulation retrospective.

Mr CONNOLLY referred to draft regulations about to be issued by the Home Office in reference to the use of the oxy acetylene welding machine in ships and elsewhere. These regulations were based on the lessons of a fatal accident on the Mersey. They provided that prior to a welding operation by the oxy acetylene machine there must be a purifying of the air in the space where the machine was to work and also, during the operation, a continual supply of fresh air. He contended that the use of the machine in confined spaces should be totally prohibited, and nothing but an electric welder used. In nine cases out of ten a man would take the risk before losing the time required to get the air machine put on the job.

Sir VIVIAN HENDERSON, replying for the Home Office, said it was not fair to take the number of accidents in 1927 and compare them with the number in 1926. In 1925 there were 159,693 accidents of which 844 were fatal. In 1927 there were 156,974, of which 973 were fatal. He agreed that there had been a slight reduction of the factory inspection staff, and that the existing position was not satisfactory, but the inspection of factories had been more complete than in previous years. Any slackening had been in the inspection of small workshops, where there was not generally the same risk. The Factories Bill had been held up—he hoped only for the moment—but when it reached the Statute Book it would necessitate an increase in the Factory Department. The Home Secretary had promised to set up in the autumn a small committee on the staffing and organization of the factory inspectorate in the Home Office. Of this committee Sir Vivian hoped to be chairman. Dealing with points raised by previous speakers, Sir Vivian said that to prohibit the importation of a particular kind of shaving brush was already within the power of the Ministry of Health. Disease arising from the use of lead paint was hard to follow up by inspection, and the Home Office must rely to some extent on the industry itself. Both sides were co-operating in carrying out the regulations, and the position was improving. He had not the nystagmus figures for 1927. The Home Office was only concerned with nystagmus from the point of view of compensation. Prevention was a matter for the Mines Department. This was one of the unfortunate questions where they must get dual control. No satisfactory system of disinfecting hides for anthrax had been discovered but the Home Office would prosecute inquiries. The report on the further scheduling of wool was in the press but had not been published. It was extremely reassuring. He could not say what action the Home Secretary would take on it. Difficulties surrounded the question of silicosis and the time spent in inquiries before schemes could be framed had caused exasperation. The Home Secretary would consider whether he could expedite matters but to do so might involve legislation. He was inclined to agree with some of the strictures passed by Mr. Hollins on the work of certifying surgeons but to alter the whole system of certifying surgeons would need legislation. It was true that the certifying surgeon in normal circumstances was not competent to examine silicosis cases. A radiograph was also necessary, and the certifying surgeon had no power to get that, though the medical referee could. If they were to alter the certifying surgeon to a full-time medical expert on a definite salary they would require a Home Office medical staff or something of the kind and some compensation fund or medical fund into which employers would all pay. The possibility would have to be looked into and was being looked into at present in connexion with silicosis but he could not now come to a definite decision on it. The regulation about oxy acetylene welding to which Mr. Connolly had referred would have to be put into force or a further inquiry made into it.

The motion by Mr. Rhyds Davies to reduce the Vote for the salaries and expenses of the Home Office was then defeated by 212 to 110.

Voluntary Hospitals and the Rating Bill

On July 16th the House of Commons considered the Rating and Valuation (Apportionment) Bill as it had been amended in Committee. Mr. HARRIS moved a new clause to provide that the relief of rates offered to productive enterprises should be extended to hereditaments occupied and used as hospitals but not to hospitals run for private profit or gain. He said that during the last few years the strain on the voluntary system had been almost at breaking point. People were implored to give money to the voluntary hospitals and then it was handed back to the ratepayers in the form of taxation. Rates on the hospitals were tantamount to a tax on benevolence on the sick poor and on medical science.

Mr. CHAMBERLAIN said the bill was not a plan for deciding what kind of property might with advantage be relieved of rates. It was a special proposal which the Government were making for the stimulation of industry, and it was a far fetched suggestion indeed to attempt to bring hospitals within the definition of industry. Although he had expressed a certain sympathy in this matter he did not wish to be taken as in favour of any particular scheme for derating hospitals. If the question were to be considered they could not stop at hospitals. There were other kinds of property for which arguments on similar lines could be made and he did not wish to be taken as having accepted the principle as he had not given the question the necessary consideration. He recognized that there was a good case for the relief of the voluntary hospital and on some future occasion they might have some general scheme which would relieve

various classes of property which were rated to-day. In such a scheme the question of hospitals would properly find a place.

Sir H. CAULLEY pointed out that the assessment of the Sussex County Hospital had been put up tenfold.

Mr. T. WILLIAMS said the industrial depression and short time that was being worked made it a physical and financial impossibility for hospitals in necessitous areas to continue their work. The Minister of Health should consider the report of Lord Cave's Commission and Lord Onslow's Commission, and see what could be done.

Dr. VERNON DAVIES said that he would have been pleased if he could have accepted the arguments of the Opposition in favour of the amendment, but he could not persuade himself that the bill was on for the relief of voluntary hospitals. The argument had been used that hospitals might be regarded as productive in that they helped to produce medical men and nurses. Where was such an argument to stop? The hospital question at present was undoubtedly serious. He believed that the Minister of Health had that fact well before him and was anxious to deal with it. Attempts had been made to prove that breweries, which were to be relieved of rates, were a prolific cause of work for the hospitals. That might have been so in the past. In the old days it was not an uncommon thing to have patients in the hospitals as a result of alcoholic excess, but it was well known that there had been a great reduction in disease due to such excess. In his student days it was quite a common occurrence to come across cases of what were called 'beer drinker's heart' but at present they were the greatest rarities in clinical medicine. Cases of cirrhosis of the liver were also markedly decreasing.

Sir KINGSLEY WOOD in opposing the amendment said that the voluntary system so far as the hospitals were concerned was not fading away, but was firmly based. A great measure of the support came from the workers. So far as the rates on voluntary hospitals were concerned, the Central Valuation Committee had made valuable suggestions. If their advice was followed it would remove many difficulties.

The proposed clause was rejected by 219 votes to 110.

Foot-and-Mouth Disease

On July 16th the House of Lords again discussed the question of foot-and-mouth disease and the risk of infection from imported meat. The EARL OF STRATHMORE, replying to the debate, said that the Ministry of Agriculture was alive to the fact that infection could be brought in by blood, and the action taken against importation of carcasses from Europe was based on that fact. Experiments would be continued to find out, if possible, some way in which meat could be imported without any risk of infection.

In the House of Commons, on July 16th Mr. GUINNESS in reply to Sir R. Thomas, said he was having inquiries made into an alleged cure and preventive for foot-and-mouth disease, consisting of a herbal preparation administered to animals by mixture with their fodder which was said to have been discovered by a Dutch experimenter.

Poison Gas in Warfare

Lord DANKSFORT opened a debate in the House of Lords on July 11th, on the use of poisonous gas in warfare. Lord HALDANE remarked that the total amount of phosgene gas required to produce a lethal atmosphere up to forty feet in London from Chalk Farm to Clapham Common and the Docks was under 2,000 tons a quantity which could be carried by enemy aircraft at the present time. Phosgene gas itself was out of date. The more modern gases whose base was arsenic could be brought over in a liquid form and blown into a fine smoke by a small amount of high explosive. Forty tons of such a new gas would suffice instead of 2,000 tons of phosgene. Intense mental distress accompanied the symptoms of poisoning by these severe gases. Men had been known to act as though driven mad by their pain and misery. Chemical dye plants could be switched over very readily to produce these gases in large quantities. Within a week three large chemical firms in Germany could make 100 tons a day. Lord RAYLEIGH said mustard gas was still perhaps the most deadly of the purely gaseous substances which could be used for an attack on London. To produce it was simple, and prohibitive regulations would be simple. Preparations should be made in case of need for the evacuation of London and something should be done to make gas-proof the buildings needed for administration. Arsenical gases were not gases in the true sense of the word, but finely divided smoke consisting of solid particles. Sir Oliver Lodge and his assistants had shown that such particles could be rapidly aggregated by suspending highly electrified conductors in the air to be cleared. It might also be possible to suck away such gases through the London sewers. Lord SALISBURY said the horrors depicted in the debate were not without foundation and there was also the danger of panic. The last word of science had not been said on defence and many methods to mitigate the severity of an attack though discovered had not yet been dealt with.

Bill to Amend the Coroners Act

In the House of Commons on July 11th, Mr. HOPKIN MORRIS introduced a bill to amend Section 4 (3) of the Coroners Act 1887. This section indicates that a coroner's jury has to inquire who the deceased was, how and where he came by his death, and if he died by murder or manslaughter, the persons, if any, whom the jury find to have been guilty of such murder or manslaughter. Mr. Morris's bill proposed to cut out that part of the subsection relating to the naming of the person found guilty of manslaughter. The bill which was backed by Dr. Vernon Davies, was read a first time.

Child Destruction Bill

On July 12th the House of Lords took the Report stage of the Child Destruction Bill (formerly the Infanticide Bill). On the motion of Lord DARLING a subsection was remodelled to read:

For the purposes of this Act evidence that a woman had at any material time been pregnant for a period of twenty-eight weeks or more shall be prima facie proof that she was at that time pregnant of a child capable of being born alive. Other drafting amendments were also made. The bill was read a third time on July 16th and sent to the Commons.

Medical Treatment of War Pensioners.—On July 12th Mr CAMPBELL STEPHEN asked what remedy on ex-service men had when he was recommended by the Ministry of Pensions for treatment at home by his panel doctor but the panel doctor certified that treatment by the Ministry was necessary. Major TRYON said the case would fall to be dealt with under the ordinary arrangements available to insured persons under the National Health Insurance Acts. The Ministry could not accept the doctrine that the panel doctor should decide for them and if the man had a grievance against the panel doctor the normal course would be for him to make an application to the Insurance Committee. Mr CAMPBELL STEPHEN asked whether if the man considered the advice of his panel doctor was right, there was a medical referee whose opinion the Ministry and the panel doctor could accept, or whether the Minister would set up such a referee. Major TRYON said he could not set up a referee. The case would be considered by the doctors of the Ministry of Pensions whose opinions must decide the action to be taken by the Ministry. Major TRYON denied, on July 12th that pensioners encountered difficulty in obtaining treatment owing to the reduction in the number of war pensions offices. The waiting period for admission to hospital had actually been reduced.

Small pox.—Mr GROVES, in a question to Mr Chamberlain on July 12th, asserted that the cases of small pox occurring in London were so mild as to be hardly distinguishable from chicken pox and that certain medical men believed these cases were not small pox but alastrum or a new disease. Mr CHAMBERLAIN replied that the small pox now prevalent in this country should not be confused with chicken pox or some new disease. Mr GROVES asked whether the Minister would issue fresh regulations permitting medical officers of health to leave the cases in their own homes, instead of having them removed to the small pox hospital. Mr CHAMBERLAIN answered that, in view of the risks to the public health which would be involved by further spread of the disease he was not prepared to countenance the course suggested by Mr Groves.

Death Certification.—On July 11th Sir KINGSLEY WOOD told Mr Naylor that Mr Chamberlain had seen a report of observations by Dr F J Waldo senior coroner for London concerning the importance of not permitting burial or cremation until the certifying doctor had seen and examined the body. These observations, Sir Kingsley said appeared to pay no regard to the practical considerations involved, and to ignore the fact that, with regard to cremation, the safeguards recommended and others more stringent had long been compulsory. The whole subject had been discussed during the passage of the Births and Deaths Registration Act 1926, and Mr Chamberlain was not prepared to introduce further legislation.

Notes in Brief

The number of metropolitan police magistrates is to be brought up to the statutory maximum of 27 instead of 25 the present number. An authoritative inquiry will be instituted this autumn into the whole work and organization of the metropolitan police courts.

One of the medical inspectors of the Ministry of Education has been specially charged with the inspection of nursery schools under the direction of the chief medical officer.

The Minister of Health states that substances sold as ice-cream sometimes contain the ingredients of which synthetic cream is composed. Local authorities generally have considered that they could not with advantage take any steps to prevent this practice since there is at present no statutory definition of ice-cream.

The Ministry of Agriculture has decided not to build a quarantine station at Glasgow until experience has been obtained of the extent to which the London quarantine station is utilized.

The Minister of Health is not aware of the need for the issue of any special regulations by which medical officers wholly employed by or resident in, a Poor Law union would be required to inspect casuals on the evening of their arrival in an institution.

Sir Kingsley Wood states that officers of the Ministry of Health when inspecting casual wards will give special attention to the washing arrangements for casuals.

No experiments in wireless communication between the island of Foula and the mainland for medical purposes have yet been made.

Universities and Colleges

UNIVERSITY OF OXFORD

F HAWKING University College has been elected to the Theodore Williams Scholarship in Pathology for the year 1928-29.

The following candidates have been approved at the examination indicated.

FINAL B.M. B.Ch.—O A Beadle M V Bhaskar W H Brown T L Davies E R Holdway A J Leslie-Spinks A J M Melly A E. Porritt L T Ride, H G Wells Florence H Johnson, Alice D K Peters *Forensic Medicine and Hygiene* M V Bhaskar G Campbell, B R Caygill, R M J Harper E R Holdway F G Parker H G Pritchard C R Salkeld D C Shields

Florence H Johnson Carolino E MacNolee Alice D K Peters, Joyce Wright *Lithology* A D C Bell T M Gledhill R D Harding H O Harley E Harvey F Hawking E R Holdway K A Irvine J M Lees A W D Leshman J C Nicholwood N C Parfit A B Stokes R L H Townsend W B Williams Ruth Sandeman *Material Medica* H J B Aldous E W Brown N P Bruce T M Davis R D Harding H Hunt J I Jealins C J King Turner J C Leadham Greco A W D Leshman R O MacNolee J N O'Reilly R S B Pearson B T Squire, A B Stokes W S Tegner H A Trouble H C Wadge Olive M. Capper-Johnson Walfrid Mercor Elspeth W Smellie

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated.

DIPLOMA IN MINERAL RADIOLOGY AND ELECTROLOGY—Part II. E Amarastogio O Chance J C Contis F J Farr D L Greig, D A Imrie Lella K Keatinge D F Lawson C R Morrison H O Millbury H K Roy T Takahashi E Thorpe L J E. Topham J D H Wearing E G Wood

UNIVERSITY OF LONDON

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.

THE Goldsmith Entrance Examinations have been awarded to E S Harverton and A L Jacobs.

UNIVERSITY OF MANCHESTER

DR. G H H BOOTH has been appointed Demonstrator in Anatomy.

QUEEN'S UNIVERSITY BELFAST

DR. E B C MAHES has been appointed to the Chair of Pharmacology and Therapeutics and Dr F M Allen Lecturer in Materia Medica and Therapeutics.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A QUARTERLY Council meeting was held on July 12th when the President, Sir Berkeley Moynihan Bt was in the chair.

Council Election

The President announced the re-election of Mr F J Steward and the election of Mr R E Kelly (Liverpool) Mr R G Hogarth (Nottingham), and Mr L P Gamgee (Birmingham) as members of the Council. Mr Gamgee becomes substitute member for Mr Thelwall Thomas until 1935. The new members were introduced and took their seats in the Council.

Professors and Lecturers

The following were elected professors and lecturers for the ensuing year.

Histological Professors.—Sir Arthur Keith (six lectures on the anatomy of the human body) A H Evans O.B.F. (one lecture on developmental ontogenetic cysts and diverticula) G E Gask C.M.G. D.S.O. (one lecture on radium in the treatment of malignant disease) O A Fennell (one lecture on local anaesthetics) R J McN Lyle (one lecture on the treatment of acute abdominal disorders) C P G Wakeley (one lecture on the etiology pathology and treatment of sarcomas of the intestinal tract) R T L Mayo (one lecture on the treatment of varicose veins and varicose ulcers by injection).

Arts and Gale Lecturer.—H A Harris (three lectures on the growth of the long bones in health and disease). *Erasmus Wilson Lectureship*.—T W P Lawrence and C E Shattock (three demonstrations each on the pathological contents of the Museum). *Arnott Demonstrations*.—Sir Arthur Keith (six demonstrations on the contents of the Museum).

Honorary Fellows

Dr Regand (Paris) and Sir George Newman were elected honorary fellows.

Election of Officers

Sir Berkeley Moynihan was re-elected President and Mr Hey Groves and Mr Warren Low were elected Vice-Presidents for the ensuing year. Mr R. H. Burne was re-elected physiological narrator, Mr C F Beadles was re-elected pathological narrator and Sir Frank Colyer was re-elected honorary narrator of the oedontological collection for the ensuing year.

Diplomas

The diploma of Fellowship was granted to J O B Allen. The diplomas of Membership were granted to Nellie Brown and H J Nimbalker.

The following diplomas were conferred jointly with the Royal College of Physicians of London.

Laryngology and Otology.—J Acorn N Attygnille H K Baan, N E H Box, C H Carroll, G D Mallontra T G Millar, A A Miller G W Morey, W J Robertson E M Steel, D B Sniton M R Wadia.

Psychological Medicine.—Norah A. Haworth R Levinson, Agnes M Macgown J J B Martin A Pool G M Tothill.

A report was read from the Board of Examiners in Anatomy and Physiology for the Fellowship stating that at the examination concluded on June 15th 50 candidates were approved and 108 rejected.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At the monthly business meeting of the College held on July 6th, the President duly admitted as Licentiates in Medicine and Midwifery the following candidates who had passed the Conjoint Final Examination of the Royal Colleges of Physicians and Surgeons Ireland.

T B Creamer Eliseo Cusseo, M Duophy R A Forde J Gaughan W G Greene A E Lee, J L Maslin S O Matlock F J A Murray H Robinson.

Medical News.

DR CHARLES FRANCIS WHITE of the Ministry of Health and formerly assistant port medical officer for Liverpool has been appointed medical officer of health for the Port of London in succession to Dr W M Willoughby, who is now medical officer of health for the City of London.

An afternoon reception will be held at Brockley Hill, Stanmore, the country branch of the Royal National Orthopaedic Hospital, to day, Friday, July 20th. H R H the Duke of Gloucester, President of the Hospital, hopes to be present.

The Fellowship of Medicine and Post Graduate Medical Association announces that a special course will begin at the Hospital for Consumption and Diseases of the Chest, Brompton Road, on July 30th occupying from 10 a.m. to 4 p.m. daily for a week, including Saturday. From August 8th to September 1st a special course will be undertaken by the staff of the All Saints' Hospital for Genito-Urinary Diseases. Dr Eric Pritchard will hold an afternoon course at the Infants Hospital from August 13th to 25th. From August 27th to September 8th an all day "brush up" course will be held at the Queen Mary's Hospital, Stratford, E 15, consisting of demonstrations in medicine, surgery, and the specialties. Courses in September will include the following: medicine, surgery, and the specialties, at the Westminster Hospital, diseases of children, at the Queen's Hospital, electrotherapy, at the Royal Free Hospital, ophthalmology, at the Royal Eye Hospital, psychological medicine, at the Bethlem Royal Hospital, orthopaedics, at the Royal National Orthopaedic Hospital. Copies of syllabuses and information regarding the general course which is continuous throughout the year, and may be taken for varying periods from one week upwards, may be obtained from the secretary of the Fellowship, 1, Wimpole Street, W 1.

A REUNION dinner of the Lausanne Medical Graduates Association was held at the Langham Hotel, on June 14th. Dr E E L Burnier of Cliftonville, Margate, was elected president of the association. It was announced that the following British medical men have recently been approved by the University of Lausanne for the M.D. degree: Major A. N. Bose, I.M.S., G. Elliot, P. E. M. Lanier, and J. J. F. Souza.

The late Viscount Hambledon, who died on June 16th, had been a member of the Council of King Edward's Hospital Fund since 1921, and of its Revenue Committee since 1923. He was a member of the Ambulance Cases Disposal Committee from 1923 to 1924, and chairman of the Pay Beds Committee in 1927-28. He was also chairman of King's College Hospital, and took an active interest in the British Hospitals Association, and in the raising of money generally for London hospitals. The Management Committee of the King's Fund has adopted a resolution recording its appreciation of Lord Hambledon's great services to the voluntary hospital system and its sorrow at his death.

The Marchioness of Titchfield, chairman of the special appeal of the National Association for the Prevention of Tuberculosis, announced at a luncheon on July 17th that an anonymous donation of £50,000 had been received, bringing the total sum raised by the appeal to £110,568.

The annual report of the Papworth Village Settlement for the year ending December 31st, 1927, has been published, and contains a fully illustrated description of the various activities at this institution. We referred on June 30th (p. 1115) to the opening by the Prince of Wales of the Clifford Alibon memorial cottages in the settlement.

The name of the Highfield Sanatorium, at Edge Lane Drive, Liverpool, has been changed to Broadgreen Sanatorium.

The late Sir William Church, Bt., President of the Royal College of Physicians in 1893-1905, who died in April last, has left estate of the value of £52,493, with net personalty £51,623. He bequeathed £1,000 to the Royal Society of Medicine and £100 to Epsom College.

The second medical study tour in Czechoslovakia organized by a French agency on the invitation of the spas of the former country, will take place in September, the programme occupying ten days and including visits to Frauenthal, Marienbad, Carlsbad, Prague and Brno where a health exhibition will be in progress. The tour will commence at the frontier station of Cheb on the afternoon of September 8th and will terminate in Austria, at Vienna on September 17th. The inclusive cost between these points, with first-class travel, hotels and meals, excursions, etc. will be 1,500 French francs (about £12) a head. At the spas the members of the party will be officially entertained and conducted on visits to the bathing establishments. Information may be obtained from the agency, "Mon Voyage, 9 rue de la Michodière, Paris 2°.

The following papers, among others, will be read at the International Congress against Alcoholism, to be held at Antwerp from August 20th to the 25th. The alcohol question and social hygiene, by Sir Arthur Newsholme; the concentration of alcohol in the blood and the diagnosis of drunkenness, by Professor Firket of Liege, latest experiments on alcohol and heredity by Professor Laitinen of Helsingfors; changes in the endocrine glands in the descendants of alcoholics, by Dr Pannsepp of Tartu; the results of American prohibition from the hygienic aspect, by Professor Haver Lemstra of New York; alcoholism in Russia, by Dr Dahlgren of Malmö; alcohol and sport, by Dr Saleeby; and the organization of welfare centres for drinkers, by Professor Ganser of Berlin and Dr Revillid Masaryk of Geneva. Further information can be obtained from the general secretary, Professor Charles Verlat, 10, Rue Van Dyck, Antwerp.

The eighth congress of the Society for the Study of the Physiology and Pathology of Digestion will be held at Amsterdam from September 12th to 14th.

A POST GRADUATE course in recent advances of medicine will be held in Vienna, from September 24th to October 6th, and will be followed by practical classes during the subsequent week. Further information may be obtained from the dean, Dr Leopold Arzt, The University, Ring des 12 November, Vienna, I.

PROFESSOR SIGALAS has been re-elected dean of the Bordeaux faculty of medicine.

DR HANS THIERFELDER, professor of physiological chemistry at Tübingen, has recently celebrated his 70th birthday.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The Editor, British Medical Journal, British Medical Association House, Tavistock Square, W C 1**.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names not necessarily for publication.

Authors desiring REPRINTS of their articles published in the **BRITISH MEDICAL JOURNAL** must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W C 1 on receipt of proofs.

All communications with reference to ADVERTISEMENTS as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBERS of the British Medical Association and the **BRITISH MEDICAL JOURNAL** are **MUSLUM 9561 5562 9563**, and **2563** (internal exchange four lines).

THE TELEGRAPHIC ADDRESSES are
EDITOR OF THE BRITISH MEDICAL JOURNAL, *Antology Westcent London*

FINANCIAL SECRETARY AND BUSINESS MANAGER

(Advertisements, etc.) *Articulate Westcent London*

MEDICAL SECRETARY *Medusera Westcent London*

The address of the Irish Office of the British Medical Association is 16 South Frederick Street, Dublin (telegrams *Facillus Dublin* telephone 62550 Dublin), and of the Scottish Office, 7 Drumshough Gardens, Edinburgh (telegrams *Associate, Edinburgh* telephone 24361 Edinburgh).

QUERIES AND ANSWERS

HAEMOPHILIA AND DENTAL EXTRACTION

"A P A" asks for information regarding the best method of preparing a young man suffering from haemophilia and had oral sepsis for dental extractions.

FINGER SUCKING

DR J H BACOCK (London) writes in reply to "S C N" (July 7th p. 39). A child who sucks its finger or thumb usually sucks something with the other hand at the same time often a blanket or a woollen* sometimes its hair always something soft and warm. Sometimes the disengaged fingers of the same hand are used but this is rare. Stopping this correlated habit often easily accomplished—for example by taking away the woollen*—will often force the finger sucking, in older children I have no experience of babies but give the hint for what it may be worth.

INCOME TAX

Replacement of Car

"N J" bought a car in 1923 for £270 and sold it in June 1927 for £75 buying a different make and type of car for £255. His claim to treat the out of pocket expense of £100 as a replacement is

refused, the Inspector of Taxes holding the view that as a *similar* make and type of car could have been bought for £163 in 1927, the 'replacement' cost is £85 and the remaining £105 represents improvement and is therefore capital outlay.

It is difficult to refute the official view because improvement is the characteristic of capital, as distinct from allowable expenditure. Further it must be admitted that when the cost of cars were rising the revenue authorities were consistent, and practitioners were not infrequently allowed to deduct the full cost of replacement though the cost of the new car was substantially greater than the cost of the old one. The depreciation allowance pays in the long run in practically every case—which is why the extension of that allowance to professions was urged on the Royal Commission by the British Medical Association some years ago, and why it has been consistently advocated in those columns. It is to be regretted that "N J" did not put himself on that basis two or three years ago.

"W E" held a full time appointment and owned a car run at his own expense. He then entered on private practice sold the car for £75, and bought a new one for £245. Can he claim £170 as the cost of replacement?

In the circumstances it seems impossible to contend successfully that the £170 was expended in the working of the practice. Either it was capital outlay for the practice or represented delayed expenditure applicable to the appointment. The best "W E" can hope for is a depreciation allowance of 20 per cent of £245—that is, £49.

Decoration of Consulting Room

"E M A" started consulting practice two years ago and took over a house from another doctor having to spend a certain amount upon redecoration of the waiting room and consulting room. Is that expenditure deductible, or is it capital outlay?

On the assumption that the rooms in question had been used for similar purposes by the previous practitioner and that there was no appreciable improvement or alteration in the rooms as compared with their previous condition—that is, when the former decorations were new—we consider the expense was allowable. But there is no legal right to have it regarded as expenditure of any year but the year in which it was incurred.

Change of Practice

"A G N" left his former practice on May 14th last and has taken another practice in a different part of the country. He has been informed by the authorities that for 1928-29 he will be assessable on the actual profits of that year and that the assessment for 1927-28 will be revised to the actual income of that year.

The official view is apparently correct. The matter was dealt with in a note on page 1037 of our issue of June 16th last in which the effect of the legislative changes was explained. We suggest that our correspondent refer to that note and, if necessary, write to us again on any specific point of difficulty.

Receipts after Retirement

"SENEX" retired, owing to ill health, at the end of the last partnership year December 31st 1927. Is he liable to return no income arising subsequently received by him for his share of the partnership income?

No. It has to be assumed that during the continuance of the partnership the cash receipts approximated to the true gross earnings. "Senex" has paid tax on the income up to December 31st, 1927 and anything he may now receive is merely a belated payment to him of income which has already been taxed. Whether the partnership in its early years paid tax on more than its own net cash income we do not know—the authorities are apparently prepared to assume that it did, and no doubt will see that the cash basis is not applied to the early years of the new firm.

LETTERS, NOTES, ETC.

ARTERY FORCEPS AND LIGATURE CARRIER

MR. N. I. SPURGES, F.R.C.S. (Leicester) referring to the description by Mr. E. Milne Eaton of an artery forceps and ligature carrier for deeply placed vessels on July 7th (p. 19) writes: I designed an instrument for similar work several years ago which was described in the *Lancet* of January 18th 1913. I have a model of the instrument, but it was never manufactured in bulk owing to financial considerations. Its use was demonstrated by me at a meeting of the Midland Obstetrical and Gynaecological Association at Leicester.

SEA SICKNESS

"TERRA FIRMA" writes: It is difficult for one who has suffered severely from this onsets to accept any but a labyrinthine explanation of it. After all sea-sickness is one of a group and the similarity of the effects of trains, cars, swings, roundabouts, and even the old fashioned waltz, is too striking to have anything

but a common cause. Once in childhood, I drove a bus and an interurban in disorder from a railway carriage. The trick of twisting a swing and allowing it to twist rapidly with myself in the seat produced a similar effect upon me which is difficult to explain on any abdominal hypothesis. In the Physiological Laboratory at Cambridge I was induced to test the effects of rapid rotation of the vertical body with the head in a erect, stooping, and on the shoulder. The demonstration of the part played by the semicircular canals was convincing to most, at least, and my subsequent apparent rotation in three planes simultaneously led to prostration for the rest of the day with all the symptoms of *mal de mer*. Experiments during many crossings of all the seas round Britain have convinced me that no diet in reason, has any effect upon the disability. The weakness is hereditary, and I have tried, without success to prevent car sickness in my own children by liberal doses of glucose. In my experience children under 2 years of age are nearly immune, the disability increases from that age to adolescence and afterwards diminishes. In 1918-19 I circumnavigated Africa without being actually sea sick. The advantage of the supine position is certain whatever may be the explanation, the nausea appears to be secondary to the vomiting as in hyperemesis gravidarum. For short crossings I recommend nerve depressants such as the bromides chloral and alcohol, for a long voyage rest on the bank until the sufferer is accustomed to the motion or the sea moderates.

MR. GORDON D. KNOX (London) writes: The comments you have published on sea sickness upholden me to give a personal experience. I can describe myself as a fair sailor, the type who is liable to be ill at the beginning of the season and who is then immune during reasonable weather. I made by accident what to me was the astonishing discovery that even after the feeling of nausea had begun it could be staved off and even prevented by smoking a pipe or cigarette and smoking pipe after pipe or cigarette after cigarette. Greatly daring I recommended my tentant to a colleague who complained that he had never crossed the Channel without being sea sick. Thoroughly sceptical he tried my plan and made his first passage over in comfort. I recognize the danger of attempting to generalize on two cases but should like very much to know if there is medical evidence to justify my belief that with the habitual smoker smoking may stave off sea sickness.

MUSCULO SPIRAL PARALYSIS AFTER QUININE INJECTIONS.

DR. J. I. KUIT (Piet Retief, Transvaal) writes: I read in the *Epitome* for April 28th (para 407) a reference to musculo-spiral paralysis following the injection of quinine for malaria. Towards the end of February last I had a bad attack of malaria. I was treated by a colleague, who ordered three daily injections of 10 grains of quinine dihydrochloride. This was continued for about five or six days. The injections were subcutaneous and at my own request were given over the deltoid muscle after antiseptic rub and left. After the second day the injections were absolutely painless as a matter of fact, the whole area from the point of the shoulder to the middle of the upper arm on both sides became completely anaesthetic. This has gradually worn off and for the last fortnight the sensation has been normal. When first I left the nursing home fourteen days after the first injection, I could not hold a pen to write and both arms were very weak. It was nearly three weeks before my arms felt in any way normal. That there must be some disturbance of the trophic nerves in my case is indicated by the fact that small pustules keep appearing on both upper arms, and these are limited to the area that was anaesthetic.

HOLIDAYS FOR FACTORY GIRLS

WE have received the following letter signed, on behalf of the Factory Girls Country Holiday Fund by the Countess of Sandwich, Dame Mary Scherfield, Miss Lillian Bratton, the Bishop of London, and Mr. J. F. Green:

"Will you once again give us the opportunity of drawing the attention of your readers to the Factory Girls' Country Holiday Fund which may well claim to render good service to our poorer sisters, and so, to the whole community. The change wrought in these pale Londoners in a few days is almost incredible save to the eye witness. Good food and plenty of it rest on the beach, or in the fresh country fields and above all, freedom from care—knowing their holiday is paid for before they go—work wonders. There are now hundreds of girls hoping to be sent away during the next few weeks. Fresh applications come in daily, but we have not enough funds to send half the number at present. Many of the applicants have been saving out of their earnings week by week since the beginning of the year towards their share of the cost of their holiday. This fund helps chiefly the poorest class of factory workers, most of them are the main support too of their families. Subscriptions and donations will be thankfully received and acknowledged by the honorary treasurer, Mrs. Slater, or by Miss Canney, 75, Lambeth Conduit Street, London, W.C.1.

VACANCIES

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 45, 46, 47, 50, and 51 of our advertisement columns and advertisements as to partnerships, assistantships, and locum tenencies at pages 48 and 49.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 24.

British Medical Association.

NINETY-SIXTH ANNUAL MEETING, CARDIFF, 1928.

President's Address

OS

SOME REACTIONS AND A RETROSPECT

BY

SIR EWEN MACLEAN, M.D., F.R.C.P., Hon. F.A.C.S., F.R.S.E.,
PROFESSOR OF OBSTETRICS AND GYNAECOLOGY, WELSH NATIONAL SCHOOL OF MEDICINE

MR LORD MAYOR, LADIES, AND GENTLEMEN,—I profoundly appreciate the great honour of being asked by my colleagues and by the authorities of the British Medical Association to occupy the Presidential Chair for this year.

Having regard to its outstanding achievements in the past, its present status and power, and its future of ever-increasing authority and responsibility, to be the titular head of this great Association for the allotted span must surely evoke the humility and gratify the ambition of any man.

The Annual Meeting of the Association last assembled in Cardiff in 1885—forty-three years ago. Queen Victoria was the reigning sovereign, and amongst the local historic events of the year was the transit of the first train through the Severn tunnel. Dr W. T. Edwards, whose skill as a physician and whose high character and public service are gratefully remembered, was the President, Dr Alfred Sheen, a very distinguished practitioner, was the General Secretary, and Dr Thomas Wallace, J.P., who is with us to-day, was an active member of the local executive. Dr Donald Paterson, whose articles in the *Journal* on Cardiff and its surroundings have been so much appreciated, was a young house-surgeon at the Infirmary, and already giving promise of his very distinguished career. At that Meeting, as now, the public, the Corporation, and other bodies of Cardiff placed every available facility at the disposal of the Association for the scientific work and the social relaxation of its members.

I take this opportunity, on behalf of my colleagues and myself, to offer our grateful thanks to the Lord Mayor and Corporation, to the President, Principal, and Council of the University College, and to the President and Council of the Welsh National Museum, for so generously giving us the use of their magnificent buildings in the Cathays Park for the Sections, receptions, and administrative requirements. We also much appreciate the generous interest taken in our Meeting by the Marquess and Marchioness of Bute, as by the Marquess and Marchioness of forty years ago.

PUBLIC WORK OF THE ASSOCIATION

Since 1885 Cardiff has so multiplied its population that it is now two and a half times as great as it was then, and the city has achieved the rank of one of the foremost ports of the world, whilst the Association has trebled its membership to nearly 34,000, and manifolded the degree and range of its power. To-day the British overseas membership of the Association alone is nearly equal to the total membership in 1885.

It is alleged at times, in criticism of the activities of the Association, that its great power is expended predominantly in the personal interest of its members. This is very far from being the fact. It is certainly true that the Association has achieved a great deal in its endeavours to raise the status and improve the conditions of service of medical men and women, whether in the public health service, in the combatant services, in work under the National Health Insurance Acts, in the Colonial Medical Service, or in general practice. But, leaving all this aside, from its foundation the Association has been concerned

chiefly with the maintenance of the professional standard of education and conduct, both pre- and post-graduate, the promotion of scientific research, and the development of a national public health policy which will allow the profession to make its maximum contribution to the well-being of the community.

Inasmuch as the British Medical Association represents the medical profession as an organized body, it is clear that its corresponding sphere of action lies rather with public bodies than with individuals. In seeking to inform the public as to the principles underlying a sound public health policy, the Association's appeal is primarily to the responsible Government of the day, to members of Parliament, to the departments of State, to local authorities, and to the numerous voluntary bodies, whether lay or professional, through which public opinion is formed.

The general scope of the Association's activities in this connexion, and the nature of its influence, may be illustrated by the list of the Royal Commissions, Departmental Committees, etc., to which the Association has submitted evidence on matters not principally affecting the economic interests of the profession: the Government Committees on which the Association has been represented and the publications of the Association.

As early as 1868 the creation of a department of State to deal with specifically public health matters was urged upon the Government and eventually in 1919 the Ministry of Health was formed. By the influence it exercised and by the atmosphere it created the Association was largely instrumental in the setting up of this separate department of State.

It was shortly after the Cardiff Meeting in 1885 that the Association promoted and financed an investigation into the health of 100,000 school children, and was largely responsible for the creation of the School Medical Service. The compulsory examination and treatment of school children has always been a feature of the Association's policy, and from 1905 repeated attempts were made to embody this principle in legislation. Until 1907 these efforts were unsuccessful, but under the Education Act of that year the School Medical Service was established.

The action taken by the Association in connexion with maternity and child welfare has been largely concerned with raising the general standard of midwifery and with proposing amendments (often accepted) in the rules of the Central Midwives Board—amendments directed towards prevention of maternal and infant mortality. During 1908-9 evidence was prepared for submission to the Departmental Committee on the Midwives Act, 1902, and the recommendations of that committee included many of the reforms suggested by the Association. Special inquiries have been conducted into the important subject of ophthalmia neonatorum (1907-9), the value of maternity and child welfare in relation to the reduction of infant mortality (1920), cardiac disease in children (1923-27), and puerperal morbidity and mortality (1924-27).

A typical example of the Association's work for the promotion of maternity and child welfare is afforded by the story of its action in connexion with ophthalmia neonatorum. In 1906 this was the subject chosen by the Council for the Middlemore Prize. In 1907 the same subject was

chosen for discussion in the Section of Ophthalmology at the Annual Meeting of the Association, and on the recommendation of this Section the Council appointed a committee to consider the question of prevention of the disease. The committee reported in 1908, and by 1910 public opinion, stimulated by the publicity given it by the Association throughout this period by the means already mentioned and by repeated reference in its *Journal*, had brought about the adoption of notification by a considerable number of authorities. In 1910 the Council issued a model scheme for administration in areas where notification had been adopted, and this was circulated to the Divisions of the Association. In 1914 the notification was made compulsory by statutory Order, and the general policy of the Association with regard to notification and treatment is now part of the health policy of the nation.

In 1914 the Association gave evidence before the Royal Commission on Venereal Diseases, and in many important respects the recommendations of the Association were incorporated in the report of the Royal Commission.

The Association has from time to time endeavoured to secure the elimination of defects from the Law of Lunacy and Mental Deficiency by means of (a) preparation and submission of evidence to Royal Commissions and other official bodies, and (b) appointment of special committees to consider and report on the lunacy law as a whole or on various aspects of it.

The interest of the Association in the care and control of mental defectives has been long and continued. In many instances reforms urged by the Association have been embodied in legislation or in recommendations of Government bodies appointed to consider the whole question. For example, amendments were successfully introduced into the Lunacy Amendment Act of 1890, and the Defective and Epileptic Children Act, 1899 (to provide special instruction for mentally deficient children). The Association also, in 1909, urged on the Home Secretary the need for giving full effect to the report of the Royal Commission on the Care and Control of the Feeble-minded. In 1911 a memorandum on the policy of the British Medical Association as regards amendment of the lunacy laws and care and control of the feeble-minded was forwarded to the Home Secretary. The Mental Deficiency Bill, which was introduced by the Government in the following year, and which eventually became law in 1913, was in general conformity with this policy.

With regard to the work of the Association in connexion with the standard of therapeutic substances and appliances, this has been directed towards (1) the improvement of the *British Pharmacopoeia*, (2) the adequate standardization of therapeutic substances, (3) the protection of the public from the abuse of "dangerous drugs," drugs of addiction generally, and alcohol, (4) the protection of the public from the exploitation of fraudulent and harmful proprietary remedies (so-called patent medicines or secret remedies), and (5) the prohibition of improper and misleading advertisements of proprietary remedies.

Since 1906 the Association has given evidence on thirty Royal Commissions and Departmental and Governmental Committees, excluding those which required evidence bearing mainly on the pecuniary interest of the profession.

In regard to the education of the public in health matters, the Association has always played its part in directing the attention of the public to questions of hygiene, mainly by representations addressed to central and local health authorities and to members of Parliament, but also on occasion by publications and addresses intended for the general public. It has also from time to time urged upon its members the necessity of individual efforts in this direction.

With regard to the Council's future proposals connected with the problem of the public education in health, a memorandum issued by the Association indicates the action which can be taken by Divisions and Branches in assisting in the education of the public in health matters.

The foregoing, though but a short and incomplete review of its wider activities, goes far to answer the criticism referred to and to indicate the breadth of view which the Association takes of its obligations and responsibilities.

In two data, amongst others, in the history of the

Association, the South Wales and Monmouthshire Branch can claim especial interest. In the year 1877 the first Gold Medal of the Association was awarded to Dr Henry Naunton Davies for conspicuous bravery and skill in connexion with the Tynewydd Colliery disaster, and we are glad to have with us to-day, as an active member, one of his surviving sons.

Then, again, that most significant event, the birth of the Representative Body, took place at the Swansea Meeting in 1903, and the proceedings of the past few days go to show that the Representative Body, now a quarter of a century old, has much to its credit and is dealing wisely and thoroughly with problems arising within the profession, and with those questions, ever increasing in number, which by successive Governments and by the public "stand referred" to the Association.

ANCIENT CYMRIC MEDICINE

Casting back to more distant times, the exhibit which, by the courtesy of the authorities, has been set up in the Library of the National Museum shows, I think, that "Ancient Cymric" medicine affords a most attractive field for study and research, and I am indebted to my friend Dr Roland Williams for many interesting observations and gleanings in this connexion.

Handed down from very remote times, a glimmering of medical science would seem to have existed in pre-Celtic and Celtic Britain. It is difficult to conceive, for instance, that the New Stone Age and the Bronze Age, rich as they were in the pioneer achievements of civilization, should have been lacking entirely in some form of indigenous medical lore. Possibly, too, those very early traders from the older Mediterranean civilizations who came to seek tin from Cornwall left behind them something of the healing traditions of other lands. At any rate, however such knowledge may have accrued, there are some grounds for crediting the Druids with perhaps a greater preoccupation with medicine than was usual in a primitive priestcraft. The Greek geographer Strabo (born about 60 B.C.) has left it on record that the soothsayers are sacrificers and physiologists, the Druids, in addition to physiology, practise ethio philosophy. Pliny gave a brief account of a Druidic *Materia Medica* in which the mistletoe or "All-Heal" was held in highest esteem. Presumably, too, the British Druids were similar in type to the Druids of Gaul, to whose advanced "knowledge of the Laws of Nature" Cicero referred. It is interesting to note that, as preventives to ill health, the Druids prescribed cheerfulness, temperance, exercise, and early rising, qualities and practices which—shall we say?—have remained characteristics of the Cymry to the present day. Albert, another of the Druidical maxims, asserting that "Money lent in this world will be repaid in the next," would not, I fear, in practice to-day, rank as a gilt-edged security.

After the Druids came the Romans. Soldiers, engineers, administrators as they were in the main, we do not know what legacy they left behind them towards the building up of a native medical tradition in Wales, but it is legitimate to surmise that at least some elements of the lore of Hippocrates and the great Greek medical tradition may have made their way into Britain with the legions, and, once implanted there, may have lingered, as the *longue* of the legionaries lingered after their departure, in Cornwall, in Cumberland, and in Wales. It is a significant fact that the modern Welsh word for a physician, the word *meddyg*, goes back directly to Roman times, being derived from the Latin *medicus*, and occurring first in its Welsh form in the old Cornish vocabularies.

After Rome, the welter of the Dark Ages—a period dark to the historian everywhere in Europe, but darkened still more in Wales owing to the distrust to which many of the manuscripts relating to the period are subject. Not until the beginning of the tenth century, and the codification of Welsh Tribal Law about that time, do we come upon reliable information regarding the profession of medicine.

A thousand years ago King Hywel the Good caused the Laws of Wales to be codified, and it is in these codes that we get the first authentic glimpses of our profession and the manner of men who practised it in tenth century Wales.

This monarch had a court physician who was given place and prestige in his presence, had a grant of free land and a horse, and received his linen clothing from the Queen and his woollen clothing from the King. His seat in the hall within the palace was at the base of a pillar near to the King and his lodging was with the chief of the household. It was his duty to administer medicine without charge to all within the palace, and to the chief of the household. It would appear that he was a whole-time officer, with intervals when, on the basis of a moderate tariff, he was allowed to enjoy the stimulating freedom of private practice. He had to accompany the armies, but ordinarily he was never to leave the palace without the King's permission, when he was free to take any road or route with the messenger of the sick. In those days it was lawful for anyone to take another's horse to procure a medical man for a person in danger, without being required to make amends. The same principle applied to-day in respect to motor cars might lead to serious misunderstandings.

The chief interest of these early codes, from a medical point of view, lies in the way they assessed legal damages for injuries and laid down standard fees for treatment. The thumbnail, for instance, was worth thirty pence. One front tooth was equal to a finger, one molar tooth to a thumb.

MEDIAEVAL TRANSITIONS

The old laws are interesting as showing us something of the state of the Welsh *meddyg* under the Welsh tribal system in the tenth century. The eleventh century brought with it great changes in Welsh history. A great new formative influence came then into the life of Wales—that was the Norman. The Norman affected profoundly the whole course of Welsh life and politics. Under the walls of his castles there grew up townships, markets, fairs. Once more, as in the days of the early wandering Celtic missionaries, Wales came into touch with the rest of Europe and the world. For not in Wales and England only, but in Ireland, in France, in Spain, in Sicily—in Palestine even, on the threshold of the immemorial East—there too were the castles of the Norman. Pilgrim and Crusador, merchant, monk and friar, errant knight and troubadour, all whose activities helped to render knowledge fluid and international throughout the Holy Roman Empire, must have helped towards the building up of a native medical tradition in mediaeval Wales, a tradition which has left behind as its monument a fourteenth century manuscript, the older of the two manuscripts known as the "Books of the Physicians of the Myddfai."

It was but natural that the tradition of the physicians of the Myddfai in mediaeval Wales should trace its origin back to the fountain head of a legend.

In the fastnesses of the wild Fan Mountains of Carmarthenshire there is hidden away a small lake known as Llyn-y-Fan Fach. Long ago, so the legend runs, a shepherd boy named Gwyn was tending his flock on the shore of the lake when a most beautiful maiden emerged from the mirrored surface of the water. After many complications, which are so essential to a fairy tale, Gwyn and the maiden of the lake became man and wife. Three sons were born to them, but after a time the maiden disappeared again into the depths of the lake, taking with her her fairy dowry of cattle and chattels. At a later day, however, she reappeared to her three sons, who kept vigil for her on the shore. The eldest son, Rhwallon, she led aside to Pant-y-Meddygon (the Physicians' Hollow), there she revealed to him the properties of the medicinal plants and herbs which grew around them, and called upon him to dedicate himself to the art of healing. Thus Rhwallon did, so that he became the physician to Rhys Grug, Lord of Llandovery and Dynevor. Tradition claims, too, that the descendants of Rhwallon practised their art at Myddfai in unbroken lineage until the end of the eighteenth century.

Such, in brief, is the story of the physicians of Myddfai. Interesting though these earlier figures may be, however, it is only after the Renaissance had rejuvenated Wales that we come upon the beginnings of a really broad-culture among Welsh physicians. Although not one of the outstanding physicians of Wales in Tudor and early Jacobean

times had any claim to be compared to a Sidenham or a Harvey, they were yet figures commanding interest and respect in other ways. Educated, most of them that we know of, at the older English universities, their medical writings and their medical beliefs were, for their day and generation, reasonable and scientific. One striking characteristic which many of them had in common was the great breadth of their culture and their scholarly achievements in other arts besides medicine. Thus Phaeor of Pilgerau was one of the first great Elizabethan translators of the classics, while to Robert Recorde of Tonby we owe the introduction of the study of algebra into this country.

Time does not permit to follow the fortunes of the Welsh *meddyg* through the seventeenth and eighteenth centuries. Something of their ubiquity and prominence may be gathered from the fact that the two surgeons on board Captain Cook's ship the *Resolution* in 1777 were Welshmen—Robert Davies of Wyddgrug and David Samuel of Denbigh. Samuel later became surgeon of the *Discovery*, and he may have suggested to his captain some of the latter's very enlightened ideas regarding the relationship of scurvy to diet. At any rate, Samuel was a scientifically minded man, as shown by his treatise on the introduction of certain diseases among the South Sea Islanders. "He was," so wrote one of his contemporaries, "extremely irritable, but one of those hearty fellows we expect a sailor to have been."

But however true it may be that the past, even the distant past, is ever with us and must tincture our every thought and deed, the blend of the present and the immediate future is the main incentive to individual and corporate action.

HEALTH ORGANIZATION IN RECENT TIMES

The population of the world to-day is many times greater than it was a thousand years ago, and over the average of years Mother Earth shows no signs of failing to respond to the food and other requirements of her increased family of humans. Correspondingly, however, much more work has to be done by these humans in order to extract and prepare these requirements. Effective work involves a sufficient measure of health, and hence, perhaps, one factor at least of the instinctively higher regard for the health of the individual and of the community which is so marked a social feature of the day.

The demand is insistent, and from the nature of the case the supply can never wholly meet it. But quite wonderful achievements have been registered by organization and scientific discovery. At the same time those who know most know how much more remains to be done.

A sign of the times, that enactment of outstanding importance the National Health Insurance Act, 1911, which provides domiciliary medical attendance for, say, sixteen million of the forty-five million of the population, has profoundly modified and to a significant extent refocused the conditions of the great bulk of medical practice in this country.

Piloted with great ability and energy through a half-reluctant House of Commons by Mr. Lloyd George, the then Chancellor of the Exchequer, and menaced by vested and otherwise disturbed interests, this colossal measure came into operation in the early days of January 1913. The unavoidably complex machinery of so far reaching an Act was but as yet in the stage of graduating through the inevitable jolts and jars when the cataclysm of the great war and the disabilities of demobilization intervened as a further strain on administration.

It says much for the administrative staff and even more for the 15,000 medical practitioners accepting service under the Act that as set forth in the Memorandum of Evidence submitted by the British Medical Association to the Royal Commission on National Health Insurance both the Representative Body of the Association and the Conference of Representatives of Local Medical and Panel Committees agreed "that the measure of success which had attended the experiment of providing medical benefit under the National Health Insurance Acts system has been sufficient to justify the profession in uniting to ensure the continuance and improvement of an insurance system."

It is demonstrable that insured persons under the Act,

taken as a whole, are provided with a better grade of medical service than were their equivalents before its inception. But of the making of regulations there is no end, and the officials concerned, and certainly the busy practitioner, may well be forgiven if, on occasion, a lapse of memory leads to executive error. It would be a real boon to the insurance practitioners, to the officials, and to the insured persons, and would prevent many mistakes and misunderstandings, if someone—it would admittedly require little short of a genius—would intelligibly collate the multitude of regulations.

Under the Act as it stands much more could have been done and should be done, in the matter of wise propaganda directed to the means of preserving health and of preventing disease but, taking the Act in general, with its many inherent administrative difficulties, it can be said that the major provisions are being sympathetically and effectively implemented. But the degree of success so far attained in itself calls for further and fuller developments, which in due course should be equally available for all insured persons regardless of their membership of any particular society.

Such further provisions should include complete consultant and specialist advice and treatment, and, under conditions, nursing and massage. Various salient advances by some of the approved societies have already been made into the region of these developments, notably in the form of dental, ophthalmic, or institutional extra benefits, and the experience and results accruing will, doubtless, ultimately encourage an advancement of the line, as indicated in recent enactments by Parliament.

In such logical and, indeed, inevitable developments of the health insurance scheme, stage by stage being added after full consideration of the reasonable interests of those concerned, I for one fail to see the risk of any sudden ultimate transmutation to a whole-time State medical service, with its connoted and handicapping officialism and sacrifice of personal freedom.

PROGRESS AND RESEARCH

To endeavour to compass, even in outline, anything of the nature of an informing survey of the advances of medicine and surgery since the Association last assembled in Cardiff, or even in the past twenty years, would obviously be impossible on such an occasion as the present. The achievements are stupendous, and represent a vast saving of human suffering and an appreciable prolongation of human life.

These results are not the product of knowledge acquired casually or in haphazard fashion. It is true that enlightenment may come, at times, from unexpected quarters, but the basis of real advance has been framed, as it always will be, in the tireless, persistent, relentless toil of our research workers, whose faithful services are so often unrecognized and unequited.

Happily for research in general, it would appear that successive Governments in most civilized countries are becoming increasingly aware of their obligations in regard to the provision of adequate funds for the acquiring of new knowledge, as well as for the costly machinery of imparting knowledge already gained. The latter avenue of disbursement is a real necessity, but, under conditions, the claims for moneys to support pioneer work in the as yet unknown but assuredly rich fields calling for it must be accorded a high status.

It may be usefully added that those who provide the means and facilities for research work must be as patient as the workers themselves. To call early for results, and thus, possibly, to bring about the premature announcement of findings, is to render a lasting disservice to research and to many unfortunate people who may be even vitally concerned. In most inquiries the problems are manifold, and the route to the objective is never by an "A" road in a fast car, but is almost always o'er moor and fen, errand and torment, involving many readjustments and delays. An element of fascination is that it is often in the byways—that is, in the collateral issues raised in the conduct of a piece of research—that treasure of the greatest value is found.

The occasion is not suitable to review in detail the advances in medicine in the past few decades. But on the crest of the wave of recent years ride prominently the bacteriological and biochemical discoveries, the latter even overshadowing the former, as witness the new science of the endocrines, the chemistry of body fluids, the functions of organs as expressed in their influence on the composition of the blood—for example, liver and spleen—and, lastly, the vitamins. Incidentally, such a recital provokes the reflection that if one of the old alchemists came to life in our midst to day, after the manner of Rip van Winkle, in all else but technique and terminology he might find himself very much at home.

As regards endocrinology, we will not, of course, agree with one enthusiast who claims that the blood, the nervous system, and the glands of internal secretion form a triumvirate of chemical machines whose interpreted functionings constitute the soul, nor when he proclaims that there is every reason for believing that life is a piece of chemical clockwork. Nevertheless the supreme importance of these glands has been proved beyond all question, and the therapeutic results of organotherapy are becoming day by day more clearly and scientifically appreciable. The thyroid, the parathyroids, the pituitary, the adrenals, are almost household words, and who has not heard of that wonderful product of modern alchemy with which the name of Banting of Toronto is so prominently associated—insulin?—a drug which has given life and the promise of life to many thousands at the hands of the physician, and one of whose especial values it is that by its preliminary and coincident use an avenue has been found opening towards curative surgery for many conditions hitherto denied that advantage.

The topic of vitamins, descended upon in the pulpit and press, from within the profession and by para-professionals, would appear to have entered into the web and woof of the national life, and no home is complete without it. You can have them arranged alphabetically or numerically, and, if preferred, in concentrated form. It may interest the younger and less robust members of the community to know that the vitamin content of a ton of cod-liver oil can be reduced to about one quart.

A striking feature is the large and over-growing number of instances in which the bacterial origin of disease has been and is being constantly discovered, and in which accordingly treatment is being more effectively directed. Many other diseases, further, in which the course and symptom-complex give good grounds for the assumption that they are of simular origin, are receiving close attention, but so far the miscreant germ is perhaps even more difficult to identify than the ill-doer in an obscure case in a process of law.

With regard to tuberculosis there is little to add to what was said in the classical address of my predecessor, Sir Robert Philip at the Edinburgh Meeting last year, except that already there are signs that some of the forecasts in that exceptionally able pronouncement are being materialized.

Of late years thought and deed have turned dramatically towards the prevention of disease, and, shadow-like, immunology dogs the footsteps of bacteriology.

Among the general diseases pernicious anaemia, by the liver treatment first applied by G. R. Minot and W. P. Murphy of Boston, has been brought within the pale of substantial amelioration or even cure.

The Association has taken an active part in the investigation on a wide, thorough scale of that most prevalent and disabling condition—rheumatism—and the statements and recommendations of the latest report should do much to establish a machinery calculated to control, at all events, the main features of the problem.

The cause, whether it be single or collective, of that dread disease, cancer, still eludes, will-o'-the-wisp like, the grasp of the intensive research which has been and is being conducted in the clinics and laboratories of the world. The ears of multitudes are indeed attuned to listen in to any glad news of a discovery, but the public and the press may be well assured that whencesoever the claim may arise it will be, in the interests of the whole community, submitted to sympathetic but close examination.

by those who are best qualified to judge. Nothing can be more deplorable in its results than the premature announcement of claims as to causation or successful treatment of so prevalent a malady.

Meanwhile, the wisely directed propaganda which has been carried on has undoubtedly had a widespread effect in inducing many people to seek advice when the earliest possible manifestations of the disease have appeared, and so becoming included within the ambit of definitely curative treatment. Indeed, apart from the presence of symptoms, in an increasing measure people are now coming to observe the wise precaution, more prevalent in America than in this country, of being overhauled or "checked-up" at intervals by their medical attendants. By such a practice the pre-symptomatic stage of disease may be detected and effectively dealt with.

Passing reference only is permissible to the veritable pageant of advancement in the science and art of surgery—a pageant largely made possible by the brilliant work of Pasteur and of our own Lister, whose imperishable memory was so universally appraised in his centenary year.

MATERNAL MORTALITY

It has been urged, and with truth, that one of the most vitally important branches of medical practice—obstetrics—has not shared in due proportion the benefits accruing from the Listerian epoch with regard to the incidence of infection. Many persons, and many interested bodies, including the Ministry of Health and our Association, have been, in their several spheres, devoting time and earnest attention to the problem, and it is of the first importance that Her Majesty the Queen has personally associated herself with the movement to investigate adequately the governing causes and to endeavour to reduce the maternal mortality and morbidity rates.

No further incentive to this end need be furnished than the oft-quoted facts that more than 3,000 mothers lose their lives every year in England and Wales—that in more than half of this number death is due to septic infection, which, it is claimed, is, or should be, a preventable condition. Preventable, yes, given certain conditions. It is well known that under properly conducted institutional conditions mortal septic infection arising *de novo* is reducible to vanishing point. In these establishments the observance of every detail and circumstance of technique designed to secure asepsis can be carried out, and a confidence generated akin to that with which surgery in general is now undertaken.

Inasmuch as, in a country like ours, all cases, or any very considerable proportion of them, cannot be institutionally provided for—the total in England and Wales would require something like 30,000 beds—the problem would appear to be capable of solution if it were possible to reproduce in the homes of the people the essential factors of this provedly effective hospital treatment. This deduction loses little of its force even if it be urged, as with truth it may, that on the one hand there are some rapidly fatal cases of infection in which every known precaution has been taken, and, on the other hand, that some difficult and complicated cases, in the circumstances of which practically no precautions can be observed, may make a smooth recovery. Such cases are the exception and not the rule.

To reproduce, however, in the average home that veritable Temple of Asepsis, the operating theatre, with its ministering priests and priestesses, is, of course, impossible. But to be effective the ritual need not be complicated, and the association of ante-natal care and, if necessary, treatment, the adequate nursing, the unharmed waiting upon events in suitable cases, and the availability of skilled experience of all kinds if and when required, are equally indispensable elements in the right kind of institutional treatment. There are thousands of general practitioners who, in letter and in spirit and wherever possible transmute the largest common denominator of these hospital advantages into their practices, and their results attest the fact.

Every practitioner, however, and especially in certain districts, must not rarely encounter such conditions of

poverty, ill-housing, previous unskilled interference, and other handicapping circumstances, as render it impossible to practise asepsis, and where accordingly the pathways to infection are hopelessly unguarded. It is gratifying to note that several local authorities are doing much to meet the circumstances of many who cannot afford even a very inexpensive equipment—the maternity benefit notwithstanding—and that the sequel is encouraging.

It is much to be hoped that at no distant date the recommendations submitted by the Association to the Royal Commission on the Insurance Act in regard to this supremely important branch of medical practice will be materialized.

Meanwhile the tendency exhibited in certain quarters to make the general practitioner the scapegoat for the sins of many is to be deprecated. To begin with, he cannot be sent into the wilderness. In his hands, either in original charge or as a consultant of first instance, must lie the application of the standard obstetrical practice of the day for the great bulk of domestic cases. He needs not blame, but support in the form of the provision of facilities in suitable cases to cope with this most anxious, time-absorbing, underpaid factor of his work. As it is his devoted response to its calls in most difficult circumstances is worthy of all praise.

There are many aspects of this international problem which are baffling, and one cannot but earnestly hope that the intensified research which is now being directed not only into its bacteriology but also into the question as to the factors which constitute and the conditions which vary resistance to infection, may produce helpful light and leading.

INTERNATIONAL CO-OPERATION

This and many other important topics of international concern are engaging the close attention of the appropriate departments of our Annual Meeting. Indeed, we are, by the presence with us on this occasion of so many distinguished representatives of other countries and other climes—whom we are delighted to have the privilege of greeting—strikingly reminded of the cosmopolitan character of the science and art of Medicine. Orthodox medicine knows no protection barriers and claims no patent rights. The international pooling of ideas, of discoveries, and of experiences is essential to the recognition of even a datum line of the advances in the various departments.

There is an impression abroad—and it is not, perhaps, ill founded—that in the British Isles we do not sufficiently organize and utilize the wealth of clinical material at our disposal for post graduate demonstration in the interests of our home profession and of visitors from other countries. Good work has been and is being done in the various metropolitan centres, but these do not claim a monopoly of skill and clinical facilities. I have long felt that with its wonderfully ramified machinery to link up the provinces and the capital, the rural areas and the towns, no body is so well adapted as our Association to organize a post-graduate system embracing existing institutions and developing many new centres, on a scale worthy of this country.

I am not without hope that there may be forthcoming a national, nay, an international, benefactor willing to entrust the Association, as a voluntary body with the considerable sum of money necessary to establish and conduct such a system. I am convinced that thus we would not only raise the standard of efficiency, and therefore of health in this land but colleagues from overseas and other lands would find it more than ever worth their while to spend some time with us, to our mutual benefit. The advantages would not be limited to our professional spheres, but would surely develop in wider measure social and ethical results of far-reaching significance.

No branch of the League of Nations exerts a wider general influence than the Health Organization, the head of which, Dr Rajchman, we are so glad to have with us. That influence is not accidental. It is essential. For may we not in all humility venture to claim that no other profession or calling can offer a basis of union so broadly appealing to what is common to mankind as the objective of preventing, alleviating and curing the diseases of humanity?

THE MODERN TREATMENT OF HERNIA BY TRUSSES *

BY

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THE operative treatment of hernia has become so widespread during this century that the mechanical retention of viscera within the abdomen is likely to become a lost art.

Undoubtedly hernia is amenable to successful treatment by operation in its early stages in suitable subjects, and the perfection to which such operations have been brought brings credit upon surgeons of many lands. But there will be for many years yet to come, and perhaps for the rest of time, quite a number of herniae, all of which are important because they constitute a danger to the sufferers, in which a truss may be the sole method of treatment. It has been my good fortune to gain experience of this type of instrument over a considerable number of years, and I make no apology for bringing before you in this British Medical Association Lecture some simple but practical points relating thereto.

It can be imagined with what consternation the first case of strangulated hernia was regarded by our ancestors. When it became recognized that the terrible condition, ending usually in death, was due to the gut passing into a pouch, all sorts of attempts began to be made to retain the intestine within the abdomen. There is in the Wellcome Historical Museum an Egyptian statuette wearing a truss, and it reminds me of some of the crude apparatus sold at exorbitant prices in the twentieth century, and I suspect it was as efficacious.

The variety of forms of trusses, even for one type of hernia, tends to prove that retention of prolapsed organs is not so easy a matter as some would think. The torture, literal torture, that some patients have suffered, and some still do suffer, from the improper instruments applied to their bodies is indicative of a want of knowledge of proper truss treatment.

ESSENTIALS OF A GOOD TRUSS

What, then, are the essentials of a good truss? They are (1) close fitting, (2) ability to act when occasion for its function arises, (3) comfort, (4) durability, (5) economy in cost.

Close Fitting

It is obvious that a truss which does not fit closely to the body is likely to become shifted in the movements of the wearer and so to become worse than useless—to become, in fact, a false security. It is for this reason that a truss should be worn next the skin, and not with intervening clothing.

But a truss may fit so closely as to become a constricting culet, and this is particularly so in those types in which there is an elastic band passing round the pelvis. I have seen instances where the band, having been worn low down and tightly across the buttocks, has caused actual interference with the functions of the sciatic nerve.

Close, but comfortable fitting, implies careful measurement for, and making and adjustment of, the apparatus. It requires some practice to measure even for a simple inguinal truss, it further requires considerable skill in the proper manufacture of the truss to the measure, and still more a good knowledge of anatomy for its right adjustment.

Let us take the question of measurement first, and for an inguinal hernia. The tape must not pass horizontally round the pelvis—a mistake very frequently made—but obliquely, because when applied the truss has to lie obliquely. Therefore the tape must be placed high up behind, at the base of the sacrum, just below the anterior superior spines at the sides, and at the level of the upper part of the symphysis pubis in front. It is extraordinary how few know where this latter point really is, so many placing it much lower down than it actually exists. No attention should be paid to any "ring," partly because it is only confusing to do so, and partly because such

things do not exist. The exit from the inguinal canal is still often called the "external abdominal ring," which is altogether a misnomer, for it is not "external" but "superficial," it is not "abdominal" but "inguinal," and it is not a "ring," which is a circle, but it is a "triangle." So that a much more suitable, in fact the only correct, term for this exit is the "superficial inguinal aperture." It may also in passing be pointed out that this aperture has nothing whatever to do with the incidence of inguinal hernia, and the passing of the tip of the finger of an examining medical practitioner is indefensible. When measuring for a single truss the actual measurement taken is the right one to forward to the truss maker.

If the patient requires a double truss, it will be well to add an inch to the actual measurement, as a double truss does not give at all.

Ability to Act when Occasion for its Function Arises

No proper truss should exercise pressure which is irksome to the wearer, but it should be able to bring pressure to bear over the hernial aperture when any marked increased intra-abdominal pressure arises, such as that occurring in coughing, sneezing, and defaecating. In connexion with this property of a truss, it should be emphasized that of all types of truss the one with a metal spring passing at least three-quarters of the way round the pelvis has proved to be the most comfortable and efficient.

The curve of the spring is important, for if this is too marked it will make the pad exercise injurious pressure. The curve should be such as to cause the spring to give the pressure needed when an expulsive effort is trying to force the viscera into the sac. The tempering of the steel must be perfect if the best is to be obtained from the truss. It must be so good as to allow of the spring being opened out completely without snapping. In a single truss the end of the spring must be hammered thin—bevelled—so that it will give and adjust itself to the patient's body, and have no tendency to force its way through the leather covering at its termination. This is one of the best tests between a well-made and a poorly made instrument.

Comfort

No truss which is uncomfortable can be considered satisfactory. It will certainly not be by the wearer, and it should not be by the prescriber. But comfort with efficiency is not always easy to secure. There is the personal equation of the patient, the skill of the manufacturer, and the materials from which the truss is made. An ideal truss is one which, while holding the viscera within the abdomen, causes the patient less discomfort than does either of his boots. Or, to put it in another way, one which is merely part of his clothing.

In a truss with a metal spring and pad there are two chief causes of complaint. One is the friction and the pressure of the spring over the parts behind on the back, and at the sides below the anterior superior iliac spines. In thin subjects it is sometimes difficult to secure complete comfort at first, but it is wonderful how soon, with patience and perseverance, discomfort disappears.

The other cause of trouble is the actual pressure of the pad or pads at the site of the hernial aperture or apertures. Much of this is due to faulty construction of the pad or a wrong direction of the curve of the spring. Both can be overcome by a little knowledge of the proper manufacture of a truss. For a long while now I have been using a honeycomb rubber facing to the pad beneath the chamois leather covering. This is a sponge, consisting of a multitude of air cells, and it not only exercises a soft pressure but tends to mould itself to the body. The idea has not been patented, and is to be commended. The improper curve of the spring simply should not occur if the truss has been properly constructed. Further, comfort can be ensured by care of the skin, which has not as yet become accustomed to the unusual pressure upon it.

Close attention must be given by the wearer to keep the skin clean and dry. Ointments, vaseline, or cold cream must be rigidly forbidden, but a little friction with methylated spirit or eau de Cologne, night and morning, for the first few weeks tends to harden the skin and keep it fairly aseptic. In addition, a light powdering each morning, after the application of the spirit, with a powder

consisting of one part of boric acid, one part of zinc oxide, and two parts of fine starch powder, is helpful to keep the skin dry where the pads press.

Tact, persuasion, and sometimes a little threatening, all have to be used in dealing with patients, particularly with those who, having been careless, have allowed their hernias to get out of control. It is wonderful how a comfortable and efficient truss conscientiously worn will diminish the size of the protrusion of the hernia, so much so that sometimes a patient will consider himself cured and unwisely discontinue with the truss, and then find that the hernia recurs.

Not very infrequently the application of a truss to an easily reducible but large hernia will render a subsequent operation more simple and more sure of satisfactory results.

Durability

All the materials from which a truss is made must be good, and one made from cheap materials will wear out in a short time. Hence a good truss made by hand from the best materials cannot be a cheap article, but one for which a good price must be paid.

Well tempered steel, made as far as possible rustless, reliable leather covering and neat sewing all tend for long life of the appliance and satisfaction to the wearer. It is distressing to see the shoddy specimens sometimes sold even by respectable firms, and all practitioners should know a good truss from a bad one.

Economy in Cost

From what has been said the real economy in cost is to have, in the first instance, a well made, well fitting, and durable truss. Then to secure a second one made of the same type as soon as it is proved that the original is satisfactory, and to counsel the patient to wear them alternately week by week. In this way each will last longer, and, should one happen to go wrong, there is the other already comfortable and ready to wear whilst repair or renewal is being carried out.

In the treatment of hernias by trusses close co-operation is required among all the three parties concerned—the patient, the practitioner, and the manufacturer. Personally I am certain that the patient should not go to the manufacturer, but the practitioner should measure for and adjust the instrument himself to his patient. This implies naturally a sound knowledge of the type of truss required, of the method of measurement, of the proper manufacture, and of anatomy for adjustment. It is for this reason that it is most desirable that all students should continue to be taught well the essentials concerning the modern treatment of hernias by trusses.

[The lecture was followed by a demonstration of trusses and their application to a living man.]

THE MECHANISM OF BLACKWATER FEVER AND CERTAIN ALLIED CONDITIONS

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BLACKWATER FEVER is without doubt the most important and serious disease affecting Europeans in tropical countries, not even yellow fever can compare with it as regards mortality. It is difficult to overestimate the retarding influence of this infection on the development of our tropical possessions. Apart from the regrettable loss of men who are just beginning to render valuable services to their country, there is the depressing effect on the surviving European population in endemic areas. The fever is regarded with great dread by the latter, and is a cause of grave anxiety to medical practitioners where it exists.

The etiological theory which we now present is believed to be entirely new, but the evidence which we have obtained would seem to warrant our belief that it is correct.

DISTINCTIVE BIOLOGICAL FEATURES OF *P. FALCIPARUM*

It is to-day generally agreed that blackwater fever arises mainly in the course of prolonged infection with *Plasmodium falciparum*. As there is no evidence that the malignant tertian parasite produces a toxin which differs from that of the other malaria parasites, we must seek for the explanation of this association between blackwater fever and *P. falciparum* in some biological factor other than toxin production.

The outstanding differences between *P. falciparum* and the other malaria parasites are that the former sporulates not in the peripheral blood but in the internal organs, and that the cells containing the sporulating forms adhere to each other and to the vessel walls. These phenomena were observed in the early work on the malaria parasites, and have been constantly recognized. Marchafava and Bignami,¹ in 1894, said of malignant tertian malaria, "Malignancy coincides with an exceptionally abundant quantity of parasitic forms, a quantity much more abundant—where the cases terminate fatally—in the blood of the viscera than in the blood of the finger." Christophers and Bentley² noted that it was in infections by the malignant parasite that the organs were found to be most actively engaged in holding up the infective red cells, the very perniciousness of infections by this parasite being suggestively associated with such an action. Three observations serve to explain this tendency of the malignant tertian parasite to accumulate in the internal organs. Marchafava and Bignami¹ drew attention to the fact that corpuscles infected with malignant parasites, especially of the adult form, have lost their elasticity, and consequently resist the change of shape necessary for their passage through the capillaries, an observation which was again made by Bass.³ Next Thomson and Thomson² recorded and illustrated marked clumping of the infected red cells in culture during all stages of sporulation of *P. falciparum*, whereas no tendency to clumping occurred in cultures of *P. vivax*. The two observations so far mentioned would account for the accumulation of the sporulating forms of *P. falciparum* in the capillaries of any part of the body, but not necessarily in the internal organs. Their predilection for the internal organs was explained by Bass, who showed that they lodge in those capillaries where the current is weakest or where slight obstruction is produced by the protrusion of endothelial cells inward. The commonest and most important site of this massing of infected cells is the spleen, though the bone marrow and other organs may be similarly affected. We may allude here to the massive infections found by Clarke⁴ in the placentas of parturient women, even in cases where the peripheral blood was free from parasites, a finding which was confirmed by Blacklock and Gordon.⁵

We are convinced that the association between blackwater fever and *P. falciparum* must depend on these distinctive biological characters of this parasite, we hope also to make it clear that as a result of these very characters of the parasite the condition known clinically as blackwater fever has fundamental affinities with several other forms of haemoglobinuria and haemoglobinemia.

DEFICIENT OXYGENATION IN THE HAEMOGLOBINURIAS AND HAEMOGLOBINAEMIAS

We have selected for comparison with blackwater fever a group of haemoglobinurias and haemoglobinemias which seem at first sight to have little relationship to each other, but which on closer investigation reveal notable features in common. The group includes haemoglobinuria in pernicious anaemia complicated by venous thrombosis, haemoglobinuria in Raynaud's disease, haemoglobinemia in dogs as a result of exercise, haemoglobinuria in man from marching and myoglobinuria in horses. One feature common to all these conditions is the existence in them of a state which results in deficient oxygenation, either local or general, the manner in which this state is brought about may be considered under the various diseases.

1 *Blackwater Fever*—In an earlier paragraph we have described how the sporulating malignant tertian parasites adhere to each other and to the vessel walls, forming large agglutinated masses in the internal organs. Deficient oxygenation naturally follows, and the pre-existing malarial anaemia accentuates this local oxygen deficiency.

2 *Pernicious Anaemia Complicated by Venous Thrombosis*—Panton and others⁴ describe two cases of repeated haemoglobinuria in men who had a clinical condition and blood picture suggestive of pernicious anaemia, complicated by the presence of thrombosis of superficial veins. The existence of an oxygen want is inevitable in this combination of general anaemia and local stasis of blood, a condition which has a definite affinity with the conditions present in cases of blackwater fever.

3 *Raynaud's Disease*—Haemoglobinuria is the most remarkable complication of this condition, and occurs in a considerable number of cases. As a rule the urinary changes are only met with during the existence of local cyanosis, and the attacks are more likely to come on when the patient is up and about, when the patient is put to bed the haemoglobinuria may cease. Haemoglobinuria has also been observed. In Raynaud's disease there is local deficiency of oxygen, brought about by spasm of the arterioles.

4 *Haemoglobinuria in Dogs after Exercise*—Hasting,⁵ has described the frequent occurrence of haemoglobinuria in untrained dogs which are subjected to running exercise.

5 *Haemoglobinuria from Marching*—Stephens¹⁰ has collected the records of twenty-three cases of haemoglobinuria due to marching in otherwise normal persons. It seems legitimate to infer that this form of haemoglobinuria frequently occurs without being noted, because I myself, in examining twenty-six persons after a long march, found haemoglobinuria in no fewer than eighteen, or about 70 per cent of them.

6 *Myoglobinuria in Horses*—Stephens also refers to the myoglobinuria which occurs in horses, long stabled on rich food, when they undergo sudden exposure to cold or exertion, either factor being said to suffice. As regards the untrained dogs mentioned above, there is clearly established in them an oxygen debt. It is similarly evident from the description of the cases of haemoglobinuria due to marching that, with one possible exception, sufficient exercise was taken to result in an oxygen debt, the exceptional case was that of a boy who also had marked postural albuminuria.

We have drawn attention to the fact that the members of the group have the state of anaemia in common, a difference between them lies in the manner in which this state is brought about. Whereas in blackwater fever the malignant tertian parasite plays an obviously important part, in the other diseases very different agencies are at work producing the same result.

If we next consider the effects which arise from deficient oxygenation in the animal body, we shall observe how these effects influence the production of haemolysis in the selected group, taking blackwater as our type.

DEFICIENT OXYGENATION AND LACTIC ACID FORMATION

The Effects of Deficient Oxygenation—Recent work by Hill, Long, Lupton, Fuiusawa, and others¹¹⁻¹⁴ has resulted in a considerable advance of knowledge of carbohydrate metabolism. Carbohydrate in the form of dextrose is brought by the blood stream and stored in the muscles as glycogen; the glycogen is converted into "lactacidogen," a hexose diphosphate, which is a compound of a monosaccharide and phosphoric acid. This is a readily dissociable compound which, on muscular contraction, is broken down into phosphoric acid and sarcolactic acid, the reaction is anaerobic. When the oxygen supply is sufficient one-quarter to one-sixth of the sarcolactic acid is oxidized and some of the chemical energy thus liberated is used to resynthesize the rest of the sarcolactic acid to lactacidogen. In excessive exercise the body is incapable of immediately supplying sufficient oxygen, and the lactic acid accumulates to a maximum of 0.45 per cent in the muscles and 0.2 per cent in the peripheral blood. The lactic acid produced is neutralized only slightly by the

carboate of the plasma, the main reaction being with the sodium proteins, forming sodium lactate and an acid protein, the chief protein used for this purpose when lactic acid is liberated in the blood stream is haemoglobin. There is thus a definite acidosis in exercise, due to the presence of unionized protein. The metabolism of carbohydrate in the other tissues of the body also produces lactic acid as an intermediate stage, though possibly not by an identical mechanism.

It is very important to note that this cycle of carbohydrate transformation is a continuous one even in the normal resting state, when there is no visible evidence of muscular activity, it follows, therefore, that if for any reason there is a deficient supply of oxygen, lactic acid will accumulate. This has been demonstrated by Clausen,¹⁵ who noted a marked increase in the lactic acid content of the blood of adults with cardiac decomposition and infants with anhydramia from diarrhoea, both being conditions causing anaemia by circulatory disturbance. Macleod¹⁶ produced a great excess of lactic acid in the blood of dogs by making them breathe an atmosphere deficient in oxygen.

The normal quantity of lactic acid in the blood of the resting individual is approximately 20 mg per 100 c.c., the following table shows the effects produced by exercise and deficient oxygenation.

TABLE I.—Showing the Quantity of Lactic Acid in the Blood after Exercise and Anaemia

Author	Subject of Experiment	Condition	Lactic Acid mg. per 100 c.c.
Hill Long Lupton (1924)	Normal individuals	Severe exercise	80-100
Hill Long Lupton (1924)	Trained athlete	Severe exercise	204
Clausen (1925)	Adult (human)	Cardiac decomposition, Anhydramia	160
Clausen (1925)	Children	Anhydramia	25-150
Macleod (1921)	Dogs	Atmosphere containing only 5% of oxygen	98
Macleod (1921)	Dogs	Extreme anoxia	123

The table illustrates how deficiency of oxygen from whatever cause always produces an excess of lactic acid in the blood. In view of the fact that all the haemoglobinurias and haemoglobininaemias which we have included in our group are associated with oxygen deficiency, we are driven to the conclusion that in each of them excess of lactic acid is produced.

That some normal product of body metabolism such as lactic acid is involved in the haemolytic process of blackwater fever appears probable from the facts which have been mentioned above. The etiological resemblance between blackwater fever and the other conditions in respect to anaemia has been shown. Now in certain of these latter conditions it is assured that the cause of the haemolysis is some natural product of the animal body, this is best seen in the experiments resulting in haemoglobinuria in normal dogs and in the observations on haemoglobinuria in man caused by marching, where haemoglobinuria is induced simply by exercise. It appears, therefore, essential to investigate what haemolytic properties lactic acid possesses.

HAEMOLYTIC PROPERTIES OF LACTIC ACID

In our first experiments we used a sample of commercial lactic acid which was in stock in the laboratory, this acid proved haemolytic up to 1 in 1,000, using a 10 per cent cell suspension of normal human blood which had been defibrinated, the sodium and ammonium salts prepared from the acid proved non-haemolytic. We did not perform any animal experiments with these substances as the racemic form does not occur in the animal body. In our next series of experiments with lactic acid we used a sarcolactic acid which we ourselves prepared according to a textbook technique, this substance was discarded after several months' experimentation *in vitro* and *in vivo*, as it was then found that the presence of impurities in the acid

made the results of our experiments unreliable. We therefore obtained from Dr Martindale a supply, as pure as possible, of sodium and ammonium dextro-lactate and also of dextro-lactic acid itself. The sodium and ammonium salts proved non-haemolytic, in any concentration possible in the human body, to human red cells *in vitro*. The acid proved highly haemolytic to suspensions of thrice-washed red human cells in saline solution—for example, complete haemolysis was obtained in a dilution of 1 in 600 and slight haemolysis in a dilution of 1 in 1,200, when a 10 per cent suspension of cells was used. The use of suspensions of washed cells, although of value in demonstrating the presence of a haemolytic agent, is somewhat artificial in that it does not allow for the protective action of the plasma. We therefore tested the acid on blood approximating as nearly as possible to its normal condition, as in the following experiment.

Five cubic centimetres of blood were withdrawn from the vein of a healthy European into 0.5 c.c. of 1 per cent solution of sodium citrate in normal saline. A series of tubes was then put up each containing 0.8 c.c. of this blood and 0.2 c.c. of a dilution of the acid. Table II shows the result of the experiment after three hours incubation at 37°C.

TABLE II—Showing the Haemolytic Effect of Sarcocactic Acid on Human Blood

0.2 c.c. of Lactic acid Strength	Citrated human blood	Final dilution of acid.	Haemo.ysis.
1 in 40	0.8 c.c.	1 in 200	++
1 in 80	0.8 c.c.	1 in 400	+
1 in 120	0.8 c.c.	1 in 600	0
1 in 160	0.8 c.c.	1 in 800	0
1 in 200	0.8 c.c.	1 in 1000	0
Saline control	0.8 c.c.	—	0

From the *in vitro* experiments it appeared probable that if a concentration of 1 in 400 of sarcocactic acid could be brought about in the blood of an animal haemolysis would result. Laemmous quantities of sarcocactic acid are produced in the animal body by exertion, but it is extremely difficult to approach such quantities by means of injection. The difficulty is that if strong solutions are injected there is a risk of killing the animal, if, on the other hand, dilute solutions are used, the bulk of the injection is so great that the process takes a long time to complete and the necessary haemolytic concentration is not attained. Table III shows the results of intravenous injections of various amounts and strengths of lactic acid, we have omitted three rabbits, two of which died immediately after intravenous injections of very strong solutions, while the other had haemoglobinuria after two injections, of which an uncertain amount was introduced into the vein, the rest passing subcutaneously. In none of the animals included in the table was any serious after-effect noted.

TABLE III—Showing the Results of Intravenous Injection of Sarcocactic Acid

Animal used	Strength of Sarcocactic Acid.	Total volume injected.	Result.
Rabbit	5%	8.0 c.c.	Haemoglobinuria
Rabbit	4%	20.0 c.c.	Haemoglobinuria
Rabbit	3%	20.0 c.c.	Haemoglobinaemia
Dog	2%	26.5 c.c.	Nil
Rabbit	2%	20.0 c.c.	Slight haemoglobinaemia
Rabbit	2%	20.0 c.c.	Nil
Rabbit	2%	100.0 c.c.	Haemoglobinaemia
Rabbit	2%	9.0 c.c.	Haemoglobinaemia
Rabbit	1%	10.0 c.c.	Nil

In those cases where haemoglobinaemia alone resulted the hands of oxyhaemoglobin were found on spectroscopic examination. In the two rabbits in which haemoglobinuria developed the urine was alkaline, dark reddish-brown in colour, and contained a dark granular deposit, bands of oxyhaemoglobin were present. It will be observed in Table III that the injection of 100 c.c. of 2 per cent strength resulted in haemoglobinaemia only, whereas the injection of 20 c.c. of 4 per cent strength produced haemoglobinuria. We have evidence that the haemolysis in this last animal was not produced to any extent by the solution acting in its original strength. The evidence is derived from *in vitro* experiments which showed that this strength of acid, acting on different volumes of blood, produced different results according to the final concentration. When this was greater than 1 per cent oxyhaemoglobin was not formed, while when haemolysis ensued at weaker

concentrations oxyhaemoglobin was liberated. As from *in vitro* experiments the haemolytic titre was 1 in 400, or 0.25 per cent, it appears probable that the concentration of acid which was responsible for the haemolysis in the rabbits lay between 0.25 per cent and 1 per cent. Thus sarcocactic acid is haemolytic *in vitro*, and *in vivo* produces haemoglobinaemia and haemoglobinuria when injected in concentrations well borne by animals.

To summarize our results so far, we have shown that there exists between blackwater fever and certain allied conditions the common factor of deficient oxygenation. We have illustrated how this deficient oxygenation gives rise to the production of lactic acid, and finally we have shown that lactic acid is haemolytic *in vitro* and *in vivo* in doses well borne by the animals.

SUGGESTED CAUSE OF THE HAEMOLYSIS IN BLACKWATER FEVER

The foregoing facts make it probable that lactic acid is the haemolytic agent responsible for the production of blackwater fever as well as for certain allied haemoglobinurias. The anaemia produced by chronic malignant malaria, the stasis in the circulation of such an organ as the spleen brought about by the agglutination of parasitized red cells, and the frequently observed venous thrombosis result in a considerable degree of local anoxaemia and lactic acid accumulation. Very relevant in this connexion is the haemolysis observed by Pansky¹⁷ in the spleens of normal dogs three hours after ligation of the splenic vein.

If we now find that the main exciting causes of blackwater fever are such as will produce contraction of the spleen, already enlarged in volume and choked with parasitized red cells, we may conclude that the circulation in the spleen will be thereby still further impeded and that the local anoxaemia will be increased.

LACTIC ACID IN RELATION TO THE EXCITING CAUSES OF BLACKWATER FEVER

The best record which we have obtained of the exciting causes in a long series of blackwater fever cases occurs in the medical and sanitary reports of the Protectorate of Uganda for the years 1919 to 1924. In the total of 377 cases of blackwater fever, no fewer than 214, or 55 per cent, were precipitated by either exertion or chill or by both combined. Now Bancroft¹⁸ has shown that the spleen contracts on exercise, even mild exercise reducing the size of the healthy spleen to one-half, while severe exercise causes it to contract to one-sixth of its normal volume. Secretion of adrenaline also causes it to contract, and for this reason we have a contraction in chill comparable to that which results from exercise. Hoskins and Lee Gunning¹⁹ showed that adrenaline causes a brief dilatation followed by contraction of the spleen, and the work of Cramer²⁰ proved that exposure to cold is a powerful stimulus to the adrenal gland. The commonest exciting causes of blackwater fever are therefore exertion and chill, and each of these produces marked contraction of the spleen. Quinine is another exciting cause, and, according to the Uganda publication referred to above, it, either alone or in combination with some other factor, precipitated the disease in 41, or 13 per cent, of the cases. In many of the quinine attacks it is not easy to exclude some other exciting cause, such as exertion or chill, these additional causes are, however, excluded in certain cases. Thomson²¹ describes those which, whilst in hospital repeatedly developed blackwater fever after quinine. Here the quinine concentration obtained in the blood could never be sufficient to exert a direct haemolytic action, the maximum concentration of quinine in the blood found by Ramsden, Lipkin, and Whitley²² after oral administration of large doses was 1 in 60,000 and *in vitro* very much greater concentrations than this have absolutely no haemolytic effect. What is evident, however, is that the drug, though non-haemolytic, would still exert its physiological action, demonstrated by Roth²³ of causing active contraction of the spleen. The chief exciting causes of this fever—namely, exertion, chill, and quinine—have, therefore, this action in common, that they cause contraction of the spleen. The contraction of the spleen on

agglutinated masses of parasitized red cells accentuates, as we have said, the local anaemia, further production of lactic acid necessarily follows, especially on exertion, and finally the local concentration reaches such a level that haemolysis occurs. Leakage of haemoglobin into the portal circulation results as soon as haemolysis commences, and becomes pronounced when the circulation through the spleen is re-established.

We have described the conditions leading up to the haemoglobinuria of blackwater fever as occurring in the spleen, and probably in the majority of attacks this is correct. As evidence in favour of this being the case we may quote the following observations. Christophers and Bentley⁴ noted that in all their twenty-seven cases of blackwater fever splenic enlargement was present, Barratt and Yorke⁵ found that in their sixteen cases whose record of the size of the spleen was kept, enlargement was present in fifteen, one case having a barely recognizable degree of haemoglobinuria without appreciable splenic enlargement, Thomson⁶ observed marked enlargement of the spleen in all the eight cases which were examined *post mortem*. Barratt and Yorke further make the following significant statement: "The illness was severe in those attacks in which the enlargement of the spleen was greatest, in those in which enlargement was slight or not appreciable the attack may be described as mild, except in one case." The patient in this case died seven days after haemoglobinuria had ceased. That a similar process may go on in other organs is, however, probable, we have already mentioned the massive infection of the placenta in endemic areas where *P. falciparum* occurs. During labour the contractions of the uterus acting on vessels choked with sporulating parasites increase the existing local anaemia and prevent the oxidation of the lactic acid formed. For this reason haemoglobinuria during or as a result of labour might be expected to occur more readily in European women in an endemic area who have had chronic infection with malignant malarial parasites. In such cases where the taking of quinine has been very irregular or avoided entirely, the parasites multiply freely, the anaemia becomes progressively greater, and the spleen enlarges. Labour itself, with the excessive muscular contraction and exertion, acts as the exciting cause, in these cases a certain proportion of the haemoglobin to be disposed of is probably liberated in the uterine vessels. Thomson⁷ gives records which are of great interest in this connexion, he notes that of the nine cases of blackwater observed by him in which no quinine had been taken, no fewer than five were precipitated by childbirth.

CLINICAL CONSIDERATIONS IN BLACKWATER FEVER

1 *Typical Blackwater Fever*—The mechanism of this has been described above.

2 *Quinine Haemoglobinuria*—This is a condition in which a dose of quinine, whatever the amount, will with some certainty induce a transient attack of haemoglobinuria in a susceptible person, there are innumerable records of this in the literature.

3 *Transient Haemoglobinuria following a Chill or Exertion*—Parsons and Forbes⁸ give their observations on forty-six cases of blackwater fever, they noted that the majority of cases presented a very transient haemoglobinuria following exposure to cold or fatigue. These conditions of transient haemoglobinuria due to quinine, chill, or exertion could all be produced by the contraction of a spleen in which haemolysis had been slowly taking place, with the consequent expulsion of the contained haemoglobin into the circulation, from which it is quickly eliminated.

We may distinguish from typical blackwater fever, in mechanism if not in results, those occasional cases in which numerous parasites are present in the blood throughout the attacks. The continued presence of large numbers of parasites in itself suggests a mechanism somewhat different from that which occurs normally in blackwater fever. The most probable explanation of the haemoglobinuria in such cases is that it is largely due to direct destruction of infected red cells by the parasite during schizogony, a condition comparable rather with pro-

plasmiosis of dogs than blackwater fever in man. Such a form of haemoglobinuria might occur equally well in infection with other forms of malarial parasite.

SOME PROBLEMS IN CONNECTION WITH BLACKWATER FEVER

1 *The Length of Residence*—Much difficulty has been experienced in giving an explanation to account for the period which elapses before the first attack of blackwater fever comes on, and also for the relative immunity which seems to develop after some years' residence in the endemic areas. Table IV is an extract from a table given by Stephens⁹ showing that the majority of attacks occur after six months' residence and before the end of five years' residence.

TABLE IV—Showing the Effect of Length of Residence on the Onset of Blackwater Fever

Length of Residence	No. of Cases	Per cent.
Six months	76	7.2
One year	224	21.3
Two years	346	33.0
Three years	261	24.9
Four years	102	9.7
Five years	42	4.0
Later	75	7.1

As regards the relative freedom from attack in the first six months we believe that the explanation is to be found in the length of time which is required before the malarial parasite usually produces a marked degree of anaemia, and also in the length of time that it takes for the spleen to enlarge. If our theory of the common mechanism of blackwater fever is correct, we should not anticipate that the contraction of a small spleen would result in the expulsion of sufficient free haemoglobin to cause haemoglobinuria. During the pre-blackwater fever period, however, it is probable that many sublethal attacks occur. As regards the relative freedom in after years, it may be explained on the ground that after several years of chronic malaria the spleen becomes fibrosed, and, in this state, is less capable of contraction, this, together with the acquired tolerance to the malarial parasite, would explain the relative immunity of old residents in an endemic area.

2 *The Danger of Moving Blackwater Fever Cases*—It has long been recognized that there is a grave risk in moving a case of blackwater fever even with all possible precautions, and even for short journeys, no satisfactory reason for this has been offered. It appears to us that an explanation is available as a result of our observations recorded above. The blackwater fever patient is extremely anaemic, and has already had a sufficient degree of anaemia to result in haemolysis, he will, especially if he is suffering from pain, make the greatest possible efforts to avoid the discomfort to which he is subjected in transit, and in so doing he will contract his muscles continually, thus producing lactic acid in amounts which cannot be properly oxidized. It is to this lactic acid production that we attribute the relapses which occur so frequently when blackwater fever patients are moved.

3 *Jaundice in Blackwater Fever*—The occurrence of early and often intense jaundice of a degree such as does not appear in paroxysmal haemoglobinuria, nor after the injection of even large quantities of haemoglobin into animals, can be explained by the site of the injection, or of the haemolysis. In blackwater fever the haemoglobin is usually delivered directly into the portal system, and thus reaches the liver in a concentrated form, whereas in paroxysmal and experimental haemoglobinuria the haemoglobin is liberated in the peripheral blood and is considerably diluted before reaching the liver. Pearce and others¹⁰ have shown experimentally that the injection of haemoglobin into the portal system produces less frequent and less marked haemoglobinuria coupled with more frequent and intense jaundice than a similar injection into a systemic vein, the site of haemolysis is therefore the important factor in the production of jaundice in blackwater fever.

SUMMARY

1 Points of resemblance between blackwater fever and certain other haemoglobinurias and haemoglobinaemias are indicated.

2 These points include the presence of an anaemic state, and a resultant increase in sarcolactic acid either locally or generally

3 We produce evidence from experiments, both *in vitro* and *in vivo*, that sarcolactic acid is haemolytic—in the former case to whole human blood, and in the latter to whole animal blood

4 Intravenous injections of sarcolactic acid into rabbits have produced haemoglobinuria and haemoglobinuria, followed by recovery of the animals

5 On the evidence brought forward by us, we conclude that sarcolactic acid is the causal agent in the production of the haemolysis in blackwater fever and these haemoglobinurias

6 The etiology of various types, symptoms, and complications of blackwater fever is discussed in the light of this mechanism

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THE GUILLOTINE AND ETHYL CHLORIDE

TEAM WORK FOR THE REMOVAL OF TONSILS
AND ADENOIDS

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The following observations and description of methods for the removal of the tonsils (with the guillotine) and of adenoids (with the curette) are based on experience gathered from 13 500 cases operated on at Queen Mary's Hospital, Stratford.

The ages of the majority of the patients ranged from 1 to 15 years. The operations were performed by special team work in sessions of twenty-five to thirty patients, and the method has permitted of thirty patients being operated on in one hour. The efficiency of this team work necessitated two operating tables and a movable instrument table, four sets of instruments at least, a sister, a nurse, and a porter who is experienced in carrying in the theatre, one nurse in the waiting room, two nurses in the recovery room for the first twenty cases, with an additional nurse for every ten extra cases or part of ten.

Ethyl chloride was used in the entire series of cases, except for an occasional open ether for instructional purposes in operating. There has been one death. The patient, a girl of 19, was acutely poisoned by the ethyl chloride at the commencement of induction.

For descriptive purposes our observations will be made under the headings Pre-operative, Operative, and Post-operative.

PRE-OPERATIVE CONSIDERATIONS

Cases for operation are divisible into those with definite indications and those with indefinite indications.

Cases with Definite Indications—These are the ordinary textbook cases discharging ears, due to tympanic infection only, not complicated by attic disease, chronic mastoiditis, granular mucous membrane in the middle ear, aural polypus, enlarged tonsillar gland which is found at the anterior border of the sterno-mastoid about half an inch below a line drawn backwards along the lower border of the jaw, attacks of earache, deafness, frequent colds, snoring, and mouth breathing. The adenoid facies is becoming a rarity, and rightly, because its development signifies that the case has waited too long and changes have occurred in the shape of the palate, which becomes raised in the form of a high arch, thus causing deformity of the nasal septum above and crowding of the teeth below. Even in infants up to 6 months of age an indication that the adenoid tissue in the nasopharynx is excessive in amount is given by the state of the hair at the back of the head. The anaemia produced causes restlessness during sleep, as a result the hair is often worn off the occipital region, leaving a thin patch.

Cases with Indefinite Indications—Many children are sent up for operation because they are not sufficiently bright, or they are not putting on weight, or they are too sallow and hollow-eyed.

Acute Tonsillitis—In order to increase the percentage of tonsils completely enucleated by guillotine it is advisable not to operate within one month of an acute attack of tonsillitis, and preferably not for six to eight weeks. The amount of induration at the base of the tonsils is such as to make this region so ligneous that great difficulty arises in dislocating a tonsil from its bed, a process essential for its complete removal.

Nasal Diphtheria—When examining large numbers of children nasal diphtheria is occasionally observed, usually in cases least expected. One case seen with a typical membranous rhinitis was brought up because the boy had been hit on the nose with a football the week before. One point in aid of diagnosis of this disease is that with few exceptions a florid red excoriated area of skin can be seen on the upper lip close to the columella of the septum. A typical membranous rhinitis is less common than an acute catarrhal rhinitis plus this excoriated area.

Patients selected for operation are given a list of instructions to follow, preparatory to operation and on the morning of operation the temperature is taken, the urine examined, and the chest auscultated. The urines are tested for albumin and sugar in groups of five, individual testing being carried out where any group shows a positive. About 6 or 7 per cent of children show some transitory albuminuria, which may possibly be due to the preparatory starvation.

OPERATIVE TECHNIQUE

The Anaesthetic

As already stated, ethyl chloride was used except in a very few cases. Throughout the whole series the same inhaler was used, and the same brand of anaesthetic as supplied by Messrs Duncan Flockhart. The one thing materially altered after the first few hundred cases was the method of administration.

The inhaler employed is called the 'Queen's'. It was first used at the Queen's Hospital for Children, Hackney Road. It consists of a rubber bag an L-shaped junction and a facepiece. A strong red rubber bag is preferred for its durability and economy. The L-shaped junction has a movable device which permits of an easy regulation of air and anaesthetic and is situated on the upper surface of the horizontal limb of the junction. Close to it but nearer the bag is the mouth of a tube which carries the ethyl chloride into the rubber bag where it is soaked up by a swab of gauze held in forceps at the end of the tube. This soaked gauze is prevented from damaging the rubber bag by a wire cage. The

mouth of the tube is closed by a thumbscrew with a coarse thread.

The mask is fixed to the vertical hub of the junction. A celluloid mask with a pneumatic rubber facemask is the best but the latter should be solutioned on to the celluloid. This is important because should the facemask become slack the air which will enter between it and the celluloid will materially affect the anaesthesia. When the gag is in position an can best be excluded by leaving the pneumatic cushion very slack or empty. A series of three sizes of masks is necessary to range from the infant to the adult.

The Doyen type of gag with a good ratchet which can be easily released is found the most satisfactory. A quick release is necessary, so that the release of the ratchet and removal of the gag can be done almost simultaneously at the end of the operation. The gag which has been found most suitable although still rather weak in its spring is the children's size Doyen as supplied by Messrs. Mayer and Phelps. This gag has such good jaw range that it can be used as well for adults as for children.

The old airless method of induction, which was employed in the first few hundred cases, where the air was not once cut off and the induction concluded with stertor and dilated pupils, was soon superseded by a method with improved oxygenation, producing a better anaesthesia with no stertor, and where dilated pupils were looked upon as a danger point. With the old method artificial respiration and administration of oxygen were found necessary in about 10 per cent of cases, whereas with the later method recovery is practically devoid of anxiety. With this more advanced method the quantity of anaesthetic agent required becomes greater.

Commencing with a patient from 1 to 3 years of age an initial dose of 10 c.c.m. may be squirted down the tube. It is often found that this initial dose is inadequate to produce anaesthesia in a satisfactory time owing to the fact that a great deal of the anaesthetic is absorbed by the gauze and some by the rubber, and also that the bag and inhaler have not become sufficiently heated by the exhalations of the patient and the manipulation by the anaesthetist. A further 5 c.c.m. may be given for each child ranging from 3 to 7 years for the following eight to ten patients. After this the dose can be reduced to 4 c.c.m. or even 3 c.c.m., until the ages of the patients begin to rise again to 11, 12, and 13, when a return to 5 c.c.m. will be necessary and even again to 10 c.c.m. if the age increases to 16. So it is obvious that in a session of thirty children they should be brought in for operation in regular order from the youngest to the oldest.

The patient is placed on his back and the gag is inserted between the left lateral incisor teeth. This position gives the best scope to the surgeon. The mask is slipped over the face so as to exclude entry of air beneath it; the air regulator of the inhaler is steadily closed, but not entirely, a slit the thickness of a visiting card being always left.

The two most important items to watch now are *breathing* and *colour*. The breathing may at first be rapid and irregular, or the breath temporarily held, but this alters with advancement towards induction. The colour will at once become heightened, and should remain so throughout the anaesthesia.

When the breathing has become regular and deep, the jaw relaxed (ascertained by opening the gag) and no palpebral reflex is observed when blowing on the eyelids, then the patient is ready for operation. In a very small proportion of cases the patient is ready for operation although the relaxation of the jaw is not complete and although the breathing is regular and deep and there is no palpebral reflex. In such cases the anaesthetic should not be pushed, or an overdose will result, and force will have to be used, either by the anaesthetist bringing his right hand into action to assist his left hand or, preferably, by obtaining the assistance of the surgeon to open the jaw.

Difficulty in opening the jaw is experienced when the patient's under lip is misplaced between the gag and the lower teeth. This is due to the anaesthetist failing to hold the patient's lower teeth tightly against the gag during induction. Should this happen it is as well quickly to release the gag and free the lip, as much to save the lip from injury as to anticipate a difficulty in respiration which occasionally occurs, attributable to this cause.

With the signs of completed induction as stated above the pupils will usually be found contracted, or if with a slight tendency to dilatation they will contract rapidly to light. This stage of the proceedings is most important, the most urgent necessity is for the patient immediately to begin eliminating the anaesthetic by expiration, and continue to do so. Anything that impedes this elimination before the return of the reflexes means that the anaesthesia will get gradually deeper instead of lighter. Therefore it is important to realize the various ways in which the respirations can be impeded, in their order of occurrence.

The first respiratory difficulty may show itself at the very commencement of induction in cases where the tonsils are

meeting in the mid line. In these cases induction has to be convoked, and because elimination of the anaesthetic is obstructed a little anaesthetic will produce induction.

The next obstruction arises when the patient voluntarily holds the breath and then takes a sudden deep breath, for then the vapour is concentrated too suddenly. The effect is the same. A laryngeal spasm is set up, causing coughing where the breath is still held, and again the anaesthetic is prevented from being eliminated, so the patient will go quite deeply under with a small quantity of anaesthetic.

The third difficulty occurs in some patients when the jaw is extended by the gag. If this happens there should be time to remove the tonsils and turn the patient on the right side, but then the gag should at once be released until colour is again good and respirations steady, when the gag can be again opened and the adenoids removed. Each part of the operation will take from eight to ten seconds, which is the limit of time that the patient should be left with obstructed respiration. With a well timed anaesthetic the patient should cry, cough, or struggle on removal of the gag.

Blood will be the fourth obstruction, and even at the end of the operation, although elimination of the anaesthetic has occurred satisfactorily the whole time, the patient will often go quite deeply under again although on the verge of the return of reflexes. This is an obstruction found mostly in young children, and is easily remedied by holding the child's legs well up to effect good gravity drainage and stimulating with a douche of cold water. Sometimes a swab on a holder may be found necessary to remove clots.

Occasionally a large flabby tongue will cause obstruction. No obstruction has ever been found due to a mass of adenoid tissue finding its way into the larynx.

Two points have emerged from observations during this series of cases. (1) When trouble occurs with ethyl chloride anaesthesia it shows itself first in the respiration. (2) In nine cases out of ten it is due not to the toxic effect of the ethyl chloride or to an initial overdose, but to some mechanical factor preventing elimination. Patients should not be removed from the table until the colour is good, and crying, coughing, or struggling has taken place. Salivation is quite rare, but undoubtedly the secretion set up by acute catarrhal conditions will be greatly increased, and if excessive will cause respiratory obstruction. This is why operation is well postponed, especially when young children are affected with acute catarrhal conditions, until the symptoms have subsided.

From the point of view of team work, and time, it is interesting to note that induction, timed over a series of cases, takes from thirty-five to forty seconds, and that this, added to a similar average period for the operation of from fifteen to twenty seconds, gives an approximate inclusive time of about sixty seconds. Another sixty seconds should suffice for the patient to be brought in and laid on the table, including also the return of reflexes and removal to the recovery room, showing the possibility of operating at the rate of thirty patients to the hour.

For such efficient team work it is necessary for the anaesthetist to assist the surgeon in his operating. To do this the anaesthetist's first action is to slip the inhaler into his lap. Then, with the patient on the back, to assist in the removal of the tonsils he should hold the head firmly between his two hands with the tips of the left fingers steadying the gag, the head being held at the most convenient angle for the surgeon.

As the surgeon is evulsing the tonsil the head can be turned either to the right or left to assist this manoeuvre. The patient being turned on the right side, his head is supported in the palm of the anaesthetist's right hand, leaving the occiput free for the left hand of the surgeon. The anaesthetist's left hand steadies the gag and is ready to release and remove it at the termination of the operation, when the head of the patient is handed over to the nurse. A point in technique at this stage which saves considerable time is to ensure that the nurse who is holding the kidney receiver against the patient's cheek, when the latter is on the side, shall press the receiver firmly against the cheek just above the anaesthetist's thumb. By doing this and receiving the patient's head promptly, the anaesthetist's hands are kept free from blood, thus avoiding the necessity of washing between each case.

Although the foregoing description with its detailed observations would lead some to consider that ethyl chloride was a difficult and dangerous anaesthetic to administer, it

must be remembered that whenever a detailed account of any act is written it invariably seems to make that act appear more complicated than it really is. The evidence over this large number of 13,500 cases shows that ethyl chloride may be looked upon as a safe agent for anaesthesia where the surgeon and anaesthetist work in unison. Also, where numbers of patients have to be dealt with and a quick recovery is necessary and the patients are to be sent home at the earliest possible time, ethyl chloride is certainly the anaesthetic to meet the circumstances, although it is more suitable for children up to 16 years than for adults. It is found that with the latter, although induction is quite easy, recovery is accompanied by a great deal of mental agitation and struggling. Children are also much brighter and fitter on the day after operation when ethyl chloride has been given than when ether has been administered. On the other hand, ethyl chloride is not the best anaesthetic for instruction in operating.

The Operation

It is essential that a good source either of daylight or artificial light is so placed and so extensive in origin that the surgeon can work between the patient and the source of light without a shadow being cast. A table two or three inches too high is sufficient to interfere with the exactness of the most experienced surgeon.

Removal of Tonsils.—The guillotines used are Heath's reinforced Mackenzie pattern (blunted) in three sizes, and the removal is done by a continuous movement which resolves itself into

- (a) Lift up the tonsil with the guillotine
- (b) Push out the tonsil with the guillotine
- (c) Push in the tonsil with the thumb or index finger of the opposing hand
- (d) Shut home the blade with the thumb as much as possible
- (e) Completely shut home the blade by adding the pressure of the other thumb
- (f) Roll the guillotine outwards

Bigelow epitomized the movements necessary for the reduction of a dislocated hip thus "Lift up, bend out, roll out," and his words might be paraphrased for the technique of tonsillectomy as follows "Lift up, push out, push in, roll out." An unusually fibrous tonsil may be helped from its bed during the last rolling movement by running the index finger of the free hand round the back of the guillotine and rapidly dissecting with the finger. This is better than using scissors at this stage, as scissors usually cut away some of the posterior pillar which has been twisted forwards.

Removal of Adenoids.—This is very often done imperfectly. The instruments preferred are Jenkins's curette for the main mass, Beckmann's baby unguarded for the lateral pads, Seymour-Jones's tag forceps. Curettes should be very sharp and of two sizes—a large guarded curette for the removal of the main central mass, and a small unguarded curette which can feel its way into the lateral recesses and remove all the remaining adenoid tissue with one cut on each side. With the former a steady strong pressure is exercised, with the latter a much gentler force. By this means a complete removal is invariably effected and adenoid tags seldom left. After a time the surgeon can become expert in palpating with a curette, so that the amount of adenoid tissue removed can be estimated before the curette leaves the post-nasal space, and any deficiency below this be sought for in the form of a tag. To such an extent is this the case that the anaesthetist, who is holding the patient's head, can by transmitted impulse also feel what is happening in the post-nasal space, and be ready to register surprise when the "bag" falls below his estimate.

POST-OPERATIVE CARE

On completion of the operation, should the patient show no return of consciousness, as evinced by crying, coughing, opening of the eyes, or struggling, a stimulus is useful in the form of iced water, which is allowed to splash on to the face from the height of a foot or so. While this is being done the nurse, who is supporting the patient's head, should close the left auditory meatus with a finger.

Method of Carrying and Holding Patient

The porter plays a most important part in the technique of the team work, not only by holding and turning the patient, but also by removing the patient to the recovery room in such a way that all risk of respiratory obstruction from blood clot is reduced to a minimum. These manoeuvres require rather careful studying. During induction the patient's wrists are held lightly by the side of the hips, and this is continued until the completion of the removal of the tonsils (Fig 1). During

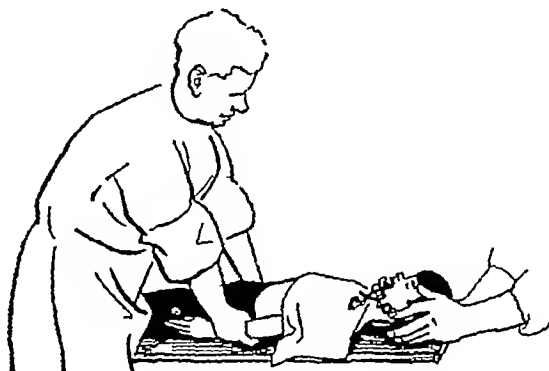


FIG 1

removal of adenoids, the patient having been turned on to the right side, the porter still continues to hold the patient's right wrist with his left hand, so that his left arm is encircling the patient's hips and his left hand is under the patient's right buttock. In his free hand the porter holds a towel in readiness for the removal from the table (Fig 2). Passing his right hand

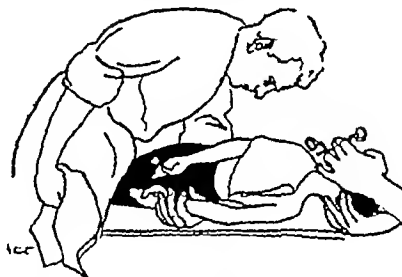


FIG 2

with the towel under the patient's head to the side of the mouth, and raising the body with the left arm encircling the hips he carries the patient into the recovery room with the buttocks tucked well up into the porter's left axilla and the head resting face downward in the porter's right hand at a much lower level than the hips (Fig 3).

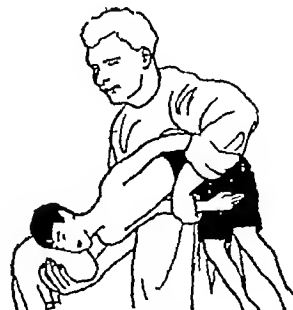


FIG 3.

After recovery is complete the patient is allowed to take the position of election, some lying down, others sitting up. Most children vomit some time after recovery, but this is almost always caused by the blood swallowed. Children can be sent home three hours after operation, except in those cases where the pulse is found to be poor, when it is safer to wait a little longer, or even to admit for the night where possible, or, if impossible, to remove home with

special care. It may be mentioned that a feeble pulse after recovery is more often found in patients of feeble or depleted physique, and would seem to be due more to this than to operation shock or effects of the anaesthetic.

Haemorrhage, Immediate and Late

If bleeding is considered to be brisker than usual it is a matter of experience that in the large majority of cases it will cease rapidly if nothing is done. It is rarely necessary to hold a piece of gauze in the tonsillar bed, but this manoeuvre will control those cases which do not cease.

With regard to late haemorrhage, the source of the bleeding must be looked for. Generally it is coming from the post-nasal space, and frequency of occurrence varies inversely with the sharpness of the adenoid curette, just as the frequency of tonsillar haemorrhage varies inversely with the bluntness of the guillotine. The treatment is to spray the post-nasal space with cold hydrogen peroxide (vols 10) through the nose with an atomizer. If this fails, run the end of the index finger round the post-nasal space either to dislodge clots, which may be holding a vessel open, or to remove a half-detached tag. If the bleeding is from a tonsillar bed, apply pressure by means of a pad of gauze on a holder. Press gently at first, and increase the pressure gradually as the pharynx becomes used to the presence of a foreign body. If this fails, hydrogen peroxide (vols 10) on gauze can be tried. Failing this, oil of turpentine can be used on gauze, combined with horse serum or haemostatic serum, intramuscularly. As a last resort, which in this series of cases has had to be used on one occasion only, a general anaesthetic must be administered and the bleeding point ligatured.

Points in After-treatment

(1) It is important to encourage the patient to eat and drink on the day following operation if possible. The throat is cleaned up by the muscular contractions involved thereby far more quickly than by any other method.

(2) It is very important to keep the bowels open.

(3) A shawl fastened around the head, which at the same time keeps the neck warm, is very comforting, especially when the glands of the neck are painful or caruncle develops.

(4) Enaechie is divisible into (a) that immediately following operation, and (b) that occurring after a lapse of twenty-four hours. The former is due to some reflex nerve pain and the latter to infection. For both warmth is essential, and for the latter the further appropriate treatment.

A NOTE ON ECLAMPSIA

WITH REPORT OF A COMPLETE POST-MORTEM EXAMINATION

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DURING the year 1926-27 there were twelve cases of eclampsia in the Rotunda Hospital, with two deaths. In addition, there were 381 cases of albuminuria without death. Details of these are given in the annual report. We stated in this report that it is difficult to compare statistics of the present with those of the past when antenatal care was not customary, for we believe that many severe examples of present-day eclampsia would have been true eclampsies in the past. From March, 1927, until April, 1928, there was no eclamptic death in the hospital, and we hoped that we had finished with mortality. This was not to be, and the full notes of a fatal case are appended. The cases which we encounter nowadays are of marked severity. One of the two deaths in our last report occurred three and a half days after the woman had recovered from eclampsia, and the eclamptic toxin could not be held altogether responsible. In twenty-two cases since November, 1926, there were altogether three deaths—that is 13.6 per cent., a percentage on which, with our treatment, it is possible to improve. If a woman has had

a fit and albumin is present she is included in the eclampsia statistics.

There are several features of interest in the fatal case under review, the most marked being that the *post mortem* examination showed how impossible it was to achieve a successful result.

Case History

A primipara aged 24 was delivered spontaneously of a live child two hours after admission to the hospital. She had never attended the antenatal department and there was no history of previous illness. Routine examination of the urine revealed the presence of solid albumin. There was slight oedema. She vomited house mixture. The routine eclampsia treatment was given. Glucose was taken by the mouth. The result of colon lavage was never satisfactory (and a good result usually means a good prognosis). The first fit occurred six and a half hours after delivery, and there were eight fits altogether. There was a good deal of facial twitching. Three and a half hours before she died respirations ceased, the pulse continued comparatively good in tone and volume. In spite of continued efforts at artificial respiration (chiefly mouth-to-mouth) for three and a half hours she died. The other usual restorative measures—for example oxygen, lobeline, etc.—were also resorted to.

We have never seen a case quite like this, we have often succeeded in resuscitating eclamptics apparently dead by clearing out the mucus from the throat, artificial respiration, oxygen, etc., but our efforts here were futile.

We were fortunate in being able to obtain a complete *post-mortem* examination, the result of which was as follows.

Findings at Necropsy

The body was well nourished and fully developed, no marked oedema was present. When the abdomen was opened the uterus presented the usual post partum appearance, it was normal in size, shape and position. The adnexa were normal.

Liver—The liver was enlarged and weighed 1.878 kilograms (normal 1.2 to 1.4 kg). Extensive subcapsular haemorrhages were most marked on the superior surface of the right lobe, and smaller areas were scattered all over the entire surface. On section macroscopically the areas of haemorrhage were seen to be sprinkled evenly through the organ giving an appearance of advanced nutmeg liver; the remaining liver tissue was of a pale buff colour. Microscopically the areas of haemorrhage were seen to be mainly in the periportal region of the liver lobule. In many lobules there was marked fatty degeneration of the liver cells in this region; there was also some haemorrhage in the centre of some of the lobules. The liver cells generally showed cloudy swelling, and in many of them the nuclei were undergoing karyolysis. Here and there through the section were seen vascular areas, probably haemangiomas. According to McCallum the poison of eclampsia destroys the cells of the liver lobule nearest the portal vein, and the scattered areas of haemorrhage correspond with the areas of necrosis around the periportal region. This agrees with our findings in this case. According to Schmorl the liver necrosis is due to syncytial masses swept from the placenta into the liver veins, but we have not found any evidence of syncytial tissue in our sections of the liver.

Gall bladder—Bile-stained, nothing abnormal.

Kidneys—Weighed approximately 112 grams each; they were slightly enlarged, but the relationship of cortex to medulla appeared normal. The capsule stripped readily off both. The surface was covered with small subcapsular haemorrhages giving an appearance resembling flea bitten kidney. Microscopically, there was much cloudy swelling and fatty degeneration of the renal epithelium; the vasa recta were congested, and there were some extravasations of blood in their vicinity. The glomeruli presented no marked abnormality, except that in some places there was seen a wide separation of Bowman's capsule. There was no evidence of haemorrhage in this region according to some observers the primary renal lesion is a degeneration of the walls of the glomerular capillaries but this was not manifest here (McCallum merely mentions that necrosis of the renal epithelium is sometimes found in eclampsia).

The ureters presented no marked abnormality to the naked eye. The bladder was distended and thin walled; it contained approximately five ounces of bloody urine.

The spleen was normal.

Stomach—Normal in position and shape. There was an extensive subperitoneal haemorrhage on the anterior and posterior aspects. This was most marked at the cardiac end towards the lesser curvature, it extended downwards about a hand's breadth from the cardio-oesophageal junction and was sharply limited above at this point. The wall was extremely thick and boggy to the touch. On opening into the cavity the entire mucous membrane except for about two fingerbreadths at the pyloric end was blood stained, and the cavity contained about four ounces of dark fluid. There was no food present. A microscopical section of the stomach wall was made in the zone of haemorrhage. The wall was about 1½ cm. thick at this point and a rather extensive area of haemorrhage was found separating the muscularis mucosa from the outer muscle coats. The lining mucosa was markedly oedematous and showed some cloudy swelling.

The duodenum, jejunum and part of the ileum were enormously distended with gas. The distension produced a wide separation of the parallel muscle fibres giving a striated appearance to these parts. The mucosa of the duodenum also showed this dark staining. The ileum in its remaining twelve inches was empty and collapsed.

The caecum ascending transverse, and descending colon, and rectum were also empty and collapsed.

Heart.—The pericardial sac contained about two ounces of blood-stained fluid. The heart showed no abnormality.

The lungs were soft and congested. The condition was most marked at the bases.

The brain showed patchy subdural haemorrhages the largest of which was in extent about the size of a two shilling piece. They were mainly on the superior surface and in the region of the frontal lobes. There was an extensive haemorrhage into both lateral ventricles and into the fourth ventricle. On section three distinct areas of haemorrhage could be seen in the substance of the medulla oblongata.

It will be seen from the above report that the woman was beyond cure, for death was obviously due to paralysis of the respiratory centre in the brain as the result of haemorrhage, and this accounted for the failure which attended our efforts at artificial respiration.

The case provides an example of the necessity for training women to seek ante-natal care, had this been obtained here, a fatal result would have been unlikely. With ante-natal care there should be no deaths from eclampsia.

LOBAR PNEUMONIA AS AN INFECTIOUS DISEASE*

BY

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SOME eighty strains of pneumococci have now been collected, and I have published three papers giving in detail the results of the work up to March, 1928.^{1, 2, 3}

The conclusions arrived at last year⁴ have been amplified and confirmed. Lobar pneumonia, broncho pneumonia, and empyema occurring in previously healthy persons are invariably caused by pneumococci of high virulence, measured by the effect on mice, whereas such conditions as terminal pneumonia and post-operative pneumonia, arising in subjects whose health is already impaired, are commonly caused either by pneumococci of feeble virulence, or by organisms such as *Strep. salivarius*, *M. catarrhalis*, Friedländer's bacillus, etc. The pneumococci of low virulence resemble these catarrhal organisms in other respects, for like them they are frequently the cause of chronic bronchitis, conjunctivitis, nasal catarrh, and other comparatively minor infections of the respiratory tract and of the membranes and sinuses adjoining it. A large proportion of the pneumococcal strains recovered from such conditions set up a chronic, low-grade type of infection in the mouse which may last as long as three weeks and ends in septicaemia. This response is unexpected and differs so completely from the typical septicaemia, which is fatal within forty-eight hours, that it calls for further detailed investigation. A number of mice affected in this way have been collected and are being examined, by serial sections of viscera, etc., in order to discover the nature and site of the lesion.

The pneumococci causing lobar pneumonia or broncho-pneumonia in man have repeatedly been found to produce a parallel lobar pneumonia or broncho-pneumonia in the rabbit when introduced by the trachea. The symptoms, course of the disease, morbid anatomy, and histology in the two species are strikingly similar. In addition, strains of feeble virulence, from cases of terminal pneumonia, bronchitis, etc., have so far failed to produce any sign of pneumonia in the rabbit. Over twenty experiments on rabbits have been performed, but to complete the series a few more strains from lobar pneumonia are required. I am working out the results in detail, in co-operation with Dr. J. F. Gaskell.

There is now evidence, collected from several cases,⁵ that the virulence of pneumococci remains unchanged during the period when they can be recovered from human lesions. At the end of three or four weeks no change was noted in the virulence of the strains recovered. Needless to say, the "type" also remained unchanged. Similar stability has also been noted in a strain recovered from a patient

on three occasions during an attack of bronchitis. Though the intervals between the attacks were as great as eighteen months, the organism isolated in the second and third instance exhibited the same cultural and immunological reactions and possessed the same virulence as the one first isolated. Moreover, on each occasion it was obtained in pure culture. It appears, therefore, that a single strain of pneumococcus can produce recurrent attacks of bronchitis in a suitable subject. Such a subject may be considered peculiarly susceptible to such a strain. Whether each attack is the result of fresh infection, or whether it represents a flaring up of a process which is always smouldering but gives no symptoms, is a question to which no immediate answer can be given.

The important question as to whether the feebly virulent pneumococci are capable of becoming sufficiently virulent to set up pneumonia in a healthy person has also been investigated. Attempts have been made to raise the virulence of some of them by various passage experiments on mice. Though in one case passage inoculations have been continued for over a year, with thirty passages, there was no appreciable increase in the virulence. These results are in marked contrast to the rapid increase in virulence following passage of strains which were originally of high virulence, but which had been allowed to deteriorate, compare Griffith's results.⁶ The pneumococci of feeble virulence, like those of high virulence, therefore present a striking constancy and stability in their virulence.

The serological "type" of the pneumococcus affords little evidence of its power to produce pneumonia save in so far as Type I organisms have all been highly pathogenic, and therefore potentially pneumonic, and Group IV organisms mostly the reverse. The dearth of Type II strains still persists (compare Griffith's statistics for the same period, 1924-27⁷).

CONCLUSIONS

1. Lobar pneumonia and broncho pneumonia arising in previously healthy subjects are caused by pneumococci whose virulence is invariably high.

2. Such minor infections as nasal catarrh, chronic bronchitis, conjunctivitis, etc., may be produced by a pneumococcus, but its virulence is of an altogether different and lower order. Pneumococci of this class are nevertheless able to set up pneumonia in a debilitated subject, though they share this power with a number of other organisms commonly found in the respiratory tract, such as *Strep. salivarius*, *M. catarrhalis*, and Friedländer's bacillus.

3. The first class of pneumococci possess virulence which is stable over considerable periods of time (at least four weeks) *in vivo*, and which is specific to the type of lesion they produce. This class may be regarded as the pneumonia-producing, or pneumonic, type of pneumococcus.

4. The second, or catarrhal, type also possess a stable order of virulence, and their conversion into the pneumonic type has so far proved impossible by the usual methods of passage.

5. All the experimental evidence shows that the pneumonic highly virulent type of pneumococcus is the one responsible for the epidemiological spread of pneumonia, the less virulent catarrhal type is negligible in this respect. The mode of spread is by contact, evidence of which is given in a paper I expect to publish shortly in conjunction with Dr. R. Ellis. The strains of epidemiological importance can be recognized by their high titre of virulence for mice (vide Gaskell, Bradshaw Lecture, 1927). The isolation of persons harbouring in their throats pneumococci of this type is therefore a measure worthy of consideration in attempting to prevent the spread of lobar pneumonia.

I wish to thank Dr. J. F. Gaskell for suggesting the lines of research and for his unflinching help and criticism, and Professor W. E. Dixon for the hospitality of his laboratory and for his help in drawing up this report. I should like too to take the opportunity of expressing my gratitude to the British Medical Association for its generous support.

REFERENCES

- ¹ *Journ. Path. and Bact.* 1927, 30, 569. ² *Journ. Hyg.* 1928, xxvii, 200.
- ³ *Ibid.* 1928, xxvii, 412. ⁴ *British Medical Journal*, 1927, ii, 134.
- ⁵ Griffith, F. *Journ. Hyg.* 1928, xxxi, 113.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

MULTIPLE TRAUMATIC ABDOMINAL ANEURYSM

TRAUMATIC aneurysm of the abdominal aorta must be a very rare condition, and the following account of such a case appears, therefore, to have a special interest.

An old man died suddenly one morning when attempting to rise from bed. Some time previously a large abdominal tumour had been found which because of the expansive nature of its pulsation had been diagnosed as an abdominal aneurysm. The manner of his death suggested that this had ruptured and the necropsy proved the assumption to be correct, but this diagnosis was by no means complete. Instead of one aneurysm there were four occupying the whole extent of the abdominal aorta and the greater part of the external and common iliac arteries. The peculiar point was noted that, whereas all the large arteries of the abdomen from the origin of the coeliac axis to the termination of the external iliac arteries on either side, were degenerate, calcified irregularly dilated, and aneurysmal as shown in the accompanying illustration the thoracic aorta and the other large vessels of the body showed only a slight degree of atheroma which might be considered as even less than normal for a man of his age and occupation and it is in the matter of occupation that, to my mind the most interesting facts arise.

By profession the patient had been an acrobat, strong man, and trapeze artist who, in his day, had acquired not

a little fame both in this country and on the Continent. When we consider that almost every day for twenty years this man was spending some time, probably about half an hour, swinging and turning on a hard trapeze and rolling round the instrument on his stomach, we may arrive at a possible, nay, a probable cause of this extraordinary aneurysmal condition of those vessels which, in the process of his acrobatics, would be most exposed to injury. The fact that that part of the aorta which was protected by his thorax was like the normal aorta of a young adult, while the abdominal aorta in the region of the bifurcation and the iliac arteries lying on the pelvic brim were in such a

remarkable state of degeneration, would, to my mind, point to the fact that these aneurysms were directly traumatic in origin.

The patient was a senile dement who, although remarkably grandoise, never showed any signs, clinical or serological, of syphilis in any form. Moreover, there were no post-mortem signs of this disease, and to my mind the aneurysms appear to be of directly traumatic origin.

I know of no case in which such an extensive aneurysmal condition of the abdominal aorta can be associated with direct trauma often repeated over such an extensive period, and I am of the opinion that the situation of the affected vessels where they could be directly crushed between the rigid vertebral column and pelvic brim and the still more rigid trapeze, considered together with the comparative immunity of the more protected vessels, proves conclusively that the cause of the aneurysms was directly traumatic.

I should be interested to learn whether, as regards the abdominal aorta, there are any other such cases on record.

I am obliged to the subcommittee of the Colney Hatch Mental Hospital for permission to publish this case.

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INTESTINAL OBSTRUCTION SPONTANEOUS RECOVERY

INSTANCES of spontaneous recovery following intestinal obstruction are sufficiently unusual to merit recording.

The patient was a healthy, well nourished boy aged 9 with a previously uneventful history. On the evening of May 22nd, when

attempting to recover a ball, he squeezed himself through an iron railing, the bars of which were six inches apart. He said he felt a slight pain then over the abdomen but did not tell his parents of this. Next morning he complained of colicky pains in the lower abdomen and vomited. There was no evidence of hernia and no tumour could be felt. The vomiting became very severe, and on May 24th was green with shreds of mucus. The bowels were confined without a passage of flatus. Temperature 99° F., pulse 100. Reflexes normal.

On May 25th there was a slight distension of the abdomen and the vomiting became definitely faecal. A turpentine enema was given with no result. Turpentine enemata were again administered on May 26th and 27th without success. At this stage, owing to the history of traumatism and as the boy's condition was good and there were no marked signs of collapse we decided to "wait and see." On the night of May 27th the vomiting ceased. Flatus was passed, and the pain was much lessened. A good result followed a turpentine enema on the following morning and after this recovery was uneventful.

The condition described above might have been caused by a kinking or a traumatic paresis of the bowel.

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Reports of Societies.

CHILD GUIDANCE

At a meeting of the London Association of the Medical Women's Federation on June 26th, with Dr. AMY SIFFINARD in the chair, Dr. LETITIA FAIRFIELD gave an address on child guidance.

Dr. Fairfield said that she had recently investigated the methods used in America for dealing with delinquent and difficult children, and had been greatly impressed. The idea that the chief need of the difficult child was help in adapting itself to its surroundings was not a new one, but the scheme of clinics on a large scale designed to this end dated only from 1908, when a group of women in America, of whom the most prominent was Mrs. Dummer, recognized that the treatment of the juvenile delinquent was unsatisfactory and unscientific. Mrs. Dummer decided to finance a clinic in Chicago under Dr. W. Healy, who found that if the motives of the child delinquent were studied it often became apparent that he was not abnormal or psychopathic. Without careful inquiry it was often impossible to tell whether the child or the environment was responsible for the delinquency. From the failure of the child whose bad conduct had brought it into the hands of the police Dr. Healy worked back to those with lesser degrees of maladaptation, and came to the conclusion that the development of faulty habits might be checked and impulses might be trained in the right direction if the child were studied at an earlier stage. Meanwhile other sociological efforts were being made. Mr. Clifford Beers, who had had an acute attack of insanity in early life and had suffered harsh treatment, resolved to dedicate his life to securing more understanding treatment of the insane. A great society, the National Committee for Mental Hygiene, with branches in all the States, arose from his efforts, and it was again found necessary to work back to early years in order to find the origin of breakdowns in later life. This work had not proceeded on purely Freudian lines, nor had the child guidance movement developed on psycho-analytical principles, though all modern psychology had absorbed something from Freud's ideas. The psycho-biological theories of which Dr. Adolphe Myer of the Johns Hopkins Medical School was the chief exponent had had much influence on the child guidance movement. This conception of conduct was that it represented the reaction between personality and environment. Myer hardly recognized types of mental disease—only types of individuals reacting to different conditions, he made no sharp distinction between the normal and the abnormal, the sane and the insane. It was on these lines that American social work was developing.

Dr. Fairfield proceeded to describe the organization of the child guidance movement, which involved a preliminary inquiry into the record of the child at school and at home, and into the results of the standardized tests for mental ability. It was surprising how often the cause of the difficulty was that the child was being tried beyond its

mental capacity. Sometimes an incorrigible child was merely an overlooked defective. The tests could only be evaluated, however, with reference to the child's emotional reactions. A physical examination was made in the case of each child and was followed by a careful study of its environment by a "psychiatric" social worker, who was trained on the lines of the British Charities Organization Society workers, but with special instruction in psychology and in the mechanism of behaviour. Dr Fairfield pointed out that in America less emphasis was laid on material and more on personal factors. If a social worker in this country found that a child lived in a neat house and had good meals, she reported that he had a good home, if the child did not get on well the inference was that it was due to personal wickedness. No account was taken of a possibility that the mother might nag at the child or quarrel with her husband, in which case the psychological atmosphere would be that of a bad home. In any home one spoilt child might evoke revenge reactions on the part of the others. Since all these factors were reported, the American histories were fuller than those in Great Britain, and this was an advantage. The most important examination of the child was the final one by the trained medical psychiatrist, who had before him the reports from all the other workers. The examination, when completed, usually gave clear indications for treatment for the child of pre-school age or of school age. Children who failed during the period of parental training of the simpler instincts might develop enuresis, bad habits, attacks of bad temper, and persistent and serious food fads. In a certain percentage of cases they were very intractable. The education of teacher and parent in their management was being undertaken in association with kindergarten and nursery schools. For children of school age a "visiting" teacher with the training of a psychiatric social worker acted as adviser to the staff on problems of discipline. She also visited the home and reported to the teacher, and vice versa, acting as a liaison officer. Since these agencies were available to deal with difficult children, only the really intractable cases needed elaborate study in guidance clinics, which dealt with conduct problems and also with retardation in school work. In America the child who did not advance with his class was considered to bring disgrace on himself and on his teacher. Very often the retardation was not a question of intelligence, but of conduct. In other cases the children were naughty because they were mentally dull, and were tried too hard. Dr Fairfield explained that the guidance clinics were under voluntary bodies such as the Commonwealth Fund, or were conducted in connexion with the big hospitals. The Commonwealth Fund, a wealthy organization, had financed nine demonstration clinics, which served also as training centres. One was about to be started in London and would be financed for three years. At the Johns Hopkins Hospital, Dr Esther Richards was in charge of an excellent clinic under the general direction of Dr Myer. The treatment might involve a radical change in the plans for a child's life, and was especially valuable for "dependent" children who were boarded out by voluntary societies in homes which might not be suitable to the individual need without considerable adjustment. The expansion of the movement, both for children and adults, was remarkable. Charitable societies were beginning to establish guidance clinics so also were the great department stores. District nursing associations sometimes paid a psychiatric worker to advise the nurses. This expansion proved the value of guidance clinics more conclusively than any statistics.

Dr MINA DONNIE, in the subsequent discussion, remarked that in England also many dependent children were being boarded out in homes. Dr ALICE HUTCHISON said that in Leytonstone an admirable clinic was in operation but that throughout this country the work was limited by lack of funds. Dr H. MACEAY asked what number of children could be dealt with at any one clinic, this was relevant to the financial aspect of the work. Dr FAIRFIELD, in reply, said that the Cleveland Clinic consisted of three medical practitioners, five social workers, and two or three psychologists, such a team could deal with as many as a thousand cases in a year.

Reviews.

THE EXTRA PHARMACOPOEIA

We have much pleasure in welcoming the nineteenth edition of the first volume of MARTINDALE and WESTCOTT'S *Extra Pharmacopoeia*.¹ It is forty-five years since the first edition appeared, and for nearly half a century this book has maintained its reputation as one of the most useful works of reference that the medical profession possesses. To have maintained a publication of this kind at a uniform high standard throughout such a long period is in itself a remarkable achievement, and the merit of this performance is enhanced by the fact that the number of new drugs that appear each year grows steadily, and hence the work entailed in keeping the volume up to date must correspondingly increase. It is only four years since the last edition appeared, but the index contains more than one hundred names of new drugs and preparations. Inspection of any sample of the thousands of references shows that Dr Harrison Martindale has maintained the well-established reputation of this *vade mecum* by providing a full account of recent work. The labour must be enormous, and it is surprising to learn that the author has also found time to make personal investigations of a large number of drugs.

A reference book of this kind cannot be critical, because no one could have first-hand knowledge of more than a tithe of the thousands of drugs and preparations mentioned. All the author can hope to do is to give a fairly balanced summary of the claims made for drugs and the criticisms made of these claims. The high reputation of this volume gives, however, considerable authority to its pronouncements, and we think the remarks made regarding cocaine are biased in a rather dangerous direction. For example the following quotations are chosen for reproduction in prominent type: "Forty years in the profession and never seen a drug addict" (p. 334), "None of its rivals appears to have any material advantage over cocaine" (p. 342). The following statement of a committee appointed by the American Medical Association (1920) is reproduced in heavy type: "None of the synthetic local anaesthetics equal cocaine when applied to mucous membrane," but a later recommendation of the committee that "Cocaine should not be injected into the submucous tissue or subcutaneously" (*Journ Amer Med Assoc*, 82, 876, 1924) is not mentioned. The author evidently believes that the dangers of cocaine have been exaggerated, and he has a very natural bias in favour of this valuable drug, because the late W. Martindale took a great share in introducing it into medical practice. We think, however, it would have been better if he had made it clearer that his views do not agree with the conclusions of the committees that have investigated the subject. After all, it is a great deal safer to overestimate than to underestimate the dangers of cocaine. We have referred to this point at some length because the well-deserved popularity of this volume gives its opinions a peculiarly wide currency.

The perusal of a new edition of this work is always interesting because it provides an opportunity for estimating the extent and importance of recent advances in therapeutics. The application of hyperthermy to pernicious anaemia is undoubtedly the chief advance that has been made. Another outstanding advance is the production of vitamin D by the irradiation of ergosterol. The development of the use of carbon tetrachloride against hookworm disease, and the prophylaxis of syphilis by the oral administration of stovarsol, are two other advances of great practical importance. The use of colloidal lead in cancer must also be mentioned, although it is difficult at present to make any certain estimate of the practical value of this method of treatment. Finally, the rapid development of knowledge concerning the ovarian hormones promises in the future to provide results of great clinical importance. These examples of recent progress in therapeutics indicate

¹ The Extra Pharmacopoeia of Martindale and Westcott. Revised by W. Harrison Martindale, Ph.D., F.R.C.S., Vol. I. Nineteenth edition. London: H. K. Lewis and Co. Ltd. 1928. (Fcap 8vo pp. xxxvi + 1207 2s. 6d. net.)

the large amount of new information that is contained in the latest edition of the *Extra Pharmacopoeia*.

At the conclusion of his preface Dr Martindale pays a tribute to the services to British science and industry of the late Sir Dawson Williams and the late Mr S W Woolley, who was formerly editor of the *Chemist and Druggist*. We are sure that we are voicing the general opinion when we say that the medical profession owes a great debt to Dr Martindale for his long-continued labour in providing it with an accurate and convenient summary of up to date knowledge regarding the innumerable drugs and preparations that are to-day offered to the physician for his use.

THE MEDICAL LIFE

It would seem to be a bold thing, if we may judge from the conventional criticism of the hour, to plan to day a series of handbooks for the guidance of ambitious youth. The younger generation, we are told in many paragraphs, has no use for the counsels of its seniors, and the good old days of respectful obedience are but a memory and a regret. Whether this melancholy strain is either as new or as true as its authors affirm it to be, may be questioned. In any event, nothing daunted, an enterprising publisher has acted on the conviction that *young men faced with the choice of a career may still welcome information and counsel from those who have walked the ways before them*. Hence the appearance of twelve "Vocational" guide-books dealing with all the professions, and each written by an authority of the first rank and order. In the series it is not without significance that while theology, law, medicine, education, banking, and journalism claim each a single volume, engineering engages three volumes—one each for its mechanical, electrical, and civil departments. Here, however, we are concerned only with *The Young Man and Medicine*,² written by Professor LEWELLYN F BARKER of the Johns Hopkins University, and we may say at once that anyone who is contemplating a medical career will find in these pages a faithful account of the difficulties and delights of the journey. Where there are lions in the path they are not concealed and the pleasant pastures are not presented in terms unduly expansive. The tale, in short, is a plain and unvarnished one but it is full of encouragement for those who are stout of heart.

As most of our readers have passed the threshold of decision and have acquired for themselves more or less personal experience of what life and work in medicine mean, Dr Barker has not perhaps much that is new to say to them. Yet his book is a very interesting one, and he has quite an individual word for such topics as the apprenticeship system, education before and after graduation, specialism in medicine, and medical societies, not to speak of less technical advice on fees, holidays, hobbies, investments, and matrimony, and even our respected seniors may collect a word of warning in the sentence, "One of the early signs of intellectual stagnation in a physician is the yielding to a tendency to neglect attendance upon medical meetings."

The chapter on the status, values and opportunities of the general practitioner has a decidedly refreshing quality, and Dr Barker has no ear for those who tell us that the function of medicine, in this application of it, is merely to direct the patient to the appropriate "specialist." After some recent announcements it is satisfactory to read on the authority of one who has had large opportunities for judgement, that "no other kind of practitioner, and not even a 'group' of specialists, can adequately perform the functions of the able general practitioner", and again, "the legitimate province of the general practitioner's work is much larger than the general public realizes." These conclusions seem to us to be based upon a wise appreciation of the position which the art of medicine must hold in the body politic. In a similarly robust and common-sense fashion Dr Barker deals with the subject of post-graduation study, and those who believe that such education and training are to be found only in the mysteries of a compulsory curriculum and under the shadow

of a special diploma, may profitably consider his conclusion that nothing in this direction is so important, for really keen students, as "the work that can be done by their own brains, with their own books, and on their own patients." The suggestion is that there may be so much running to and fro that opportunities that are at hand are overlooked and neglected. For many, such must be the only opportunities, and it is well to remember that within them lies much promise for those who cultivate observation and vision.

In a brief statement Dr Barker's book may be presented as a description in balanced and lucid terms of the material, mental, and moral values of a life spent in the study and practice of medicine—the discipline and rewards offered to the disciple, the service and succour contributed to the community.

THE SCIENTIFIC DESIGN OF ORTHOPAEDIC APPLIANCES

Dr GABRIEL BIDOU of Paris is known as an exponent of scientific principles in the devising and making of orthopaedic appliances,³ and two of his former works have been noticed in our pages. Orthopaedic instrument makers do not usually envisage their problems with the help of mathematical and dynamical formulae, contenting themselves rather with the use of broad principles only. Professor Babinski has already testified to the value of the work done by Dr Bidou for his patients at La Pitié. He seems to have been equally successful in the application of his method at the Salpêtrière Hospital, in which he was invited by Professor Georges Guillaumin to help in relieving the disabilities of paralysed patients. His success has been such that the Director of the Assistance Publique is about to arrange a special service of functional recuperation, to be in Dr Bidou's charge. In 1926 a foreign philanthropist, Dr I M de Hoz, founded the special hospital of Sainte Isabelle for the treatment of paralytic and helpless patients by Dr Bidou's method and under his direction.

Dr Bidou has substituted for the traditional and rule-of-thumb methods of his predecessors a method relying entirely on exact measurement. In the first place he measures the resistance, such as the weight of the paralysed limb, to be overcome, next the force required to effect certain movements of a limb or segment of a limb and calculates the strength and form of the various parts of the instrument required. For these purposes he has invented or adapted various instruments for measurement and certain improvements in the joints and other parts of appliances, which afford a nearer approach to the movements of living parts than his hitherto been thought practicable. After discussing the general principles involved, he proceeds to describe certain apparatus for the upper and lower limbs. These descriptions, which involve the use of a number of technical mechanical terms, are not easy for the reader unversed in engineering language to follow, and the rather elaborate illustrations of apparatus would be more intelligible if they had been reproduced upon a larger scale. It is not easy to ascertain whether in practice Dr Bidou has succeeded better than his predecessors in applying exact measurements to the solution of these problems, when it is so often difficult, or even impossible, to establish exact anatomical data from which to work. The proof of the pudding is in the eating, and a comparison of the functional results obtained at the Sainte Isabelle Hospital with those of older methods would be most valuable. Dr Bidou is certainly to be commended for his attempts to put the design and application of orthopaedic appliances on a really scientific basis.

SYPHILIS AND CANCER

It is generally admitted that certain syphilitic lesions—for example, tertiary manifestations in the tongue—may be succeeded by inorganic new growth, but Drs JACQUEMART and PRÉFÈRE in *Trépônème et Néoplasmes*⁴ go much

² *The Young Man and Medicine*. By Lewellyn F Barker M.D. LL.D. Vocational Series. New York: The Macmillan Company. London: Macmillan and Co. Ltd. 1928. (Cr. 8vo pp. xiv + 202. 10s. 6d. net.)

³ *Principes Scientifiques de Récupération Fonctionnelle des Paralysés*. Par Dr Gabriel Bidou. Préface du Professeur Georges Guillaumin. Paris: Le Livre Pour Tous. 1928. (6 x 7 1/2 pp. 151 figures. 20 fr.)
⁴ *Trépônème et Néoplasmes*. Par les Drs Jacquemart et Ch. Pfeiffer. Paris: N. Maloine. 1928. (6 1/2 x 9 1/2 pp. 168. 16 fr.)

further. According to them, all human tumours, simple as well as malignant, are due to the syphilitic virus. Cancers are quaternary manifestations of syphilis. Early syphilis, which is caused by the ordinary *Treponema pallidum*—a visible, non-spore-forming organism, sensitive to certain trypsinolysis—*is not* productive of cancer, but the older the syphilis becomes the more it develops the power of generating cancer. The old syphilis and congenital syphilis are due to invisible sporulating treponemata (an infra-virus or an ultra-microscopic virus) which are not affected by the various chemotherapeutic drugs. This invisible form infects the cells, and by provoking repeated karyokinetic brings about neoplastic formation. Syphilis explains cancer families, cancer houses, cancer districts, and cancer epidemics. Those races which have no syphilis or very little syphilis have very little or no cancer, and the campaign against cancer resolves itself into a fight against syphilis.

The authors have arrived at these interesting conclusions from a careful study of the cases of cancer that have come under their personal observation, but such a study, to be careful enough, entails a meticulous examination not only of each individual patient but of his ancestry, collaterals, and progeny. The results of the Wassermann test, supposing them to be negative, should not blind one, because it is well known that such a test is not always successful. One must be familiar with every sign and symptom that indicates a syphilitic taint. Here is a case at random: a woman has cancer of the breast, her daughter had a malformation of the vagina, which was treated surgically, and a child of this daughter was "un type d'hérédo." The proof of the thesis, thus, is quite easy. As the authors put it: "Il n'y a la aucun mystère, c'est d'une simplicité impressionnante, mais c'est évidemment trop simple pour être admis."

But it is not merely the clinical evidence that is relied on, more than half of the monograph consists of long quotations from various wise men (whose names are not infrequently misspelt) cunningly interpreted in support of the main or subsidiary contention. Several common sites of cancer are considered. The sceptic may ask, for example, what connexion exists between syphilis and such a common condition as cancer of the stomach. He receives this answer: Syphilitic lesions of the stomach have been found, and some of the finders have suggested that they are commoner than is generally supposed: a gastric cancer always succeeds a gastric ulcer, a gastric ulcer is caused by an obliterative arteritis which is due to syphilis, and the best treatment for gastric ulcer is bismuth, which, as everyone knows, is an excellent remedy for syphilis. It is admitted that all gastric ulcers do not become malignant, for the patient may die before this development occurs. The authors maintain that the circumscribed ulcers of the stomach and duodenum are always of syphilitic origin, but they are silent about the fate of duodenal ulcers, for duodenal cancers are pathological curiosities. Again, one might ask why syphilitic affections of the oesophagus scarcely exist outside textbooks, whilst carcinoma of the oesophagus is fairly common, and the answer is that the active functions of the oesophagus and its irritation by mechanical agents allow the treponemata to act so quickly that cancer results before a syphilitic lesion is appreciated.

The theory can explain many things that were obscure or uncertain. An instance is reported of a relatively large number of deaths from cancer in a part of a small town while the rest of the place was free. This was not mere coincidence. "Une jolie femme spécifique dans ce coin de village et tout s'explique le plus simplement du monde." Of course, syphilis does not affect the lower animals and yet they may develop cancer. But to each beast of the field there is its besetting parasite. The rabbit is subject to coccidiosis, but it is an invisible filterable form of the parasite that produces the cancer. Cancer may be produced in mice by applying coal tar to their skin. Tar is an exceedingly complex mixture, tar contains dyes, dyes are capable of staining nuclei, hence the tar damages the cell nucleus and allows a filterable micro-parasite to enter and cancer results. But with it all one detects a note of despair in the authors' remark: "Mais tout le monde n'est pas encore de notre avis."

NOTES ON BOOKS

THE textbook of gonorrhoea, edited by BUSCHKE and LANGER of Berlin in collaboration with twelve other Berlin professors and physicians, is a comprehensive treatise dealing with every aspect of the disease in men, women and children, with separate sections on the pathology and bacteriology, the affections of the male adnexa, eye, and skin, and on general gonorrhoeal infections, together with a full and practical account of modern methods of treatment both surgical and other. Chapters are appended on the related subjects of sterility and prostitution. The work is intended to embody the known facts relating to every branch of the subject and in every detail.

Man already owes a very considerable debt to the domestic fowl. While it is the case that few avian diseases are transmitted to man, bird malaria was the basis of the discovery of human malaria, and fowl cholera was the starting point of Pasteur's investigations, to mention only two of the outstanding examples. Dr. McGOWAN's book *On Rous, Leucotic, and Allied Tumours in the Fowl* draws attention to yet another. The study of malignant tumours is one which cannot fail to be of importance to human medicine, and Dr. McGowan raises many points of interest. He commences by discussing the nomenclature and origin of blood cells. He then records his observations on Rous No. 1 tumour, its intravital staining, and the spontaneous tumours of the Rous type which he has encountered as well as leucotic and melanotic tumours in fowls. Chapters on the role of the lymphocyte in avian pathology and on the etiology of tumours, are also given. Dr. McGowan's book is not a textbook, rather it is a statement of his own observations and views on a particular and very important group of tumours.

VOLUME XLII of the *Transactions of the Edinburgh Obstetrical Society* contains the papers read during the session 1926-27 many of these were reported in our columns at the time. In his presidential address which is included in this volume, Professor R. W. JOHNSTONE discusses the relations of gynaecology, medicine, and surgery from the historical and modern points of view.

* *Lehrbuch der Gonorrhöe*. Herausgegeben von A. Buschke und E. Langer. Berlin: J. Springer (Rev. 8vo pp. xii + 570. R. 24.50 geb. R. 24.50).

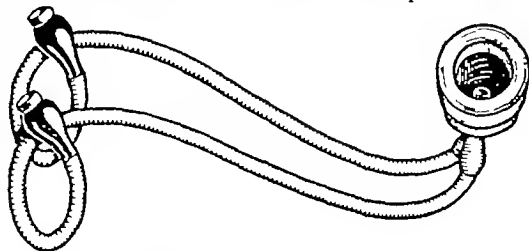
† *On Rous, Leucotic and Allied Tumours in the Fowl*. By J. P. McGowan. B.Sc. M.D. London: H. K. Lewis and Co. Ltd. 1928. (Demy 8vo pp. xii + 99. 21 figures, 11 plates. 10s. net.)

‡ *The Transactions of the Edinburgh Obstetrical Society*. Volume XLII. Edinburgh: Oliver and Boyd. 1927. (Med. 8vo pp. xxiv + 200.)

PREPARATIONS AND APPLIANCES

AN IMPROVED STETHOSCOPE.

DR. J. KILPATRICK REID and Dr. W. OWEN MORRIS (Liverpool) write: We have felt for a considerable time that the existing types of stethoscopes are inefficient, or too cumbersome and expensive for general use. To remedy this we have contrived and have been using for some time an instrument which combines the handiness of the pocket phonendoscope with the clear transmission of the wooden stick stethoscope. The ear pieces are separate and made to twist well into the ears, where they remain firmly in place. The chest piece is of light composition and very durable, and causes no such pull on the ears



as does the usual heavy phonendoscope. The lumen of the transmitting tube is constant throughout and by tapering at the joints between the tube and the chest and ear pieces all dead space for backwash is eliminated. The chest piece is protected by a rubber cap to ensure comfort for the patient and added clearness to the transmission. The essential distinctiveness of the instrument is its exceptional conduction, together with a handiness for carrying about which we have found in no other stethoscope. It has the additional advantage of selling at a moderate price. The stethoscope has been made for us by Messrs. R. Sumner and Company, Limited, of 40, Hanover Street, Liverpool.

British Medical Journal.

SATURDAY, JULY 28TH, 1928.

THE PRESIDENTIAL ADDRESS

IN the course of his admirable Presidential Address on Tuesday last at Cardiff—an address which we print elsewhere in this issue of the *Journal*—Sir Ewen Maclean spoke of the “veritable pageant of advancement in the science and art of surgery.” Using the same metaphor, we may say that the new President of the British Medical Association has presented to us no fewer than three pageants—that of ancient Cymric medicine, that of the work of the British Medical Association for the public, and that of progress and research in the field of medicine since the last Cardiff meeting of 1885. Able as showman and as chorus, in his presentation of the material and in his accompanying comments Sir Ewen Maclean worthily maintained the really high level of the whole series of Presidential Addresses. Both as a rapid and interesting historical survey and as a convenient and valuable assemblage of relevant facts, the Address will well repay perusal, even as it pleased its hearers. In that portion of it, indeed, which dealt with the earlier development of the Welsh *meddyg*, there was more than one indication that the President could reveal himself as a fascinating teller of folk tale or fairy story.

Sir Ewen Maclean is the first President of the British Medical Association who has also held office as Chairman of the Representative Body. It is perhaps, therefore, all the more natural and appropriate that he should have devoted considerable time and care to a public demonstration of the fact that the great power and influence of the Association is not, as is sometimes alleged, expended predominantly in the personal interest of its members, but that from its foundation ninety six years ago the Association “has been concerned chiefly with the maintenance of the professional standard of education and conduct, both pre and post graduate, the promotion of scientific research, and the development of a national public health policy which will allow the profession to make its maximum contribution to the well being of the community.” It has not yet been realized by many members of the Association itself, certainly not by the public at large, how preponderant has been the influence of the Association in bringing about those salient changes in legislation and administration which have had the most profound effect on the health of the community. To name but a few of these, it may be pointed out that it was the British Medical Association which first suggested, long ago, that a special department of Government should be created to deal specifically with matters of public health, which went on insisting on this proposal year after year, and which was the actual force that, in the fullness of time,

brought about the establishment of the Ministry of Health. It was, too, an investigation and report and recommendation of the Association which was largely responsible for the creation of the School Medical Service. Action in regard to ophthalmia of the newborn is almost entirely due to the Association's influence and instigation, and the same may be said of community care for the mentally deficient and epileptic. Though the same cannot be maintained with regard to national health insurance, it is yet true that it is the Association's work and influence more than that of any other single body (always remembering the individual labour, enthusiasm, and skill of Sir Robert Morant) which has transformed a creaking, lumbering, imperfect machine into a useful and beneficent instrument of public good.

Even at the Cardiff meeting of the Representative Body (of which the first part of our full report appears in this week's *Supplement*) there were discussed four considered pronouncements, with recommendations of the Council, on important matters of public interest: the regulation of treatment by means of electricity and radiation, puerperal morbidity and mortality, lunacy law reform, the co-ordination of hospitals. It is probable that, as in similar matters heretofore, all these will ultimately come to fruition on the general lines of the Association's policy. Public work of this kind goes on week by week, but very little public recognition is accorded to it. It is well that the President should have invoked a wider attention. He might even have gone further, and pointed out that each year the Association awards one thousand pounds in scholarships and research grants, and devotes a considerable further sum of money to educational lectures, to special medical and health inquiries, and to collective investigations into the origin and treatment of diseases.

Of the pageant of medical progress and research since the Cardiff meeting forty three years ago Sir Ewen Maclean said: “The achievements are stupendous, and represent a vast saving of human suffering and an appreciable prolongation of human life. These results are not the product of knowledge acquired casually or in haphazard fashion, but the basis of real advance has been framed, as it always will be, in tireless, persistent, relentless toil.” Much of the wide field of bacteriology, and almost the whole of biochemistry and endocrinology, has been developed since then. Tuberculosis, as Sir Robert Philip told us a year ago in his Presidential Address at Edinburgh, is on the way to being conquered, diabetes and pernicious anaemia have lost much of their terror, and at least a beginning has been made towards getting a grip on the scourges of rheumatism and cancer. Moreover, it is not true to say, as is sometimes said, that there has been no improvement in maternal mortality. The fall in the puerperal sepsis and mortality rate has been appreciable, but it has not been proportionate to that of the general or of the infant death rate. Thus, like those of rheumatism and of cancer, is a baffling problem. It is not susceptible of any easy or simple solution, either scientific, medical, or administrative. It is fitting that Sir Ewen Maclean—as, we believe, the first gynaecologist and obstetrician who has occupied the Presidential chair,

and himself one who, by his own distinguished work, is entitled to speak with authority—should give some prominence to this matter. His words will be seriously weighed, and we hope that the findings and recommendations of the special committee of the Council of which he has been the chairman will be appreciated by the public and taken advantage of by the Departmental Committee which has recently been appointed by the Ministry of Health. In this sphere, too, the pioneer, though necessarily inconclusive, work of the British Medical Association should be acknowledged.

It is desirable that particular notice should be taken of the concluding and novel suggestion of the President with regard to the position of the British Medical Association in relation to post-graduate teaching. It is known that the Council and Representative Body—and, indeed, the general body of members for whom they speak and act—have for some years taken a great interest in this subject. It is of vital importance to them and to the public, and of even more than usual interest to that large body of membership of the Association coming from overseas. Much useful thought has been given to the matter, but very little has yet been done. Sir Ewen Maclean says: "I have long felt that, with its wonderfully ramified machinery to link up the provinces and the capital, the rural areas and the towns, no body is so well adapted as our Association to organize a post graduate system embracing existing institutions and developing many new centres on a scale worthy of this country. I am not without hope that there may be forthcoming a national benefactor willing to entrust the Association, as a voluntary body with the considerable sum of money necessary to establish and conduct such a system. The machinery is appropriate. The need is great. Where is the benefactor?"

There is an obsolete phrase, to play one's pageant—as we should now say to act one's part. It is apropos, perhaps, to conclude by saying an legendary luster tells us Launcelot said unto Arthur,

How now, yonder rideth a knight that playeth his pageants

THE INTERNATIONAL CANCER CONFERENCE

WE conclude in this issue our report of the International Cancer Conference which was held in London last week under the presidency of Sir John Bland Sutton. It is difficult to give a full appreciation of the proceedings so wide and varied were the subjects under discussion, but at least it is certain that favoured by unusually brilliant weather the Conference achieved an equally brilliant success which probably surpassed the expectations of those responsible for it. All the arrangements proceeded with the utmost smoothness, which spoke of a highly efficient organization and much expert, detailed, and willing work by the committees and secretarial staff. The whole medical profession owes a debt of gratitude to the British Empire Cancer Campaign for the promotion of this undertaking, which has brought credit to itself and to the profession in this country. The success of the social aspect of the Conference was assured at the outset by the reception of the overseas delegates by His Majesty the King on Monday, July 16th—a simple and yet dignified ceremony, which was highly appreciated by them. A remarkable gathering of men and women, whose names are known throughout the world

in cancer work, was seen that evening at the reception by Sir John Bland Sutton, and the reception by the Duke of York at Lancaster House on Wednesday provided a brilliant spectacle in a delightful setting, which could not have been better chosen for an occasion of the kind.

The work of the Conference was opened on Tuesday by a letter from the Duke of York, as President of the Campaign, followed by an address of welcome to the delegates by Sir John Bland Sutton. Two general discussions were then initiated—on 'The relative values of surgery and radiation in the treatment of cancer of the cervix uteri and the rectum, and on 'The etiology of cancer. In the former the opinion gradually crystallized that treatment by radium in massive doses over long periods, either with or without surgical access to a tumour, must be regarded, except in very early cases, as having a value at least equal to that of pure surgical methods. The discussion on etiology, opened by Professor Ewing on a broad basis, was carried on by a distinguished series of speakers, and here one of the most important communications of the whole Conference was made by Dr James B. Murphy of the Rockefeller Institute. At his hands the virus theory of cancer, eloquently supported at this meeting by Professor Borrel, again received a severe blow. Murphy, working with the Rous chicken sarcoma, had found that these tumours were highly specific for the fowl, and that the unknown filterable agent reproduced the peculiar character of each individual tumour. These were facts telling against the parasitic nature of the disease. Experiments also showed that the chicken tumour agent was more resistant to the ultraviolet light energy than either bacteria or the viruses, and that it entered into a direct combination with the muscle tissues of susceptible fowls. A very notable advance is the isolation and the purification of the active agent by fractional precipitation of the proteins from extracts of the chicken tumour. It appears that this purified fraction is chiefly of nucleo protein nature and is capable of producing tumours in fowls with great regularity. This repeated fractional precipitation is itself strong evidence against a living virus as the active agent but the crowning proof which dramatically was reserved to the end, was the isolation of this active fraction capable of producing tumours, from the testicles of normal fowls free from contact with tumour-bearing animals. Analogous, though independent work on the Rous tumour, tending to confirm the enzymic character of the agent was reported by Professor Leitch. Whether this work on the fowl sarcoma can be brought into relation with the cause of mammalian tumours or whether it will remain *sui generis*, future investigation alone can show.

The difficult subject of The classification and treatment of bone sarcoma, opened on Wednesday by Professor Ewing produced an interesting and valuable discussion in which emphasis was laid less upon amputation than upon the combined method of radium and bone surgery advocated by Mr. Handley. For certain cases Dr. Coley's fluid received commendation. Primary carcinoma of the lung received able treatment at the hands of Dr. Hutchison, Dr. Burrell and Professor Shennan. The increased frequency of this condition appears to be undoubted, though its cause remains obscure. The interesting fact emerged from the discussion on the Biological effects of radium and x rays that, although working with different methods, practical agreement on the wavelengths to be employed has been reached by different

observers "Occupational cancer" produced a balanced and careful statement of this condition, the importance of which is receiving increasing recognition in other countries. The fact of individual susceptibility was emphasized by several speakers, a point to which sufficient attention has not always been paid. The exciting cause and the natural history of the disease in this field of cancer work being comparatively definite, there was a considerable measure of agreement as to methods of treatment and the possible lines of prevention. A valuable contribution to this discussion was the work of Professors Schmorl and Rostoski on the Schneeberg lung cancer.

The discussion on the relative values of surgery and radiation was continued on Thursday morning, with special reference to cancer of the buccal cavity and the breast. Here again the value of radium, especially in the treatment of cancer of the buccal cavity, was convincingly shown. The demonstrations at St. Bartholomew's Hospital afforded excellent evidence of the use now being made of radium in the treatment of growths at various sites, and the display of tissue cultures from the Strangeways laboratory at Cambridge, taken in conjunction with Dr. Cantu's remarkable cinematograph film of cells dividing or exposed to radium, indicated the modern developments of cytological study in relation to cancer. The demonstrations at the Middlesex Hospital and the Radium Institute were also full of interest and were well attended. The discussion on the chemotherapy of cancer, with particular reference to lead, shed a little warmth, but not much light, on this keenly debated question. The evidence seemed to show, on the one hand, that some cases had improved during, and possibly as the result of, lead treatment, and on the other that lead is a dangerous drug, unfitted for general use owing to the narrow margin of safety, opinion as to its value still remains unsettled. The serological work of Dr. Lumsden, and the chemical compounds described by some other speakers, indicated alternative methods of treatment other than by lead. Admirable demonstrations illustrating the various phases of the work of the Cancer Hospital and its Research Institute were to be seen on Thursday afternoon. The Lister Institute, St. Mark's Hospital, and the Westminster Hospital all gave interesting exhibits, which were well attended. Sectional discussions on Friday morning illustrated the difficulty of early diagnosis of cancer of the stomach, the importance of earlier treatment of chronic gastric ulcers, and the necessity for laparotomy in doubtful cases. In another section the importance of using all methods in the diagnosis of cancer—microscopic, radiological, and serological—was made manifest, in spite of the limitations of each of them. In the important sections dealing with public health racial differences were noted but not explained, and it was also shown that public education has in fact led to earlier treatment of the disease. The technical work of the Conference ended with visits to the Medical Research Laboratory at Mill Hill, to Guy's Hospital, and to the Royal College of Surgeons, where special demonstrations were given on specimens of scientific and historic interest.

Such, in brief outline, was the work of this Conference, which has not only stimulated great public interest, but has focused scientific attention from all countries upon many phases of the cancer problem. It has done much to foster good international relations, and the many foreign and Dominion delegates will carry away with them pleasant memories of our country. The scientific results may well be such as to form a landmark in the history of cancer research.

ANNUAL MEETING NOTES.

"The Book of Cardiff"

A HANDSOME volume, lavishly illustrated, has been produced by the Printing and Publishing Committee at Cardiff, and a copy has been given to every member attending the Annual Meeting this week. *The Book of Cardiff* differs in shape and size from the corresponding volumes of previous years, though its arrangement and scope are not unlike those of some of its predecessors. The purpose of the committee has not been to provide a formal guide-book, but rather to introduce readers to the history and present-day activities of Cardiff, and indicate the important part played by it in the life of the country. The keynote of the book is struck by Dr. D. R. Paterson in the opening words of his introduction:

"Cardiff suffers in the mind of strangers from two misconceptions. They generally seem to think, first that it is an entirely modern and even mushroom town, and secondly, that it is black with coal dust and coal smoke. As a matter of fact Cardiff is among the oldest towns in the country, and, at all events for a business town, among the cleanest."

Many readers will recall the descriptive and historical notes on Cardiff and its neighbourhood contributed by Dr. Paterson to our columns in recent months, and this volume will go far to satisfy their wish for further information about a subject full of interest. The longer sections include a concise account of Cardiff Castle by Mr. John P. Grant, and a description by Mr. W. S. Pugh of the fine public buildings of the city, which have been the admiration of every visitor during the past few days. It is not too much to say that in Cathays Park will be found some of the best modern architecture of its kind in our country, the buildings admirably grouped in relation one to the other, and placed in a setting of which every advantage has been taken. An outline of the history and present position of the University College of South Wales and Monmouthshire is contributed by the Registrar, Mr. D. J. A. Brown, and an account of Llandaff Cathedral by Mr. John Ballinger. The great position held to-day by Cardiff as a seaport is revealed in the sections dealing with the Bute Docks and with Cardiff as a centre of distribution, and Mr. D. Willson Lloyd brings out the intimate relation between the Port of Cardiff and the South Wales coal field. As becomes a book mainly addressed to medical readers, considerable prominence is given to matters relating to medicine. Thus Professor A. W. Sleen contributes an article on the Welsh National School of Medicine, Professor D. A. Powell outlines the work of the King Edward VII National Memorial Association, Dr. Ralph Picken (M.O.H. for the city) supplies a note on the health of Cardiff, and the kindred subjects of municipal water supply, parks and recreations, and town planning are likewise brought to notice. The illustrations, as we have implied, form a striking feature of *The Book of Cardiff*, and for this reason if for no other it will be valued as a souvenir by those members of the British Medical Association who have had the good fortune to take part in the ninety-sixth Annual Meeting.

The Representative Meeting

Friday, July 20th

We publish in the *Supplement* this week our full report of the first two days' proceedings in the Annual Representative Meeting at Cardiff. The first morning session was, as usual, largely occupied with matters of domestic interest. For senior members the opening proceedings were marked by a sense of loss and change—loss, intimate and personal, expressed in Dr. Brackenbury's tribute to the memory of J. A. Macdonald and Dawson Williams, change in the unfamiliar aspect of a platform lacking the accustomed presence of Sir Robert Bolam, and looking for legal

support to Mr Oswald Hempson in the place of his father. The nomination of Mr Hogarth and Sir Robert Bolam as Vice-Presidents of the Association, and of Mr A H Burgess of Manchester as President for 1929, and Dr W Harvey Smith of Winnipeg for 1930, was received with acclamation. The representatives showed little hesitation in casting off the cumbersome machinery of the single transferable vote and returning to the method of the simple majority vote as that most appropriate to elections in a relatively small constituency on an individual and personal basis rather than one of party or policy. The proposal by Sunderland that the Representative Meeting should be dissociated from the scientific and social activities of the Annual Meeting by locating the former permanently in London received a decided negative. A suggestion by the proposer that this expedient had been put forward with a view to enhancing the attractions of the Annual Meeting for the general practitioner was not fully expounded. The Brighton motion directed to securing more adequate recognition of the services of members of the Association was dealt with by the only means available when a definite decision either way must do violence to a considerable body of sentiment. The rest of the morning, apart from the interlude of the Lord Mayor's warm welcome to Cardiff, his generous appreciation of the scope of the Association's deliberations, and the first appearance of the President-Elect on the platform, was devoted to a discussion of the Association's relations with the organized profession in other countries, on the motion of Dr Douglas and Dr Lyndon, which was taken as covering the Brighton motion on the same subject. The debate recalled the judicial dictum "I agree with my brother on the left, for the reasons given by my brother on the right." The ultimate decision, carried by an overwhelming majority, was that the Association should not lag behind the British Dental Association on the one hand, and the general public on the other, in its recognition of international obligations and opportunities. The confusion of mind engendered in the attempt to eliminate sentiment, even in considering a question of finance, was, as the Chairman of Council and Dr Cox both pointed out, demonstrated by the Council's original suggestion that membership of the A.P.I.M. would entail unjustifiable expense, but that the greater part of the work incidental to membership should be freely undertaken by the Medical Department on the request, not only of that, but of any other medical organization. The discussion afforded the meeting an opportunity to enjoy Dr Douglas's eloquent reasoning, and to acclaim the Medical Secretary in the character of an unashamed sentimentalist.

During the afternoon session the meeting dispatched the Finance, Building, Organization, Journal, and Science reports, and began discussion of the motions submitted in the Ethical report. Under Finance, Dr Martley's gallant attempt at criticism called forth some attractive essays in definition on either side, and allowed the Treasurer to supplement his lucid opening statement by an explanation of points he had in the first instance passed over as obvious. The motion from South-Eastern Ireland for a compulsory scheme of life insurance, proposed formally from the chair, did not command support, even in the modified form suggested for educative purposes by Dr Walker and Mr D D Evans. The motion from Bath for a reduction of the annual subscription to two guineas, put forward by Dr Gordon in a manner which indicated clearly enough his own opinion of its merits, elicited a reply from the Treasurer, in which he assessed the value of the Association to a member at thrice the amount of his subscription. Sir Robert Bolam's report on the work of the Building Committee raised no criticism and little inquiry—perhaps because of his frank admission that the Committee had as yet produced no buildings. The presentation of the report on Organization by Dr Morton Mackenzie was

distinguished by the remarkably short time occupied in dealing with over four pages of the agenda paper, and the number of "schools of thought" detected by Dr Fothergill amongst the representatives. Such discussion as took place was almost wholly directed to an unsuccessful attempt to improve upon the wording of the by-law recommended in substitution for that which has regulated the subscriptions of members engaged exclusively in the work of medical instruction or medical research. Beyond this it enabled the Chairman of the Representative Body to live up to his renown for scrupulous accuracy of interpretation by demonstrating to the meeting that the accepted practice in respect of amendments placed on the paper by Divisions and Branches was indubitably out of order under the existing by-laws. He subsequently modified the rigour of his ruling by promising to provide personally a means of escape from its application for the remainder of the meeting. The report on the progress of the *Journal* during the past year required no discussion or explanation, but it gave Sir Robert Bolam the opportunity to introduce to the representatives Sir Dawson Williams's successor in the service of the profession through the *British Medical Journal*—an introduction warmly welcomed by the meeting. The report of the Science Committee again provoked comparatively little controversy. The verbal amendment proposed by Hendon on the motion dealing with remuneration of non-professorial medical teachers and laboratory and research workers was readily accepted by Mr Sontar. The main recommendation—that on treatment by radiation and electricity—was debated in some detail, but unfortunately the discussion was less calculated to inform the public on matters very urgently requiring attention in the interests of the health of the community than to confuse them as to the medical practitioner's general attitude in accepting responsibility for such treatment as he may prescribe for his patient. The general acceptance by the representatives of the principle underlying the motions of Aberdeen and Lancashire and Cheshire in connexion with an investigation of the composition of secret remedies by the Association may have done something to mitigate the impression created by the previous debate. The time at disposal between the approval of the Science Committee's report and the adjournment at 6.30 p.m. barely sufficed for the development of the strong feeling which is inevitably engendered by an open discussion of the more delicate and complex problems of ethical procedure.

Saturday, July 21st

Taken as a whole, the second day's session was remarkable for the sustained interest of the discussions, the relative absence of desultory and irrelevant comment, and the amount of highly controversial ground covered. The difficulty of the position which gave rise to the motion by North Middlesex for rendering ineligible for membership a non-member who has accepted and continues to hold a post on terms contrary to the declared policy of the Association was clearly defined in the course of discussion on that motion and of the amendment submitted by Hampstead. The decision to remit the matter to the Council was the outcome of a strong sense of the injustice of the position which has, in fact, been reached in certain cases in existing conditions, balanced by a healthy appreciation of the dangers implicit in the remedies actually proposed. Dr Dain's report on the position created by the provisions of the new Health Insurance Act in connexion with additional medical treatment benefits, reinforced by Dr Brackenbury's lucid exposition, met with a ready response from the Representative Body as a whole. The representatives showed themselves more anxious to understand the position and lend the full weight of their support to those immediately responsible for safeguarding the position of the profession under any new schemes, than to

enjoy then very obvious opportunities for criticism. The debate should have gone far to assure Dr Brackenbury that before the representatives passed to the next section of the agenda "almost all of them" actually understood the points at issue and the methods necessary to guard against all the possible dangers. The motion by Windsor on the periodical medical and dental examination of insured persons owed its success largely to the manner in which it was handled by Dr Casson. The danger that an excellent piece of health propaganda might have its effect spoilt by inopportune emphasis upon the economic implications for the profession was an obvious one, and later in the day might well have proved insuperable. It was with the introduction of the medico-political report that the temper of the meeting changed. On the proposals for general approval, as a basis of negotiation, of the Council's recommendations for the conditions of service of assistant medical officers in mental hospitals, the York amendment (argued by Dr Peter Macdonald with his accustomed vigour and restraint) served, together with the Perth amendment, only to emphasize the care and foresight with which the Council's proposals had been drawn up, for on every point raised direct issue was joined by Dr Brackenbury or Dr Bone, and the sense of the meeting was sufficiently clear to justify the withdrawal of the major amendments. From the start of the discussion on paying centres for infant hygiene, the presence of the Chairman in appealing at this point for "a maximum of forbearance and a minimum of conversation" became apparent. The meeting, as a whole was determined to stand fast on the ground that private practice must be defended from unwarrantable encroachments, and quite simply and very effectively declined to consider the Council's plea for a most carefully weighed and adjusted piece of health propaganda, or the plight of that section of the public which, to secure from the existing body of general practitioners the guidance it needs, is in all good faith appealing to the profession for help in creating a new source of supply. From the moment when Mr Turner brought his address to a term amidst enthusiastic applause it became clear that further argument was useless and that most of the representatives had made up their minds. The debate was, however, responsible for a contribution of unusually high quality from Dr L. W. Batten, and a sane and balanced appeal to past experience from Dr Christine Murrell. Inspired by this victory, the Representative Body had itself just enough in hand to refuse the representative of Darlington permission to withdraw a vote of censure on the Council for the formulation and publication of its recommendations on the contract rates for juvenile Oddfellows without first seeking the permission of the Divisions. This slight difficulty disposed of, a close conflict was joined between Dr Bone and the several "schools of thought" to be distinguished amongst the representatives. It was Dr Bone's strength that he based his argument on facts gathered from the whole country and an evocation of general experience of the profession. The weakness of his position was that no individual (or school of thought) seemed prepared to check the validity of a particular experience by comparison with general experience. The chief defect of a discussion maintained at a really high general level appeared to be a tendency to stand too much on the shifting ground of professional dignity. Eventually, after the introduction of the three minutes limit to speeches, the debate ended by rejection of the motion to refer back, and acceptance of the Council's proposals by 81 to 63—a margin insufficient to give to this verdict the status of a decision of the Association. It remains for the Divisions to find some other means either of altering the facts quoted by Dr Bone, or of assimilating them before the subject comes before the Representative Body again.

The Welsh National Memorial

Before the representatives left Cardiff on their Sunday excursion they assembled around the Welsh National War Memorial in Cathays Park, when a wreath was deposited in the name of the Association at the foot of the memorial. Owing to the fact that Sir Robert Philip, the President of the Association, had not then reached Cardiff, the ceremony was performed by Sir Llew Maclean, the President-Elect, with whom were the Chairman of Council and the Chairman of the Representative Body. The wreath, a large and beautiful one, in which red roses predominated, was deposited by Sir Llew Maclean, who said that it was his privilege to do so in the name of the British Medical Association in remembrance of the sons and daughters of Wales who gave their lives for King and country in the great war.

Luncheon to Overseas Representatives

The officers of the Association and the Chairmen of the Organization and Dominion Committees entertained at lunch on the first day of the Representative Meeting the representatives attending from overseas Branches of the Association. The number of these guests present was sixteen, and in addition there were nine members of Council representing the profession in the Dominions and Colonies. Dr C. O. Hawthorne, who presided, said that this was not meant to be a formal and official ceremony, but rather an opportunity for the promotion of good fellowship. He welcomed the guests as representatives of Branches in which the whole Association felt, naturally, a special interest, and he took occasion also to express the appreciation of the Association at home for the way in which generous and overflowing hospitality had been extended to those who in their turn had gone across the seven seas from the centre of the Association to its periphery. He assured the overseas representatives that the Central Council had a very ready ear for any suggestions which would make the Association a more successful professional organization and a more effective instrument of public service throughout the Empire. Mr C. L. Leopoldt (South Africa) was called upon to respond as one who "carried the British Medical Association with him in parenthesis"—an allusion to the title of the South African organization. Mr Leopoldt said that the parenthesis was like the dog's tail, which wagged the dog, he hoped that the Association would continue its "wagging." In South Africa they were accustomed to look to the central body of the Association for inspiration and stimulus. To their great delight they had had visits from the Medical Secretary and later from Dr Brackenbury, and the visits had been the means of knitting the Association in South Africa more closely to the Association in the Mother Country. Professor D. B. Blacklock (Sierra Leone) also briefly responded, associating himself with what Mr Leopoldt had said about the indebtedness of the profession in those far-away places to the profession at home. Some further remarks were made by Dr G. W. Hart (New Zealand), who pleaded that consideration might be given to the facilities for post-graduate work in this country for those who came from the Dominions. One of his colleagues in New Zealand, who had visited both America and England, spoke regretfully of the absence of post-graduate opportunities in England as compared with their almost embarrassing profusion in the States. In America, instead of having to go and inspect lists, advance programmes were posted on to him, and a car was even sent for him at six in the morning to take him to see an operation. Many of the younger graduates in the Dominions would like to come over to see refinements in surgery, they did not necessarily want elementary teaching. Dr C. B. Blackburn (New South Wales) spoke to the same effect. In America there was no difficulty at all in finding post-graduate facilities,

it was a matter of picking and choosing. Dr Hawthorne said that the ambition expressed was one which enlisted everyone's sympathy. The difficulty of carrying out an organization for post-graduate teaching was considerable, but undoubtedly a movement in that direction was desired, and they all hoped that in course of time it would come to full fruition. In addition to those mentioned, the following overseas representatives were present at the luncheon party: Dr L. R. Grey and Dr J. O. Twomey (Border Branch, South Africa), Dr A. W. Sanders (Pretoria), Mr E. H. Hunt (Hyderabad), Dr G. D. R. Black (Hong-Kong and China), Dr R. G. McPhee (Victorian), Dr R. D. Fitzgerald (Singapore), Dr H. V. A. Gatchell (Tanganyika, Mashonaland), Dr Gordon Spencer (Mesopotamia), Dr A. G. H. Smart (Penang), Dr A. Murphy (Queensland), and Dr Fergusson Stewart (Western Australia). The representatives of overseas Branches on the Council present were: Dr F. J. Gomez (British West Indies), Lieut-Colonel Ashton Street, I.M.S. (India), Dr O. Marriott (Hong-Kong), Mr T. P. Dunhill (New South Wales and Queensland), Dr G. Clark Trotter (New Zealand), Sir Jenner Verrall (South Australian, etc.), Dr Barcroft Anderson (South Africa), Sir Malcolm Watson (Hong-Kong), and Dr W. Watkins-Pitchford (South Africa).

The Religious Service

The official religious service was held in the Parish Church of St John Baptist, Cardiff, on Tuesday afternoon. The preacher was the Rev Garfield Williams, O.B.E., M.B., B.S., Honorary Canon of St Albans, and the Bishop of Llandaff was present. Members assembled and robed in the City Hall, from which a procession was formed to the church, preceded by the Cardiff banner which ordinarily rests, with the other emblems of cities of former Annual Meetings, in the Great Hall at Tavistock Square. The Lord Mayor and certain officials of the Corporation, preceded by mace-bearers, went in advance of the Association procession. At the service Charles Kingsley's hymn, "From Thee all skill and science flow," was sung, and the lesson (Isaiah lv) was read by the President of the Association, Sir Ewon Maclean. Canon Garfield Williams's sermon was an exposition of the character of St Luke, the "beloved physician." He emphasized the evangelist's professional attributes, including his insatiable curiosity about the personal details of those with whom he came in contact. "The general public imagine that in our profession we treat diseases, but we do not, we treat persons. You cannot treat disease *in vacuo*, any more than you can deal with anything else in that way which has to do with personality. Perhaps medicine may have something to teach educationists in this respect. The teacher too often imagines that he can teach a subject, a science, or even a creed, but he can only teach a person." Another trait of St Luke to which the preacher drew attention was his eminently practical mind. He was a companion of Paul the visionary, but it was Luke, the travelling physician of the Levant, who thought out the ways and means. What must this new religion have meant to St Luke as he journeyed from place to place in the Eastern Mediterranean? He must have witnessed how it brought about an inward peace in a distracted world. Peace—a word curiously abused—might be acquired through callous cynicism or through self-satisfaction, but the peace which Luke observed in his fellow religionists and experienced in his own heart was very different and infinitely more sure. It was something which brought serenity and courage and hope in a world where, then as always, noise and glare had largely displaced music and light. Another lesson to be drawn from St Luke, and one which was needed by the present age as much as any, was his conception of the Kingdom of God as a biological growth, not as

a crystalline accretion. The things that mattered in religion were not the filling or the emptying of churches, the saying or not saying of creeds, the acceptance or rejection of revisions, but the inward life, the growth from within outward, expressing itself in modest and beautiful character such as Luke's, and self-denying service such as he rendered to his Lord and his brethren.

LORD BALFOUR ON SCIENCE AND PHILOSOPHY

THE EARL OF BALFOUR, as president of that body, on July 16th gave an address to the third annual meeting of the British Institute of Philosophical Studies—which exists to establish contact between the professed philosophers and the educated public—dealing mainly with the philosophical problems arising from the advance of physical science. His words deserve consideration from all who, like members of the medical profession, are daily involved in the difficult task of reconciling the apparent, as suggested by perception, with the real, as partially disclosed by an incomplete science. It is perhaps appropriate at this juncture to remark on the peculiar fitness of Lord Balfour for the part of mediator between the point of view of the world at large and that of the laboratory and the study. Lord Balfour—who has attained his eightieth birthday since the address was delivered—as Lord President of the Privy Council, is the titular head of the Department of Scientific and Industrial Research and of the Medical Research Council, and the Minister to whom the General Medical Council is responsible. His first philosophic work was written some fifty years ago, and his experience as a Minister of the Crown goes back almost forty years. In view of these circumstances, and of the known clarity of his mind, his address is of unusual interest, he took as his text some words of Professor L. T. Hobhouse: "Philosophy does not consist in pieces of knowledge, but primarily in an attitude, a desire to understand and appreciate." Lord Balfour agreed with this statement, and proceeded to discuss two of the problems which one should understand and appreciate—the problems of perception and induction. The plain man would ask what there was specially requiring to be understood in such simple matters. Perception and induction were fine names for the simple operations of observing the world in which we lived and drawing conclusions from our observations. Mankind was always doing it, mankind had always done it, and with the progress of natural science they would do it more successfully every year. So, said Lord Balfour, thought the plain man. But it was just science that was the cause of their troubles. In pre-scientific days formal logic, morals, metaphysics, and metaphysical theology chiefly occupied the thoughts of philosophers, to these had now been added problems raised by physics, and these all involved perception and induction. Taking, as the most important and most obvious kind of perception, perception by seeing, the speaker described the complex train of causes and effects underlying this process—the emission of energy by electrical charges from matter, the propagation of ethereal waves, followed or accompanied by the psycho-physical process which in each individual case converted the physical message into a mental perception. There was a monotonous simplicity, continued Lord Balfour, about the world he had attempted to describe, and it could not be pictured as possessing either beauty or variety. But it was not merely aesthetically unattractive, it had the further defect of possessing no resemblance to the world they saw. The more they knew what reality was, the less did natural fact harmonize with perceptual experience. In these circumstances, he asked, what became of experience, and by what process of logical legerdemain was science extracted from observation? They lived in a world of illusions, how, by observing such a world, did they succeed in reaching realities? This was one form of

the second question—namely, What is induction? The inductive logic which should justify the inference of general laws wholly from particular observation, even when the observations were admittedly valid, had, in his opinion, still to be discovered. What were they to think of such a task when the observations were admittedly invalid? What were they to say of the self-satisfied theorizing of the eighteenth and nineteenth centuries now that seeing had not only ceased to be believing, but was in open revolt against it? He would make no attempt to solve these difficulties, it sufficed if he had succeeded in giving some support to Professor Hobbouse's statement. Lord Balfour concluded: "I do not suggest that it is every man's duty to be a philosopher, or to spend his time speculating about the universe. I do suggest that those who make no effort to get beyond the teaching of common sense should do so in no boastful or self-confident spirit. Whenever they find common sense opposed to science, let them throw in then lot every time with science. To the man of science, on the other hand, I would say that science, though on the way to truth, is always incomplete and not always true, and that in the present state of our intellectual development its ultimate basis, deeper even than experiment and observation, is faith." Could there be, he asked, a better justification for the existence of such a society as theirs?

B C G

AN excellent summary of the work which has been done in France with B C G (*Bacillus Calmette Guérin*) during the last seven years is given by Dr G. Poix in *La Presse Médicale* (July 11th). After noting that observations in Belgium, Rumania, Greece, Italy, Holland, Norway, Russia, Spain, Austria, Germany, and the United States have confirmed Dr Calmette's work, Dr Poix briefly describes the experimental studies that have been made, and the statistical results, such as they are, of 94,301 vaccinations of the newly born in France. He then deals with certain reservations as regards the efficacy of the treatment made by Austrian authors in particular, and asserts that sensitiveness to tuberculin and immunity are two states, distinct and independent, in organisms infected by the bacillus of Koch. Consequently the fact that the cuti-reaction does not always become positive in the weeks following vaccination is no indication that the subject is non-immune. The duration of the protection given by vaccination remains doubtful, but the infants vaccinated by Weill Halle and Turpin between 1921 and 1924, living in tuberculous surroundings, appear still to maintain their resistance to the disease. The objections to vaccination of infants not exposed to infection, which were recently raised by Dr Lagnieres of Buenos Aires at a meeting of the Académie de Médecine, are shown to be of no validity, they met with no support from the Académie. Whether the subcutaneous administration of B C G to adults, as recently performed by Heimbeck and Schell in Norway, is justifiable remains to be seen. In any case the method can only be applied satisfactorily in specially organized centres for the treatment of tuberculosis. Dr Poix quotes Fontenelle as praising prolonged distrust as the acme of reason, but he considers that the facts about B C G which he has summarized no longer justify scepticism.

PHOTOCHEMISTRY

WE wonder how many of the numerous practitioners of the modern methods of actinotherapy ever reflect that their brilliant clinical results depend fundamentally on the science of photochemistry. Professor Plotnikow, in a short treatise on this subject,¹ has done his best to induce the clinician to contemplate the principles which underlie the art which he applies to the treatment of his patients.

The clinician will not, indeed, glean any tips to enable him to grapple more successfully with those few ailments which even the most whole-hearted of ultra-violet-ray enthusiasts still admit to be intractable to their magic, but he will learn the laws that govern the chemical action of light, the conditions which determine whether any particular compound is susceptible to its influence, and how to calculate the speed or intensity of the reactions invoked, in short, he will gain the advantage of being able to view his own subject from a new angle. As a matter of fact, the author does not claim that he is able to make any contribution to actinotherapeutics, he is more concerned to apply his science to the problems of physiology, especially plant physiology, in which the actions of chlorophyll and some other allied bodies are of the most overwhelming importance. He admits that the chemical reactions of the animal body are of such complexity that demonstration of the action of photochemical principles is almost impossible at the present moment, it is never practicable to isolate photochemical action from other phenomena taking place simultaneously. Professor Plotnikow does, however, point out that there is a field of great promise to medicine, as yet almost untouched, in the investigation of the photochemistry of proteins. We already know that certain foods, if irradiated, become endowed with vitamins, if we can elucidate the photochemical mechanism concerned the possibilities become limitless. The practical results of photochemistry are, however, by no means confined to biological fields. The wonders of the camera and the cinematograph are known to all. Professor Plotnikow fore-shadows a photo-electrical method of harnessing the solar energy—the evolution of a light accumulator. Already in the laboratory a mixture of corrosive sublimate and ferrous chloride can be converted under the action of light, into calomel and ferric chloride, and these bodies, re-forming in the dark the original compounds, produce an electric current. Can we look forward to a time when the sun will supply the power each day for us to turn into electric light every evening?

EXTENSIONS AT ST MARY'S HOSPITAL

THE increasing frequency of demands for the accommodation and treatment of casualty cases, arising from modern traffic conditions in London, was one of the main reasons for the new extension at St Mary's Hospital, Paddington, recently opened by Lord Iveagh. Mr A. R. Prideaux, chairman of the Board of Management, stated that the increasing number of accident and sudden emergency cases which had had to be refused admission in recent years had caused grave concern, and plans were accordingly made for an extension. The completion of this work adds some sixty beds to the hospital's accommodation, many of which will, it is understood, be utilized for casualty cases. In addition, two new operating theatre suites have been provided, and important alterations have been made in other directions. Central heating has been introduced throughout the old wards, the kitchens have been remodelled, and certain auxiliary plants have been installed. The four new wards are situated on the third floor of the centre block—one bearing Lord Iveagh's name in recognition of his services to the hospital—and the theatre suite is on the fourth floor above. Of the amount asked for in the appeal made in 1926—namely, £60,000—£52,000 has so far been received. Lord Iveagh, in the course of his address, referred to the work done in the advancement of medical research at St Mary's Hospital.

In connection with the Annual Meeting of the British Medical Association to be held at Winnipeg in 1930, the Representative Body has approved the nomination by the Canadian Medical Association of Dr W. Harvey Smith of Winnipeg as President of the British Medical Association for the year 1930-31.

¹ *Kurzer Leitfaden der Photochemie* Von Professor Dr. phil. et chem. Plotnikow. Leipzig: G. Thieme, 1928. (5½ x 8½) pp. ix + 186 figures. AL7 503.

INTERNATIONAL CONFERENCE ON CANCER

MELTING OF DELEGATES IN LONDON

(Concluded from page 169)

THE discussions in the International Conference on Cancer in London continued with unabated vigour until July 20th. The report in our last issue carried the proceedings up to the Wednesday morning of Conference week, when the members met in four sections, two of which have already been reported.

SECTION OF PATHOLOGY AND PUBLIC HEALTH Occupational Cancer

Professor W. S. LAZARUS-BARLOW presided over this full and interesting discussion. Dr. J. C. BUIDGE and Dr. S. A. HENRY (both of the Home Office) submitted a paper in which they expressed the view that cancer must, in order to be classified as of industrial origin, fulfil two conditions—namely, that the incidence rate in the occupation under review exceeds that in the general population to a significant extent, and that in the occupation concerned there is sufficient association of the worker with a substance proved experimentally to have carcinogenic properties. Investigation had shown that certain classes of skin epitheliomata might be definitely regarded as industrial in origin. The results of investigations in several industries, including chimney-sweeps, patent fuel workers, cotton spinners, and workers handling salts of arsenic, especially in the manufacture of sheep-dip, were given in detail. The authors added that there was only one effective solution of the difficult question of prevention—namely, the substitution of innocuous bodies for those known to have carcinogenic properties. A binding substance to replace pitch had been invented and shown by Dr. TWORT of Manchester to be non-carcinogenic to animals. Whether its use was a commercial possibility had yet to be proved. In some cases it might well be that substitution was impossible, and then the hope lay in early detection and treatment. The study of occupational cancer was a field of research which should be fully investigated in every country. Dr. T. H. C. STEVENSON also read an opening paper on the relation of cancer to syphilis and alcoholism. The paper compared the cancer mortalities of two groups of occupations, selected as of lowest and highest recorded mortality from syphilitic diseases, and showed that for each site for which the comparison could be made cancer mortality was higher than the average for the occupations of high syphilis mortality and lower for those of low syphilis mortality. Another comparison, between cancer and alcoholism (measured by cirrhosis of the liver), yielded similar but less striking results. Dr. Stevenson pointed out that the carcinogenic influence of alcohol appeared to be less than that of syphilis. The results in both comparisons seemed to point to the rule of a "Godly, righteous, and sober life," which one might well believe to be followed especially by the clergy, and to explain their relative escape from cancer.

Two papers by Dr. O. ROSTOSKI and Dr. G. SCHMOLT, of Dresden, on Schneeberg lung cancer were read by Professor ARCHIBALD LEITCH. This is a pulmonary affection due to malignant tumours of the lungs found in the bismuth, cobalt, and arsenic mining industry in Schneeberg. The fact was established that in a quite circumscribed group of men who all followed the same occupation an excessive incidence of lung tumours was discovered. According to investigations set on foot by the Saxon Cancer Committee there was no doubt that lung cancer occurred endemically among these workers, and a close connexion seemed to be possible between the lung carcinoma and the more or less intense anthracosis of the lungs from which these miners suffered. Dr. A. SCOTT (Broxburn) followed with a paper on the role of mineral oils and paraffins in the production of cancer. He recited the various conditions met with among the paraffin workers of the Scottish shale oil industry and discussed the statistics and the etiological factors predisposing to paraffin workers' cancer, the chief of which were age, length of service, and idiosyncrasy.

Regular examinations of workmen exposed to contact with substances known to be carcinogenic agents were of great value. The occupational cancer of mule spinners was the subject of a paper by Mr. A. H. SOUTHAM (Manchester), and after discussing incidence, clinical features, and treatment, he emphasized the importance of diagnosis at an early stage when operative treatment was a simple procedure. The workers should be educated to pay prompt regard to any warts or small sores on the skin.

Dr. L. CANOZZI (Geneva) dealt with the general question and pleaded for an international inquiry in the various industries involving exposure to cancer risk. Dr. A. F. SLADEN (Swansea) dealt with the occurrence of cancer in brickette workers who handled pitch which got on to a dusty floor. In every case he had seen the disease had been in the scrotum, though it was possible that it could become malignant in other parts of the skin. After the age of 35 men were more prone to develop lesions, not necessarily malignant, and long duration of exposure was a factor. Dr. W. J. O'DONOVAN (London) contributed an elaborate paper on cancer of the skin due to occupation. He mentioned in particular arsenic cancer and oil cancer, and submitted a long list of cases of carcinoma of the hand with the object of showing to what extent a recognizable occupational agent entered into the causation. The hand was the part most frequently involved in occupational cancer, and he urged that those who had performed amputations on hands should bring the cases forward, as these would be of great value to the investigations. Finally, Dr. W. M. DE VRIES described occupational cancer in his country—the Netherlands. There appeared to be few such cases except in patent fuel factories, and even here it was usually a benign papilloma that occurred and not a carcinoma.

RADIOLOGY

Biological Effects of Radium and X Rays

In the Section of Radiology, on Wednesday morning, with Professor SIDNEY RUSSELL in the chair, the subject for discussion was the biological effects of radium and x rays.

Professor C. REOUX (Radium Institute, Paris) said that experiments on the normal tissues of higher animals had shown that different tissues reacted very differently if the intensity and duration of the treatment were varied. Friedrich and Kronig showed that, given the same quantity of radiation on human skin, earlier and more marked effects were produced when the dose was given in shorter periods than when spread over a longer time. It was, however, a mistake to assume that the experimental results obtained with human skin could be applied to other tissues. In 1927 Ferroux and himself, working with x rays, showed that it was practically impossible to produce stimulus in the male rabbit without producing necrosis of the skin, whatever filter might be used. On the other hand, sterilization could be easily and constantly produced without causing any serious and lasting lesions of the integuments if one split the dose and extended it over four or five days. Thus there were differences in the behaviour of various tissues to radiations when the intensity and duration of the treatment were varied. He thought explanation must be sought in the alternation of the radio-sensitivity of the cellular stocks which were dependent on the renewal processes of the normal and neoplastic tissues. He concluded by a reference to the theoretical applications.

Professor H. HOLTMANN (Hamburg) said that certain factors must be considered in regard to dosage apart from the actual quantity used, such as the vitality of the emanation and the depth to which it was desired to penetrate. But so far, no quantitative rules had been made in regard to the quality of rays as used relative to the focus in a particular part of the body. Still, it was known that the skin-tolerance dose should not be exceeded in applying a focal dose. It had been found that the reaction of a certain x-ray dosage on human skin and pig skin within the limits of rays used in deep therapy, was independent of the quality of the rays. The effect of cumulative doses was not denied but the effect of a certain dose given at a number of sittings was greater than the same quantity given at once. Various cells recovered from the impact of rays in periods which showed considerable differences. Investigations made on single

cells were not likely to solve the problem, but they were valuable steps to further knowledge.

Dr D. QUICK (New York) spoke as a physician who dealt with cancer, and his object was to show some correlation between the experimental data arrived at and clinical findings. Much valuable information had resulted from the method of trial and error. Too much was assumed from purely physical measurements, and he asked whether it was quite established that the rays calculated were actually absorbed. Was the action a purely chemical one, or did ionization enter largely into it?

Dr GUSTAV BUCKY (New York) emphasized the peculiar appropriateness of the skin for investigation of the effects of radiation on living tissue, it possessed a variety of functions, and had several layers superimposed on which the separate effects of rays could well be judged. He showed on the screen, in graphic form, the effects on the skin of radiations respectively of 100, 60, and 30 kilovolts to a depth of 1 mm.

Dr R. G. CANNI (London) discussed the relationship of radiation in time and intensity, basing his remarks on work which had been done at Cambridge University. He set out the various time and intensity thresholds which must not be passed. For cancer it was clearly better to use weaker intensities of radiation over a considerable time than a concentrated emanation for a short time.

Dr N. S. FINZI concentrated attention on the latent period, which was important as a means of discovering the mode of action of the irradiation. He defined the latent period as the space of time after the application of radiations before some of their effects became obvious. The latent period depended on several factors, which he detailed.

Other speakers were Professor LAHM (Chemnitz), Dr L. MALLET (Paris), Professor FRANCIS WOOD (Columbia University), Dr S. N. WATERMAN (Amsterdam), Dr A. PINEX (London Cancer Hospital), Professor DYNE (Harvard) who pleaded for uniformity of definitions of intensity, Dr W. C. STEVENSON (Dublin), and Dr SPENCER MONT (London).

RELATIVE VALUES OF SURGERY AND RADIATION

The general discussion on the relative values of surgery and radiation in the treatment of cancer of the cervix, uterus, rectum, breast, and buccal cavity, which was opened on Tuesday morning, July 17th, as reported in our last issue (p. 106), was continued on July 19th, under the chairmanship of Mr J. P. LOCKHART-MUMFERY.

Cancer of the Breast

Professor BURTON LEE (Cornell University) opened with a plea for conservatism in the treatment of primary operable cancer of the breast. He gave tables showing a higher percentage of satisfactory five-year results after irradiation and conservative surgery than were produced by radical amputation, preceded and followed by x-ray therapy. He considered that irradiation in conjunction with conservative surgery justified itself as a therapeutic method in dealing with this disease. Mr SAMUEL HANDLEY submitted as his conclusion that surgical operation in breast cancer still remained a necessity for removing the bulk of the growth and reducing the problem of the radiologist to manageable proportions. For the present, at any rate, surgery and radiology must be colleagues, not competitors. To use either means alone was to fight a dangerous antagonist with only one hand. Dr ROBERT KNOX suggested as a possible grouping of cases: (1) early cases with no metastases detected in the glands, (2) cases with definite metastases in the glands, but no deep seated involvement, (3) advanced cases. In a small number of patients treated at the Cancer Hospital by x-rays after operation, those in the first class alive after five years numbered 71.4 per cent. in the second class, 53.6 per cent. and in the third class, 9.1 per cent. It was, in the second class that radiation treatment appeared to have the best advantage over operation alone. He contended that the combined method offered the patient the best chance of recovery. As for inoperable cases there was no question at all as to the immense value of radiation.

Mr G. GOTTFRY KAYNES said that during the past four years the surgical unit at St Bartholomew's had applied radium to 42 patients with primary carcinoma of the breast. The method of treatment had been to bury radium needles beneath the tumour and in all the accessible areas of lymphatic drainage. At first only patients unsuitable for operation were treated, later the number of cases in an operable condition was increased. Of the 42 patients, 17 were inoperable, 22 operable, and 3 doubtful. Among the inoperable cases six had died of metastatic growths. Two other patients had died of intercurrent disease, and of the 34 patients alive, 13 were apparently cured, 15 had been too recently treated for any judgement to be formed, 2 showed metastases, and 4 recurrences. He thought Mr. HANDLEY's position a little illogical, for Mr. HANDLEY acclaimed the radium method, and yet seemed unwilling to trust to it in primary carcinoma of the breast. Dr J. H. DOUGLAS WENSTER agreed with Professor BURTON LEE that there was not quite sufficient recognition of the unique value of radiation in breast cancer. Radiation treatment could, frankly, make inoperable cases operable, it could also sterilize the operation area, pre-operatively or post-operatively. He thought there was much to be made out in favour of pre-operative radiation.

Cancer of the Buccal Cavity

The final discussion was opened by Dr DOUGLAS QUICK (New York), who said that radiation should be regarded as an additional surgical equipment, not as an opposite to surgery. The experience of his hospital was that radium was preferable to x-rays, and, lately, filtered radon "seeds" had been employed in the treatment of carcinoma of the buccal cavity, with good results. Out of 2,741 patients in whom radium had been used in cancer of the buccal cavity in the course of eleven years, 1,346 were known to have died, and others had been lost sight of, but 780 of the patients were now included in a follow-up system, and of this number 602 were free from any gross evidence of disease. He added that applicators within the month had no value.

Mr STANFORD CADE said that the superiority of radium treatment was such that, so far as the primary growth was concerned, it was, in his opinion, the only method which combined both safety in the actual performance with the best results to be obtained, and this without mutilation. Surgical treatment had given results so indifferent that those obtained by radium appeared brilliant. In operable cases the immediate results were so good that, given the correct technique, this newer and more humane method ought gradually to supersede the older. As regards final cures, periods of five years had now been passed. In his own experience patients were alive and well as long as four years after the treatment, so that it could be confidently expected that ultimate results would be as gratifying as the immediate alleviation offered to the patient. Fifty cases of oral cancer had been treated during the last four years, either by himself or jointly with his colleague at the Westminster Hospital, Mr. Arthur Evans. From a study of these cases it was evident that the treatment of malignant disease of the oral cavity comprised three stages: (1) radium therapy of the primary growth, (2) surgical removal of the cervical glands, and (3) post-operative distance irradiation of the cervical area. Dr G. E. PFAHLER (University of Pennsylvania) said that during the past few years he had been treating carcinoma of the mouth according to the principles laid down by Regaud—namely, that a moderate amount of radiation continued over a considerable time was better than a great amount of radiation given in a short time. As the radiation became more penetrating the diffuse necrotizing effects diminished, then practically disappeared, and finally only the selective effects remained which were manifested in the most radio-sensitive cells, which were the cancer cells in the process of division. Dr PFAHLER had accordingly filtered the rays from radium through the equivalent of 3 or 4 mm. of lead, and prolonged the effect over three or four weeks. The results had made him enthusiastic, and he believed that, taking the average of cases as they first came to the physician, there should be a fifty per cent. chance of cure with thorough and skilful treatment by the harder gamma radiation. Dr B. T. ROSE

(Birmingham) described some work in the Radium Department of the Birmingham General Hospital on lincal and rectal cancer. As to the relative values of surgery and radiation in the treatment of the former, it would appear that both methods were often requisite in a particular case. A growth of the tongue or floor of the mouth which was frankly inoperable was undoubtedly best treated by radium, in an operable growth he thought the choice should be for local excision with the diathermy knife and subsequent irradiation of the scar.

Evaluation of Statistics

Dr JANET LANE CLAYTON (Homo Office) contributed a useful paper on the evaluation of statistics relating to effectiveness of treatment, and mentioned a number of the improper uses frequently made of numerical statements, and the fundamental necessities which should be laid down for any statistical inquiry. The paper was full of illustrations of possible fallacies in the handling of statistics. One, for example, was the so-called "cancer age." It was stated in a number of medical textbooks that cancer of the breast was most prevalent in middle life, and ages were given of patients attending hospital and found to be suffering from this condition. But if the deaths from cancer of any site, or of cancer in general, were compared with the total number of persons alive at that same age, it would be found that the death rate was greater in old age in proportion to the population than in middle life. The explanation of the discrepancy was due to the fact that the actual number of persons alive was greater at middle life, and that after middle life persons ceased almost entirely to make application for operative treatment.

The paper was discussed briefly by Professor JUNGLE (Stuttgart) and Dr CARTER WOOD (New York), the latter pointing out the fallacies underlying group statistics unless pains were taken to grade the cases, not only with regard to the anatomical extent of the tumour, but also to the histological character.

Methods of Treatment by Chemotherapy

A general discussion was held on Thursday morning, July 19th, on methods of treatment by chemotherapy, with special reference to lead, when Sir THOMAS HORDER presided.

Professor BLAIR BELL (Liverpool), in an opening paper, defined chemotherapy as treatment by synthetic preparations having a selective therapeutical action on abnormal tissues of the body and on the organisms which might infect it with or without the production of associated constitutional phenomena. He was one of those who believed that malignant neoplasia was a specific growth-process (dedifferentiation) initiated by many predisposing factors. This reversionary process was directed towards the trophoblastic type, perhaps through, rather than to, that of the embryonic somatic anlage. Hence the adult somatic cell which underwent dedifferentiation passed back through the later stages of somatic development before reaching the primitive type, with the result that malignant neoplasms varied considerably in the degree of dedifferentiation they had undergone, and the most malignant tumours were those in which dedifferentiation was greatest. After some elaboration of this point, Professor Blair Bell went on to say that every chemotherapeutic agent employed in malignant neoplastic disease should have two attributes at least—namely, the power to arrest cell growth generally, and a special affinity for malignant cells and the chorionic epithelium. It had long been known that lead arrested growth generally and caused abortion. He and his colleagues had demonstrated that lead in suitable doses caused coagulation necrosis of the chorionic epithelium, and that abortion was the result of this rather than the sequel to intrauterine haemorrhage of toxic causation. After treatment lead might be recovered from malignant neoplasms in considerable quantity. No very definite conclusions had as yet been reached as to the way in which lead acted on normal growing tissues and on malignant cells, but it appeared possible that the action in regard to cancer was both local and constitutional. A further point was that cancer cells resembled in many ways morpho-

logically and functionally the cells from which they were derived, so that it followed that the less dedifferentiated the cells the more they would resemble the cells from which they arose. It seemed, therefore, that in the synthetic preparation of any chemotherapeutic substance, such as a lead complex, not only should the specific action of the remedial agent in regard to growth and the malignant cell generally be taken into account, but also the special chemical constitution, function, or evolvable reactions of the differentiated (specialized) tissue in which the malignant neoplasm had developed. If it were found possible to make on these lines a preparation of lead which was absolutely specific for any one well defined type of malignant growth it would appear that the lead preparation used should vary according to the original tissue from which the neoplasm had sprung. In conclusion Professor Blair Bell said that although it had been found that lead was detrimental to the cancer cell, just as arsenic was well known to be to the spirochaete, there was still much work to be done, and on that account he would not repeat the analysis of his clinical results, which would be informative only in respect of the beneficial effects observed. He believed that the consensus of opinion would bear out the statement he made in 1922 that the effects of radiations were augmented by the previous use of lead. The employment of lead as a prophylactic measure against recurrence after surgical operations for cancer would, he thought, be held to be of great value. Finally there was a considerable body of evidence to support the view that by itself lead, even in the crude preparations now used could cause the disappearance and apparent cure of malignant neoplasms in favourable circumstances, and sometimes could beneficially affect leukaemia and other neoplastic conditions.

At the conclusion of Professor Blair Bell's opening the CHAIRMAN (Sir Thomas Horder) said that he could have wished Professor Blair Bell had said more about practical therapeutics, but perhaps speakers would so concentrate their remarks that Professor Bell could deal with the points in his reply.

Professor CARTER WOOD (Columbia University) related his experimental studies in lead therapy. About a year ago he published some experiments pointing to the conclusion that with one type of tumour a distinct advantage was gained by a combined administration of x rays and lead. Another—a highly malignant sarcoma of the rat—was not benefited by this combination. Mottram had recently shown that a combination of radium and lead was better than either used alone. Recent experiments in the Crocker Institute on colloidal lead and gold bore on the same question. Colloidal gold was administered as against lead because of the lack of toxic action in the former on the cells. With colloidal lead the tumour was often converted into a haemorrhagic sac, the wall of which was composed of a smudged border of living cancer cells in contact with the normal connective tissues. The experiments he related showed no evidence that lead alone could cure a rapidly growing animal tumour, yet there was a distinct advantage in continuing to study the action of the drug. In the case of the Flexner-Jobling rat tumour the best effect was produced by giving x rays first and following that with repeated doses of lead, beginning four or five days later. The fact that tumours did not alter in size under treatment did not prove that they had not been influenced, as they might well be much less malignant though as large.

Professor W. J. DILLING (Liverpool) said the success being achieved by Professor Blair Bell and others by using lead alone or by radiation, was much greater than could be explained by spontaneous arrest or other cause. He expected a substance to be hit upon which would prove to be more effective than lead but he did not expect a panacea of any kind for cancer. The aim of workers was to find a something which would retard the progress of the malignant cell without damage to surrounding tissues. In cases examined the tumour contained more lead than other tissues did.

Mr BASIL HUME (London) spoke of treatment carried out strictly on the Blair Bell method at St Bartholomew's Hospital under a committee of the college (Professor Blair Bell visited the institution and expressed his full approval

of the method) The conclusions derived were highly unfavourable to the method being tested, though in some of the patients the disease was in a comparatively early stage. All were far from moribund when the treatment was commenced. If they had not been so treated their average expectation of life should have been far greater than the thirteen weeks average they lived. The cases afforded no evidence that the use of lead by intravenous injection led to the resorption of neoplastic tissue in the human subject. In several of the patients grave ill health commenced as soon as the treatment had been begun. No evidence was forthcoming, either, that the type had been changed to one of less malignancy. Yet none of the patients had died as a result of acute or chronic lead poisoning.

Dr STANLEY WYARD (Cancer Hospital, London) said that most observers seemed to agree that there was no greater amount of lead in the tumour after this treatment than in the neighbouring tissues. Without any personal bias, he had tried the effect of colloid lead in a series of inoperable, but not moribund, patients. Of 40 who received sufficient lead 23 died, 10 were worse, 6 showed no change, and only one in any way improved. His own conclusion was that lead was of absolutely no value in the treatment of malignant disease, there seemed no reason for regarding it as effective, and there was no evidence that it was effective.

Dr LORAIN (Paris) gave the results of his experimentation with lead in combination with glycogen, and of the treatment of 21 cases with it. In 4 there was an arrest of the tumour following the treatment.

Dr A. P. THOMSON (Birmingham) said that among 55 cases treated with lead that drug seemed to have a favourable influence on the disease in 15. Even in those, however, the improvement was only temporary. In his experience, colloidal lead had yielded better clinical results than either lead glycine or colloidal lead phosphate. He gave details of all the cases, in one or two of which there was a dramatic improvement.

Dr H. J. B. FRI (London) described the *post-mortem* changes he found in various organs and tissues in patients who had undergone the lead treatment. The chief changes were in the kidneys, liver, spleen, and brain. In the kidneys probably the changes were due to the selective action of the lead on the convoluted tubules.

Professor BLAIR BELL, in reply, contended that little was said in the discussion on the principles of chemotherapy involved. The primary question was as to what advice should be given to patients. In Liverpool they had never allowed a scientific curiosity to outrun humanity, and for that reason they had not restricted their inquiry and their efforts to lead. Many of the 1,000 cases treated had had lead alone and a considerable number had that in combination with deep x-ray therapy. Others had had lead and radium combined. Many patients who came to him from London had been given a harrowing account of the sufferings the treatment entailed, but the truth was it was now known how to prevent that suffering. He did not wish to make further comments on the report from the Cancer Hospital, his comments would be found in the *British Medical Journal*, he apologized to his colleagues for having had to speak so plainly, but misrepresentation of the work going forward at Liverpool could not be allowed. He did go to St Bartholomew's Hospital, but the report of that institution was based on only 20 cases, and 15 of those 20 received only half the proper treatment. That was not the fault of Mr. Hume, it was simply that the patients were too ill, and died before the treatment could have a proper chance. Admittedly, it was at present a crude treatment, but it was along a line which, he hoped, would eventually lead to a considerable lessening of cases of the disease which was afflicting so many fellow beings.

The general discussion was continued by Dr T. LUXSDEN (of the Lister Institute), who spoke of tumour immunity and vaccine treatment. He said that antimalignant cell bodies could be produced which had a specific affinity for cancer cells, they attacked and killed the cancer cells without damaging normal tissue cells. After using vaccine, the immunity was much higher than otherwise. He suggested that those who were treating tumours with radium should not be in a great hurry to get rid of the local growth so as to cause sloughing, because this would prevent the

intense of immunity. He offered to demonstrate the reactions spoken of to any who would visit the Lister Institute.

Dr MONCKTON COLFMAN spoke of the enhanced effect of irradiation after painting the surface with activated shoeesin. This was an absolutely non-toxic substance, and the effect of its use was that a much enhanced effect was produced on the malignant cells. Dr I. D. M. HOCKING (London) described his work on uranium and thorium, and advocated research on mixed colloids in relation to the treatment of cancer. Dr PELCZAR (Cracow) referred to his research into the action of certain lipoids and albumins, and the diminution of tumours into which they were injected.

St. Thomas Hospital's Summary

The CHAIRMAN, in closing the discussion, said that there were three questions which might be asked: (1) Had any patients got well after treatment with lead? The answer to that question, as evidenced by the morning's discussion, was in the affirmative. (2) Had the evolution of the treatment reached such a stage that it had become a practical measure of therapeutics for unselected cases—in other words, could the medical man undertake the responsibility of advising his patient to undergo treatment? To such a question some in the discussion had answered "Yes" and others "No." There was no occasion to be unduly troubled by this lack of unanimity, which was common in the history of many remedies, whether they had ultimately emerged successfully or had been abandoned, but in discussing any method of treatment it was necessary to consider, not only the value of the remedy, but the technique of its administration. The man with the largest experience would for a time after the introduction of a remedy get the best results from it. This might be entirely independent of any undue enthusiasm and consequent bias, but such a position could only be a temporary one. Very soon, if the remedy was really one of value, the results would be obtained by all who took the trouble to master its technique. As to how far this consideration applied to the present position of the lead treatment of cancer, he felt it invidious to judge, but it was an important consideration, and the responsibility he had just referred to must be discharged by the practitioner himself, in whose judgement the patient put his confidence. They could not yet, as a result of that discussion, relieve him of his personal responsibility. It must be clear that no remedy was a practical remedy where the margin of safety between its lethal effects upon the vital tissues and the resorptive effects upon the growth was less than that which admitted of reasonable control. Had the preparations of lead at present available passed that level of practicability? He was not sure—he was speaking personally—that this was not the crux of the position. He felt that they had not yet arrived at the point of safety which would enable them to advise their patients in this direction. One patient, an old pupil of his, declined to proceed further with the lead treatment on account of the very great malaise which the injections produced, and this was one of the cases in which x-ray treatment proved of considerable benefit. This might only mean that the London technique was different from the Liverpool technique, and it might involve one of those fallacies which in such a complex subject were always with them. (3) The third question was: What were the steps it was desirable to take in regard to the non-operable treatment of cancer in the further exploitation of chemotherapy with special reference to lead? In the first place, surely animal experiments should continue, with the proper scientific controls which were usual in laboratory work. Secondly, still further research should be undertaken in the preparation of a lead compound less toxic in its effect than those which had been used, so that the margin of safety might be widened. He did not mean that an entirely non-toxic product need be forthcoming, in such a product he would have little faith. If a drug was not a possible source of danger to the patient it was difficult to believe that it could be productive of any great good. Too much must not be asked for in the way of removal of the toxic principle in therapeutic measures. Thirdly, they need not, so to speak, put all their eggs in one basket, they had to get on with the treatment of

the patient. Surely it was not necessary to change over entirely from measures of known value to measures of unknown value, in other words, they should combine methods of treatment in these cases, and thus, he personally thought, was a very hopeful line to take—to use, perhaps lead, perhaps a variety of these products, in combination with radiation. There was need for a wide horizon, no light should be neglected. All concerned should keep cool and deliberate, to use a political expression, they should “explore every avenue.” If research was pursued patiently and dispassionately a goal would be reached which would justify that morning’s discussion.

SECTIONAL DISCUSSIONS

Friday, July 20th

On the closing day of the Conference it again met in four Sections

Early Recognition and Treatment of Cancer of the Stomach

In the Surgical Section, over which Sir CHARLES GORDON-WATSON presided, Sir BERKELEY MOYNIHAN opened a discussion on this subject. He said that it was to the earlier recognition of cancer of the stomach that attention must be directed. So many patients arrived at the operation table far too late to allow even the most resolute surgeon the opportunity of giving permanent relief. He emphasized the striking diversities found in the disease. If symptoms were so multiform, and therefore so misleading, that sufferers did not seek relief in the curable stage what was to be done? Cancer here and everywhere was at first a local disease, and if it was removable a cure of the condition was possible. There were no symptoms pathognomonic of carcinoma in any of its stages, the symptoms were only suggestive, not conclusive. The success of medical treatment in early cases of cancer of the stomach was one of the causes of the very high mortality of the disease. It was not relief but knowledge that was wanted, and instead of seeking to subdue symptoms, one should seek to evoke them. The main inquiry centred upon the radiologist, whose approach to accuracy, though he was not infallible, was far greater than that of the clinical physician. When the radiologist was in doubt, it was for the surgeon to decide by inspection of the parts. Intemperate exploration was to be condemned. Only after the fullest, most earnest, and repeated inquiry was such a procedure to be undertaken. Examinations by the radiologist, and by the chemist for free hydrochloric acid in the stomach contents and for blood in the faeces must be insisted upon if the present lamentable condition of things in regard to the surgical treatment of gastric carcinoma was to be improved.

Dr A F HURST adduced a number of cases which led to the conclusion that achlorhydria was not the result of carcinoma of the stomach, but preceded its development, and he expressed the view that the large majority of cases of achlorhydria were due to chronic gastritis, which had been shown to be present in almost all cases of carcinoma of the stomach. Dr EDWARD SPRINGS (Ruthin Castle) thought that radiology and chemical tests introduced the danger of giving less time and attention to clinical inquiry. In every case an endeavour should be made to form a diagnosis on clinical evidence, though all other means should be used, especially radiology. He gave particulars of the early symptoms in a series of patients with cancer of the stomach, and said that it was wrong to treat indigestion for any length of time in a middle-aged person without taking steps to exclude cancer. Professor H FINSSTADT (Vienna) dealt with the immediate and permanent results of the resection of the stomach for cancer. He advocated radical operation, with removal of the greater omentum and the entire lymphatic area of the tumour. He considered the removal of the greater omentum particularly important, as he had had to carry out a number of secondary operations for local recurrence in the greater omentum in cases operated on by other surgeons. Professor M J STEWART (Leeds) analysed a series of 239 stomachs or portions of stomachs removed surgically, and pointed to a history in many of the cancer cases strongly suggestive of chronic ulcer. He also emphasized the importance of multiple adenomatous polypi as a

pre-cancerous condition. Mr A J WALTON said that many carcinomas were curable if subjected to early surgical intervention, but carcinoma of the stomach was one of the most unsatisfactory varieties, for early diagnosis was associated with much difficulty, and the late prognosis was not nearly as good as was at one time believed. It was therefore all the more satisfactory to notice that there was little or no evidence that the disease was on the increase. In his own series of cases there was definite evidence that a certain number of cases of carcinoma had started as chronic ulcers. The hope for greater success lay, not only in a wider recognition of the early symptoms of carcinoma, but also in the subjection of chronic ulcers in patients between 40 and 60 to early operative treatment, instead of a long period of medical treatment. Professor D P D WILKIE (Edinburgh) advocated periodical medical examination as the surest means of obtaining early diagnosis. The employment of a barium meal x-ray examination in all cases of obscure ill health would reveal early carcinoma of the stomach when this was present, though clinical signs and symptoms were still indefinite. But no single test was infallible. Mr H W CURSON said that the symptoms, such as pain and vomiting, which brought a patient to his doctor were late and not early symptoms. He believed the first of the symptoms to be loss of appetite, and the second loss of energy, followed by some anaemia and slight loss of weight.

Professor RAFFAELE BASTIANELLI (Rome) gave a brief review of personal experience of 543 cases of cancer of the stomach. These included 239 resections (mortality 28 per cent), 176 gastro-enterostomies (mortality 21.5 per cent), and 118 explorations (mortality 15 per cent). He explained that he did not seek to find reasons for his mortality figures, a great deal depended on the sort of case a surgeon would operate upon. His guiding principle was to remove the stomach as often as the anatomical conditions would allow and as extensively as possible. A great part of the operative mortality was due to thoracic complications. For several years he had employed local anaesthesia in gastric operations, giving only a general anaesthetic in addition when the case demanded it. He favoured a Polya-Reichel technique, employing only Billroth I in exceptional cases, for the former gave the best chances for an extensive successful operation. Special attention was paid to the smaller curvature. A study of the recurrences was important in determining the extent of an operative technique, and a general routine ought to be adopted in all advanced cases. Professor Bastianelli did not think that the ovaries were affected from stomach cancer by cells dropping on to their surface, but the invasion occurred from the hilus by lymphatic spread. Surgery was only one part of treatment, it could not be expected to improve much further. It was no exaggeration to say that with the most hopeful surgical technique at present it could not be expected that more than 7 per cent of patients with stomach cancer seeking advice would be likely to be cured. It was therefore necessary to study the precancerous lesions and use preventive surgery, and the earliest symptoms of cancer must be recognized. Professor Bastianelli discussed these symptoms and signs.

Sir BERKELEY MOYNIHAN, in replying on the discussion, urged the simplification and cheapening of methods to make them more accessible to the public. This was a State problem, and he thought some representation to the Government from the Conference might have effect. Under the national health insurance scheme greater facilities should be given the general practitioner for radiological and laboratory assistance, while representations might be made to insurance companies to reduce the premiums to persons, especially the middle aged and elderly, submitting themselves to periodical medical examination.

Diagnostic Methods in Relation to Cancer

In the Section of Medicine, Diagnosis and Pathology, over which Sir WILLIAM HALE WHITE presided, the discussion was on diagnostic methods.

Sir THOMAS HONNER, in opening, said that so long as the effective treatment of cancer rested with the surgeon and the radiologist so long was its success directly dependent upon early diagnosis. The significance of dyspeptic

symptoms arising in adults previously free from them could scarcely be over-emphasized. He did not, however, agree that the disease had a predisposition in ulcerations, displacements, motor defects, and other types of dyspepsia. That was contrary to statistical facts. In speaking of "abdominal exploration" he wondered if his surgical colleagues might not be defeating the object of diagnosing cancer in its very early stage by insistence upon the complete ritual of the operating theatre whenever a small incision was made for the purpose of ascertaining the nature of a doubtful lump or other abnormality. The ritual, and the alarming drama that so frequently attended it, made exploratory laparotomies exceedingly unpopular with the patient and added greatly to the physician's difficulties in the event of his decision to advise such procedure. As to instruments used in diagnosis the speaker entered a plea for the more frequent use of the sigmoidoscope, the cystoscope, and the laryngoscope. Of late years radiology had, without question, proved the greatest addition to diagnostic methods. That great care and much forbearance were needed in the interpretation of radioscopic shadows went without saying. The fallacies and pitfalls in the science were admitted even by the most expert. Nevertheless, the value of the method was already scarcely calculable, and must tend to become even greater as experience and invention increased. Biopsy was a method of diagnosis that approached nearer to certainty, perhaps, than any other, but, again, only the expert realized all the fallacies. That form of biopsy termed the "fresh section" taken in the operation theatre was notoriously more open to error in the hands of all except the very experienced. Serology was still in its infancy so far as cancer diagnosis was concerned. It might never grow to full stature because the stage of cancer development at which diagnosis was imperative was that before which blood changes were to be expected. Nevertheless, it would be foolish to set a limit to serology or to the methods of haematology and biochemistry. One never knew, in the history of a malignant growth, when changes might occur in the blood and tissue fluids which, though they might escape clinical detection, might yet not escape the keen eye of the pipette or the test tube.

Dr T. IZOD BENNETT (London) confined his remarks to the diagnosis of cancer of the stomach. Indisputably x-ray examination, both by the screen and by x-ray photography, constituted the method of first choice in all cases of carcinoma, but it had to be remembered that occasionally benign tumours, or even syphilitic lesions, would give x-ray appearances quite indistinguishable from those of cancer. Much confusion existed in the minds of medical men as to the actual value of gastric analysis in the diagnosis of cancer of the stomach, but the speaker said that after many years' experience he had come to the conclusion that a carefully performed gastric analysis yielded a reliable diagnosis in considerably more than 90 per cent of all cases. It was more than fifteen years since gastroscopy as a means of inquiry had been introduced in London, and it had to be confessed that up till now its results had been somewhat disappointing. Probably in ten years' time it would become as rare for a surgeon to perform an exploratory laparotomy without gastroscopy as it was now for the bladder to be operated on without preliminary cystoscopy.

Dr MACCARTY (Mayo Clinic) asked what was meant by early diagnosis of cancer? Did early cancers give textbook signs and symptoms? They did not. No cancer in any part of the body was early if larger than half a centimetre in diameter. Did the general post-mortem pathologist see early cancer? He did not. Early cancer did not kill the patient. In attempting to discover early stages were there any specific diagnostic methods which could be used? If in the absence of specific diagnostic methods physicians waited for classical symptoms, then they might just as well cease urging the public to come early to them. Professor L. S. DUNGEON (London) described the wet film examination of new growths, the technique of which was based on Schaudinn's method. It was, by that method, comparatively easy to distinguish between malignant and benign growths, the carcinoma cell appearing very much larger than the benign. Professor W. C. M. LEWIS (Liverpool)

dealt with the influence of normal and cancerous blood serum on pancreatic lipase action and the effect of lead threonon. While admitting that the method was not necessarily diagnostic of cancer he thought it of undoubted value in estimating the severity of the lesion and rate of progress. Dr H. J. B. LIND dealt with a flocculation reaction for the serodiagnosis of malignant disease, and Professor M. ASCOLI (Catania), in the course of some general remarks on serum diagnosis of malignant disease, expressed surprise that the Conference was apparently taking so little interest in such diagnosis. In his view it was only possible to diagnose early cancer by a careful study of blood changes. Professor E. C. DODDS (London), on the other hand, detailed the result of observations he had made in conjunction with Dr W. LANSON on methods for the diagnosis of cancer by a study of the blood, and took it that the fact that no one had mentioned the Abderhalden reaction and its modifications was an indication that that reaction was dying the death it deserved. The Shaw-Mackenzie reaction, as well as the Ringold method, had been investigated, and proved to be non-specific. Dr K. ICHIKAWA (Sapporo, Japan) discussed a method for the early serodiagnosis of cancer by means of the reaction of Botelho. Dr J. A. BRAXTON HICKS described experiments carried out by himself and Dr F. D. M. HOCKING aiming at the evolution of a "complement-fixation test" for cancer, which, however, had had to be abandoned owing to the inconclusiveness of the results. Dr STANLEY MELVILLE discussed the diagnosis of intrathoracic new growth from the radiological standpoint. He thought primary sarcoma of the lung exceedingly rare, the most common malignant growths of the lung being carcinomata. In his opinion the greatest aids to the diagnosis of lobe carcinoma were the production of an artificial pneumothorax for diagnostic purposes and intratracheal injection of lipiodol.

Sir WILLIAM WILCOX, in closing the discussion, added points he regarded as of undoubted value in diagnosis of cancer of the stomach, and said that the presence of a lump did not necessarily mean that the case was one of carcinoma. In the chemical diagnosis of carcinoma of the stomach it was well to remember that one of the early signs was a rapid falling off in the ferment activity. Further, it was necessary to decide in cases of carcinoma how much active hydrochloric acid was present in combination with protein, and for that reason he preferred the results of analysis of an ordinary test meal to the fractional method of examination. Another point to bear in mind was that in carcinoma of the stomach the percentage of inorganic chlorides was much increased.

The Effects of Radium and X Rays on the Blood-vascular and Lymphatic Systems

In the Section of Radiology, over which Dr ROBERT KNOW presided, the subject of discussion was the effects of radium and x rays on the blood-vascular and lymphatic systems, with special reference to malignant growths.

Dr F. CARTER WOOD (Columbia University) said it had long been known that radiation caused a thickening of vessel walls, and the changes in them, following radium and x rays, were clear-cut and interesting. Whether the tissue starvation following the partial or complete closure of vessels on irradiation was the cause of neoplastic changes in the skin following prolonged use of the rays had not been settled. Exner had pointed out that years after radium treatment a tumour might recur, he had himself seen epithelioma of the lip recur thirteen years after a radium cure. He regarded these vessel changes as among the most important factors in the arrest of cancerous growths by irradiation.

Dr A. LACASSAGNE (Paris) asked what part was played by circulatory changes in the regression of irradiated cancerous tissues. It might be due to lack of nutrition to the growth owing to obstruction in the capillaries, but he doubted this hypothesis, especially as attempts at ligation of a cancerous growth failed to arrest it, also because cytological changes, analogous to those seen in regressing malignant tissue, were present in normal tissues after irradiation. With regard to lymphatic vessels, irradiation with cancer-sterilizing doses was capable of disturbing lymphatic circulation, as shown by the local oedemas seen. He con-

sidered that the death of the cancer cells (an absolute necessity for cure) was brought about by direct action of the radiation on the cancer cells themselves.

Professor HOLFELDER (Frankfort-on-Maine) said that it was the vascular and lymphatic systems' reaction which prevented more than a particular dose of rays being given. The aim in radiating should be to act as strongly as possible on the tumour cells while saving the vascular systems. Hence the method should be chosen which exerted the greatest selective effect on the tumour cells—that is, safeguarding surrounding tissues and blood vessels. Yet he agreed with Ewing that practical irradiation acted largely through vascular disturbance. The slow progress of the lymph stream was a cause of depositions of cancer cells being found in lymphatics when metastases had occurred, when none were present in blood vessels of the part. Wintz of Erlangen had directed attention to the favourable effect of a heavy radiation previous to amputation of the breast in the prevention of lymphatic metastases. He asked that reliable figures might be compiled by different workers as to the biological effects of a given amount of irradiation, administered by various methods, such as those of Alberti and Politzer. Much importance was attached to a wide exchange of clinical experiences.

Mr CLIFFORD MORSON, speaking as a surgeon who employed radiology, gave the results of his fifteen years' experience on the effects of irradiation on the blood vessels. A very large dose of radium could cause extravasation of blood, while a smaller dose caused obliteration of the lumen without a rupture of the walls. Angioma could be caused to disappear by appropriate radium treatment, while malignant growth of blood vessels (endothelioma) could be destroyed by irradiation. The greater the vascularity of the organ in which the tumour was growing, the better were the results from the application of rays. Dr DOUGLAS WEBSTER said that huge doses of irradiation were needed to damage cancer cells directly, not only was the cancer cell to be thought of, but also the connective tissue stroma in the growth, and the blood and lymphatic distribution. It was difficult to devise experiments which would settle the fourfold factor present in malignant disease. Professor HOLTHUSEN (Hamburg) asked that the functional side of the problem might be kept in mind, and the fact that the reactivity of blood vessels altered in tissues which had been irradiated, and in those subjected to ultra-violet light. Hence erythema was not always a true indicator of the damage done by rays on the cells.

Dr WALTER STEVENSON (Dublin) gave some clinical experiences, and Dr F. T. BURKITT discussed the direct action produced on blood by purely gamma rays of irradiation, one result being the setting up of aplastic anaemia, especially in those continuously working with radium. Dr PRAHLER (Pennsylvania) said he was convinced that fibrosis, telangiectases, and necroses were the result of cumulative effects of γ rays, rather than of a single massive dose. Dr W. LEVITT spoke of a series of 34 cases of inoperable malignant disease which he had treated by α rays in an intensive way, all the patients being now apparently free from any signs of malignant disease. In all of them there had occurred a rapid decrease in the lymphocyte count.

The CHAIRMAN (Dr Knox) said that, quite correctly, most importance was attached to the direct action of the rays on tumours. But in the past the indirect action had been largely neglected or given too little weight. For some years he had himself given considerable attention to that aspect, and now he had been able to organize a research of a comprehensive nature, the blood having been selected as the tissue for the preliminary examination. Ahead of important points were emerging, and several times he had felt satisfaction that he had had systematic blood counts made in his cases. It would prove to be a valuable guide to dosage. A drop in the number of lymphocytes could be taken as an indication to "go slow" with radiation treatment.

Geographical and Racial Prevalence

In the Section of Statistics and Public Health, presided over by Dr F. E. FREEMANTLE, M.P., the discussion was on the geographical and racial prevalence of cancer. Professor M. GREENWOOD pointed out that comparisons

between races widely separated geographically were not always conclusive or reliable. After indicating certain differences in the mortality rate in various countries, he said that at present there was not enough information available to provide any explanation of such differences as that, for example, the rate of mortality from cancer of the female reproductive organs was very much higher in the Netherlands than in England and Wales. Professor Greenwood also read two papers by foreign members. One of these, by Professor ALFREDO NICEFONO (Naples), set out a number of errors frequently made in the study of cancer mortality by means of demographic statistics, and the other, by Professor PITTARD (Geneva), suggested that it was not possible to consider the soil on which a disease might establish itself as devoid of interest in etiological research. The author thought the higher cancer mortality in London as compared with New York might be due to the higher proportion in London of the Nordic type. Dr PERCY STOCKS (London) set forth the evidence for a regional distribution of cancer prevalence in England and Wales. He drew the deduction that as the mean cancer indices of the county areas varied over such wide limits, and the counties grouped themselves into such definite regions of high and low prevalence, there could be no question but that geographical influences were in some way concerned.

Dr SOUNASKY (London) dealt with the incidence of cancer among Jews. The total mortality from cancer in Jews varied among different Jewish communities in much the same way as among non-Jews of the same areas, in other words, it had a geographical rather than a racial distribution. But cancer of the uterus was low among Jewish women, not, he believed, as the result of any degree of racial immunity, but of environmental factors operating in their lives. Dr MATTHEW YOUNG said that if there was any relationship between the cancer mortality and the prevalence of brachycephaly in the different regions of Scotland, it appeared to be an inverse relation and not the direct one which was supposed to exist in various European countries.

Public Action in Regard to Cancer

Sir GEORGE BUCHANAN gave an account of the work of the Ministry of Health, the Departmental Committee on Cancer, the work in this direction of the League of Nations, and the increasing number of voluntary agencies. Though the public work done in this country might appear to be meagre, it had in it the elements of useful development on almost every side. Professor MAIRIN (Louvain) urged the establishment in every country of anti-cancer centres for treatment, research, instruction, and propaganda. The methods of the American Society for the Control of Cancer were explained by Dr G. A. SOPER (New York). These included printed and filmed instructions to the public, "cancer weeks," and the like. Dr S. REIMANN (Philadelphia) said that as a result of the educational campaign in the States there had been a steady decrease in the length of the period which elapsed before the sufferer sought medical advice. Sir JOHN ROBERTSON (Birmingham) spoke of the problem of the education of the public as it presented itself to a medical officer of health. Dr VEITCH CLARK (Manchester) made certain suggestions as to how the public mind could be cleared of some popular misconceptions regarding cancer, and Professor F. FICHERI and Dr L. M. McKILLIP described cancer campaigns respectively in Italy and in Australia.

DEMONSTRATIONS

On Tuesday afternoon visits were paid by the delegates to the Middlesex Hospital and the Radium Institute. In the Bland-Sutton Institute of Pathology, under the guidance of Professor J. McINTOSH and Drs BAKER, MORRIS, and PROGER, there were shown demonstrations of unusual tumours, studies of the Rous sarcoma, some experiments in lead therapy in cancer, and the application of the cinematograph to the study of tissue culture. At the Courtauld Institute of Biochemistry, Professor E. O. DODDS, Mr W. LAWSON, and Drs DICKENS and FRY WATSON had arranged demonstrations on the metabolism

of tumours, a trial of some unsuccessful methods for the sero-diagnosis of cancer, and routine observations on patients undergoing radical operation in the Barnato-Jool Laboratories, with Professor S. Russ and Drs. MORRISON and HELEN CHAMBERS in charge, there were demonstrations on the effects of x-rays and radium upon tumour growth, and experiments on the physiological action of x-rays. The delegates also witnessed operations in the theatres. At the Radium Institute demonstrations were given by Dr. PHILIP GOSSE and Dr. ROX WARD with radium applicators and radon "seeds," the preparation and filling of which were shown.

In the afternoon of July 18th a series of demonstrations was arranged at St. Bartholomew's Hospital to illustrate the value of the radiological treatment of cancer in various situations, the principles of the technique employed, and the pathology of the process. Mr. GIFFORD KRYNKA showed a series of cases of carcinoma of the breast treated, for the most part, solely by radium. In one or two of the earlier cases in the series this had been combined with surgical measures, but in the majority the application of radium alone had been found to be fully effective. The number of cases and the high degree of success rendered this demonstration one of exceptional interest. Mr. KEYNES later gave a practical demonstration of the insertion of radium needles for the treatment of this condition. Professor GASK showed a series of cases in which radon seeds had been employed for the treatment of rodent ulcer, secondary peritoneal growths, and cerebral tumours, the seeds being subsequently left *in situ*. In one instance the radon seed had been introduced into the pituitary fossa, the patient obtaining marked relief from giddiness, blindness, and headache, due to a tumour in this situation. Mr. FRANK ROSE, Dr. FINZI, and Dr. LEVITT exhibited several successful cases of treatment of carcinoma of the tongue and larynx, the contrast with the results of old methods such as laryngo-fissure being very striking. The value of deep x-ray therapy was also illustrated. Mr. ROSE also demonstrated the insertion of radon seeds in carcinoma of the oesophagus. Sir CHARLES GORDON-WARSON showed cases of carcinoma of the rectum treated by radium, and performed the operation for the insertion of radium in this condition. Gynaecological cases were shown by Drs. BARRIS, DONALDSON, and LEVITT, and the insertion of radium by the abdominal and vaginal routes for the treatment of uterine cancer was demonstrated in the operating theatres. A series of pathological demonstrations dealt particularly with tissue culture and the influence on mitosis of x-rays and radium. Dr. R. G. CANTI showed specimens illustrating the effect of radium on uterine cancer. Exhibits by Miss FELL and by other members from the Strangeways laboratories were also on view illustrating tissue differentiation *in vitro* of the ear, and of cartilage and bone, cultures of Jensen's rat sarcoma, and the delayed lethal effect of radium on tissues cultivated *in vitro*. Museum specimens of various unusual malignant tumours were also shown. Dr. CANTI later gave a cinematograph demonstration of living tissue cells cultivated *in vitro*, and indicated the action of radium upon them. It will be recalled that Dr. CANTI gave a similar demonstration at the Annual Meeting of the British Medical Association last year at Edinburgh, of which a report appeared in our columns on August 20th, 1927 (p. 313). Lastly, Professor HOPWOOD and Dr. LEVITT exhibited radiological apparatus, with special reference to deep x-ray therapy.

The visits paid by the delegates on Thursday afternoon were to the Cancer Hospital, Westminster Hospital, St. Mark's Hospital, and the Lister Institute. At the Cancer Hospital Professor Archibald Leitch was able to show the first Rous tumour produced by the ferment referred to in the discovery reported by Dr. Murphy of the Rockefeller Institute two days previously. Other demonstrations, experimental and clinical, were given, including one of animal tumours produced by various carcinogenic agents. The radiological department was the scene of further demonstrations, and operations for cancer were performed by the surgeons attached to the hospital. At the Westminster Hospital there were clinical demonstra-

tions by Mr. Stanford Cade and Mr. Arthur Evans, Dr. Branton Hicks and Dr. Hocking showed specimens, and the x-ray department was also open. At St. Mark's Hospital also operations were performed and demonstrations were given in the research and other departments by Dr. Cuthbert Dukes and others. At the Lister Institute there was a series of demonstrations by Dr. Thomas Lumsden, assisted by Miss Kohn Speyer.

On the last afternoon of the Conference demonstrations by Dr. W. J. Gye and Mr. J. B. Barnard were given at the laboratories of the Medical Research Council, and at Guy's Hospital demonstrations of crises and of deep-therapy methods were given by Dr. W. L. Watt, and in the theatre operations were carried out by the surgeons of the hospital. At the Royal College of Surgeons Dr. J. A. Murray gave a lecture on the Imperial Cancer Research Fund and its work, Sir Arthur Keith gave a demonstration in the museum, and other demonstrations of pathological specimens and of objects of historical medical interest were given by Mr. T. W. P. Lawrence and Mr. J. F. Thomson. The Wellcome Museum of Medical Science was open every day to the delegates, for whom some special exhibits were arranged.

On Saturday, July 21st, many of the delegates visited the Woolwich War Memorial Hospital on Shooter's Hill and inspected the operating theatres, wards, and special departments. This fine institution was erected as a memorial to the 6,240 residents of Woolwich who fell in the war, it was opened last November by the Duke of York, and descriptions of it appeared in our columns on May 14th, 1927 (p. 892), and November 12th (p. 886).

ETIOLOGY OF CANCER

The following note of his contribution to the discussion on this subject, reported in our last issue, has been received from Professor Blair Bell.

The title allotted to this discussion covers so wide a field of knowledge and of speculation that it is impossible for any speaker in the time at his disposal to do more than make a short general survey or to mention some one aspect of what in truth is a meshwork of interwoven and related chemical and physical phenomena. We may speak of predisposing factors of a constitutional nature, among which may be included inherited cellular characteristics, which can hardly be excluded from any pathological liability. We may identify metabolic changes in the acid-alkali balance, enzymic or co-enzymic modification in the blood, and even toxic states due to a variety of causes. We know, too, of many predisposing causes acting locally which have carcinogenic or precarcinogenic (precancerous) attributes, and for all we know these may be rendered more effective by association with constitutional predisposing factors. Coming to the question of the malignant neoplastic change itself, we are here on safer ground, for this aspect of the subject is more readily open to experimental attack and to pathological investigation. My own views concerning the nature of malignant neoplasia—namely, that it is a specific growth process of dedifferentiation back to the primitive type of cell represented by the chorionic epithelium—and the large body of evidence we have adduced in support of our thesis should be well known, for we have repeatedly discussed the matter in various publications. It may, however, with justice be argued that between the predisposing factor, whether it be sudden trauma or one of the long list of agents, extrinsic and intrinsic, that produce the precancerous state by what is called "chronic irritation," but which would be better described as gradual devitalization, possibly with reduction of the oxygen supply or diminution of the oxidation processes, and the ultimate degradation of the cell to an earlier phase of development, there is one event at least, possibly several, which determines the change-over from the highly specialized state to the reversionary retreat which enables the previously differentiated cell to survive. The questions I wish, therefore, to present are: (1) Is any intermediate factor apart from a metabolic change—for example, oxidation derangement—necessary? (2) If so, what is the nature of the intermediate factor? These are surely most difficult questions to answer on the evidence we possess. It is possible to believe that local, metabolic conditions which lead to the production of an excess of lactic acid, with the resulting aid to cellular multiplication and invasion, may be all that is necessary for us to postulate. On the other hand, if there be an intervening factor between cellular devitalization and malignant neoplasia, surely this ought—on *a priori* grounds—to be

related to the controlling factors of cellular differentiation which appear to be inherently connected with the relationship between one type of somatic cell and another adjacent type.

So it may be that metabolic isolation of a cell can be construed into a condition whereby there is a withdrawal or loss of the control of differentiation, or, indeed, it may be that the altered chemical state of the damaged cell may break some chemical relationship with and control by, adjacent cells. One can conceive all kinds of alterations in this direction as the result of changes in cellular permeability alone—a disturbance of co-ordinated intercellular equilibrium. In this connexion it is interesting to note that Fischer has observed that while the normal differentiated cell cannot survive alone—a single unit—in cultures *in vitro*, the neoplastic cell can not only do so, but also can multiply. It seems, however, that we are too far from a knowledge of these intimate physico-chemical matters—and the problem appears to be essentially a chemical one—to prosecute any method of attack on malignant disease along such vague lines. For the present it is important to recognize the factors concerned in cellular devitalization in order to institute preventive measures, and to understand the nature of the malignant process in order that we may conduct the treatment of the disease on scientific lines.

CORRECTION

MR VICTOR BONNEY asks that the following figures be substituted for those which appeared in the report of his remarks published in the *Journal* of July 21st (p. 106, col. 2).

Up to the end of 1927 he had performed Wertheim's operation 351 times. There were 53 deaths due to the operation—an operative mortality of 15.1 per cent. Of the 298 patients who survived the operation 139 had died of recurrence, and of the remaining 159, 13 had died of other diseases, of whom 6 survived over five years (3 survived over ten years), and 30 had been lost sight of, 17 after they had passed the five year limit (5 had passed the ten year limit), and there were 116 patients whom he was still in touch with. Of these latter, 64 had passed the five year limit, 35 of whom had passed the ten year limit, whilst the remaining 52 had been operated on at periods less than five years ago. In all then, 87 patients had survived the operation five or more years, 43 of whom had survived it ten or more years.

CANCER HOSPITAL DINNER

In connexion with the International Cancer Conference a dinner was given at the Langham Hotel on the evening of July 19th by the medical and surgical staff of the Cancer Hospital, London. The chair was taken by Mr W. ERNEST MILES, senior surgeon to the hospital, who had immediately beside him Sir John Bland Sutton (president of the Conference), Dr Rotgans (professor of surgery in the University of Amsterdam), Sir Berkeley Moynihan (President of the Royal College of Surgeons of England), Dr James Ewing (professor of pathology in Cornell University), Dr Raffaele Bastianelli (professor of surgery in the University of Rome), Professor C. Regaud (director of the Radium Institute, Paris), and Sir Richard Garton (secretary of the Conference). In submitting the toast of the "Cancer Hospital," Sir BERKELEY MOYNIHAN described the voluntary hospitals of this country as a monument to the compassion of the English people, and praised the work of the institution whose staff were the hosts on this occasion, recalling with special gratitude the memory of Charles Ryall. Two points he wished to drive home: that hospitals were not merely sanctuaries for the sick and suffering but also research institutions, and that research in ward and theatre must not be ranked behind that carried out in the "criminal investigation department" of the laboratory. The CHAIRMAN, after acknowledging the toast, proposed the health of the visitors from abroad, and expressed the debt of all present to the British Empire Cancer Campaign for providing an opportunity in this Conference of meeting workers from many countries and exchanging experience and ideas. As a surgeon it was now evident to him that henceforth surgery, when it attacked cancer, must work hand in hand with radium. The toast was responded to by Professor ROTGANS, who said that international co-operation offered the best hope for the conquest of cancer, and expressed on behalf of his fellow guests their warm appreciation of British friendliness and hospitality. Dr J. B. MURPHY (pathologist to the Rockefeller Institute, New York), who also spoke in reply, proclaimed his deep respect for British medical institutions, and in particular for the Cancer Free Hos-

pital, which, according to the minute book of 1851, was founded for "investigation and treatment," and the order of those words was significant. Further progress in cancer, he felt certain, must depend on consultation between surgeon, radiologist, and pathologist. The last toast, that of "The Chairman," was proposed by Sir CHARLES GORDON-WATSON, who paid tribute to Mr Miles's mastery of operative technique and his qualities as a sportsman and a friend.

England and Wales.

Centenary of a Yorkshire Medical Charity

THE hundredth annual meeting of the Medical Charitable Society for the West Riding of the County of York was held recently in Leeds, under the presidency of Dr A. G. Barrs, the minutes of the society record that it was established in 1828 "at a numerous and respectable meeting of physicians and surgeons of the West Riding of the County of York, held at Turnbull's Hotel, Leeds, on Friday, July 25th, Dr Thorp in the chair." In 1901 Mr Wheelhouse, who had at that time been treasurer for many years, wrote the story of its origin and of its early years, and showed how, with care, enthusiasm, and economy, the society had developed into its then flourishing condition. He concluded his preface with the triumphant sentence "Let the condition of the society, now in its seventy-third year, speak for itself, it is relieving thirty-four families, is distributing among them upwards of £1,200 every year, and, since it commenced its career, has disbursed among its applicants no less a sum than £34,403. Long may it succeed in carrying on so grand a work." He might have added that, at that date, the society held investments of the nominal value of £26,799. The hope expressed by Mr Wheelhouse has been more than realized, for during the twenty-seven years since it has distributed no less than £44,973 among its beneficiaries, making a grand total during the hundred years of its existence of £79,376, its invested funds have a nominal value of £44,996, in the purchase of which the sum of £40,604 has been expended. At the last annual meeting grants amounting to £1,874 were made for the year beginning July 1st, 1928, and, in celebration of the centenary, a bonus of about 25 per cent. of the grant to each applicant was given in addition. The society has thus undertaken to pay out in grants and in bonus for the current year the sum of £2,342, and the treasurer, Dr Wardrop Griffiths, was able to assure the meeting that it could do so without fear. The society is essentially a charity, for those who join do so from altruistic motives and no application made to the society has any legal claim to relief. It is not only a duty for everyone who is eligible to join the society, it is an act of wisdom, for if he himself, or those whom he leaves behind him, should require assistance, he will know that the necessities of the case will be considered by a body of his fellows, and that all that can be done in equity and in fairness will be done. Quoting again from Mr Wheelhouse's interesting pamphlet, we give the following extract from the report for 1895: "Of the former (a member, the last of whose family had passed away during the preceding year) it may be of interest to members to know that she and her mother and her father before them have been on our list of pensioners for no less than fifty-five years and have received in accumulated grants since 1840, when the first was made, no less a sum than £1,750! A handsome return for the four guineas, which was all that the father's membership had cost him—a fact which it seems to your officers should speak with trumpet tongue to non-subscribers." Candidates for membership have to be proposed and seconded by members to whom they are personally known and are elected at the annual meeting. The largest number of new members elected in any one year has hitherto been 63. This year, in celebration of the centenary, no fewer than 145 were elected, and the society now, for the first time, numbers more than 1,000, for the year begins with a membership of 1,043. Every medical man in the West Riding who is eligible for membership should consider joining this excellent society.

The Surrey County Sanatorium

In 1912 the Surrey County Council, under its tuberculosis scheme, began to arrange with hospitals and sanatoriums in London and elsewhere for the provision of beds for tuberculous patients, paying fees approved by the Minister of Health. At the present time about 400 patients are under such treatment. In 1913 the county council acquired a site at Milford with a view to possessing its own sanatorium. It was proposed to accommodate 200 patients at a capital cost of £35,000, or £175 per bed. In 1919 the cost was estimated at £80,000, or £400 per bed, and considerations of economy led to the postponement of the proposal to build the sanatorium. By 1924 the increasing number of patients requiring treatment led to 100 additional beds in existing institutions being occupied by Surrey patients. The original scheme for a sanatorium at Milford was extended with a view to accommodating 300 patients, amended plans were prepared, and the revised estimate became £198,000, or £660 per bed. The sanatorium is now complete, and has cost £210,000, or £700 per bed. There are six single story pavilions in the sanatorium, each containing 50 beds. Two pavilions are for patients in an advanced stage of the disease, four for intermediate and early cases. In the centre is the administrative block, with main-kitchens and dining rooms, connected with the pavilions by covered ways. The administrative block contains examination rooms, x-ray and dental departments, various offices, and residence for the assistant medical officers and the matron. The nursing staff is accommodated in a separate building. A water tower and a boiler-house form a prominent feature in the landscape. All water and heating pipes, electric cables, telephone wires, and fire mains are carried in a subway, to allow of easy examination and repair. The site of 110 acres cost £8,234. Building operations on the site began in April, 1926, the foundation stone was laid in May, 1927, and on July 20th of this year Mr Neville Chamberlain, the Minister of Health, attended to declare the sanatorium open. The chairman of the county council, after stating that there were more patients on the waiting lists in Surrey than could be provided with sanatorium treatment, emphasized the dual function of these institutions in providing direct benefit to individual patients and in removing potential sources of danger to others. The chairman of the public health committee said that, while in 1919 there were 3,000 known cases of tuberculosis in Surrey with 300 patients in various institutions, in 1927 there were 4,000 cases. The chief difficulty experienced was in finding beds for advanced cases. Mr Chamberlain, in declaring the sanatorium open, noted that while an appeal had been made recently in London for £100,000 for the prevention of tuberculosis, £200,000 had been spent in the single county of Surrey for the sanatorium treatment of the disease. Slowly but surely during the last fifty years tuberculosis was being mastered, and people were being led gradually to understand its cause and the way to reduce its incidence. The medical superintendent of a sanatorium had much to do in adapting circumstances to the condition of the patients, he must win their confidence and collaboration, and he would obtain the best results by devising occupations for those under his care. Sanatoriums were sometimes said to be a waste of money, but this statement was based on imperfect information. For their full success early diagnosis was important. Mr Chamberlain quoted evidence obtained from an investigation into the after-results in patients treated at the Brompton Hospital sanatorium, and concluded by urging the need for three procedures in dealing with tuberculosis: early diagnosis, careful conduct of institutions, and effective after-care work.

Light Treatment of Tuberculosis in Lancashire

A special report on the treatment of tuberculosis by artificial light has been prepared by Dr G. Lissant Cox, central tuberculosis officer to the Lancashire County Council, dealing with the methods adopted and results achieved in 1927 at the tuberculosis dispensaries in that county. Two experimental centres were established in 1925, and the satisfactory results of the treatment given to 187 patients in the following year determined the county council to undertake, with the approval of the Ministry of Health,

a comprehensive provision of facilities. This, when complete, will comprise fifteen light centres at tuberculosis dispensaries, and will involve the addition of one assistant tuberculosis officer and three tuberculosis health visitors. The council has also decided to pay the fares of necessitous patients attending the centres. There are now ten centres in full working order, seven, however, were opened this year or at the end of last year, so that the report deals only with three centres—Ashton-under-Lyne, Lancaster, and Chorley—which were in operation throughout 1927. Dr Lissant Cox states that in his experience the most suitable equipment of lamps is as follows: two long flame carbon arc lamps for general treatment, one mercury vapour lamp (Jiscenek or Hanovia) for general or local treatment, and one Kromayer water-cooled mercury vapour lamp for local treatment. It should be noted that the report does not suggest that other apparatus or methods are not equally satisfactory in producing results, the choice has been dictated partly by conditions incidental to dispensary work alone. The capital cost of the lamps and subsidiary equipment has varied from £135 at Preston to £550 at Ashton-under-Lyne, but the installations are not identical. At Lilles, where the dispensary has the standard equipment mentioned above, the capital cost is given as £210. In some cases, where the public electric supply is unsuitable, it has been necessary to install a motor generator to give the current required for the carbon arc lamps, a suitable generator costs about £100 but it is expected to repay its cost in a few years by the saving in current from the public supply. The treatment has been supervised by the consultant tuberculosis officers for the five dispensary areas into which the county is divided (there are also two small sub-areas supervised by the medical superintendents of sanatoriums situated within them), each dispensary area having, in addition, two assistant tuberculosis officers and from four to seven tuberculosis health visitors. At the three centres whose work is reviewed, patients have, as a rule, attended light sessions two or three times weekly, it has been found that patients who attended twice a week made, it seemed, as good progress as those who attended three times a week, but that the progress of those who attended only once a week was noticeably slower. About three fourths of the patients have been able to continue their normal occupations during treatment. Cases selected for treatment are chosen almost entirely from those suffering from non-pulmonary (surgical) tuberculosis, and who are able to attend the dispensary. The average duration of light treatment for those completing treatment in 1927 and becoming quiescent and apparently cured was 7.5 months, previously, these patients had been undergoing other forms of treatment for the much longer average period of 63 months. It is claimed by the report that the work in these three Lancashire centres has confirmed the view that great economy—and no less beneficial results—can be secured by light treatment of cases of non-pulmonary tuberculosis which would otherwise be sent to institutions for residential or out-patient treatment. Of the 110 cases concluding treatment in 1927 on attaining quiescence of diseases, the consultant tuberculosis officers would normally have recommended 44 for treatment at special or general hospitals, and 28 for out-patient treatment at a skin hospital. The estimated cost of such treatment, based on average duration, is not less than £1,436, while the actual cost (all inclusive) of their treatment at the dispensary light centres was £525, a saving of £911. Summarizing the results of treatment of cases of non-pulmonary tuberculosis Dr Lissant Cox states that they have been "very satisfactory," particularly in two conditions, (1) lupus, and (2) adenitis with abscess formation and skin involvement, both being usually refractory to other forms of treatment. Of the 70 cases of lupus treated at Ashton-under-Lyne (the two other centres had no suitable lamps for local treatment) during 1926 and 1927, 44 were discharged as quiescent and apparently cured, while of the 81 cases of adenitis treated at the three centres treatment was similarly concluded in 60 cases. Many of the lupus cases had been under other treatment previously for as long as twenty to forty years. The results of treatment of the other types of disease were often satisfactory.

but less striking. No permanent ill effect, either local or general, has been caused by artificial light treatment. The report, however, states

No general rule can be laid down as to how particular persons will react to the light as the response to the treatment varies within very wide limits. It cannot be too strongly emphasized that each patient must receive individual treatment and attention so far as initial exposure and graduation of exposure is concerned. Wherever possible a test exposure should be made before beginning treatment, in order to ascertain the sensitivity of the skin.

Of 106 cases which became quiescent and apparently cured in 1926, recurrences have occurred in three—one of lupus vulgaris, one of Bazin's disease and tuberculous adenitis, and one of adenitis.

Memorial to Mr Littlewood at Leeds General Infirmary

Twice during the year 1922—namely, on January 7th (p. 21) and again on May 27th (p. 844)—attention was called here to developments in the clinical teaching of medicine and surgery at the Leeds General Infirmary, and in referring to the appointment of the three full-time tutors it was pointed out that to secure the fullest advantage an effort was to be made to provide a properly equipped instructional block in the Infirmary and easy of access from the wards. In the near future this will be accomplished, for some time a completed portion of the new block has been in use, and the teaching staff can now visualize the realization of their desires at an early date. Particulars of the block and its equipment will be given at a later date when it is completed, but it may be mentioned now that the members of the honorary staff have subscribed a sum of money to carry out the equipment of the block and to place at its entrance a bronze relief of the late Mr Harry Littlewood, who died in December, 1921, as their double recognition of the valuable teaching work of a well-loved colleague. The bronze is the work of Mr G. L. Wyon, and shows Mr Littlewood in the service uniform of lieutenant-colonel R.A.M.C. At a pleasing ceremony held at the General Infirmary, which was attended by most of the members of the Board and Faculty and a few of Mr Littlewood's old friends, the bronze was unveiled by Mr H. Secker Walker, who was appointed to the honorary staff on the same day as Mr Littlewood. Mr Secker Walker gave a very interesting and sympathetic account of his former colleague's work and character and his outstanding qualities as surgeon and teacher. "With William Hey, Clifford Allbutt, Pridgin Teale, Fergusson McGill, Edward Ward, and others who have passed on, his name will rank high in the list of the most illustrious men who have spent their lives in the service of our General Infirmary." A vote of thanks to Mr Secker Walker was proposed by Mr Conpland and seconded by Mr A. L. Whitehead. In an obituary notice in the *Journal* of December 31st, 1921 (p. 1134), mention was made of the fine service rendered by Mr Littlewood to the Leeds Medical School, the General Infirmary, and the 2nd Northern General Hospital in that city.

Scotland.

Glasgow Chair of Physiology

THE retirement of Professor Diarmid Noel Paton from the chair of physiology in Glasgow University is announced to take effect from September 30th, 1928. The Secretary of State for Scotland has recommended the appointment of Edward Provan Cathcart, M.D., D.Sc., LL.D., F.R.S., to the vacancy. Professor Cathcart at present holds the chair of physiological chemistry in the University of Glasgow, to which he was appointed in 1919, and was previously professor of physiology at the London Hospital Medical School. He was born at Ayr in 1877, and graduated M.B. at Glasgow University in 1900, taking the degree of M.D. in 1904 and that of D.Sc. in 1906. He studied abroad at the universities of Munich, Berlin, and Petrograd, and was afterwards a research scholar at the Lister Institute in London. In 1905 he was appointed Grieve lecturer in chemical physiology

in the University of Glasgow, an appointment which he held till 1915, when he returned to London. He has made numerous contributions to physiological literature, especially on subjects dealing with physiological chemistry.

Edinburgh Medical Graduation

The summer graduation in medicine at Edinburgh University was held in the McEwan Hall on July 18th. Principal Sir J. Alfred Ewing presided, and conferred the degrees. At the close of the ceremony Professor Wright Smith, who acted as promoter, recommending the candidates for degrees, delivered the customary address, saying that he believed that at the present time the general average of attainment in medicine was higher than in past times. He recorded an anecdote of Robert Louis Stevenson which had been told to him by his predecessor in the chair of botany, Sir Isaac Bayley Balfour. Stevenson had, early in his career, taken the class of zoology at Edinburgh University, in this class he and Balfour had been posted together for the dissection of a complicated invertebrate—the crayfish. The work was divided on the principle that Balfour did the dissection while Stevenson read the details from the textbook. On the third day, however, under a summer sun, the crayfish had passed beyond dissection, and Stevenson departed never to reappear in the class. Thus experience, however, of the medical profession had given Stevenson a very high idea of medical men, and he had spoken of the doctor in the following terms: "Generosity he has, such as is possible to those who practise an art, never to those who drive a trade, discretion, tested by a hundred secrets, tact, tried in a thousand embassiments and, what are more important, Herculean cheerfulness and courage." The man in the street, Professor Wright Smith continued, had ideals about his fellow-men, even though he might not set a high standard for himself. The public therefore expected a high and inflexible standard from their profession. Medicine was no longer merely a healing art, for the trend of medicine was to be preventive. In the plant world it had long been realized that cure was at best difficult, and prevention was the aim. We were still far, perhaps, from the institution of a scientific medical police, and it was an important question whether the medical man was tending to be more and more of an official, for officials were not loved. The speaker believed, however, that as long as the ethical obligations so characteristic of the past continued on the same high level, the favourable status of the profession was assured. Opinions varied between expectations of rapid advancement of the human race and a pessimistic view that all the material improvements did not further in any way the moral and intellectual development of man. The triumph of the scientific world in the last fifty years had been chiefly in the physical field, but in this advance the medical man of the future would have his share, and the hope of the future was largely in the hands of present-day graduates. He advised his hearers to keep alive the spirit of inquiry which was open to all, for great workmen often worked with few tools. For a man to gain his due place in the scheme of things he required a calm courage, which came of confidence in self justly founded. In no profession was individuality more important than in medicine, not merely as a means of professional advancement, but in the everyday work of the physician. Great responsibilities often fell upon them which could not be shared with others. He advised them never to cease to believe in their great vocation, and so they would not lose their impetus.

Central Midwives Board for Scotland

At a special meeting of the Central Midwives Board for Scotland for the hearing of penal cases, Dr R. C. Burt in the chair, a certified midwife appeared in reply to a citation for contravention of the rules as to notification to the local authority of being in contact with a patient suffering from puerperal fever as also other breach of the rules. A health visitor gave evidence in support of the charges. The Board found the charges proved, and instructed the secretary to remove her name from the roll of midwives and to cancel her certificate, and in addition thereto, in terms of Section 8 of the Midwives (Scotland) Act, 1915, to prohibit her from attending women in childbirth in any other capacity.

Ireland.

Royal Victoria Hospital, Dublin

THE new wing of the Royal Victoria Eye and Ear Hospital, Dublin, which has been erected at a cost of £20,000 under the will of the late Mrs. Harvey Lewis, was declared open by the Governor-General of the Irish Free State at the annual meeting of the friends and supporters of the hospital, at which Sir George Roche presided. The meeting was largely attended. The Governor-General, in moving the adoption of the report, said that they would all agree that the accommodation provided by the new wing was greatly needed. The remarkable increase in the number of in-patients was sufficient proof of that, and it also proved that the work of the council and staff was appreciated throughout Ireland. He hoped that the establishment would meet with even more generous support in the future from all who sympathized with the prevention and cure of suffering. The chairman, in seconding the resolution, referred to the excellent work shown in the report, which, among other matters, mentioned that the number of visits paid in the out-patient branch exceeded 36,000. The medical men attached to the hospital had a world-wide reputation. Referring to the new wing, the chairman said that it had been erected at an expenditure of about £20,000, the fund coming from money left by the late Mrs. Harvey Lewis, in memory of her husband. By her will she left £80,000 for the building of a hospital in Dublin, to be called "The Harvey Lewis Hospital," but, in consequence of her death having occurred within three months of the making of her will, and as the greater part of her property consisted of real estate, only about £20,000 became available for the charitable purposes of the will, and that amount was allocated by the court for the completion of the hospital by the erection of the new wing. The judge held that the application of the fund in that direction was one that would most closely carry out the charitable intentions of the testatrix. The wing had only recently been handed over to the board by the builders, and was not yet furnished or equipped, it was, however, hoped that by the next annual meeting it would be in full working order. Dr. Winter, President of the Royal College of Physicians, moved a resolution declaring that the hospital was worthy of public support. He said that it was the only hospital in the Free State devoted altogether to eye and ear work. There was a constant pressure of applications for beds, and he hoped that the new wing would enable them to cope with that trouble.

Bequests to Belfast Hospitals

The late Mr. Frederick L. Heyn of Belfast, who died in February leaving estate valued for probate at £209,707, has bequeathed £1,000 to the Royal Victoria Hospital, Belfast, to name two beds, one to be called the Frederick L. Heyn and Helen B. Heyn bed, and the other the F. L. Heyn Head Line of Steamers bed. Among his other bequests are £250 each to the Belfast Maternity Hospital and the Society for Providing Nurses for the Sick Poor of Belfast, £200 to the Samaritan Hospital, Belfast, and £100 to the Belfast Hospital for Sick Children.

The Free State Dentists Bill

In the Report stage of the Dentists Bill the Seanad accepted a Government amendment to add a section dealing with the position of any person who before the establishment of the board satisfied the responsible Minister, or after the establishment satisfied the board, that he fulfilled certain conditions, namely, that he was a citizen of the Saorstát on January 1st, 1928, that he was on December 31st, 1921, not less than 21 years of age, that his principal means of livelihood during the whole period of seven years immediately preceding the passing of this Act was the practice of dentistry in the Saorstát, and that he was not guilty at any time of any crime or conduct which, if he had at that time been a registered dentist, would have caused his removal from the register. Every person to whom the section applies shall, on passing either of the examinations in dentistry to be prescribed and held

under this section, and on making the prescribed application, and paying the prescribed fees, be entitled to be registered. Two examinations will be held under this section, the first approximately five months, and the second approximately eleven months, from the passing of the Act.

Local Authorities (Officers and Employees) Bill

The Local Authorities (Officers and Employees) Bill, introduced by Mr. L. De Valera, was defeated in the Dáil on the second reading by 76 to 47 votes. The Labour Party voted in the majority, with the Government, against the bill.

Correspondence.

HOLIDAYS FOR ORPHANS OF MEDICAL MEN

In Typeal

SIR,—The applications for assistance from the Royal Medical Benevolent Fund have in recent months been exceptionally numerous and urgent, and further subscriptions and donations will be gratefully received at 11, Chandos Street, Cavendish Square, London, W. 1.

A special plea which appears at this time of the year is for help for children. In co-operation with our Ladies' Guild and other bodies the committee of this Fund is often able to secure admission of children of deceased medical practitioners to orphanages or schools where free education is given.

During the holidays provision must be made for these children, and when there are no friends or no friends in a position to receive them, the difficulty is great. The committee does what is possible, but their efforts are much hampered by the lack of funds—I am, etc.,

THOMAS BARLOW,
President

11 Chandos Street W. 1 July 23rd

TROPICAL AUSTRALIA

SIR,—Criticism of the views expressed by me on the problem of the colonization of tropical Australia by a white race continue to appear. Dr. J. F. C. Haslam, in addressing the Section of Tropical Diseases and Parasitology, as reported in the *Proceedings* of the Royal Society of Medicine for April 1928, made allusion to life assurance in the tropics, and expressed doubt respecting the conclusion reached by me. A communication was at once addressed to three of the leading life assurance companies in Melbourne, with the following result: The Australian Mutual Provident Society, Australian Temperance and General Mutual Life Assurance Company, and the National Mutual Life Assurance Co., Ltd., impose no loading whatsoever on proponents for insurance by reason of their residence in tropical Australia. All of them impose loading of varying degree, according to circumstances, on those who intend to reside in Papua or the Australian mandated territories, all of which are islands separated from the continent.

Any reference to the official reports furnished by the Commonwealth Government respecting the mandated territories will show that there is good reason for loading in these cases. These islands contain a large native population heavily infected with some, but not with all, tropical diseases. The hygienic conditions in these extensive regions are in striking contrast to those in tropical Australia. The climates are not dissimilar, but in Australia there is practically no infected native population. My own opinion is that if Australia did contain such a population the health conditions would be similar to those met with in other tropical countries.

Criticisms of the view expressed will, no doubt, continue to appear, and I shall try and answer them to the best of my ability. May I, however, again state that the conclusion reached has nothing to do with political considerations, it is based solely on the facts referred to in the vital statistics of tropical Australia, and on my personal experience of tropical Australia and of other tropical countries—I am, etc.,

Melbourne June 15th.

JAMES W. BARRETT

THE PAPILLAE FOLIATAE AND CARCINOPHOBIA

SIR,—In your issue of July 7th (p 13) Mr C Jennings Marshall, in the memorandum "The papillae foliatae and carcinophobia," gives some interesting information. I have recently had three such cases, all of which occurred in women at the menopause, and all of which were bilateral.

Mr Marshall divides them into two types—namely (1) where the papillae are in no way diseased but cause grave worry to the physically introspective patient, (2) where the papillae are oedematous and swollen, and cause pain. The latter he attributes to infection from an adjacent tooth or tonsillar crypt.

In the most recent and pathologically affected of my cases I have been quite unable to find any site of infection. When the patient came to me all her teeth had been extracted many months previously, and she had been under treatment elsewhere for a "painful tongue" for nearly a year. On examination I found the papillae reddened, swollen, and painful, and the carcinophobia was so marked as to produce persistent insomnia. I emphatically assured her that she had no cancer. The result was spectacular. Not only did her general condition immediately improve, but the papillae themselves rapidly returned to the normal non-pathological state.

The patient gratefully attributes the rapid cure to the magical properties possessed by the "bottle." In reality the magic was contained in the statement (which Mr Jennings Marshall claims to be the sole duty of the medical practitioner), "You have no cancer"—I am, etc.,

M INNES FRANKELL, M B, Ch B

Castleford, July 14th.

GASTRIC SECRETION OF NEUTRAL CHLORIDE

SIR—Dr E P Poulton, in his letter of April 28th (p 729), says the papers of Hansman, Dav, and Clifton, and of Campbell, Baird, and Hern, had evidently been missed by Professor Hugh MacLean in his review of the literature. A copy of the *Australian Medical Journal* and a reprint containing the article were posted to Professor MacLean in July, 1927, and I have verbal and written proof that the paper was read and discussed by members of the Medical Unit of St Thomas's Hospital, therefore the failure of Professor MacLean and his colleagues to refer to our article in their papers in the *Journal of Physiology* of March 30th, 1928, in which essentially the same conclusions are drawn as expressed by us, needs some other explanation. I felt this oversight to give the usual recognition of priority somewhat keenly, as I worked in the Medical Unit of St Thomas's Hospital for nearly two years, but up to the time I left, over four years ago, there had been no mention of any proposed work on gastric chlorides, nor did I know that any such work was in progress till after our article was published—I am, etc.,

Sydney New South Wales June 17th

F S HANSMAN

IMMUNIZATION IN SCHOOLS

SIR,—In the latest issue of the *Journal* to hand (May 19th, p 881) I note that the medical officer of a well-known public school has successfully brought a civil suit against a parent who was dissatisfied with the treatment meted out to his son who sickened of scarlet fever during term. In our small community at Hankow we have followed the instructions of the medical officer of health for Aberdeen (Dr Kinloch) and have immunized most of the white children against diphtheria and scarlet fever—using the products of Messrs Mulford, Lilly, and Parke Davis. Possibly by the time I see England again there may be an extension of the Public Health Act, whereby will be facilitated the prosecution of parents who send non-immunized and susceptible children to a public school, causing unnecessary danger and expense by spreading preventable diseases. The school in question has apparently no rule barring the admission of boys susceptible to these diseases. When will one of the larger public schools take a lead in this matter?—I am, etc.,

Hankow June 29th.

A H SKINNER

THE OPTICIAN AND THE MEDICAL PROFESSION

SIR,—A few months ago a schoolmistress brought a child to me and asked if I would prescribe the necessary drug to dilate the child's eyes, as she was taking it to an optician in London to have spectacles fitted. I explained to her what "covering" meant, and my inability to prescribe the drug. In the meanwhile she had apparently communicated with the optician again, and wrote me a letter requesting that I should do what was necessary, at the same time enclosing a letter from the optician. The latter in his letter to her stated "Most doctors know the drug required to dilate the eyes of a child, as for myself I am not allowed to write the simplest prescription." It would be interesting to know if opticians make a practice of asking their customers to prevail upon doctors to prescribe mydriatics for their benefit—I am, etc.,

Haddenham Bucks July 10th

T W S PATERSON

THE PROBLEM OF CANCER

SIR,—In his address on this subject, printed in your issue of July 7th (p 1), Sir Lenthal Cheate concludes by saying "The answer to this question can be only, that the problem will never be solved completely until we know what life is."

One thing we do know—it is that the continuance of life and growth are due to fermentative activity, and it is very probable that a disturbance of the chemical reactions brought about by ferments is responsible for irregular growth. Nor should we lose sight of the fact that evolutionary processes are going on all the time. According to Ehrlich and others chemical evolution proceeds apace. New ferments are being formed even at the present time to deal with new conditions, and structure and arrangements are modified accordingly.

I sometimes wonder, indeed, if cancer is not an attempt—so far a ghastly one—at the production of a new gland, for several observers have found evidence of enzymic activity in malignant cells—I am, etc.,

Upholland nr Wigan July 10th.

J THOMSON SHIRLAFF

BATTERSEA (ANTIVIVISECTION) HOSPITAL

SIR,—It has been brought to the notice of the Research Defence Society that the action of Mr J F Peart, F.R.C.S., in addressing the annual general meeting of the society on June 19th is being construed in certain quarters as if he had been called up by the society to explain his conduct while at the Antivivisection Hospital at Battersea. May I be permitted to state that Mr Peart's action was entirely voluntary and made in the interests of the public—I am, etc.,

G P CROWDEN,

Honorary Secretary Research Defence Society

Obituary

WE regret to record the death of Dr GEORGE BALSILLIE of Kendal on July 1st, after a short illness, at the early age of 37. He received his medical education at the University of Edinburgh, graduating M B, Ch B in 1917, and entered the Royal Navy, in which he held a commission as surgeon lieutenant until 1920. After serving for the usual period as house-surgeon to Sir David Wallace in the Edinburgh Royal Infirmary, he commenced general practice in Kendal, and soon took an active interest in professional affairs. Two years ago he was elected honorary secretary of the Kendal Division of the British Medical Association, and at the time of his death he had been appointed a member of the Representative Body. Dr Balsillie was, further, secretary to the Westmorland Cancer Commission and anaesthetist to the Westmorland County Hospital. He was a past-president of the Kendal Rotary Club and a Freemason, and as a member of the St John's Presbyterian Church Kendal served as an elder and as session clerk. A colleague writes "His death removes a public spirited, conscientious, and capable practitioner who will be greatly missed."

¹ Mansell Moulin *Biology of Tumours*.

Dr WILLIAM KICKHAM HEFFERNAN, who died at Killennule, co. Tipperary, on July 15th, in his seventy-sixth year, was the son of Patrick Heffernan of Cuckoo Hill, Cahu, whose patronymic is an anglicized form of an old Gache name, and Catherine Kickham, of Knockelly Castle, Felthard, whose ancestors settled in Ireland under Cromwell's regime. That they were speedily absorbed is shown by the fact that one of the family Charles Kickham, the novelist and poet narrowly escaped execution as a Fenian rebel in 1867. Dr Heffernan who was thus a typical example of the mixture of races which has produced the "men of Tipperary" was educated at Clongowes Wood College, proceeding thence to his professional studies at the Catholic University, Dublin. He obtained the diplomas L.R.C.P.I., L.R.C.S.I. in 1874, and was subsequently appointed to a resident post in the Mater Misericordiae Hospital, Dublin. Later he spent some years at Jarrow-on-Tyne before returning to commence practice in the county of his birth, where he was for a period medical officer of health for Killennule. Dr Heffernan held office as a justice of the peace for the county, and was for long a well-known member of the Tipperary Hunt. He is survived by his widow, one son, and one daughter. One of his sons was killed during the war while serving as an officer in France.

We regret to announce the death of Dr. FRANK STORRY MOLYNEUX of Leamington which occurred on July 16th as the result of septic poisoning contracted in the performance of an operation in a case of gas gangrene at the Wanstead Hospital to which he gave his services as honorary surgeon. He was the eldest son of the Rev. F. F. Molyneux, rector of Marton, Worthy, and was born in 1880. He received his medical education at the London Hospital, where, after obtaining the diplomas M.R.C.S. and L.R.C.P. in 1905, he subsequently became assistant demonstrator in physiology and clinical assistant in the aural and skin departments. He was afterwards senior house-surgeon for a period at the Royal Surrey Hospital, Guildford. During the war he held a commission as captain in the Royal Army Medical Corps, serving as a surgical specialist at Bourne-mouth and with a casualty clearing station in France. He was also, at one time, honorary surgeon to the British War Hospital, Wimborne. Dr. Molyneux was a well-known personality in the medical profession in the Midlands, where he was held in high esteem as a surgeon and radiologist. He took a keen interest in professional affairs, he was a Fellow of the Royal Society of Medicine, a member of the British Medical Association, and of the Leamington Medical Society, and the author of a number of contributions to medical journals, mainly on the use of radium. His chosen sport was fox hunting, and he was widely known as a keen and straight rider to hounds. His funeral, which was attended by a large number of his medical colleagues, was led by his favourite hunter, saddled and bearing his pink coat and top-boots.

The Services

INDIAN CANDIDATES FOR THE I.M.S.

Certificates of Age and Nationality

NEW rules governing the issue of certificates of age and nationality to natives of India who are candidates for permanent appointment to the Indian Medical Service have been published by the Government of India in an army department notification (No. 864), dated June 16th.

It is provided that certificates will require the signature of the secretary to the Government of a province, the commissioner of a division or the highest political officer of an Indian State, according to the area in which the family of a candidate resides, and it is to one or other of these officials that a candidate should, in the first instance apply, stating his desire to obtain a commission in the Indian Medical Service. An inquiry will then be made by the magistrate of the district or political officer of the State in which the applicant's family resides. These officers will interview candidates and other relevant witnesses regarding date and place of birth and will scrutinize any documentary evidence available such as horoscopes, family books, tradesmen's account books showing entries relating to births, school records, and matriculation records. A full report of the inquiry with copies of documents etc., comments and an expression of opinion will

be forwarded by the officer making it to the officer to whom the application was in the first instance addressed.

It is provided that a duly certified extract from a register kept by a public official in British India will, where available, be accepted as sufficient proof of the date and place of birth. After the application of the new rules any declaration of age recorded in a formal and deliberate manner will be taken as conclusive evidence in disproof of the subsequent assertion by the same person that he is of a different age.

Where the evidence produced by a candidate who is a British subject is satisfactory the competent official (secretary to a Government commissioner of a division or highest political officer in a native State) will issue the required certificate of birth and nationality. If the evidence is not satisfactory the certificate will be refused and the candidate will be unable to obtain admission to the Indian Medical Service. Where a candidate who is a subject of an Indian State satisfies the authorities regarding the date and place of his birth and his nationality the papers with any bearing upon the nationality of his father, will be forwarded to the Government of India who will consider whether a declaration of eligibility shall be issued.

A certificate may be granted to the father or guardian of a candidate who has proceeded to England provided that satisfactory evidence is produced, and that it is stated when the candidate went to England and where he has resided during his stay in that country. In the case of a Tamil or Ceylon the production of a certificate of age and nationality, signed by the secretary to the Government of Ceylon and similar to that demanded from natives of India will be required. This certificate must show that evidence has been given that the candidate is the son or grand-son of a person born in British India.

Medico-Legal.

RECKLESS CHARGES OF NEGLIGENCE

THE Eastbourne County Court judge's comments sufficiently describe the reckless allegations of negligence recently brought by Mrs. Grace Edith Hunt against Dr. Elfrida Coghill, medical attendant at the Eastbourne Corporation Maternity Home. The matters complained of occurred four years ago, but Dr. Coghill waived her right to plead the Statute of Limitations because she naturally desired that the full facts should be investigated by the court. The plaintiff was a patient of Dr. R. R. Pirrie, who sent her to the home in March 1924, suffering from albuminuria of pregnancy. She was attended by Dr. Coghill, but her condition being grave, Dr. Pirrie was called in, and after a consultation, he induced labour, a seven months child being born. Diet was the principal treatment, there being danger of eclampsia, and the plaintiff's life was saved. The child, however, died. It was stated, in evidence, that the plaintiff was below the normal, both physically and mentally. Both doctors agreed that, but for the treatment they gave, the plaintiff herself would have died, it being a question of whose life should be saved—the mother's or the child's. His Honour Judge Cunniff, in dismissing the action, praised the skill shown by the medical attendants. It became a question of saving either the life of the mother or possibly the life of her unborn baby, which would undoubtedly have been a puny weakling. The doctors, in the exercise of their discretion, most properly decided to save the life of the mother, and save it they did. The result of their exercising that discretion in saving the plaintiff's life had been that the most reckless charges had been brought which ought never to have been dreamed of. His Honour added that it was hardly necessary to say that the whole public had been grateful for the way in which the Maternity Home had been carried on and for the services rendered to the people who had occasion to use it.

BOGUS DOCTOR SENTENCED FOR FRAUD

A nature cure practitioner William Patrick Faulkner whose previous occupation was stated to have been that of a carpenter, was found guilty at Marylebone Police Court before Mr. Bingley, on July 16th of obtaining two sums of money by false pretences from Ernest Rose, another carpenter with intent to defraud and was sentenced to three months' hard labour on each charge—six months in all.

It was alleged at a previous hearing that the two men entered into partnership in premises at Praed Street, Paddington in a "Nature cure establishment and sunray clinic," Rose stating that Faulkner claimed to have qualified as a doctor of medicine at King's College, London. Mr. Wallace, for the Director of Public Prosecutions said that the charges against Faulkner related to £4 which he was alleged to have obtained from Rose to enable him to register his name with the General Medical Council and to £8 8s. which Faulkner said he wanted for registering the premises with the London County Council. The prosecutor stated that the accused signed the partnership agreement as William Patrick Faulkner M.D. and that a brass door plate on the Praed Street premises was inscribed "Doctors Faulkner and Rose Nature-Cure Practitioners and Manipulative Surgeons."

Evidence was given that the clinic was open for eight weeks or so and that about ten people were treated by according to Rose Faulkner. Rose answering Mr. Bingley stated that hardly any of the persons treated paid. It was disclosed in the course

of the second day's hearing, that Faulkner had, on a previous occasion, been fined £20 and ordered to pay ten guineas costs for falsely describing himself as a registered medical practitioner. The accused, giving evidence said that he was a member of the "Natuero Curo Practitioners Association."

Mr Wallace remarked upon the danger of sun ray treatment by unqualified people: one patient he said who paid the prisoner £6 and was treated on two or three or more occasions, was finally sent to hospital and found to be suffering from appendicitis. If she had gone on attending the clinic much longer he added she would probably have ceased to require any treatment at all.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

IN the House of Commons this week the Finance Bill, the Companies Bill, and the Registration (Births, Deaths, and Marriages) Bill were read a third time, and unemployment, particularly in the mining industry, was discussed. A vote of censure moved against the Government on this subject by the Labour party was defeated. The House of Lords advanced a number of Government bills, including the Reorganization of Offices (Scotland) Bill, which passed through Committee, the Food and Drugs (Adulteration) Bill and the Shops (Hours of Closing) Bill, which were read a third time and passed, the Marriage (Prohibited Degrees of Relationship) Bill, which amends the law relating to the marriage of persons with a nephew or niece by marriage, was read a second time, as also was the Rating and Valuation (Apportionment) Bill. With regard to the last named bill Earl BEAUCHAMPEL regretted that the measure proposed no relief to hospitals.

Finance Bill Allowance for Earned Incomes

During the Report stage of the Finance Bill in the House of Commons on July 23rd Mr LEE-SMITH moved a new clause providing that the allowance for earned incomes should be increased from one-sixth to one-fifth. Mr GILBERT in seconding the new clause said a man who had qualified as a doctor might have been given very little beyond that qualification by his father and might have little capital. A man in private practice making his £1,000 a year might have hardly any capital. A larger allowance in respect to income tax should be made to such a man than to a man in a similar position who drew his income from investments or accumulated wealth which he might have inherited. Mr A. M. SALUZZI said that although the Chancellor of the Exchequer would like to grant the concession he was not in a position to do so. It would cost £2,100,000 a year and they could not spare the money. The new clause was rejected by 240 votes to 114.

Scientific Cinematograph Films Exemption from Duty

On the Report stage of the Finance Bill in the House of Commons on July 23rd Captain FRASER moved a new clause providing that the Customs duties imposed on negative and positive cinematograph films should cease to be payable in the case of a film certified by the Royal Society of London to be solely an illustration of scientific investigation for exhibition before members of a recognized scientific body and imported only for the purpose of such exhibition free of charge. Captain Fraser said that great developments had taken place in the technique of the use of films as a record and illustration of scientific research. He was happy to say that by the instructions of the Chancellor of the Exchequer conversations had taken place with the Customs officials which led him (Captain Fraser) to suppose that this clause could be worked by them if the House wished to pass it. The Royal Society would undertake the liability which it suggested it should be asked to undertake.

Mr CHAMBERLAIN in seconding said that such a concession would give a tremendous stimulus to the preparation of scientific films for use in medical and surgical cases.

Mr A. M. SALUZZI was glad to say that he could now accept the clause. The Royal Society of London would certify when required that a film was an illustration of scientific investigation. That was a statement which the Customs officials could accept. He did not think that the loss to the revenue would be more than £200.

The clause was read a second time and added to the bill.

Infectious Diseases Notified in 1927-28.—Sir KINGSLEY WOOD on July 23rd, told Mr LANSBURY that during the fifty two weeks ended June 30th last the cases of small pox and other infectious diseases notified in England and Wales were as follows: Small pox 13,526 cases; scarlet fever 93,206; diphtheria 60,668; enteric fever 3,667; pneumonia 60,303; puerperal fever 2,238; puerperal pyrexia 5,366; cerebro-spinal fever 408; acute poliomyelitis 749; acute polio-encephalitis 104; acute encephalitis lethargica 1,452; typhus fever 3; continued fever 24; dysentery 673; ophthalmia neonatorum 5,492; erysipelas 15,736. The figures for tuberculosis were not given as so many corrections were received to the weekly figures that the totals were not made up until after the end of the year. The figures include port sanitary districts but not cases among non-civilians.

Deaths from Lysol Poisoning.—Answering Sir Frank MEYER on July 18th Sir W. JOYNSON HICKS said there had been a considerable increase during recent years in the number of deaths from the taking of lysol. The Home Office had brought the relevant

statistics to the notice of the Inter Departmental Committee now considering the law relating to the sale of poisons. The provisional figures for deaths from lysol poisoning in 1927 were—by accident 15, by suicide 361.

Allonal.—In a reply to Mr Robert YOUNG on July 19th, Sir W. JOYNSON HICKS said the Dangerous Drugs Act did not apply to "allonal" which was the proprietary name given by a Swiss firm of manufacturing chemists to a derivative of barbituric acid. He was aware of the dangers entailed in its use, and had brought the question of the need of further restrictions before the Inter Departmental Committee.

Administration of the Lunacy Acts.—Mr CHAMBERLAIN told Mr PETHICK LAWRENCE on July 19th that he had arranged for the administrative recommendations of the Royal Commission on Lunacy to be borne constantly in mind in the day to day administration of the Lunacy Acts. These recommendations were followed so far as was practicable. The problem of the after-effects of encephalitis lethargica was under constant review. Under the Mental Deficiency Act passed last year it would be possible to deal with certain of the patients suffering from the effects of that disease who were not suitable either for lunatic asylums or Poor Law institutions.

Deaths from Puerperal Causes.—Sir W. JOYNSON HICKS informed Mr VIANI on July 19th that he had no power to make an order that an inquiry should be held in all cases where death had resulted from puerperal causes. The Minister of Health was arranging with the concurrence of the British Medical Association for maternal deaths to be investigated for scientific and public health purposes by competent medical officers in each area. These investigations would be considered by the Committee on Maternal Mortality which Mr Chamberlain had recently appointed.

Foot and Mouth Disease.—Mr GUINNESS has brought before the Foot and Mouth Disease Research Committee the suggestion of experiments in the feeding of pigs upon remnants of Argentine meat to determine the risk of infection with foot and mouth disease from this imported meat. Mr Guinness states that while foot and mouth disease still prevails in Western Europe he is not prepared to withdraw the prohibition against the import of fresh meat from the Continent.

Voluntary Insurance.—Mr Chamberlain told Major CARVER that the possibility of widening the scope of voluntary insurance under the joint scheme of national health insurance and contributory pensions was still under consideration, but he had not yet found a satisfactory solution of the serious difficulties which any such proposal presented.

War Pensioners in Mental Institutions.—At the end of June 6,292 patients in mental institutions were maintained by the Pensions Ministry, their disabilities being due to war service. Exchequer grants are made for the maintenance in mental institutions of rather over 500 ex-service men whose condition was not due to war service.

Vaccination and Nervous Diseases.—Mr CHAMBERLAIN answering Mr RHYA DAVIES on July 19th said the report of the Committee on Vaccination would deal with cases reported to that Committee while in session where encephalitis and other diseases of the central nervous system had occurred within a short period after vaccination. The Ministry of Health had arranged to investigate similar cases which were brought to their notice.

River Pollution by Artificial Silk Works.—Sir KINGSLEY WOOD stated on July 24th that the Minister of Health was aware of the pollution of the River Gipping caused by the effluent from the artificial silk works at Stowmarket. He had no confirmation of cases of illness or of poisoning of stock from pollution but had received from the rural district council an application for consent to take proceedings against the company and had directed a public inquiry to be held.

Illness due to Antimony Compounds in Lemonade.—On July 24th Mr W. THORNTON asked the Minister of Health if his attention had been called to a report by the Newcastle city analyst about the illness of at least fifty of the staff of one of the big shops in the city caused by antimony compounds contained in the lemonade which the assistants drank if he was aware that the cause of the illness was in consequence of the enamel on the buckets which contained the made up lemonade and whether he intended taking any action in the matter. Sir KINGSLEY WOOD replied that the attention of the Minister of Health had been drawn to this case, and he understood that the facts were as stated in the question. The city medical officer of health was preparing a report on the occurrence on receipt of which the Minister would consider what action if any could be taken.

Notes in Brief

Mr Chamberlain announces that the inquiry into the projected erection of a tuberculosis centre at the Denmark Road corner of Oxford Road Manchester will be held before a medical officer and an architect on the staff of the Ministry of Health.

There were 16,522 cows and heifers slaughtered in 1926 under the Tuberculosis Order (1925) and 16,708 in 1927. Mr Guinness is satisfied that the Order is properly executed.

The Geneva Protocol of 1925 prohibiting the use of poison gas in warfare has only been ratified by six States. The British Government is not prepared to ratify unless all the other signatories are ready to do the same.

A firm in the West of Scotland recently used imported inedible hog grease after refining in the manufacture of hog lard. The stocks are under the embargo of the public health authorities and the Scottish Board of Health is considering the question of legal proceedings.

the College
Dr G D T Kerr Cross (Natal) Dr R H H Newton (Edinburgh) Dr Thomas Telfer (Dunbarton) Major B H H Neven Spence R.A.M.C and Dr R D Macleuzie (Edinburgh) were elected Fellows of the College

It was announced that Dr Robert Dods Brown had been appointed Morrison Lecturer for 1929.

At an extraordinary meeting of the College held the same day it was decided to confer the honorary Membership of the College upon Dr John Stewart Muir (Selkirk).

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the Royal College of Surgeons of Edinburgh, held on July 19th when Mr Alexander Miles (President) was in the chair the following 26 successful candidates out of 81 entered who passed the requisite examinations between March 25th and 31st were admitted fellows:

W R. Angus G I. Boyd, H C. Carter H S. Chhabhi R O. Davidson N J. Everard E S. Freshman F C. Hunt S. Hunter C S. James L. A. Jamieson R O. Jones J. Kemrey A. V. Kishorebitha A. Leish R G. Mallory W G. Maclean L. H. MacGillivray C M. Plimpre G F J. A. Robinson L. Ross A. J. Stoot, it being W R. C. Stowe Beatrice L. Turner R. Watson.

The Iverson MacAdam Memorial Prize, consisting of bronze medal and set of books has after a competitive examination in organic chemistry, been awarded to Mr M. Goldfar.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY—E. L. Clarke E. G. Millard H. Tenebano;
MEDICINE—M. K. Bryce J. P. Collinson N. Des W. B. Halloms A. H. Henessey L. P. Johnson E. A. Lipkin H. S. Marks;
FORENSIC MEDICINE—T. A. Barnabas P. C. Bean H. C. Clifford Smith J. P. Collinson H. H. Jackson E. P. Johnson A. A. Leibovitch T. A. P. Proctor H. Tenenbaum;
MIDWIFERY—T. A. Barnabas P. C. Bean J. R. Bray A. R. D. Abren H. W. E. Drake N. H. Kettlewell S. M. Mahman.

The diploma of the Society has been granted to Messrs P. C. Bean M. K. Bryce K. F. Clarke W. B. Halloms and H. S. Marks.

Medical News.

THE Medical Research Council announces that on behalf of the Rockefeller Foundation it has awarded two fellowships provided by the Foundation and tenable in the United States of America during the academic year 1928-29. The recipients are Mr L. E. Bayliss, Ph.D. Cantab, Sharpey Scholar, University College London Dr A. V. Neale, resident medical officer, Children's Hospital, Birmingham, Mr F. J. Worsley Roughton, Ph.D. Cantab lecturer in physico-chemical aspects of physiology, University of Cambridge, Dr Dorothy S. Russell, research worker in the Baron Institute of Pathology, London Hospital and Mr A. Wormald, M.Sc. Leeds, lecturer in biochemistry, University of Leeds. These fellowships are awarded to graduates who have had some training in research work either in the primary sciences of medicine or in clinical medicine or surgery, and who are likely to profit by a period of work at a university or other chosen centre in America before taking up positions for higher teaching or research in the British Isles.

THE Fellowship of Medicine and Post Graduate Medical Association announces that a special course in diseases of the chest will begin on Monday, July 30th for one week at the Brompton Hospital. From August 6th to September 1st clinical and cystoscopic demonstrations will be given by the staff at the All Saints Hospital on Mondays, Wednesdays, Thursdays, and Saturdays, those enrolling should apply to the hospital for particulars as to the times of operations. There will be a two weeks course, under Dr Pritchard's direction at the Infants Hospital from August 13th to 25th visits will be made to other baby welfare centres. The staff at St Mary's Hospital will undertake an all day "refresher" course from August 27th to September 8th, consisting of demonstrations in all departments of medicine, surgery, and the specialties. Copies of syllabuses and information regarding the general course of the Fellowship may be obtained on application to the Secretary, 1 Wimpole Street, W.1.

At a meeting of the Central Midwives Board for England and Wales on July 12th a letter from the Ministry of Health was read announcing the Minister's approval of the new rules for a period of eighteen months from June 30th last. Matters dealt with by the Standing Committee included a letter from the Departmental Committee on the Training and Supply of Midwives inviting the Board to give evidence before the committee, and asking whether the Board would be in a position to arrange for its representatives to give evidence early in October. It was agreed that the secretary be instructed to give evidence on behalf of the Board, and that the memorandum of his evidence be approved by the chairman of the Board. Sharon Green Maternity Home, Preston, was approved as a training school, and, subject to conditions, approval was also granted to Bramley Infirmary, Leeds. Approval as lecturer was granted to Dr Annie Beattie.

THE tenth annual meeting of the Mental Hospitals Association was held at the Guildhall, London on July 18th, with Sir William Hodgson, who was re-elected chairman for a further term, presiding. A resolution was carried urging the Minister of Health to introduce in the present Parliament a bill dealing with the pressing matters arising out of the Report of the Royal Commission on Lunacy and Mental Disorder. Reference was made to the inadequacy of the existing accommodation in mental hospitals, and to the fact that there is little or no room for the large class of inpatient cases, which were still untreated except to a limited extent. It was stated that without additional parliamentary powers little could be done. Several speakers called attention to the problems arising from the after-effects of encephalitis lethargica, reference being made to the recent Ministry of Health report on this subject, which was discussed in these columns on June 30th (p. 1125). The opinion was expressed by several speakers that few cases of encephalitis escaped without permanent damage in later years, and that unless a cure were found the patients would be permanently on their hands.

AN inquiry is being instituted by the *Dental Surgeon* into deaths under general anaesthetics by means of a questionnaire circulated among its readers with the issue of July 21st. An editorial article in the same number explains that this step has been taken in view of the wide difference of opinion which still seems to exist regarding the best anaesthetics for dental purposes. It is hoped to collect a mass of details as to the anaesthetics usually employed and their comparative safety for dental operations, and also as to the health of patients and particulars of any special preparatory treatment they may have undergone. The results after collation and classification will be issued in a suitable form, publication will be confined to details of medical and physiological interest and no names will be given. To make the inquiry successful by including within this survey every possible case of death under anaesthetics, the co-operation of all members of the medical and dental professions who are in possession of details regarding such cases is invited.

THE conference of port sanitary authorities at the Royal Sanitary Institute Congress at Plymouth on July 19th unanimously adopted a resolution "That the council of the Institute be recommended to direct the attention of the Government to the desirability of the care of the health of the men of the merchant service being placed in the charge of the Ministry of Health." The resolution was proposed by Fleet Surgeon W. E. Home, who was the author of a letter on this subject published in the *Journal* last week (p. 130), and seconded by Alderman F. Askew, chairman of the Hull and Goole Port Sanitary Authority.

At a joint council meeting of the People's League of Health, held on July 12th, it was decided to ask the Minister of Health to receive a deputation from the medical council of the league upon the need for the control and diminution of preventable noises in streets. The following have been asked to form the deputation: Sir E. Farquhar Buzzard, Sir Maurice Craig, Sir Robert Armstrong Jones, Sir James Purves Stewart, Dr A. T. Tredgold, Professor G. Robertson, M.D., and Dr Thomas Beaton.

At a meeting of the Metropolitan Hospital Sunday Fund held at the Mansion House on July 20th it was announced that the total sum collected this year amounted to £81,500.

DR FRANK M. HUGHES of Valmor, Kent, has been awarded the Médaille d'Argent de 1st classe de la Société Française de Sanvetege, Paris, with the diploma of honour.

A FURTHER section of the *Encyclopaedia of Industrial Health* has been issued by the International Labour Office, the pamphlet comprising Brochures Nos 109 to 114, and including the articles completing the publication of subjects coming under the letter "A." For binding, therefore, the appropriate brochures under this letter may be extracted from the temporary covers in which they have appeared separately and grouped together. The whole of the *Encyclopaedia* will be published also in volume form. Brochure No 109, of the latest issue, surveys the question of accidents in industry and the human factor, while the subjects of the others are rarefied air, aldehydes, ashes, atropine, auramine, aurantia, aurine, azobenzene and azo triphenyl methane. Another new pamphlet contains Brochures Nos 115 to 122, dealing respectively with bachelite, barium (compounds of), bark, benzene derivatives and benzidine, blismuth, blood and industrial poisonings, bontimon, bromine, and bronzing and bronze manufacture.

A FOLDING CARD has been issued by the Cambridge Instrument Company Ltd illustrating various installations of heating and ventilating plants in public and private buildings, including theatres, public offices, colleges, and Government buildings. A list of hospitals where such installations are in use is also given.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W C 1**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names not necessarily for publication.

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All communications with reference to **ADVERTISEMENTS** as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

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QUERIES AND ANSWERS

ARSENIOUS WAIL PAINT

"C D" wishes to know the best way of dealing with the painted walls of a dwelling house the paint of which has been found to contain an appreciable quantity of arsenious oxide. The occupant of the room has been found to be suffering with arsenical poisoning. Is there any preparation that could be applied to neutralize the arsenic left in the underlying plaster after the paint has been removed?

TREATMENT OF CHRONIC NASOPHARYNGEAL CATARRH

Dr JOHN DONALD (Glasgow) writes: I find that the only radical treatment is curtailing the nasopharynx. Change of climate is very important. The form due to atrophic rhinitis shows wonderful improvement after applying a vacuum electrode in each nostril from a high frequency current. The spark gap should be the smallest and the electrode of suitable size for comfortable introduction. Each sitting should last fifteen minutes, and benefit results even from one sitting.

CORNS

Dr A. L. MARTIN (Cranstock Cornwall) writes in answer to "H. A. A." (July 14th, p. 85): Corns so called are the result of focal pressure. Examine well the inside floor of the foot covering search for symptoms of flat foot. Above all soak the foot well in good soap and water really hot for twenty minutes then with a good razor, pare away all the horny matter taking care to get out the core without any haemorrhage—a little practice will suffice to ensure this, care as if preparing a microscopical specimen. Use powder in shoes or boots and avoid moulded footwear.

HAEMOPHILIA AND DENTAL EXTRACTION

Mr A. W. DAVIES (London W 1) writes: Your correspondent "A. P. A." (July 21st p. 137) may be interested to hear of a procedure I have adopted with success in these cases. It is absolutely essential to soile the teeth as if they were to be retained as well as any other teeth in the head. Oral sepsis must be combated with a suitable mouthwash. I have found none better than 1 dram of tinct iod. to the pint of 3 per cent carbolic acid. This also has the advantage of being an excellent deodorant. The extractions should never be done under local anaesthesia, but always in and on an operating table under general anaesthesia. Extractions should not be attempted in the surgery. The effort of getting home has always proved disastrous in my practice. A suitable blood coagulant is always administered. The one which has proved itself superior in my hands is coagulant oiba, 15 c.c. of this preparation is administered intramuscularly the noon of the day before the extractions, 15 c.c. more are given the same night and another 15 c.c. one hour before the operation, in the buttocks. The alveolus should be levered away from the teeth with very sharp thin elevators, and the tooth then removed with as little trauma as possible. As the patient is under general anaesthesia there is no point in hurrying. There is no better plug for a socket than the tooth removed from it, therefore, the extracted tooth has the apical one-sixteenth of an inch clipped off, the rough edges carefully rounded, and any readily available pulp removed. The pulp orifice is then sealed over with high heat gutta-percha and any debris or periodontal membrane carefully removed from the root. The tooth is then carefully hoisted and placed in sterile normal saline. The patient should be kept in bed for three days using the same mouthwash as previously used. Ice may be given to suck with advantage. The food should be entirely fluid. The case which proved most difficult

progressed favourably until the third day, when this patient opened the socket with some semi solid food. If haemorrhage sets in further doses of coagulant are given—15 c.c. every four hours. In critical cases intravenous injections may be given, but only with the most careful eye on the pulse, transfusion is also to be tried. The prepared teeth may be put back into the sockets and splinted into place. Their subsequent removal requires great care, or haemorrhage will again occur. Molars with markedly divergent roots are cut down until they may be inserted without scraping the sides of the socket. Care is required for a further week or so. Stimulants, exercise, and hot foods should be avoided, and the bowels should be kept active.

Dr A. B. LEAFLET (Golders Green) writes: I have had great success with small doses (100) of coagulant, 1 d.s. for four to seven days before the operation. In one case, when I had no time for this, I gave a hypodermic injection a few minutes before and used the coagulant orally after.

Dr S. G. PAPADOPOULOS (London, W 2) advises the following procedure: Give 5 grams of coagulant (powder) dissolved in 200 c.c. of water daily for five days by the mouth and on the sixth day inject hypodermically the contents of one tube of coagulant solution (20 c.c.). The patient will then be ready for the extraction. Any local bleeding can be arrested by sprinkling a little of the powder on the bleeding sockets. Further injections can be given hypodermically at any time without fear of anaphylaxis or other ill effects.

Dr E. BALDWIN and Mr A. W. RUSCOE (Golders Green) write to the same effect.

INCOME TAX Car Transactions

"D. M. M." bought a car in February 1925 for £260, and was allowed for depreciation £30 for 1925-27 and £30 as from 1927-28. In May, 1928, he bought a new car for £270, receiving £100 for his old car. What claim can he make?

* * * As the purchase of the new car took place in the financial year 1928-29, it does not affect his liability for that year. The depreciation allowance will therefore be based on the old figures and will amount to, say, £25. For the year 1929-30 his return will be affected in two ways: (1) he can deduct as a professional expense the obsolescence allowance due on the old car—that is, £260—(£100+£30+£25)=£260—£185 that is £75, and (2) the depreciation allowance due will be £270 at 15 per cent = £41.

LETTERS, NOTES, ETC.

A DISCLAIMER

Dr S. P. A. LEON and R. C. B. MACRAE wish to state that a laudatory letter which appeared in this *Pembroke County and West Wales Guardian* of July 13th was sent for publication without their knowledge or consent.

'THE FUTURE OF CRIME'

Our annotation headed "Crime and the Criminal" published on July 14th has brought a protest from Mr. George Godwin whose book *Crime or the Future of Crime* was discussed therein. His objects, among other things, to a comparison being drawn between a pamphlet on penal methods and an essay upon the much wider subject of the nature of crime and the problem of the delinquent member of society. In citing me, he writes, as having suggested that in the future it will be a crime to be financially successful, your reviewer misrepresents me. There is no such suggestion in my little book. What I did write was that great wealth will, likely enough, be regarded as a trust, an idea as old as Christianity. Neither is it anywhere suggested in my book, as your reviewer would have your readers understand that leisure will be a crime of the future. To suggest, as I did that the parasite poor or rascal, will not be tolerated is a very different proposition.

A CHOCOLATE BICENTENARY

Messrs J. B. TRY AND SONS, the well known manufacturers of chocolate and cocoa are this year celebrating the 200th anniversary of the establishment of their business and it is interesting to recall that the founder was a medical practitioner, Joseph Try a native of Wiltshire. An extensive practice in Bristol did not satisfy his ambitious and he embarked on a number of business ventures, including the small cocoa and chocolate shop which has expanded into the gigantic concern we know to-day.

CAUGHT NAPPING

In the paper on "Kidnapping," published on July 21st (p. 113), there is in the second column, a reference to the capture by Indiana of Peter Williamson as taking place in 1654. The date should, of course, have been 1754.

VACANCIES

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 42, 43, 46, 47 and 48 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 44 and 45. A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 56.

Observations ON UNSUCCESSFUL FORCEPS CASES

CAUSATION, MANAGEMENT, AND END RESULTS *

DOUGLAS MILLER, M.D., F.R.C.S. Ed.,

Lecturer in Clinical Obstetrics and in Clinical Gynaecology,
University of Edinburgh

The anxiety which follows the unsuccessful application of forceps, the difficulty of determining how best to effect delivery whether the patient is kept in her own home or transferred to hospital, and the frequency with which life is lost or serious disability incurred combine to invest the "unsuccessful forceps case" with special importance and make it a subject peculiarly suitable for discussion at a meeting of this kind.

The contribution which I would make is based on the study of 558 cases. I am indebted to Professor Fletcher Shaw for placing at my disposal the records of 281 patients delivered in Manchester, and to Professor Hendry of Glasgow for the details of a further 125 cases. The remaining 152 patients were delivered in the Edinburgh Royal Maternity Hospital.

ETIOLOGY

An analysis of these cases shows that in 211, or in rather more than one-third of the total number, the underlying cause of dystocia was disproportion, due for the most part to pelvic contraction, and in a small number to abnormal size of the child. The pelvis were chiefly of the flat rachitic and generally contracted types, the former variety predominating, especially in the Glasgow series. In 14 cases deformity of the pelvic outlet was encountered. In 6 cases a contraction ring of the uterus was an additional obstacle to delivery.

The degree of disproportion varied within wide limits. In more than one-half the head was found to be still freely movable at the pelvic brim when the patient was admitted to hospital, in many disproportion was so extreme that even when the head was crushed much difficulty was experienced in its extraction. In other cases the head was engaging satisfactorily in the brim and would have descended normally to the pelvic cavity had assistance been withheld to allow of further moulding and of more complete dilatation of the birth passages.

A posterior position of the occiput was found to be an almost equally common cause of difficulty, and was encountered on 161 occasions. Twenty-two additional cases in which this abnormality was associated with pelvic contraction have been included in the category of the latter. In a few the malposition had been recognized as such, as a rule after moderate forceps traction had failed. For the most part, however, the cause of obstruction had not been appreciated, the delay in labour being commonly attributed to a contraction of the pelvis which did not exist. The frequency with which such an error in diagnosis causes difficulty emphasizes the importance of accurate orientation of the head as a preliminary to the application of forceps, in this connexion the ear is a more reliable guide than are sutures or fontanelles, and in doubtful cases should always be sought for.

In the majority of these cases of occipito posterior position it was found, on admission, that the head was deeply engaged, with the occiput either in the hollow of the sacrum or still obliquely posterior. In a considerable number, however, the head was still high in the cavity or movable at the pelvic brim. Such cases in particular frequently showed severe bruising and laceration of the soft parts from slipping of the forceps. In many in which a high forceps operation had been attempted the cervix was only partially dilated, and was as a rule, more or less seriously torn, in seven cases a tear in the cervix had extended upwards so as to involve the lower uterine segment.

A third group comprises cases, 151 in number, in which no abnormality of the pelvis was present, the child was of average size, and presentation and position were normal. It is possible that some of these were patients in whom an occipito-posterior position had been present when forceps delivery was first attempted, rotation of the occiput to the front having occurred during the patient's transit to hospital. In a large number, however, no obvious explanation of failure could be found, or it was apparent that anxiety to relieve suffering had prompted an attempt to assist delivery before sufficient dilatation of the soft passages and adequate head moulding made this practicable. In many of these patients the first stage of labour through premature rupture of membranes, rigidity of the cervix, or ineffective uterine contractions, had been unusually prolonged and difficult. We all know how trying such cases may be and how easily the anxiety or impatience of relatives may combine with mental and physical fatigue to unbalance judgement and invite unwise intervention.

As in many cases of contracted pelvis and occipito-posterior position above referred to, so in this group intervention failed largely because it was premature. Of necessity, serious injury to cervix and vagina was not infrequently entailed.

Finally, in a fourth group in which forceps delivery was unsuccessfully attempted there fall to be catalogued 12 face cases, 5 of them mento-posterior, 8 cases of brow presentation, 8 cases of hydrocephalus, 2 cases of breech presentation, 2 cases of shoulder presentation, 2 cases of ovarian tumour obstructing labour, and 1 case of locked twins.

TREATMENT

In a communication read at the Annual Meeting of the British Medical Association a year ago I discussed the diagnosis and outlined the general principles of treatment which should govern the management of the failed forceps case. To-day I would concern myself shortly with the different methods of treatment which have been employed, and indicate what the results, immediate and remote, have been.

In general, treatment varied with the cause of failure and with such other conditions as the degree of disproportion, the presence and extent of injury to the birth passages, and the general condition of mother and child. Shock, consequent on severe trauma and intensified by transport to hospital, often over long distances, was not infrequently a serious complication, and was a primary consideration in the treatment of many cases. On occasion it was so profound as to make the outlook one of the utmost gravity, irrespective of whatever method might be employed to effect delivery.

Dystocia due to Disproportion

There were 211 such cases, in 139 of these the patients were primigravidae, where previous pregnancies had occurred a history of difficult labour was commonly obtained. The management of cases in this group was influenced largely by such factors as the degree of disproportion, whether or not there had already been an adequate test of labour and the condition of the child. In approximately one-half of the total number the child was judged to be already dead or dying at the time of the patient's admission to hospital.

In many cases it was apparent that, with further moulding of the head, such disproportion as was present could adequately be overcome by the natural forces. Reference to Table I will show that in 78 patients, in whom earlier intervention had failed spontaneous delivery eventually occurred or was accomplished by low forceps. Further, in many cases in which craniotomy was employed spontaneous delivery would probably have occurred had not this operation been performed merely to facilitate the extraction of a child already dead.

In other patients disproportion was so marked as to preclude any possibility of delivering the child alive by the natural passages. In such circumstances there arose the difficulty of deciding which of the two operations, Caesarean section or craniotomy, entailed the less serious risk.

* A paper read in opening a discussion in the Section of Obstetrics and Gynaecology of the Annual Meeting of the British Medical Association, Cardiff 1928.

Farquhar Murray has recently drawn attention to the difficulty and danger which craniotomy entails in the presence of serious disproportion, and has strongly urged more frequent resort to Caesarean section in such cases, even where there is undoubted infection and the child is dead. On the other hand, the statistics of Holland and Kerr and of Routh indicate clearly how much more grave is the prognosis where Caesarean section is done in the potentially septic than in the "clean" case, the mortality in the former varying from 10 to 34 per cent.

In the series of cases now presented Caesarean section was performed on twelve occasions, with three maternal deaths and five stillbirths. While such material does not afford an adequate basis of comparison of the relative merits of the two procedures, the trend of modern obstetrical opinion is reflected in the comparatively small number of cases in which abdominal delivery was preferred. In Edinburgh, however, the tendency in recent years has rather been to increase the scope of Caesarean section, so as to avoid the extreme mechanical difficulty and severe trauma which may be associated with a high craniotomy for marked disproportion.

It is significant that in none of the three centres from which the cases under analysis have been drawn was delivery in any case effected by pubiotomy.

Of the 29 maternal deaths in this group, 21 were due to puerperal sepsis, 3 to post-partum shock, 2 to post-partum haemorrhage, 2 to shock and collapse associated with rupture of the uterus, and 1 to pneumonia.

TABLE I—Analysis of 211 Cases of Dystocia due to Contracted Pelvis

Method of Delivery	No of Cases	Children Dead or Dying on Admission	Maternal Deaths	Foetal Deaths
Spontaneous	13	6	0	7
Low forceps	65	15	3	27
High forceps	15	2	2	11
Version	8	1	2	6
Craniotomy	98	22	20	93
Caesarean section ..	12	3	2	5
Total	211	109	29	154

Dystocia due to Occipito-posterior Position

There were 161 such cases, rather more than half of whom were primigravidae. This figure is exclusive of 22 cases in which pelvic contraction was also present, but includes a large number in which incomplete dilatation of the cervix had contributed to dystocia.

The treatment of cases in this group depended largely on the level in the pelvis which the head had reached, on whether or not the cervix was fully dilated, and on the condition of the child. In the majority of cases the patient was advanced in the second stage of labour with the head arrested on the pelvic floor. In such circumstances an attempt was made, as a rule, to correct the malposition by manual rotation and thereafter to complete delivery with forceps. Occasionally the head was found to be impacted so firmly as to make manual rotation impossible, for the most part in such cases no hope could be entertained of the child being born alive, and craniotomy was performed, in a few, however, a living child was extracted face to pubes.

Not infrequently it was found that the head was arrested in a posterior position at the inlet of the pelvis or upper part of the pelvic cavity. In approximately two-thirds of these cases manual rotation of the head, combined with external rotation of the body, was carried out. In those in which the os was found to be fully dilated this was generally followed by the immediate application of forceps and delivery completed, in others, in which the cervix was not completely effaced, further intervention had necessarily to be withheld until a later stage in labour. In contrast to the previous delay the rapidity of progress after correction of the malposition was, as a rule, gratifying, and in many cases almost dramatic, in a relatively large number, moreover, no additional assistance was required.

Internal version was a method employed in eleven of these cases of high arrest. Although only three of the children were saved, it should be pointed out that the procedure was employed for the most part as a last resort, after other methods of delivery had failed, and was undertaken in preference only to craniotomy, since the foetal heart could still be heard.

Finally, Caesarean section was performed on three occasions, in two cases a rupture of the lower uterine segment, which had extended upwards from a cervical tear, provided the indication for opening the abdomen, in the third case a marked contraction ring of the uterus made vaginal delivery impossible. All three of these patients recovered, and in one case the child was born alive. There were sixteen maternal deaths in this group, the causes being sepsis, 11 cases, rupture of uterus, 4 cases, pneumonia, 1 case.

TABLE II—Analysis of 161 Cases of Dystocia due to Occipito-Posterior Position

Method of Delivery	No of Cases	Children Dead or Dying on Admission	Maternal Deaths	Foetal Deaths
Spontaneous	15	4	1	6
Forceps	95	26	8	46
Version	11	3	1	9
Craniotomy	37	22	6	37
Caesarean section ..	3	1	0	2
Total	161	62	16	100

Dystocia due to Premature Application of Forceps

There were 151 cases in this group. Where no cause for failure was found other than that forceps had been prematurely applied, treatment was governed by the extent to which labour had progressed and by the general condition of the mother and of the child. In the majority of these cases the patient was placed under the influence of morphine or of twilight sleep, and labour allowed to proceed until delivery occurred spontaneously or could be completed by a low forceps operation. Where the child was already dead or dying craniotomy was commonly performed to make easier its extraction. In two cases in this group a traumatic rupture of the uterus necessitated abdominal delivery. In a third case of rupture of the uterus forceps had apparently been applied outside the cervix, the patient was admitted in a condition of extreme collapse and died within a few minutes of her arrival in hospital. There were in this group 9 maternal deaths, 5 of which were due to sepsis, 2 to rupture of the uterus, 1 to post-partum shock, and 1 to pneumonia.

TABLE III—Analysis of 151 Cases of Dystocia due to Premature Application of Forceps

Method of Delivery	No of Cases	On Admission		Maternal Deaths	Foetal Deaths
		Incomplete Dilatation of Cervix	Children Dead or Dying		
Spontaneous	47	20	8	1	15
Forceps	75	41	24	6	37
Version	9	6	3	1	7
Craniotomy	18	12	18	0	18
Caesarean section ..	2	2	1	1	1
Total	151	81	52	9	78

END-RESULTS

The tragic loss of life, maternal and foetal, associated with different types of unsuccessful forceps cases has already been referred to in different parts of this paper. In all, 54 patients died, a mortality of 10 per cent, and one which is scarcely exceeded by any of the major complications of pregnancy or labour. The individual causes of death were sepsis 37, rupture of the uterus 8, post-partum haemorrhage and shock 6, and pneumonia 3.

In addition, in 132 cases (23.6 per cent of the total series) the puerperium was morbid according to the British Medical Association standard. Many of the patients recovered sufficiently to leave hospital only after exhausting weeks of fever. Including stillbirths and neo-natal deaths 357 of the infants were lost—a mortality of 64 per cent.

Such figures indicate only too clearly how anxious must be the prognosis where an injudicious use of forceps results in failure to effect delivery. The full significance of such failure lies, however, not only in the immediate grave risk to life which it involves, but also in the frequency with which crippling invalidism may follow as the result of infection or injury sustained. Few patients escaped without more or less serious laceration of the cervix, vagina, or pelvic floor, sloughing of the vaginal tissues with fistula formation occurred in several cases. Further, it will be appreciated that a primary repair was seldom feasible or successful. Many patients were perforce discharged only to face further weeks or months of ill health.

So that the extent of subsequent disability might be determined it was decided to make a follow-up study of such patients in this series as were delivered in the Edinburgh Royal Maternity Hospital. In all, 116 patients were communicated with and asked to report at the hospital for examination. Of these, 18 did not respond or could not be traced. The end-results of 98 cases, however, are available, and may be summarized as follows.

In 24 cases, or roughly one-fifth of the total, the patient stated that her health had not in any way suffered, and pelvic examination revealed no abnormality of importance. The remaining 74, however, had all suffered varying degrees of inconvenience or discomfort, sometimes amounting to serious ill health, in almost all of these one found stigmata of the ordeal through which they had passed.

Laceration of the cervix, with or without downward displacement of the uterus, was the lesion most commonly encountered in this follow-up investigation. The frequency with which such an injury was found is of special importance, in the first place it emphasizes how commonly in unsuccessful forceps cases of all types failure is the result of an attempt to complete delivery before the cervix is fully dilated and therefore before the patient has had the benefit of the second stage of labour. The corollary is likewise apparent injury to the cervix and to the upper supporting structures of the uterus must inevitably occur where forceps are applied before the cervix has fully retracted over the presenting part.

Backward displacement of the uterus was present in a considerable number of cases. In a few the condition was unaccompanied by any other pelvic abnormality. In the majority, however, it was associated with subinvolution, with downward displacement, or with pelvic infection, of itself the retroversion was probably of less importance than were the other conditions of which it was a complication.

Pelvic infection, evidenced by chronic subinvolution, impaired mobility of the uterus, or by enlargement and abnormal sensitiveness of the uterine appendages, was found in approximately one-third of the cases examined. In greater or less degree it was met with in almost every case in which the puerperium had been febrile. These patients complained of symptoms varying from minor discomfort to more or less constant and acute misery. In most, such relief as medical measures could offer had already been afforded, and for many the ordeal of a major operation was the only alternative to continued ill health.

Twenty-four patients of those who reported had been subjected to operation for disability resulting directly from the type of dystocia under consideration. In 10 cases a reparative procedure had been carried out for injury to cervix or pelvic floor, in 3 cases an operation for vesico-vaginal fistula had been performed, 4 patients had been cured for menorrhagia, in 6 cases hysterectomy or the removal of the uterine appendages had been called for. There had in addition, been one operation for extra-uterine gestation. The majority of these patients now enjoy reasonably good health.

In 19 patients of those who reported, subsequent pregnancy had occurred, in 13 cases the pregnancy had proceeded normally to successful delivery at term, in 5 patients

abortion had occurred, and in one case the gestation had been extrauterine in type.

For the rest, in whom after a reasonable interval conception had not occurred, many admitted that through apprehension of its dangers pregnancy was being avoided. There were others whose chief concern was that they had been denied the privilege of a second chance, and for whom the suffering and danger to life which they had been called on to face had meant less than the disappointment of an empty cot.

Such, in brief, is a record of the consequences which may follow ill-timed or misdirected efforts to supplement or supplant Nature's methods. To what extent the unsuccessful forceps case is the indirect outcome of inadequate undergraduate training, of insufficient co-operation between midwife, family doctor, and consultant, or of defective municipal or public health administration, is open to question. Of this broader aspect of etiology Professor Fletcher Shaw has spoken. More directly it is manifest that many of these disasters could have been prevented by ante-natal recognition of contraction of the pelvis, undue size of the child, or other abnormality.

In its immediate causation the unsuccessful forceps case would appear to be, very largely, the outcome of non-observance of one of three elementary rules in regard to forceps operation. First, that forceps should not be applied in the presence of marked disparity in relation to the head and pelvis, and rarely, if ever, when the head is still movable above the pelvic brim. The frequency with which it was found that forceps delivery had been attempted while the head was still unengaged would indicate that the difficulty and danger of the high forceps operation are not sufficiently appreciated. Secondly, that forceps should not be applied without an exact knowledge of the position which the head occupies in the pelvis. The initial mistake in unsuccessful forceps cases is so frequently one of diagnosis that it would appear necessary to re-emphasize the wisdom of the time-honoured dictum "chloroform and the whole hand" as a preliminary to forceps application. The third essential is that the cervix should be completely effaced and retracted over the presenting part. On so elementary a proviso to the safe use of forceps one would hesitate to insist, were it not so frequently disregarded.

To remove the stigma which to day attaches to the practice of midwifery by giving effect to such recommendations as various committees of inquiry have made may be an extravagant hope. To insist that forceps should not be applied unless on strict obstetrical indications may be a counsel of perfection. To save many lives which need not be lost and to relieve the burden of much avoidable suffering by a greater discretion and care in the use of forceps—this, surely, is an ideal which we may reasonably cherish.

UNSUCCESSFUL FORCEPS CASES

HOW FAR CAN THEY BE PREVENTED BY EFFICIENT ANTE-NATAL CARE?

BY

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In this newspaper age, is there any citizen who has not been made aware of the unsatisfactory state of obstetric practice in this country? Hardly a week passes without some reference in the lay press to conferences on maternal mortality to questions in Parliament on the same subject, or to the appointment of departmental committees—for example—to advise upon the application to maternal mortality and morbidity of the medical and surgical knowledge at present available. Obstetrics is made to appear the Cinderella among the ashes while her gorgeously arrayed sisters, Medicine and Surgery go to the ball. Occasionally the dignified weekly or monthly reviews enter the lists. Not many weeks ago the *Spectator's* champion, a well-equipped Crusader, arraigned the General Medical

* Read in a discussion in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association Cardiff 1923.

Council for the inadequate teaching of medical students, arraigned the streptococcus as the cause of puerperal fever, and then arraigned "the busy doctor, the perturbed father, and the weany mother" for "meddlesome midwifery" which introduced the streptococcus. His plea was for the extension of ante-natal supervision and treatment.

Interest in this subject has permeated every home in the land. At a very important meeting in the Westminster Central Hall, London, on February 28th, 1928, attended by representatives from county nursing associations, infant welfare centres, and maternity and child welfare committees, a message was read from our gracious Queen Mary that she "viewed with grave concern the continued high rate of maternal mortality, and felt that a very real endeavour should be made to remove this reproach from the national life. The Queen trusts this may be achieved through the education of mothers themselves in the need for ante-natal care, through inquiry into the immediate causes of mortality in childbirth, and through a wider provision of first-class medical and midwifery service."

The members of the medical profession need be under no misapprehension as to whom the public are being encouraged to hold responsible for the high maternal mortality and morbidity rates. At that Central Hall meeting, attended not only by the representatives I have referred to, but also by Sir George Newman and Dame Janet Campbell of the Ministry of Health, Lady Solborne is reported to have crystallized the feeling of many present in her statement that "there is danger in the doctor." This is almost the identical phrase used by that famous midwives' champion of the eighteenth century, Mrs. Nihell, in her diatribes against the "men-midwives" of that time, among whom were the illustrious Smellie and William Hunter.

In the present discussion we are not concerned with any consideration as to how or by whom obstetric practice should be conducted. We are simply analysing a series of actual cases in which instrumental interference was unsuccessful. Dr. Miller has dealt with the actual records. My special duty is to consider how far these cases of unsuccessful instrumental intervention could have been prevented by more efficient ante-natal care.

CONTRACTED PELVIS

Dr. Miller's figures show that in more than one-third of the cases there was disproportion between the presenting part and the pelvis. In only a very small number was this due to unusual size of the child. It is, of course, well known that the incidence of contracted pelvis varies in different districts, while the average in all three sets of figures is about 33 per cent, the incidence in the Glasgow series is actually 50 per cent, and an unusually large number of these are of the flat rachitic type.

A very large number of these cases could be identified early in pregnancy. Need I refer here to the fact that many of these women have very striking evidence of skeletal deformity—namely, stunted growth, spinal curvature, sword-blade tibiae, etc? I should like to mention specially the relationship between kyphotic spinal deformity and contracted pelvic outlet, and between lameness, where the weight of the body has been from childhood borne on one thigh, and unilateral pelvic deformity. I do not dispute the fact that gross deformity may accompany a roomy pelvis, but skeletal irregularity should be a danger signal.

While external pelvimetry—that is, the measurement of the interspinous, ischioristal, and external conjugate diameters—only gives an estimate of the inside pelvic diameters, irregularities in the former emphasize the necessity for internal examination. The form of the pelvic outlet should always be examined. A sharp subpubic angle, with the distance between the ischial tuberosities reduced, indicates contraction at the outlet, without such an examination this abnormality might escape notice until late in labour, because in such a case the head often passes easily through the brim and is only arrested low in the pelvis.

An examination of the diagonal conjugate diameter should always be attempted. There are many women in whom an attempt at this measurement per vaginam may be extremely difficult in the early months, an attempt

during the seventh or eighth month, however, is usually successful owing to the increasing softness of the parts. Where the examination is still difficult then, a certain amount of assistance is got by asking the patient to "bear down" during the examination, thus relaxing the perineal muscles. I have heard both students and practitioners assert that they were greatly handicapped by short fingers, but I submit respectfully that there are few fingers too short to measure the diagonal conjugate in the case which is likely to cause difficulty. In the series of cases which I have investigated I found the estimated true conjugate to be $3\frac{1}{2}$ inches in 19 cases, 3 inches in 14 cases, $2\frac{1}{2}$ inches in 9 cases, and $2\frac{1}{2}$ inches in 2 cases. In four of them craniotomy was extremely difficult owing to the small size of the pelvis. In all of them internal pelvimetry should have been fairly easy.

An estimation of the diagonal conjugate is not a complete examination of the interior of the pelvis. The examining fingers should always sweep round the pelvic brim in this way many cases of asymmetrical deformity will be identified. In particular, the generally contracted pelvis, where the true conjugate diameter may be normal while the transverse diameter is markedly diminished, can be identified. I shall refer later to the fact that such an examination should also identify fibromyomata or ovarian cysts likely to give rise to grave difficulty in labour.

Towards the end of pregnancy there are other methods of identifying cases of contracted pelvis. A pendulous abdomen in a primigravida should always arouse suspicion. Again, in a primigravida the head should descend into the pelvic cavity during the last month. While the non-descent may be due to faulty presentation, neoplasm, or even placenta praevia, it is very often due to contracted pelvis. In forty-six cases of failed forceps in primigravidae in my series, the head was still free above the brim in twenty cases when the patient was admitted to hospital.

Again, at this stage the best of all pelvimeters—namely, the foetal head—is available. The most convenient way of using this pelvimeter, in my experience, is the modification of Muller's method, so long advocated by Professor Munro Kerr. If there is the slightest doubt about any case, I should recommend most strongly that an examination by this method be made under an anaesthetic within the last month. I should like to point out here that while diagrams may show the fingers in the pelvis with the radial borders towards the foetal head, it was never intended that the complete examination should be made in this position. No one would ever make such an examination except with the palmar surfaces of the fingers. It is not only the relationship of the head to the true conjugate which should be examined, but the engagement of the whole surface of the presenting part to each point of the pelvic brim.

There is an essential difference in the examination and prognosis of a case of generally contracted pelvis as compared with a flat rachitic pelvis. In the latter the amount of space available in the lateral bays on each side of the promontory is of great importance. In a favourable case the head engages transversely and makes its way through the brim by the descent of the occipital and through one bay. In a generally contracted pelvis, however, the total area of the brim is small and the head can only pass through in extreme flexion. This extreme flexion makes traction with forceps difficult, as only an insecure hold is obtained.

One would hardly think it necessary to mention the fact that the history of previous labours in a case of contracted pelvis is most valuable. In spite of this I have investigated seven cases of failed forceps in which the only previous pregnancy had terminated in a difficult instrumental stillbirth, two in which both previous pregnancies had terminated in instrumental stillbirths, and one where one previous labour had terminated in a craniotomy and the other in an instrumental stillbirth. There was still another case with a history of five previous difficult instrumental labours with two stillbirths.

In discussing the value of ante-natal examination in contracted pelvis I have not made any mention of x-ray examination of the pelvis. Absolute measurement by x-rays is not of great value except in extreme cases, and

thoro examination of the diagonal conjugate is relatively easy. In borderline cases the foetal head is the true pelvimeter, and on its position at the brim before the onset of labour does not give any indication as to how it will mould or alter its position and relationship under the influence of uterine contractions. Munro Kerr's method of pelvimetry gives a far more reliable prognosis.

In the generally contracted pelvis I believe that there is a field for x-ray examination. In a recent publication Professor Martius of Göttingen has recommended a projection method of pelvimetry for such cases.¹ The patient is placed in a position resembling Fowler's position, so as to bring the pelvic brim parallel to the table. Using a fixed focal length, and knowing the height of the pelvic brim above the photographic plate, it is possible to calculate the actual area of the pelvic brim. Professor Martius believes that a normal-sized foetus cannot come through such a pelvis when the area of the brim is less than 70 or 80 square centimetres.

In all this reference to contracted pelvis I have claimed that it is possible to foretell difficulty. Cases suitable for induction of labour may be identified from the thirty-sixth week onwards. When a patient with a known deformity is allowed to go on to term it is advisable to have the patient admitted to hospital at the onset of labour, or at any rate to have her regarded from the beginning of labour as one in whom even Caesarean section may become necessary. The result of the labour will depend not only on the degree of disproportion, but also on the mouldability of the head and the strength of the uterine contractions.

If the use of forceps is decided on, a most careful re-examination of the patient should be made after she has been anesthetized—if necessary, with the hand in the vagina. In this way the position can be accurately diagnosed. If there seems likely to be great difficulty it is better to stop with this examination rather than to endanger the mother and damage the child by violent efforts at delivery. I have myself had the mortification of performing Caesarean section in a "failed forceps" case, and delivering a child with a fractured skull and both cheeks very badly torn by the forceps.

In such cases the number of vaginal examinations should be kept to a minimum. Rectal examination can become, with practice, just as satisfactory and certainly less dangerous. We have all been warned how much graver becomes the prognosis in a Caesarean section case with each vaginal examination.

In borderline cases of contracted pelvis my own preference is to allow the patient a good long labour, and then, if progress is not satisfactory, to perform the lower uterine segment Caesarean section. The longer the patient has been in labour, within limits, the easier is the operation.

Occipito-posterior Positions

Dr Miller's analysis shows that occipito-posterior positions were present only slightly less frequently in the series of "failed forceps". In comparatively few of these cases had the abnormal position of the occiput been recognized before the application of forceps, and in very few had any attempt been made to correct the position before using them. In some it would appear that the traction merely accentuated the malpresentation.

Careful ante-natal examination can usually identify occipito-posterior positions. There are some cases in which a particularly thick or specially sensitive abdominal wall does make such an examination difficult. The ease with which limbs are palpated in front and the easy identification of the foetal chin are useful guides. Where palpation is difficult a couple of x-ray photographs, frontal and lateral, should give a complete diagnosis.

There is some difference of opinion as to whether occipito-posterior positions can be corrected before the onset of labour. While many hospital workers have reported disappointing results in this direction, Dr Haultain, two years ago, published a series of cases in which he secured permanent correction by the use of pads and a binder in 87 per cent of the primigravidae, and in 83 per cent of the multiparae.² Dr Haultain stressed then the importance of carrying out this correction in the last month

of pregnancy, and particularly in cases where the head remained free above the brim. The successes originally reported by Dr Buist, and by many who have followed him, should have gained more widespread employment of this method of correction. Even where no attempt has been made to correct an occipito-posterior position before the onset of labour, we must remember that certainly 60 per cent, if not quite the 80 per cent referred to in most textbooks, do rotate spontaneously. The important point is to recognize the association of this malposition with a protracted labour.

When the abnormal position has not been recognized before, it should never escape notice when the patient is examined before the application of forceps. Even a very firm and extensive caput succedaneum should not obscure the diagnosis. When forceps are applied while the head is still in the occipito-posterior position, especially when it is high in the pelvis, they certainly do slip easily.

Associated with this position of the vertex, as also in cases of contracted pelvis, there is often slow dilatation of the cervix. In 50 per cent of my series of cases in which forceps had been unsuccessfully applied in occipito-posterior positions the cervix was still incompletely dilated when the patient was admitted to hospital.

OTHER ABNORMAL PRESENTATIONS

Face and brow presentations do not occur until the onset of labour, except under most unusual circumstances. While such abnormalities cannot, therefore, be identified during pregnancy, the conditions likely to give rise to them may be. Of these the most important are bony deformity of the pelvis and obliquity of the axis of the uterus. While both can be identified, the latter can often be effectively treated by the use of a binder. Unusual size of the foetus and hydramnios can both be identified before labour comes on, but such other causes as anencephaly, meningocelo, and congenital goitre can hardly be diagnosed in advance.

Transverse and oblique presentations should be identified before the onset of labour. They may be corrected in the cases where a lax abdominal wall is responsible. Where the cause is a contracted pelvis, a malformed uterus, or a neoplasm, the early recognition of the cause will allow arrangements for proper treatment to be made.

While breech presentations hardly come within the scope of this paper, there are two cases in the series where forceps were unsuccessfully applied to an undiagnosed breech. At that stage careful examination should have made a diagnosis easy. In breech presentations, especially in primigravidae, the important point is to have version performed before the onset of labour. This presumes timely diagnosis by palpation, which may be difficult. In cases of this type x-ray examination is most helpful, not only in arriving at a diagnosis, but also in indicating in which direction the foetus should be turned.

TUMOURS

Uterine and ovarian tumours appear only twice in our series of cases. They can almost always be identified before the onset of labour, and in fact are usually noticed at the first pelvic examination. Whenever such a diagnosis has been made the patient should be in some institution at the onset of labour, so that major surgical interference may be carried out without delay, should it become necessary.

FOETAL ABNORMALITIES

In eight cases of the series the difficulty was due to hydrocephalus. Among all foetal abnormalities this is probably the one most easily diagnosed before the onset of labour. The outline of the large soft head can generally be identified, except where it is obscured by hydramnios. When it has been recognized perforation, after about a three-finger dilatation of the cervix is reached, may prevent an exhausting labour.

General foetal dropsy is generally associated with some other abnormality, such as an abnormal presentation, and the over-distension of the uterus should determine the patient's transference to hospital.

Foetal monsters often escape notice until the actual appearance of dystocia, as the presenting part may be of

normal proportions and in normal position. The difficulty of diagnosing anencephaly and congenital goitre has already been referred to.

CASES OF INCOMPLETE DILATATION OF THE CERVIX

In discussing occipito-posterior positions I referred to the slow dilatation of the cervix in such cases. In my series of 68 cases of contracted pelvis in which forceps had been unsuccessfully applied, the cervix was still incompletely dilated in 33 of the cases when the patient was admitted to hospital. In two of this group the dilatation was of such slight degree that it was difficult to imagine how forceps could ever have been applied to the foetal head. In all these cases there was a definite cause for the delayed labour and the slow dilatation of the cervix, but in 151 of all the cases reviewed by Dr. Miller there was no evidence of any abnormality, yet forceps had been applied before the cervix was fully dilated. In the 34 cases which I contributed to this group one mother died from rupture of the uterus, five had a morbid puerperium, but the remainder had an uneventful recovery. There are probably many of these women who will still require treatment in gynaecological wards, because traction through an undilated cervix causes not only tearing of the cervix, but also forced descent of the cervix with subsequent uterine prolapse. However, it is when we consider the results to the child that the picture is blackest. Of the 34 children 15 were stillborn, and several of the survivors showed extensive bruising at birth.

I think we must agree that the application of forceps before complete dilatation of the cervix is a most dangerous procedure, yet we see how often it appears to have been practised. Efficient ante-natal care should identify the cases where labour is likely to be protracted and dilatation slow, but it is only effective teaching which can prevent the too early application of forceps in normal cases. From my experience as a teacher I know that on questioning students there is hardly one who does not remember to state that the cervix must be fully dilated before forceps are applied.

The point on which I think teachers and textbooks do not lay sufficient emphasis is that manual dilatation of the cervix is seldom justified, and, even when it is attempted, is very often incomplete. I have even been informed by a young graduate, negotiating for the admission of his "failed forceps" case to hospital, that he had first used gentle traction with the forceps to secure dilatation of the cervix. The patient eventually delivered herself spontaneously.

CONCLUSION

In estimating how far the cases of "failed forceps" could have been prevented by efficient ante-natal care, I have tried to show that almost all of the real abnormalities could have been identified during the course of pregnancy, and particularly in the last month. There is only a very small group of foetal abnormalities of the developmental type which cannot be detected before the onset of labour. Ante-natal supervision, however, cannot prevent the too early application of forceps in normal cases.

When abnormalities have been detected they may either be corrected before the onset of labour, as in occipito-posterior, breech, and transverse presentations, or sent to a hospital or similar institution where appropriate treatment can be carried out in the most favourable circumstances at the correct stage in labour.

It may be asked whether the ante-natal supervision to which I have referred can be efficiently carried out by the family physician. In many cases it can, but there must always be a considerable proportion of cases in which accurate diagnosis of pelvic disproportion or abnormal presentation is difficult, even for the hospital physician with special training. He may require the help of x-rays to establish his diagnosis. It would appear, therefore, that an efficient obstetric service would require well-equipped consultative ante-natal centres to which the cases presenting difficulties to the family physician can be referred. Again, work of this kind is far too responsible and difficult for midwives, and I believe that a midwife

should not be authorized to undertake the care of any pregnant woman without provision being made for the patient to be examined carefully by a medical practitioner before labour is due.

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UNSUCCESSFUL FORCEPS CASES *

BY

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In the last few years more and more attention has been focused upon maternity practice, meetings of various bodies outside the profession have discussed the subject, often with great ignorance of the facts, and necessarily, from the composition of these meetings, the blame for the present high mortality in childbirth has been thrown upon the members of our profession.

In the great majority of instances these charges are an injustice, and a slight knowledge of the facts would prevent them from being made, but in some directions obstetric practice leaves much to be desired, and it behooves us, as a profession, to take stock of our methods and see if it is not possible to raise the standard. It is for this reason only that we have brought forward this subject for discussion before a meeting composed largely of general practitioners. We have stated our views as members of the staffs of maternity hospitals, and we hope that general practitioners will fully state their views, and that the discussion will bear fruit. In similar discussions in the past it has often been stated that the consultant speaks only from his experience of hospital work, and compares his own results in ideal circumstances with those of men who have to conduct their cases in circumstances far from ideal. The fact is overlooked that few consulting obstetricians reach the staff of their hospital without an extensive experience of maternity work in the very poor quarters of their cities, and therefore are fully alive to all these disadvantages. One advantage, and one only, had we over the general practitioner—we were doing obstetrical work only, and had no anxiety about other cases being neglected when we were engaged for a long period over one maternity case. If this is a factor in bad midwifery, and I feel sure it is one of the most important, it is better to face the facts and see if a remedy cannot be found.

The aspect of maternity work we are considering to-day is one of the greatest blots on our obstetrical escutcheon. The figures given by Dr. Miller occurred in the practice of three large maternity hospitals, but these hospitals were chosen at random, and there is no doubt that equally convincing figures could be produced from every other maternity hospital in the country. The facts are there and are incontrovertible. Dr. Miller has shown the types of cases which result in forceps failure, and has analysed the causes and discussed the diagnosis and treatment. He has also detailed the appalling results to mother and child, results which could have been avoided with a little more care and knowledge.

One of the most striking figures in this series is the large number of craniotomies performed. In the last twenty years the number of Caesarean sections performed in each obstetrical unit has enormously increased, and the first thought on seeing these figures is that many of these children could have been saved by this operation. In considering this alternative treatment we must remember in the first place that the majority of the children were dead or badly damaged when the patient was admitted to hospital, but a small number were alive and were deliberately sacrificed to save the mother.

Caesarean section performed upon a "clean" patient is now a safe operation with a very low mortality, but Caesarean section performed upon a patient after attempts

* Read in a discussion in the Section of Obstetrics and Gynaecology of the Annual Meeting of the British Medical Association, Cardiff 1928.

at forceps delivery is a very different matter, and is followed by a dreadfully high maternal mortality. Eardley Holland¹ in 1921, in a collection of 3,374 cases from the large maternity hospitals of the British Isles, showed that the mortality in cases in which the operation was performed before the onset of labour was only 1.6 per cent, whereas in the cases in which it was performed after attempts at forceps delivery it had risen to 26 per cent. With the introduction of Caesarean section through the lower uterine segment and delivery of the placenta and cord through the cervix and vagina after closure of the uterine incision, as suggested by Munro Kerr, there is probably less risk of infection, and he has published a number of such cases safely delivered. It is too early to write dogmatically upon this, but this method does seem to give much greater safety from infection in "suspect" cases, and there is a growing appreciation of its value.

Another factor which renders these cases more liable to sepsis is that many of the women are admitted with lacerations of the cervix and vagina produced by attempts to deliver them with forceps, in many others the patient is so shocked by the previous manipulation that an abdominal section is quite out of the question.

In the majority of cases admitted after attempted delivery Caesarean section is out of the question, owing to death of or damage to the foetus, definite infection of the mother, shock, or severe lacerations of the cervix or vagina, and in the small remaining group of suspect cases where none of these definite contraindications appear there is a justifiable difference of opinion. Some operators, and a growing number, will operate through a lower uterine incision with delivery of placenta and membranes by the vagina, whilst others consider the risk of sepsis too great even by this method.

When the dangers of Caesarean section were overcome and the operation leaped into popularity it was expected that the number of craniotomies would reach a vanishing point, but this is far from being the case. In 1906 in St. Mary's Hospital, Manchester, the number of Caesarean sections was only four, whilst there were fifteen craniotomies, in 1925 the number of Caesarean sections had jumped to 132, but the craniotomies, instead of diminishing, had increased to thirty. Craniotomy, nowadays, is seldom performed except upon cases sent in after intervention, and these figures are a strong indictment upon one class of obstetrical practice.

Pubiotomy is another operation which may be employed in this type of case, and a few operators do employ it, but it has many disadvantages and has never become popular. The only type of case in which it is useful is one in which the pelvis has a degree of contraction which just prevents extraction of the head, but which will just allow the head to pass after it has been widened by the comparatively small amount obtained by the operation. If this amount is miscalculated there is great danger of severe laceration of the soft tissues.

Dr. Hendry has pointed out how most of these cases could have been avoided by detailed ante-natal care.

What we have now to consider are the main causes underlying this state of affairs and the best method of removing these causes. There is little doubt that apathy is the main reason—the general failure of both the profession and the laity to realize the risks of labour and that special knowledge is necessary for the skilful treatment of abnormal cases—and the crowding of obstetrical teaching into any part of the curriculum not already occupied by medicine and surgery. These faults are due as much to the apathy and ignorance of the lay public as to that of our profession, and it behoves us, in seeking a remedy, to stress the importance of the education of the laity.

In the minds of the laity labour is a natural function—if it ends successfully it is no credit to the doctor or the nurse if anything goes wrong then the attendants must be to blame. A practical outcome of this is the very small remuneration paid for attendance upon a maternity case. A doctor may attend a case for twenty-four or forty-eight hours, may be up one or two whole nights, may completely dislocate the whole work of his practice for some days, during which time he is worn out with anxiety for this

patient and the others he is neglecting and yet when all is over he receives in remuneration less than he would for removing tonsils or any minor operation, and in credit very little beyond what is due to his pleasant and sympathetic manner, as he has only been observing a normal function.

If anything abnormal arises he is expected to recognize it and treat it, the fact that he is a qualified medical man makes him, in the opinion of most of the laity, an expert obstetrician capable of tackling any obstetrical problem. If, in his modesty, he recognizes that the abnormality requires someone more experienced than himself, he feels this means a loss of prestige in the eyes of the patient and her friends and that he will be blamed for the extra expense incurred.

Until the general public realizes the responsibility entailed by every maternity case, no matter how straightforward, and the anxiety, dislocation of work, and broken rest which many cases involve, and until the general public realizes the skill and patience necessary for the conduct of the simplest labour—increase a hundredfold in cases of delay and difficulty—and is prepared to pay fees commensurate with the time and anxiety involved, so long will the temptation remain to hasten delivery by every available means.

This subject of fees applies to the nursing as well as to the medical profession, and it is most noticeable at examinations of the Central Midwives Board to find that all the better class of candidates are taking this diploma merely to help them to secure senior appointments and with no intention of practising midwifery.

The fault, however, does not lie entirely with the lay public, we as a profession must take a considerable share of the blame for the state of affairs which can allow such a series of cases to be brought forward. In the past midwifery has not been taken sufficiently seriously. Until 1888 it was not compulsory for a student to attend any cases of labour before qualifying, and even now it is necessary for him to spend only one month in a maternity hospital, whereas he must spend six months dressing in a surgical ward. After that date he had to be signed up for twelve and later for twenty cases, but it was possible to attend these without seeing any abnormality, and so he entered practice without any realization, other than theory, of the serious difficulties to be encountered, and, never having seen obstetrical operations performed, could not realize that a trained obstetrician would perform these operations more skilfully and with much less risk to mother and child than he could do in his own bungling way.

When we remember the haste with which we completed our twenty cases, the surroundings in which many had to reside while attending these, the fact that many students never saw a member of the honorary staff of the hospital, or even an abnormality treated by a resident, can we wonder that midwifery was looked upon as a bore and every case of labour as a nuisance which must be terminated as quickly as possible, and especially that the student should soon consider himself, as did his neighbours, as capable of conducting a complicated case as any specialist? The month's residence in hospital which is now compulsory has improved this, and it must be impossible for any student to spend this time in hospital without seeing a considerable number of complications treated by the members of the medical staff, but this time should be extended.

It is the proud boast of many men in practice that they have attended a certain number of thousands of labour cases and carried out all obstetrical operations, and therefore know as much as, or more than, any young consultant, though they overlook the fact that the consultant will probably have more experience of difficult cases concentrated into one year of hospital life than the practitioner can acquire in a lifetime, and moreover, learns to perform these operations under men already skilled in performing them.

It is a great pity that there is this feeling of antagonism to young consulting obstetricians, it does not apply to young surgeons or physicians or even to young gynaecologists, and it would be all to the advantage of a young

practitioner if he would call to his aid in midwifery difficulties a highly trained specialist who would show him how best to deal with the problem.

The fact that the young graduate is not a specialist in obstetrics and has not had experience in performing all obstetrical operations is often laid as a charge against the competence of his obstetric teachers. In the past there was perhaps some truth in this, though the chief fault lay in the regulations which allowed the student to attend a certain number of cases without being in a maternity hospital and without coming in contact with the teachers, but that is altered now, and during the month's residence there is every opportunity to hold classes, and although the irregularity of the admission of abnormal cases makes it impossible for the senior members of the staff to demonstrate the operative treatment in all cases, they can hold classes on the most important clinical subjects.

There has been a great revival in clinical teaching in the last few years, and every large teaching maternity hospital endeavours to make the best use of its opportunities, and in the month at their disposal give each series of students a sound clinical foundation for their future work, but it must be emphasized that there are limits beyond which they cannot go, and even with more time at their disposal it is impossible to make every student a specialist, if for no other reason than that the number of abnormal cases admitted even to the largest maternity hospital would not provide sufficient material. If a graduate wishes to have special experience in operative obstetrical work he must be prepared to spend some time as a house-surgeon in a maternity hospital.

In teaching clinical obstetrics special emphasis must be laid upon certain sections of the work, and if this is done the graduate of the future will be turned out capable of taking charge of normal cases, of recognizing abnormalities, and of treating the minor ones, and with a sound clinical foundation upon which to build with future experience. The following four points are of importance and require special emphasis.

1 Ante-natal Work

More and more emphasis is now laid upon the importance of the constant supervision of the pregnant woman. If this is universally done the great majority of the cases of eclampsia will be eliminated, defects in the measurement of the pelvis will be detected and appropriate treatment undertaken, and defects in the position of the child recognized and rectified. If this had been universally carried out in these three cities one large group of cases—the contracted pelvis—would have been eliminated from our tables and these women saved much mutilation and have acquired living children.

It is almost unbelievable how little attention is given to this in some quarters. One of the chief reasons is the modern tendency of women of the working class to engage a midwife, who calls in a doctor only in cases of difficulty. This is the wrong way round, every pregnant woman should be under the care of a qualified medical practitioner, and if no abnormality is found the actual labour could be attended by a midwife. Even with this defect it is difficult to imagine the mentality of a man who applied forceps to a patient with a history of four previous confinements, two of which ended in craniotomy and two in Caesarean section, and yet such a case occurs in the list from my hospital.

Even the health authorities in many centres hardly realize the special training required for the work, and appoint to the charge of their ante-natal clinics young newly qualified practitioners without previous experience in this work, and with little or no chance of acquiring it in the future, as they will not see any of these cases in labour and so learn from their own mistakes.

2 Antisepsis

It is impossible to overstress the importance of this, and it is impossible to shut one's eyes to the fact that with many practitioners this is of a most sketchy variety. I cannot help thinking that the almost universal use of coal-tar derivatives has had a bad effect. Used in sufficient

strength to be really antiseptic they are hard upon the hands, and so the tendency is to use them in insufficient strength.

If thorough antisepsis had been carried out there is no reason why these unsuccessful forceps cases should show a higher morbidity than other forceps cases in the hospital, but the figures quoted by Dr. Miller show these to have a much higher incidence than those treated primarily at the hospital.

3 First Stage of Labour

In a straightforward case this is undoubtedly the most trying to all concerned. The patient and her friends naturally desire its termination, and use what influence they can upon the doctor to terminate it. This, no doubt, accounts for the large number of cases in our list in which forceps were applied before the cervix was dilated, the majority of which delivered themselves after time had been given in hospital for the cervix to dilate. These cases admitted after forceps failure possessed stout cervixes which would not tear, but for each of these there must have been a large number in which delivery was accomplished by tearing through the cervix.

It is impossible for any practitioner to resist the importunities of the patient and her friends unless he has a good clinical experience of this stage of labour, and can assure them that all will be well with a little patience. The old method of attending a certain number of cases gave no experience in this stage, but it is being emphasized more and more to-day. In my own opinion—and I think all teachers will agree with me—a student learns much more from attendance upon one case from the earliest part of the first stage to the completion of labour than upon a large number observed only at the end of the second stage.

4 Importance of making a Definite Diagnosis before applying High Forceps

Forceps applied when the head is on the perineum often relieves the patient of much suffering, and with many practitioners this is frequently done with great benefit, but forceps applied while the head is at the brim should be a rare operation, much rarer than it was in the past, as Caesarean section has removed a large group which otherwise would require this operation, and it should be performed much less frequently than it is.

A rule should be made never to apply forceps with the head at the brim merely because of delay in labour, a definite diagnosis of the cause of delay should be made, and if the practitioner cannot make this diagnosis he should call in the help of one with more experience.

Occipito-posterior positions are very difficult to diagnose, and those with the greatest experience will acknowledge that they frequently fail to make this diagnosis until the cervix is sufficiently dilated to allow a hand to be passed through the external os and the ear of the child felt. This is an infallible method, and if only it had been carried out before applying forceps this very large group in our series would have been eliminated. The treatment of occipito-posterior cases is simple, as Dr. Miller has pointed out, if only they are recognized, but to apply forceps at the brim with the head in that position is to court disaster.

If only the rule of making a definite diagnosis before applying forceps at the brim had been carried out practically all the cases in our series would have been eliminated, and many other women, in whom delivery was accomplished, would have been saved from mutilation. With this rule faithfully observed forceps would not have been applied before full dilatation of the cervix, while cases with contracted pelvis and occipito-posterior positions would have been recognized and easily treated.

This is a subject which behoves us, as a profession, to study carefully, it has been brought forward in no spirit of carping criticism, but in the hope that a free discussion between so many of us interested in obstetrical work, but looking at it from many angles, will result in practical advancement.

REFERENCE

1 *Journ. Obstet. and Gynaecol. Brit. Empire*, vol. xxviii, p. 351.

RECENT ADVANCES IN THE DIAGNOSIS AND TREATMENT OF HUMAN HELMINTHIASIS *

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ADVANCE is not necessarily synonymous with progress. Recent work in these directions has concerned itself largely with ankylostomiasis.

DIAGNOSIS

Recent advances in diagnosis have been *direct*, the recognition of a parasite, or of part of it, just as it is recovered from man, *subdirect*, implying its deliberate development to some further stage before diagnosis is attempted, *indirect*, the searching for evidence of man's reaction to the parasite, or of damage which it has inflicted on him.

DIRECT DIAGNOSIS

Animals being nearly always classified on their adult structure, accurate identification of an adult helminth, usually macroscopic, involves accurate diagnosis. But the stage ordinarily available for this purpose is an immature one, and immature forms may be closely similar over large zoological groups. Moreover, too small a quantity of material may be examined. An accurate diagnosis by recognition of eggs in faeces can be made only if a female intestinal worm have a normal oviposition rate, if this rate be known, and if there be examined a fair faecal sample of sufficient size to display eggs with certainty when a single female is normally ovipositing. The normal oviposition rate can be ascertained by accurate determination of the number of eggs in the faeces and of the number of worms in the bowel contents. So reliable has worm detection been held that it has unhesitatingly been used to check—and to condemn—the accuracy of microscopic diagnosis by detection of eggs. The microscope has cruelly retaliated by finding fertile eggs when search of the bowel contents has revealed no male worms. The worm content of the bowel is no easy matter to determine, nor is the ovum content of the faeces.

Egg counts have been used since 1885 for determining the oviposition rate of hookworms, and recently for determining the accuracy of various counting and concentrative diagnostic techniques and for establishing the degree of infection of a community. These uses are correlated yet distinct, and merit further consideration.

The Accuracy of Concentrative Diagnostic Techniques

These techniques, after complete disintegration of the faecal conglomerate into its constituent particles, lead eggs in one direction and faecal matter proper in another. Comminution through overlying by faecal particles being largely removed, many eggs can be collected in a small area for ready examination. The efficiency of any such concentrative technique can be settled only by the use of controls which determine the number of eggs which the amount of faeces it uses contains and the number which it collects for diagnosis. Many concentrative techniques have been devised and advocated, almost none have been controlled. The first attempt to control a diagnostic technique by egg counts was my own ten years ago (1918). It was also, apparently, the first deliberately instituted egg-counting method used in determining the degree of infection of members of a community. Another egg-counting control was described by myself in December, 1922, a third by Stoll in January, 1923, designated by him "the egg-counting method," three others by myself (1924), and one by the Coldwells (1926). In testing the relative value of these I reasoned that the technique which, measured by egg counts, habitually delivered the largest number of eggs from the same evicted material must be the most nearly accurate, and I showed that that position is held by a peculiar modification of the concentrative technique named direct centrifugal flotation† (DCF), the

modification by which it is "pushed to finality." No criticism has shaken that proof.

Using carefully controlled conditions, DCF pushed to finality has given me higher, more regular, and therefore more accurate counts than any other, and Stoll's technique the most erratic and undependable counts of all. The accuracy of DCF pushed to finality has been questioned by Stoll and Hausheer and by Soper. I conclude from careful study of the papers that disintegration of the faeces was inadequate, the former, for instance, rejected pontifically (without evidence offered) the comminutor advised, an instrument which ovum counts have shown to be the most accurate at our present disposal, and obtained that type of ovum collection which is produced by inadequate disintegration of faeces. Any technique can be discredited by failure to disintegrate faeces completely. For the accuracy of Stoll's technique its author has offered no evidence, but maintains, against his own work, that it is accurate to within 10 per cent. It has been declared inaccurate by Hill, Maplestone, Sweet, Davis, Gordon, Chandler, and Soper—that is, by all who have reported on it independently, with the one exception contained in the report of Barnes and Russell from the Straits Settlements. They held it accurate for the inadequate reason that from it they obtained even results, yet their assistants could not do so. Evidence shows, then, conclusively that DCF pushed to finality is the most nearly accurate counting or control method of which we have knowledge. It is, on present findings, obligatory where exact knowledge is required. In the grading of concentrative techniques such exact knowledge is completely essential.

The same investigation has shown that every concentrative technique has its limit of effective concentration, that if it be used in too great concentration it becomes inefficient, first relatively, then absolutely. With due regard to this reservation and to the proper disintegration of the faeces, DCF in the first adequate spin or centrifuging and with rapid lift, using faeces from a lightly infected case not on a milk diet, has delivered over a considerable series of cases 80 per cent of the ovum content as shown by the same method pushed to finality. The minima and maxima were 61 and 95.

The Oviposition Rate of Hookworms

The minimum ovum content normal for hookworms is the oviposition rate of the female hookworm expressed as the number of eggs present in a unit of faeces. I have not found that this number habitually drops below about 30 per cent when tested by DCF pushed to finality, and have concluded that this is the number produced by a single female in normal oviposition. The estimates of others, obtained by comparing egg counts with worm counts, are Lutz (1885) 42, Leichtenstern (1885) 47, Darling (1922) 22, Stoll (1923) 40. Now DCF uses 1 c.c. of faeces, and 1 c.c. of faeces contains 30 eggs if a single female be normally ovipositing. Used diagnostically, DCF will deliver of these normally 24 and perhaps 18. If these conditions are fulfilled and these facts are correct, only gross carelessness can avoid a certain diagnosis by DCF. The acceptance of a higher rate for ankylostomo infection may or may not prove correct. It is, I believe, based at present on undependable considerations.

The Degree of Infection of a Community

Knowledge on this point is usually required as a preliminary to a treatment campaign. To its individual ascertainment strong exception has been and is being expressed on the score of uncertainty and cost. Since DCF recognizes the presence of a single healthy female hookworm, the first objection fails. Expense consists largely of pay of personnel, which itself depends on the time taken to prepare and to examine specimens. The time of preparation for a single specimen, mainly taken up with that complete disintegration which is absolutely and fundamentally essential, varies comparatively little with different methods, but no concentrative technique, other than DCF, permits of mass methods, in it twelve specimens can be disintegrated and centrifuged as rapidly as one. The time of microscopic examination varies roughly with the area to be covered, in Willis's technique, so commonly employed, this

* Read in opening a discussion in the Section of Tropical Medicine of the Annual Meeting of the British Medical Association, Cardiff 1923.
† The spelling implies the floating principle applied to diagnosis.

extends to 1,250 sq mm (2 sq in.), in plain DCF it is 150 sq mm (1/2 sq in.), in DCF with herding movements* it is 10 sq mm. This small area can, in quite deliberate manner, be examined at the rate of sixty specimens an hour. Moreover, herding can be effected for twelve slides as rapidly as for one. Further, eggs in faeces covered with water and kept at a temperature not exceeding about 28° C (80° F) retain full capacity for floatation for several weeks. Accordingly a comfortable central laboratory (in which accurate and rapid work can be strictly exacted without hardship) can be fed from a wide collecting area, and reserves of specimens can be left for a time to accumulate until it is convenient to examine them. All this implies that a supervised laboratory party of four (in India two microscopists of the compounder class and two sweepers) supplied with a twelve-tube centrifuge, can report comfortably on a quarter of a million negative specimens a year, and on a greater number in proportion as the number of positives is greater than this. It seems to me, then, that no justification exists, moral or financial, for denying to "native" communities an individual mass diagnosis. That, at present, must be effected by DCF, seeing that it is not merely accurate, rapid, cheap, and reasonably fool-proof, but is the only technique to which mass methods are applicable. It marks the fulfilment of an aim which I set before myself over ten years ago, and have since then steadily pursued. Here at least advance and progress seem synonymous.

But if, in investigating the degree of infection of a community, individual diagnosis be not the aim and accuracy be not desired, any of the other counting techniques will suffice, as will an estimate of the numbers contained in the head of a first DCF preparation, or even the examination of a simple smear. The means should fit the end. I cannot picture Solomon trying either to extract a cataract with a shovel or to belield an elephant with a v. Graef knife.

If all eggs of a nematode species have about the same specific gravity all will float in a non-absorbed watery solution of sufficient heaviness, and addition to its specific gravity will not float more. Conversely, one concludes that, if further addition to the weight of a watery fluid does not float more eggs, all have been collected. DCF pushed to finality in a saturated solution of common salt (sp gr 1200) does not deliver more hookworm eggs than does the same process carried out in a solution with a specific gravity of 1150. It is reasonably concluded that with the latter solution DCF indicates the content accurately. The same apparently holds for trichostrongylus and enterobius eggs. To float all ascaris and trichuris eggs a specific gravity of 1300 is required. As a counting technique this has great practical disadvantages, yet the figures hitherto obtained show that, used diagnostically with a saturated common salt solution, the first spin displayed on the average 40 per cent of the ascaris and 25 per cent of the trichuris eggs indicated as present. The minimum ovum content of both species is probably such that, used thus, DCF will detect a single fertilized normally ovipositing female of either species. Chandler reports DCF as floating hymenolepis onchospheres, but the percentage of success is unknown. For nematode eggs, onchospheres of taenia, unfertile ascaris eggs, and strongyloides larvae all floatation methods are undependable.

For the collection of those ova which it floats DCF should be used selectively, employing a solution whose specific gravity is no higher than necessary. The usual practice of stating, both in original papers and in uncritical abstracts of them, that the local percentage of worm infections reaches a certain figure, without stating the diagnostic procedure used, is valueless. Such reports and abstracts do not register progress.

SUBDIRECT DIAGNOSIS

For hookworm infection this method has recently been allotted primary value. Faeces containing hookworm eggs are "cultured" and extracted in water. The principle, that of Looss, is effective only if larvae are infective in

stage and active in movement. Its details have been altered needlessly. Baermann's modification is convenient and well known, my own has the advantage of compactness in that several dozen cultures can be set or extracted simultaneously in a single incubator of ordinary size.

This method of diagnosis has constantly failed for two opposite reasons—the first that the worms (eggs or larvae) have died before extraction, the second that their activity has carried them out of the culture before its extraction. A hookworm larva is obligatorily aquatic, living normally within the water films which enclose particles of a moist soil. It passes from one particle of soil to another—readily if both lie within the same film, laboriously if the film has to be lifted until contact and fusion with another film are established. A larva may burst through the surface of a film and travel on, clothed with a minute and steadily lessening film of its own. If it does not enter another before its own is lost it must surely die.

To combat the diagnostic error introduced by larval death before extraction, our knowledge is at present insufficient. To circumvent the error induced by escape every culture must be surrounded by a water trap. Into this trap migrating larvae tumble, and out of it they rarely escape. Indirect diagnosis not only is uncertain, but has introduced a completely unnecessary risk for those who have used it. It has been employed in a series of well watered and untrapped soil samples to determine the duration of infection of the soil—that is, the longevity of hookworm larvae. Their disappearance from the sample may, however, be evidence, not of premature death, as is almost universally concluded, but, equally, of exuberant and vicious vitality.

For strongyloides infection culture with extraction or tracking in agar has been used successfully. Largo cultures are advised, but the method's efficiency is really unknown, seeing that no satisfactory controls have hitherto been devised. It is, then, questionable to what extent there has here been advance, conclusions should be drawn with caution.

In infection with *Schistosoma japonicum*, snbdirect diagnosis has a possible concentrative place. As Faust and Meleney point out, miracidia hatching out in clean water congregate in its upper few millimetres and, if melaniae have left a slime-track there, hover excitedly about that particular portion.

To sum up, apart possibly from infections elucidated by faecal examination, subdirect methods seem to offer little opening.

INDIRECT DIAGNOSIS

1 Evidences of Reaction to Helminthic Parasites

Eosinophilia in the blood was shown twenty-five years ago to be absent in the worst cases of hookworm infection. On the other hand, in Boycott's two deliberate infections it appeared about three weeks before eggs were found. Local eosinophilia in the tissues may be a marked feature of local infection. Local fibrosis may follow the local leucocytosis of which the local eosinophilia is an evidence, and of fibrosis onchocerca nodules are perhaps the most striking clinical evidence. Yet recent investigation has shown that these may commonly be undetectable when the corresponding microfilaria is present abundantly in the lymph of the lumbar region. In the same direction points Dyce Sharp's observation of a female onchocerca escaping from an ulcerated and non-nodular surface. A fibrous reaction seems no more a necessary part of the diagnostic picture of an onchocerca than of a loa infection.

Creeping Eruption.—Looss described this in connexion with penetration of the skin of his arm by a number of strongyloides and ancylostoma larvae. Kirby Smith was apparently the first to demonstrate a larval nematode in the epidermis in such cases—cases, that is, not due to fly larvae. Fülleborn has shown by serial sections that larvae of the dog mcinaria, applied to his own arm, produced tunnelling of the epidermis, the tunnels filling with lymph, breeding bacteria, and producing dermal inflammation. His observation suggests that, when creeping eruption is due to the larva of a nematode, that larva belongs to a species for which man is an unsuitable host. Failure to make the usual immediate entrance into the dermis is

* Herding is effected by to-and-fro and circular movements which collect ova about the centre of the hanging preparation obtained after D.C.F. with rapid lift.

explicable as abhorrence of the larvae for lymph with man's specific lymph character. The worms cannot, so to speak, bring themselves to enter as usual the dermis where that lymph is characteristic, but wander forlornly in the epidermis, where it is so disguised by excretions from epidermal cells and bacteria that it becomes, for those particular larvae, at least endurable.

Sensitization.—The principle of the Casoni reaction for the diagnosis of hydatid disease has recently been extended to other helminthic infections, particularly by Fülleborn. In strongyloides infection the "flames," consisting of masses of filariform larvae, are sterilized and dried. This vaccine, used within a year of production, is rubbed into the shallowest possible scratches in the skin, for the least bleeding is harmful. In a pronounced reaction urticarial swelling begins in a couple of minutes, reaches its full size of about 15 cm in diameter in about fifteen minutes, and begins to disappear in about an hour. The reaction appears to be constant in infections having a duration of eighteen months or more, and was present once in eleven cases where all other evidence suggested absence of infection. With this reaction Fülleborn correlates like lesions constantly appearing perianally in chronic strongyloides infection, and that in spite of meticulous care in cleanliness. These he attributes to natural development to the filariform stage of larvae in tiny particles of faeces retained in minute perianal creases and their penetration of the perianal skin. Such repeated auto-inoculation would explain the long duration of some of Fülleborn's cases, one extending to over twenty-four years. For ascariis infection Fülleborn makes his antigen from the body wall of *Ascaris lumbricoides*, recovered from the pig, after the cuticle has been rubbed off, while Ransom, Harrison, and Crouch use the body fluid of the worm. These last workers found four of twenty persons sensitive. None, apparently, had been or were infected, but their work had brought all four into contact with ascariis for five to twenty-five years. Sensitiveness to ascariis material seems to hold no necessary implication of infection. This reaction will have a practical diagnostic value only in so far as it is positive at least as frequently as is the appropriate direct examination.

Complement fixation.—Here the recent work of Hamilton Fairley is important. In echinococcus infection he finds that scolices must form the antigen. The most suitable material is scolix-containing fluid from pulmonary or hepatic hydatid cysts of the sheep. Examination of nearly 1,000 cases showed that a positive reaction was clear evidence of hydatid infection, but absence of reaction did not necessarily exclude this. Age is important. Of infected persons under 20 years of age about 40 per cent gave no reaction while of those over 60 years old all reacted. Failure is variously caused. Not all cysts contain scolices—that is, antigen. Not always is antigen absorbed, as appearance of complement fixation for the first time after rupture of a cyst shows. Very rarely is antiserum not formed. Fairley concludes on very strong grounds that persistence of this reaction for more than twelve months after removal of a cyst implies persistent latent infection. In schistosomiasis Fairley's antigen is again a larval form—the cercaria in the snail's liver. This reaction is not zoologically specific, since using livers of *Planorbis exilis* infected with cercariae of *S. indicus*, he has obtained effective reactions not only in infections by this parasite in goats and buffaloes, but by *S. indicus* in goats and by *S. haematobium* in man. Although a generic reaction it is sensitive and valuable, seeing that no effective direct concentration technique has been devised for the extraction of trematode eggs from faeces.

2. Appraising the Damage done by Infection

Stiles instituted two methods of approach to this problem.

(a) *In the same community infected were compared with the presumably uninfected.* He selected a group of school children containing individuals positive and negative to the smear and to all of them applied certain physical and mental tests. Speaking generally these were negative but those children infected with necator were lighter and shorter than those in whom the smear failed to detect infection. In Queensland Waito and Nelson, examining

about 11 square inches of smear, partly centrifuged concluded that they could demonstrate a retardation of mental development and of haemoglobin content corresponding to the degree of infection, and that the effect was cumulative. Gordon could find no connexion between helminthic infection and haemoglobin percentage, physique, general fitness, or mentality, except that an ankylostome infection of over 15,000 eggs per gram of faeces involved loss of energy.

Two drawbacks attend this method. First factors other than helminthic infection may be influencing the subgroups. Neglect, ill feeding, and inherited mental weakness may well be preponderatingly with the infected group. Secondly, the mode of diagnosis used has failed to differentiate the infected from the non-infected.

(b) *The same community was tested before and after treatment.* In an infected person the bodily state at any particular moment represents the balance between damage done and repair effected. This repair entails an unusual often continuous, call which depletes bodily reserves even if immediate compensatory hypertrophy occur since capacity for hypertrophy is always limited and has been encroached upon. This depletion of reserve must be measured if the damage done by an infection is to be appraised. Stiles's second group of tests noted the change in mortality, morbidity, and capacity for work which followed disinfection. Under Wise in British Guiana disinfection of those apparently in good health was followed by marked improvement in all these directions. Life became more comfortable, happier, healthier, longer. The same followed my own treatment of 20,000 infected persons in Darjeeling twelve years ago. This line of testing, dropped for some years, has happily just reappeared. For example, the *Transactions of the Royal Society of Tropical Medicine and Hygiene* (vol. xxi, No. 6 1928) contains two instances. The first by McKenzie (p. 461) records the gain in weight and working capacity following the disinfection of a gang of "healthy" hard-working negroes, the second, by Rose (p. 486) stresses the striking rapidity with which lepers, who had failed to respond to treatment, did so when they were rid of their hookworms.

Exact inquiry on these lines seems to have greater scientific possibilities than any other. It is more likely to deal with single factors and it investigates that side of the matter which calls out for clarification. Two requirements are essential. (1) the diagnostic technique used must detect at least the single female worm for which purpose D.C.F. is at present essential in hookworm infection, (2) there must be evidence that the tests used do actually detect disability present. When Smilie and Spencer state with emphasis and confidence that, on the basis of the Stoll technique and of the physical and mental tests which they have used, "very light hookworm infestations produce no measurable harm," and conclude that these children are merely carriers whom it would be unjustifiable to treat to disinfection, they assume, without evidence offered, unjustifiably, and as I believe incorrectly, that the tests they have arbitrarily selected are accurate and adequate. It is as useless to attempt to measure entamoebae with a foot rule, whether procured from Mr. Woolworth or from the Greenwich Observatory, as to record the hours of sunshine with the most delicate of barographs. There is no justification for the assumption that no individual harm is here measurable. That will be determined only when the two requirements just noted have been met. But whatever may be the final answer on this point the matter will not thereby be closed, for the harm a light infection does is not limited to its possessor, nor does his degree of infection constitute any measure of the risk which he is to the community. This will perhaps be startlingly clear from the conservative statement that given ideal conditions of extracorporeal development and of establishing contact with man a single pair of hookworms is mathematically capable of destroying the human race within a year. It must be, and is, these extracorporeal conditions which are all-important. It is almost true to say that the intensity of an individual's infection is largely entirely immaterial. What is vital is the fact of infection and his particular, and often peculiar, fancy in defaecation. Unless that be rigidly

controlled in a primitive community, and conceivably it cannot, hope must lie in exact individual diagnosis and in treatment to disinfection.

TREATMENT

The perfect anthelmintic, when we find it, will be, or will produce, a selective poison which in a single dose will kill all worms without injuring the host or risking his life. Pending the discovery of a drug with these properties, effective against even a single worm species, anthelmintic dosage must be so limited that the enthusiastic prescriber will not find himself killing man in order to kill his parasites. Since these parasites live in a fluid medium, it has been concluded that the greater the concentration of the drug in that medium the more helminthoidal will its action be. Hence has arisen the stereotyped routine for the expulsion of intestinal helminths—preliminary starvation and purgation to lessen the volume of the intestinal contents and to produce thereby the maximum perihelminthic concentration of a vermifugal drug, when this is administered in the largest dose safe for man, which must be less than its minimum lethal dose.

It is profitable to consider first the action of tartar emetic and emetine in the treatment of schistosomiasis. Recent work has firmly established their value. Their mode of action is illumined by Fairloy's work. He showed that, as compared with solution in water, solution in serum increased the cercaricidal action of these drugs more than a hundredfold, while in plain normal serum, in that from a bilharzia case, in water, or in normal saline solution, cercariae live thrivingly. Clearly parasitic death in these cases is not due to direct poisoning by the drug. Quinine acts similarly on cercariae, which parallels its mode of action on the malaria plasmodia. These drugs themselves are not parasiticidal, they must be changed into something else before they become so. Does the same hold good for intestinal anthelmintics? Apparently it may. I have not been able to consult originals, even in translations, but it is stated that santonin and its derivatives are excreted into the lower part of the intestine when the drug is administered subcutaneously or by mouth after occluding the intestine, and that Takagamo and Asada claim that santonin is not vermifugal, but after absorption it, by combination with bile and other substances, becomes so for certain intestinal worms. Accordingly certain anthelmintics are innocuous or nearly so, but poison worms indirectly.

Moreover, when a drug has to be altered by the body before it becomes vermifugal, an interval should elapse (in the case of santonin twelve hours) between its administration and the post-anthelmintic purge. For the use of this last, recent work has strengthened the triple reason: the man is well rid of such of the toxic drug as remains in his gut, of the toxins shed into his gut by dead worms, and of drunken but living worms (a condition marked with certain anthelmintics) which should be swept away before they recover their unpleasant instinct for attachment.

Apart from schistosomes, hookworms have attracted the greatest modicative interest of recent years. Thymol in 60-grain dosage has served well. More recently other drugs have been extensively used—for example, oil of chenopodium and its active principle ascaridole. Schüffner's advocated dosage for the oil was 12 c cm, which is 48 drops delivered by the international drop-counter, not 48 minims. The use of this last and erroneous dosage has led to a number of deaths, the lower seems to be safe when the ascaridole content lies, as it usually does, between 50 and 70 per cent. In oils with a high ascaridole content, such as that issued by Burroughs Wellcome and Co (90 per cent), the dosage should be 0.8 c cm. The usual dose of ascaridole is 0.5 c cm.

Carbon Tetrachloride

The most recently and enthusiastically advocated drug for the treatment of ankylostomiasis was introduced to medicine by that distinguished veterinarian Maurice C. Hall (who has done so much for the diagnosis and treatment of helminthic infection) in an advocated dose of 3 c cm equally for man and dog, the dosage being apparently

irrespective of weight even between dog and dog. The drug is held to have no minimum lethal dose, and of it Lamson and Wing write "In the very extensive use of carbon tetrachloride in the treatment of hookworm disease, a few cases in each million have died." What are the facts? By shutting one eye or the other they can be made to suit any fancy. On the one side are such instances as Khalil's, with 150,000 cases treated with a partly redistilled drug, and one reported death, and he a poor creature—surely here, at last, is the perfect anthelmintic, which will destroy only "a few cases in each million," and those the ones we best can spare, Bishop's in Trinidad with 25,000 cases and no reported death, Lambort's 40,000 cases with no deaths, and yet three deaths in the next 8,000, Kohrer and Oondendal's, using 5 c cm with 1.5 c cm of oil of chenopodium, with no deaths in the first 9,000 and five in the last 6,000. On the other side lie Straub's two deaths in 1,400, one after a dose of 2 c cm, and three deaths in hospital patients after doses of 1½, 2, and 2 c cm, Kouwenar's four deaths in 6,000, none getting more than 3 c cm and the drug passing chemical tests of purity, Neave Kingsbury's one in 143 with a dose of 5 c cm, Phelps and Win's with two deaths one in an adult taking 3 c cm, the drug being pure, Bais's with three deaths. It is well to read the results with both eyes.

Are such deaths entirely unforeseeable? Carbon tetrachloride produces fatty degeneration of the liver, and sometimes at least of kidneys and adrenals. In the former the change may be intense, and is ordinarily followed by phenomenally rapid regeneration. In single doses there may be produced a striking derangement of liver function, with increased bile pigment in the blood, reduced tolerance to leucine, a drop in the blood fibrin with production of haemorrhages, and a lowering of the phenoltetrachlorophthalic test for liver function. Yet if the drug be persisted in so that it actually produces "tremendous liver lesions of necrosis, scar tissue formation, and all the signs of an early cirrhosis of the liver," dogs so affected "give normal values for all these liver function tests." It is held that intoxication can probably be prevented by (a) avoiding administration of the drug without preliminary treatment for ascariasis, (b) refusing treatment to alcoholics, (c) having patients avoid alcohol and food before and after treatment, (d) ensuring an adequate calcium reserve. It may be said in comment that (a) in Neave Kingsbury's case this was effected and death followed, while the proposal renders absolutely obligatory microscopic examination of the stool before giving the drug, (b) alcoholics are little prone to announce the fact, (c) Davis has shown that a diet rich in carbohydrates lessens liver damage, (d) we are left wondering how attention to calcium deficiency can be effected on a mass scale. In other words, the recommendations do not enable the hygienist to foresee these tragedies. A dose of 1.5 c cm may kill and is less efficient than the older anthelmintics. I know, moreover, that all deaths from the drug are not being reported, and that such unreported fatalities have wrecked at least two hookworm campaigns. I believe that the general adoption of the drug is retrogressive, in that it obstructs investigation directed to the discovery of something far more nearly approaching the ideal anthelmintic than any we now possess.

The tests by which anti-ankylostome drugs have in the past been appraised are unsatisfactory. The work requires repetition, using as a basis the enumeration, by accurate means, of the number of eggs present in a unit of faeces before and after treatment. Recent progress in diagnosis admits, at last, of this being effected with confidence of success.

Mass Treatment and Herd Treatment

Finally, mention must be made of treatment of hookworm infection on an extensive scale. Of this there are two conceptions, surely morally incompatible. In the one, after a preliminary investigation of relatively few persons, to determine whether the community in question has a "sufficient" degree of infection, all are "persuaded" to accept treatment by a lethal drug without individual diagnosis. Euphemistically misnamed "mass treatment," this is, in fact, the drenching method which the veterinarian

applies to an infected herd of cattle. It is "herd treatment." I quote once more words by Major Church:

"To the native races," as Sir Frederick Lugard has said, "civilization must mean something more than the methods of the development syndicate or the assiduous cultivation of new wants."

The pursuit of wealth, if it is accompanied by the careless exploitation of native races, is neither an honourable nor in the long run a profitable policy for the representatives of a great nation.

Disinfested labour is more profitable labour, and it is easier to treat a whole heavily infected community herd fashion, at the risk of a few deaths in uninfected persons, than to determine who are infected and to treat them only.

The second and antithetic usage is an expression of the belief that every individual is entitled to an individual diagnosis of infection before he is treated with a possibly lethal drug. It is based on conviction of the extreme value of mass treatment, even to complete disinfestation, but admits of no justification in morality, science, or expediency for the infliction of herd treatment on backward races. Those advocating this second usage can now ask, "What possible justification is there for the herd treatment of hookworm infection when mass diagnosis has become so exact, and can be carried out at the rate of a quarter of a million specimens a year for every four persons employed in the actual preparation and examination of specimens?" Surely the answer is "None." We are further advised to adopt for herd treatment the use of a drug which has "no lethal dose" yet kills unforeseen in a smaller dose than that which is in habitual use in herd treatment. At the same time we are warned that the drug should be avoided in certain conditions whose presence, in the very nature of things, herd treatment precludes our discovering. If in these circumstances we elect to use herd treatment we shall, I am satisfied, not merely have disregarded our individual professional obligation to those we treat, but will have set our feet deliberately on a path which, for us at the present time, will be devoid alike of reason and humanity.

USE OF SUBCUTANEOUS INJECTIONS OF OXYGEN

BY

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EARLY in January of this year Dr Murphy of Lisburn told me that, as a last resource, he had treated one of his dogs, suffering from double pneumonia following distemper, with a subcutaneous injection of oxygen, and that this was followed by a rapid and dramatic recovery. This method of treating pneumonia in dogs was introduced and has been advocated for some time by Colonel Ryan, F.R.C.V.S., Cork. He treats such cases from the very start in this way and does not wait till the animal is seriously ill. I related this case to one of my colleagues, Dr Rowland Hill, showed him how to give the oxygen, and he has had at least one wonderful recovery, which he has published.

On February 4th of this year Dr Boyd Campbell asked me to give oxygen to a man in his ward. It was the ninth day of an attack of double pneumonia in a man aged 45. When I saw him both lungs were completely involved and his blood pressure had fallen. He appeared to be moribund. He was given a large dose of oxygen at 12 noon, and he died at 4 p.m. At 8.45 p.m. on the same day Professor Symmers performed a *post mortem* examination that was rather interesting. There was absolutely no rigor mortis, the blood that issued from the anterior skin incision was bright arterial blood, the muscles were a brilliant red, the parietal pleura was also bright red, and the blood in the inferior vena cava was a distinct blue colour, not at all black and tarry. The lungs were to a great extent in the state of grey hepatization and there was not a half-inch of healthy lung.

Since then several cases of acute lobar pneumonia have been treated with subcutaneous injections of oxygen immediately on admission to hospital, and their charts show uniformly good results. The crisis comes on very rapidly. A case of pneumonia complicating glossitis, a post-anæsthetic pneumonia, and a case in a man with a bad fracture of the pelvis have all done well.

These results, taken in conjunction with Dr Cannon's recent work, as published in the *British Medical Journal* of April 21st, on the inhalation of warmed oxygen as an early method of treating acute pneumonia, are very interesting and suggestive. Dr Cannon claims that pneumococci give off oxygen and when the gas is sufficiently concentrated in the tissues the micro-organisms die.

If oxygen—say about 150 ccm—is injected subcutaneously into a rabbit and a few minutes later blood is drawn from a vein of its ear, the blood will be found to be arterial in character, and when shaken up with air its colour cannot be heightened. Also such a large dose does not produce any bad symptoms, such as apnoea. There is no doubt that oxygen is rapidly absorbed.

In pneumonia there are two things wrong with the patient—a general toxæmia and the local changes in the lung. Usually the toxæmia is the cause of death, and the oxygen seems to do good by neutralizing the effects of the toxæmia as well as possibly by its action on the micro-organisms. Toxæmia kills by producing anoxæmia with reduction of the alkalinity of the blood, and the clinical condition of acidosis is produced. The acids in the urine, and in bad cases the glycosuria, indicate this state. The kidneys and liver, the organs apparently responsible for maintaining the proper alkalinity of the blood, may both be upset. It is possible, therefore, that oxygen given subcutaneously acts, as Dr Cannon thinks, by helping to kill the pneumococcus and at the same time counteracts the toxæmia.

Given subcutaneously oxygen certainly does not produce any lung trouble or aggravate any existing lung trouble, as it may when inhaled, even if heated, and although I have given it in at least two hundred cases, not a single local or general bad effect has been seen, so that it may be considered a perfectly safe procedure.

Subcutaneous injections of oxygen, besides being of great use in cases of pneumonia, are of value in all cases of anoxæmia, and these are numerous and serious.

Chloroform or post-anæsthetic sickness is due to acidosis, and all my operation cases in the Royal Victoria Hospital before leaving the table are given a dose of oxygen, with the result that sickness is much diminished, since January only one case out of two hundred has developed any post-anæsthetic pneumonia.

A striking effect of subcutaneous oxygen is seen in connexion with extensive burns and scalds of the body. I have long been interested in these cases at the Children's Hospital, and have tried to solve the problem of the rise of temperature about the third day and the subsequent fatal result. For years I believed this toxæmia was due to microbic infection, but after trying all the known means to combat such infection, and not meeting with any success, I gave up that theory. Lately I found that scalds and burns that are going to do badly develop, before any symptoms are noticed, a severe acidosis, and apparently the toxæmia is due, not to a bacterial infection, but to the breaking down of the damaged tissue—that is, it is due to histamine poisoning, or to something akin to it. Later on, undoubtedly, microbes may cause complications.

During the last two months all the cases of burns and scalds of the trunk admitted to my beds have been treated with oxygen, and only one patient has died, but this case was not admitted till the third day, when the temperature was raised, the pulse rapid, and acidosis well established. Three similar cases were admitted a few hours after the accident, were given oxygen at once, and all did well, at most their urine showed a slight and temporary acidosis. The amount of oxygen given was largely determined by the amount of acid in the urine.

An interesting point in connexion with anoxæmia is that symptoms do not appear till late, and once they appear the patient goes downhill very rapidly—almost as if he had fallen over a precipice. So that in treating anoxæmia,

or conditions giving rise to it, oxygen must be given early, before the patient becomes obviously very ill

A girl in my ward for some weeks had small boils in various parts of her body, then she developed acute peritonitis of the right radius—all due to a staphylococcal infection. When admitted her urine was very acid and contained sugar—it reduced Fehling's solution with the greatest ease. She was given 200 c.c.m. of oxygen and in twenty-four hours her urine contained only a trace of sugar. She had another 200 c.c.m. of oxygen, and next day her urine was free from sugar. During that time no incisions had been made in her skin.

The apparatus needed for giving subcutaneous oxygen consists of the gas cylinder, a coarse piece of rubber tubing attached to the valve, and this coarse piece connected by a joint of glass tubing with a finer piece of rubber drainage tubing, to the end of which is attached the needle of a serum syringe. There is no need to heat or filter the

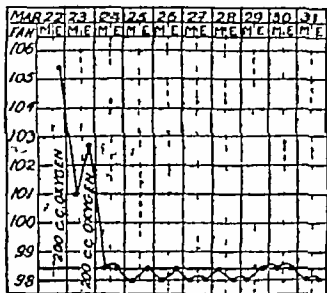


CHART 1.—Acute lobar pneumonia, the right lower lobe extensively involved, the left lower lobe to a less degree. The oxygen was given on the third day of the disease.

gas. A convenient place to give the injection is below and outside the nipple or breast.

At first I measured the amount injected by means of two graduated bottles, one of which contained water. Such an apparatus is a nuisance, and is not required. I found that if sufficient gas is admitted under the skin so as to inflate an area equal in size to the palms of two hands, the amount given is roughly equal to 200 c.c.m. Much larger amounts can be safely given.

The time taken for the oxygen to be absorbed seems to vary according to the patient's need. It seems well in bad cases to give at least 400 c.c.m. at first and then see the patient in six hours, repeating the dose if most has been absorbed. A large dose of oxygen can be given as easily and quickly as a dose of serum, and it is less painful.

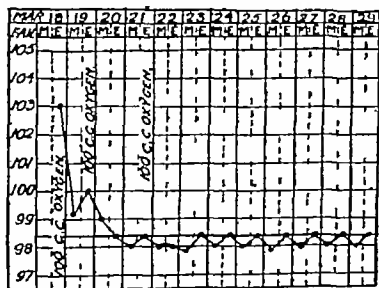


CHART 2.—Acute lobar pneumonia, left lower lobe. The oxygen was given on the fifth day of the disease.

Since the early days of haematology, when Ehrlich's work became known, attention has been focused on the various white cells of the blood, and the red cells, though far more numerous, have not been talked about much in connexion with acute and chronic infections. Perhaps they have been unfairly neglected. By dosing our patients with oxygen in this safe and easy way we can give the red cells a chance to show what they can do.

I have felt impelled to write this note on account of the uniformly good results seen in pneumonia and in burns and scalds on account of the simplicity of the method, and because I believe that the giving of oxygen is of benefit in many conditions. It is interesting to remember

that drugs such as alkalis, potassium chlorate, and potassium permanganate, all of which can help oxygenation, have long been popular in the treatment of acute and chronic toxæmias.

The accompanying temperature charts are typical of cases of acute pneumonia treated with subcutaneous oxygen.

POST-MORTEM FINDINGS IN A CASE OF RENAL DWARFISM

BY

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THE case here recorded appears to be of interest because of the absence of bone deformity in a girl presenting the other features of renal dwarfism.

Clinical Notes, May 1st, 1928.

The patient was a girl aged 16 years. The history obtained stated that six months previously she had an attack of pain in

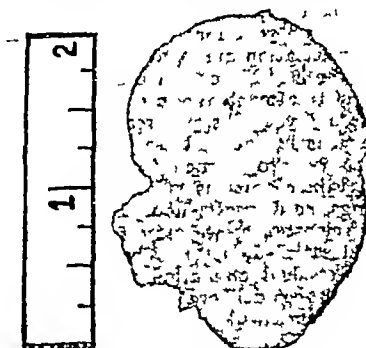


FIG. 1.—Kidney, weight 21 grams (normal weight 140 grams).

the abdomen with vomiting and diarrhoea. She went to an institution and returned benefited. She remained well until three or four weeks ago when she suffered from abdominal pain and vomiting, and mentally was rather dull.

When admitted to the Royal Infirmary, Sunderland, on May 1st, the child looked drowsy and complained of abdominal pain. She was seen to be markedly undeveloped, looking between 11 and 12 years of age. The abdomen was rather

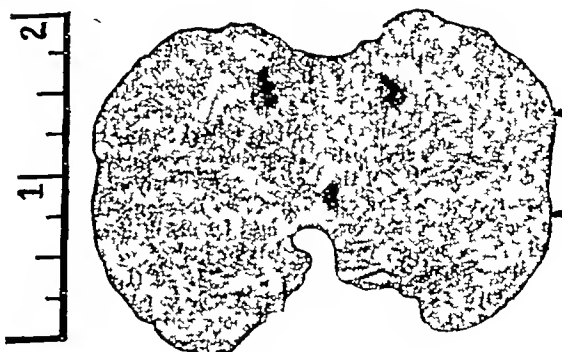


FIG. 2.—Kidney laid open. Weight 21 grams.

tumid. The heart showed no abnormality. The urine had a specific gravity of 1010, neutral reaction, albumin present, no blood, pus, or sugar. An endocrine defect was suspected. An x-ray report of the region of the pituitary fossa showed no enlargement of the sella turcica. The Wassermann reaction was negative. The blood count showed haemoglobin 45 per cent, colour index 1.02, red blood cells 2,200,000 per c.mm., white blood cells 9,600 per c.mm. Differential white cell count: polymorphonuclears 81 per cent, lymphocytes 18 per cent, no eosinophils or basophils, large mononuclears 1 per cent.

The patient gradually became comatose and died on June 3rd, apparently of uræmia.

Post mortem Examination

The general appearance suggested that of a child of 11 years of age. The body was well nourished and plump. No deformity of the limbs was noted. There was a bald patch, apparently alopecia areata, on the back of the head.



FIG 3

volutions. No tubercles were seen. The pituitary gland appeared normal.

The kidneys specially described (see Figs 1 and 2). These were very small. The surfaces were granular and the capsules stripped freely. A small cyst was present in the right kidney. The cortical area was greatly diminished. On section (see

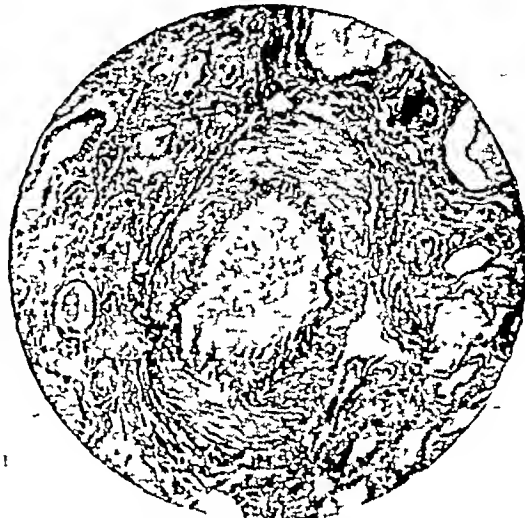


FIG 4

Chest—Both lungs showed old chronic tuberculosis and tuberculous broncho pneumonia. The thymus was not persistent, and there was no increase or decrease in the size of the thyroid gland. The heart presented no peculiarity. The large vessels showed no degenerative changes.

Abdomen—Tuberculous mesenteric glands. The spleen and liver presented no abnormality. The uterus and ovaries were very small and undeveloped. The intestine showed no abnormality.

The brain showed some oedema and flattening of the con

dition was that of a progressive interstitial nephritis. During life an endocrine defect was suspected in the child and it was only at the *post mortem* examination that the condition of the kidneys was fully appreciated.

I am indebted to Dr R. Mair, assistant physician to the Royal Infirmary, Sunderland, whose case this was, for the clinical notes

associated with outbreaks of chicken-pox, as is shown in the accompanying table. This would suggest a common origin.

The Relationship between Chicken-pox and Herpes Zoster

Ward.	Date of Onset of First Case of H Z or C P	Date of Onset of Subsequent Cases	No. of Days between Onset of H Z and 1st Case of C P
C 6	H Z 24/11/27	C P 10/12/27	Sixteen days.
		" 11/12/27	
		" (3 cases) 25/12/27	
		" (3 cases) 29/12/27	
		" 1/1/28	
E 4	H Z 3/11/27	" 11/1/28	Ten days.
		" 11/1/28	
		" 14/1/28	
		" 16/11/27	
		" 27/11/27	
D 6	H Z 10/4/27	C P 13/11/27	Seventeen days.
		" 16/11/27	
		" 27/11/27	
		" 28/11/27	
		" 3/12/27	
F 1	H Z 24/1/28	" 7/12/27	Eighteen days.
		" 16/12/27	
		" 27/4/27	
		" 11/5/27	
		" (2 cases) 12/5/27	
C 5	H Z 1/5/26	" (2 cases) 12/5/27	Fifteen days.
		" 15/5/26	
A 3	H Z 18/3/28	" 31/5/26	Fifteen days.
		" 2/1/28	
E 4	H Z 9/8/26	" 15/4/28	Fifteen days.
		" 24/8/26	
E 1	C P 13/11/26	" 9/9/26	Twenty days.
		H Z 3/12/26	

C.P. = Chicken-pox. H.Z. = Herpes zoster.

HERPES AND VARICELLA.

BY

N. GRAHAM HILL, M.C., M.B., B.S.

TOWARDS the end of last century von Bokay noted the occurrence of herpes zoster and varicella in the same households at the same time. Since there is a marked similarity of the skin lesions in the two conditions, he suggested that there might be a common cause for the two diseases, or, to put it in other words, the two conditions might be different manifestations of the same disease. During the last thirty-five years many papers have been published referring to outbreaks of varicella which have appeared to owe their origin to contact with cases of herpes zoster. The relationship of the two diseases has frequently been discussed, but no definite decision has yet been reached.

Le Fèvre, working among families living in isolated farmsteads in South Africa, made out a strong case on clinical evidence for the common origin of herpes zoster and chicken-pox, and Netter observed over a hundred cases, mostly French, in which herpes appeared to have given rise to varicella or varicella to herpes. On the other hand, chicken-pox was made a notifiable disease in Burton-on-Trent between November, 1922, and December, 1924, and the medical officer of health, Dr Cowie, or his assistant investigated every one of the 813 cases reported in 559 families. In only nine—that is, 1.6 per cent. of cases—was there a history of recent herpes in the family.

In Queen Mary's Hospital for Children, Carshalton, twenty-nine cases of herpes zoster have occurred among the patients and staff during the last two years. In spite of the fact that all cases of herpes and chicken-pox are isolated, eight of the herpes cases seem to be very closely

of the conditions. But against this finding we must place the fact that an attack of varicella does not confer any immunity against herpes zoster, seven of the twenty-nine patients gave definite histories of having had chicken-pox, and scars on the skin supported these statements. In not a single case have I seen, or obtained histories of, a second attack of either chicken-pox or herpes zoster, and I have not observed herpes and varicella rashes out together on the same patient, although many such cases have been recorded.

Conclusion

A case of herpes zoster may give rise to an outbreak of varicella, but a previous attack of varicella affords no protection against a subsequent attack of herpes zoster.

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NINETY-SIXTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Cardiff, July, 1928

THE SECTIONS

SUMMARY OF PROCEEDINGS

ARRANGEMENTS have been made to publish, during the next few months, full reports of the opening papers communicated to the Scientific Sections of the Annual Meeting at Cardiff. The summaries printed below and those which will appear in subsequent weeks are intended to give members who were not present a general view of each day's proceedings.

SECTION OF MEDICINE

Wednesday, July 25th

DISEASES OF THE CORONARY ARTERIES

SIR THOMAS LEWIS, President of the Section, who took the chair at the opening session of this Section, said that the generalization associating a man's age with his arteries should be limited more particularly to the cerebral and coronary vessels. The discussion about to be opened was timely in view of the recent growth in knowledge about this subject, and it might be recalled that rather over a century ago a small group of men in the counties bordering Wales had contributed materially to the little that was then known.

Dr G. A. ALLAN, in opening the discussion, said that disease of the coronary arteries had been recognized for a considerable time, and its association with angina pectoris had been widely accepted. In recent years prominence had been given to certain anginoid symptoms which had been found associated with coronary blockage, usually thrombosis. In this country the papers by McNeo and by Lindsay Steven had made a careful analysis of the literature as far back as 1887. Coincident with this increased attention to the clinical aspect important anatomical investigations had been made by Gross and his collaborators, in addition to making an accurate survey of the part of the heart supplied by each coronary artery he had also shown that the heart was perhaps the richest organ in the body as regards capillary and pre-capillary anastomoses between branches of the same artery as well as between branches of both arteries, and that as age advanced there were anastomoses between the vessels in the epicardial fat and adjacent parts and the coronary arteries. The morbid processes affecting the coronary arteries might be classified into four clearly defined conditions: (1) Atheroma, the commonest primary lesion, was a patchy disease first affecting the deeper layers of the intima with degeneration of

the deeper parts, proliferation of the fibrous elements, and encroachment on the lumen of the vessel. It was quite irregular in its distribution through the body, and might be well marked in the coronary vessels when there was no indication of it in the accessible arteries. (2) Arterio-sclerosis, a diffuse process characterized by thickening of media and intima, probably beginning as a hyperplasia in the media, it was much more uniform in its distribution than atheroma. (3) Syphilis was comparatively rare in the coronary vessels in spite of the fact that aortic syphilis was one of the commonest visceral manifestations of the disease. (4) Calcification was most frequently found superimposed on either atheroma or arterio-sclerosis, but it might occur as a primary medial degeneration, and its association with atheroma was a potent factor in diminishing the lumen of the vessel. To obtain some idea of the relative frequency of these lesions he had examined the figures collected from 1,000 consecutive autopsies in the Western Infirmary, Glasgow. In these there were 371 cases in which naked-eye lesions had been noted, the lesions were—

Atheroma	80.6 per cent	with fibrosis in	51.2 per cent
Arterio-sclerosis	45.3	"	54.7
Calcification	10.8	"	77.5
Syphilis	3.5	"	38.0

Of 87 cases in which the coronary lesion was noted as producing definite narrowing of the lumen—

Atheroma was present in	85	with fibrosis in	82 per cent
Arterio-sclerosis	31	"	84
Calcification	33	"	85
Syphilis	7	"	57

Fifty-eight of the patients died suddenly, and in ten of these there was no evidence of fibrosis. Other points which emerged from this study were: (1) severe narrowing of the artery might be present without obvious myocardial lesion. (2) severe old standing lesion and even occlusion might be present with no clinical history of its occurrence. (3) patients might die with symptoms suggesting coronary occlusion in which no such lesion was found. Disease of the coronary arteries in general tended to produce diminution of the lumen, this caused starvation of the parts supplied, followed by replacement fibrosis, or, if sudden complete occlusion occurred, infarction resulted with subsequent fibrosis. It was apparent that there could be no diagnostic symptomatology to cover all cases of coronary artery disease, in the series quoted 35 per cent of cases showed no gross lesion of the muscle, and of the remaining 238 only 58 patients could be said to have died as the immediate result of the coronary lesions. When the blockage was abrupt certain features were present with such regularity as to make diagnosis reasonably sure, these would be dealt with by subsequent speakers. The features that demanded attention were the duration and situation of the pain, the associated symptoms such as vomiting, collapse, respiratory and mental distress, and such signs as the rate and rhythm of the heart, fall of blood pressure, etc., and the information to be derived from the electrocardiogram. The ultimate prognosis was in almost all cases bad, but judging from old lesions found at necropsy, those who made a good recovery, at least temporarily, must be fairly numerous.

Dr CAREY F. COOMBS (Bristol), discussing the etiology of the two great coronary syndromes, ischaemia and infarction, gave an analysis of 1,600 cases of organic heart disease seen during the previous ten years. Both kinds of coronary attack occurred most often in the seventh decade of life, though ischaemia cordis was almost as frequent in the sixth, and appreciable in the fifth, partly owing to its relation to syphilis. Infarction was relatively more common in males than was ischaemia. Dr Coombs showed a slide indicating that cardiac rheumatism, ulcerative endocarditis, and cardiac syphilis seldom excited the coronary syndromes, except that ischaemia was more frequent in cardiac syphilis in consequence of the liability of the coronary orifices to stenosis in aortic syphilis. Some coronary disorders might, however, be traced to endocarditis lenta, and even a preceding phlebitis.

Dr IVOR DAVIES (Cardiff) commented on the importance of symptoms in disease of the coronary arteries, and referred especially to intermittent peripheral arterial claudication. Coronary sclerosis might be considered as a generic term to include angina pectoris and coronary

thrombosis. He then gave an account of the clinical manifestations and discussed the physical signs in detail.

Dr A. J. GIBSON (Oxford) dealt with diagnosis and prognosis, indicating the main features of importance with illustrative examples. He showed that when the initial lesion was not too extensive the heart could adapt itself to the structural damage, and that, therefore, if serious risks were obviated a good prognosis might be given for the immediate future.

Dr J. S. CAMPBELL (Belfast) showed a beautiful series of lantern slides of injected hearts illustrating the changes that occurred in the blood supply at different age periods. In the foetal heart there was an equal distribution of vessels to right and left ventricles, in adult life there was a much more abundant supply of vessels to the left ventricle than to the right whilst in old age this preponderance was even more striking. The second point that was clearly shown was the free anastomosis that occurred between right and left coronary arteries in cases of coronary thrombosis. In one case shown there was thrombosis of the right coronary artery, injection of the left coronary artery filled the right artery up to the point of obstruction through anastomoses chiefly in the intra-ventricular septum. The third point to which Dr Campbell drew attention was the great variation in the distribution of the two coronary arteries to the various parts of the heart, this was especially noticeable in the circumflex branches and the blood supply to the posterior wall of the heart.

Dr EVAN BEDFORD (London) referred to the value of the electro-cardiogram in the diagnosis of cardiac disease. In cardiac infarction the process of myocardial necrosis and healing could often thus be followed accurately when physical signs gave no indication of what was going on. Coronary thrombosis might simulate acute abdominal disease, and then an electro-cardiographic investigation might save an unnecessary surgical operation. Similarly in slight and doubtful cases of coronary thrombosis such an examination might materially assist the medical practitioner in enforcing rest. Professor MOORHEAD (Dublin) referred to Dr. Coombs's views as to the occasional importance of the infective factor, and related one case recently seen which had now apparently made a complete recovery. Dr GILCHRIST (Edinburgh) spoke of the association of attacks of anginal pain with paroxysmal tachycardia, and gave details of one case in which there was marked inversion of the T-wave. At necropsy there was no infarction and no thrombosis of the coronary arteries, but some stenosis at the orifice.

Sir THOMAS LEWIS, winding up the discussion, commented on the valuable ground which had been covered. He emphasized the importance of remembering the anatomical considerations.

SECTION OF SURGERY

Wednesday, July 25th

TUMOURS OF THE SPINAL CORD

At the first meeting of the Section of Surgery with the President, Professor A. W. SHEEN, in the chair, the subject for discussion was the diagnosis and treatment of spinal cord tumours.

Mr DONALD J. ARMOUR (London) limited his remarks to tumours arising from the cord, nerve roots, and the spinal meninges, and excluded tumours of the vertebral column, except chondromata growing from the intervertebral discs. He said that tumours might be either intradural or extradural without it being possible to discover the point of origin. More than three out of four spinal cord tumours were extradural, the intradural type being the commoner. Intradural tumours occupied the dorsal or dorso-lateral position in two-thirds of the cases. Clinically the course of the disease could be divided into three stages: (1) of root symptoms, usually unilateral; (2) of Brown-Séquard paralysis, and (3) of compression paraplegia. The first symptom was either pain or paraesthesia. Some cases, however, ran a painless course, or sensory symptoms appeared later in the disease. Pain, due to root irritation, was neuralgic, was referred along the course of the nerve involved, and was often increased by movements. Paraesthesia might occur at the level of the tumour,

due to root irritation, above this level, due to increased tension in the cerebro-spinal fluid or to sympathetic involvement, or, below the level, due to pressure on sensory tracts. The maximum sensory disturbance in extradural tumours was at the periphery, while with intramedullary growths this maximum of sensory disturbance was often at or below the segmental level. During the early stages of involvement of the anterior root irritative symptoms occurred, but usually when the patient was first seen these had been replaced by degenerative paralysis. Pressure on one side of the cord gave rise to the Brown-Séquard syndrome, but this soon passed into complete compression, with paraplegia or paraparesis. As the pressure increased two sets of spinal symptoms appeared—those due to the direct effect of the tumour on the involved segments and those due to pressure on the tracts of the cord. Sphincter disturbances did not appear until motor and sensory symptoms were well marked, and the loss of bladder control preceded rectal incontinence. It had been shown that the pressure effects of the tumour were limited, and that the widespread interference with the function of the cord was due to vascular disturbances. This explained the rapid recovery often seen after operation, even when the cord had been greatly narrowed and distorted. Paraplegia in flexion most frequently followed the paraplegia in extension, and this condition indicated severe and localized pressure, and in cases of tumour called for immediate operation. Intra-abdominal disease was simulated by pain due to tumours in the lower dorsal region. Lesions situated in the lumbar region presented multiple root signs, and tumours of the cauda equina gave rise to intense pain. Atypical clinical forms of the disease were referred to briefly. As regards differential diagnosis, extradural tumours grew more rapidly and gave rise to bony changes much more frequently than intradural tumours, and root pain was often absent and the vertebral column was sensitive to pressure in the case of extradural growths. The differentiation of intramedullary and extramedullary tumours was difficult, and the speaker discussed fully the various methods of distinction. With regard to treatment, Mr DONALD ARMOUR advised laminectomy after Victor Horsley's method, and did not favour osteoplastic laminectomy or hemi-laminectomy. If after opening the dura no tumour was discovered the presence of cardiac and respiratory pulsations, the condition of the posterior veins, and the escape or not of cerebro-spinal fluid should be noted. Posterior roots involved in the tumour might be divided if necessary, but every effort should be made to preserve the anterior roots. Intramedullary tumours were best dealt with by Elsberg's "extrusion" method. The speaker concluded by referring to the use of radium and x rays.

Dr GEORGE RIDDIOCH (London) briefly discussed the clinical aspects of the disease. He said that paraplegia, whether due to intramedullary or extramedullary lesions, followed a very definite sequence—spastic paraplegia in extension, followed by paraplegia in flexion, and finally flaccid paralysis. With anterior tumours flexion paraplegia might occur first. Focal signs of the level of the lesion were radicular and segmental. They were absent sometimes with ventrally placed tumours and small tumours between the roots. The importance of finding the level of the junction of abnormal and normal sensation was mentioned, but the crossing of the sensory fibres must be borne in mind. He briefly referred to the differential diagnosis of extradural and intramedullary growths.

Sir PERCY SARGENT (London) said that lipiodol gave rise to severe root pains in some cases, he wondered whether there would be some changes of the membranes of the cauda equina in after years due to the prolonged presence of this iodine-containing preparation. When clinical and other methods were satisfactory for diagnosis and localization in a given case he stated that lipiodol should not be used. The speaker had had no success with the light solution of lipiodol. Referring to the differential diagnosis of intramedullary and extramedullary tumours he said that the number of segments and the elongated blockage of the canal helped to decide this point. Mere dissociation of sensation was of little use for differential diagnosis. Sir Percy Sargent said that the prognosis of intramedullary tumours was not so bad as was thought. The mortality

rate of operation was low, the worse prognosis was given in growths from the second to fifth thoracic segments, where cardiac disturbances followed the operation. Lower down acute dilatation of the stomach occurred, and lower still intestinal paralysis supervened. Slides were shown of neurofibromata and endotheliomata, also x-ray photographs of lipiodol injections.

Mr GIFFORD JEFFERSON (Manchester) said that pain was not a common complaint in his cases, but spastic paraplegia. He divided spastic paraplegia into (1) a degenerative type and (2) a compression type. There was considerable difficulty in distinguishing these groups, but the picture of cord compression with its definite sequence was often clear cut. He had used Queckenstedt's test with success to diagnose complete blockage of the canal. Excellent diagrams were shown illustrating the value of this test even in cases of partial blockage. Testing the cerebro-spinal fluid was also important, since stasis due to the blockage increased the albumin content.

Mr LAMBERT ROGERS (Cardiff) reported a case of complete and rapid recovery after removal of a meningioma, though the spinal cord was flattened out into a tapo-like form. The tumour, as well as containing the psammoma bodies, contained true bone. Mr Rogers showed some interesting x-ray photographs after lipiodol injection.

Mr WILFRID TROTTER (London) disagreed with Mr Jefferson that pain was not a common and early feature. Cases of spinal tumours were missed until a patient with an unexplained pain, which was mistaken for many other diseases, developed paresis. He said that Sir Percy Sargent stated that neurofibromata were the commonest tumours, and these gave rise to intense pain with few or no physical signs. It was of vital importance to investigate these pains thoroughly, especially the character, position, and distribution of the pain, and the influence of coughing, etc., on it. Patients should come to operation after a definite diagnosis was made, long before there were paralytic signs and symptoms. Mr ADAMS (Bristol) reported one case in which there was no pain, but merely a slight limp on walking. He suggested that neurofibromata might cause root pains, while endotheliomata produced motor signs and symptoms. Mr STANLEY FOSTER (New Zealand) agreed with Mr Trotter regarding the sensory symptoms. Mr BROCKMAN (Sheffield) said that pain due to spinal tumour should be kept in mind when a patient came with a curious unexplained pain.

Mr ARMOUR, replying, said that he agreed that the upper dorsal region was the dangerous zone. The period of early pain was certainly the correct time for treatment. He mentioned that Professor Sicard now advocated immediate screening after injection of lipiodol.

SECTION OF OBSTETRICS AND GYNAECOLOGY

Wednesday, July 25th

UNSUCCESSFUL FORCEPS CASES

The first meeting of the Section, under the presidency of Dr T. W. EDEN, was devoted to a discussion on unsuccessful forceps cases, a subject which was introduced during the final meeting of the Section last year too late to permit of adequate consideration. The opening papers, by Dr Douglas Millar (Edinburgh), Professor James Hendry (Glasgow), and Professor W. Fletcher Shaw (Manchester), were printed in this issue.

The President remarked that Dr Miller had had results of three hospitals at his disposal. His account should be regarded as the standard picture of what was going on all over the country. Those present could realize how great the evil was.

Dr C. E. DOUGLAS (St Andrews) spoke on behalf of the general practitioner. He had only meant to make a plea for version in failed forceps cases. He could look back for forty years, and much that happened then should not happen now. Now we had ante-natal supervision. A great future lay in front of the general practitioner if he would take advantage of it. He and he alone should be the person to do this work. In the paper version had been employed in only 5 per cent of the cases. All could apply version if they had a reasonable degree of skill. The only

safe rule was to do nothing at all until the os was suitably dilated, to do otherwise was courting disaster. Manual dilatation of the os should be relegated to the scrap-heap. With chloral and patience the os would dilate itself. He had had nine cases of failed forceps, eight were occipito-posterior cases. There were no maternal deaths, but four babies had died.

Dr BIRNELL SOLOMONS (Dublin) said that it seemed extraordinary that no one was excited at the figures presented. There were two definite causes: (1) blissful ignorance—to be cured by better training, (2) wilful negligence. A man should be thrown out of the profession for applying forceps too early. The application of tentative forceps, with a view to possible pubiotomy or low Caesarean section, was quite justifiable. Post-graduate training should be insisted on: five years was far too short. In Sweden eight years was the minimum. X-rays were very useful in confirming the diagnosis. He did not think it was possible to diagnose a living child, and it was dangerous to think it was. As for Caesarean section or craniotomy, he preferred the low Caesarean operation as safer than craniotomy. A live child should never be killed. The lower segment operation with drainage was quite safe. Few cases of failed forceps occurred in Ireland. There was no mystery about this subject, and they should be perfectly able to grapple with it. In regard to adequate payment, a composite fee to the family doctor should be paid. He suggested that what was wanted was strength of mind to avoid forceps when contraindicated, and strength of arm to deliver when forceps were indicated.

Dr MADEL RAMSAY (Plymouth) lived in a district where there was no maternity hospital. She asked how long a trial labour should be—should it be two or three days? In private practice she had many more worries than in her Poor Law hospital, where she had the help of an excellent midwife. Craniotomy gave her a feeling of horror, she had never performed this operation. She had no fear of doing a Caesarean section if she had been in attendance on the case herself. Ante-natal schemes were very well, but the patient failed because she would not pay the fees. The fee question bulked very largely. Maternity and child welfare officers were not adequately trained. In future not only ante-natal, but post-natal work also, would have to be done. Mr L. C. RIVETT first of all urged the extreme importance of ante-natal care. Secondly, he agreed with the tentative application of forceps. He wished to emphasize that (1) the head must be engaged in the pelvic brim, (2) the cervix must be fully dilated, (3) the bladder must be empty, (4) uterine contractions must be present, before any attempt be made to apply forceps. He did not agree with attempting version or embryotomy after all the liquor had drained away. Caesarean section was much safer when the uterus was in an irritable state. There was less shock than in embryotomy. With regard to the training of students, he thought that six continuous months was the very minimum in which to teach them midwifery. Dr KELSON FORD (Preston) thought that a composite fee should be charged, to include ante-natal supervision and attendance at confinements. He asked how it was that eight cases of ruptured uterus occurred, whereas only three Caesarean sections were reported. In the elderly primipara the fate of the baby was as important as the fate of the mother. He did not think that the possibilities of Caesarean section in definitely infected cases had received sufficient attention. He found that it was easier to get patients to attend for ante-natal supervision than for post-natal examination. He thought it was a debatable policy for general hospitals to open beds for normal midwifery, but that this work should be undertaken by special State-aided institutions.

Mr TENISON COLLINS (Cardiff) said that a certain proportion of cases might be avoided if patients were not allowed to go over their time. They were constantly seeing cases where forceps had been applied too soon. The public thought that the best doctor was the one who produced the child in the shortest time. Much good would be done if it were being constantly brought to public notice that time must be given. Dr KENNETH WILSON (Blandford) agreed that it was impossible to obtain a fee for ante-natal work in country districts. He thought payment should

come from the State. He had had one case of failed forceps. He had attended this patient in two previously normal confinements. In this case he came to the conclusion that hydrocephalus was the cause. He performed craniotomy, and she subsequently developed puerperal insanity, but quickly recovered. In another case the head was floating freely after forty-eight hours of labour. Under anaesthesia he pushed the head easily into the pelvis. After sixty hours there was still no further progress. Six hours later, there being no progress, Caesarean section was performed, and it was found that the whole uterus was spotted with multiple small fibromyomata. Mr. PARSONS (Rugby) spoke in favour of pubiotomy. He had performed the operation seven times with one maternal and two foetal deaths. Haemorrhage might be rather alarming, and laceration of the perineum and vagina might be considerable. He advocated chlorine douches, given before and after delivery. Dr. BOYN (Manchester) supported the application of version. In 1,500 cases he had had many where forceps had failed and version had succeeded. It had to be confessed that many foetal deaths had to be recorded. He deprecated the sweeping statement that these cases were all due to ignorance or neglect. Dr. QUINN (Dublin) reminded the meeting that no slums could be worse than the slums of Dublin, and the Master of the Rotunda had to have a long apprenticeship in these surroundings. Not enough stress was laid, in teaching, on the normal case. If non-interference in normal cases were practised Nature would do the rest. The high foetal mortality was caused by injudicious attempts at treatment. He emphasized the value of morphine at the commencement of labour. He did not approve of the use of lysol.

Miss FRANCES IVENS (Liverpool), while in considerable agreement with much that had been said by the openers, wished to bring forward some points based on an analysis of twenty-six failed forceps cases admitted to her department at the Liverpool Maternity Hospital during the last seven years. Of these, two delivered themselves (both children alive), nine were delivered by medium or low forceps, with seven living children, two by high forceps (one living child), six by Caesarean section, with four living children, six by craniotomy and one by version, all stillbirths. In no case was craniotomy performed on a living child, and potential sepsis was not regarded as a bar to a classical Caesarean section (in one case forceps had been attempted four times). One mother out of the twenty-six died, delivered by Caesarean section after two forceps attempts. Her death was due to *Staphylococcus aureus* septicaemia, the source of infection being possibly from her husband, who was suffering from boils, she had been to a clinic, but had refused examination. Dr. Miller's figures indicated that the high mortality in failed forceps cases was largely due to sepsis, and Miss Ivens's figures corroborated this. Thirteen—that is, one-half—of the cases were morbid. A streptococcus and *Bacillus coli* were present in five cases, a non-haemolytic streptococcus in two cases, a streptococcus and the *Staphylococcus aureus* in one case, a streptococcus, *Staphylococcus aureus*, and *B. coli* in one case and in a case where the child was gangrenous, *B. coli* and *B. welchii*. To combat this risk of infection special precautions were taken, antistreptococcal serum being given at the time of delivery by Besredka's method—namely, with a large quantity of normal saline. This was followed whenever possible by the serum appropriate for the infection. Some Weinberg anti-gangrenous serum which had just arrived from the Pasteur Institute, was undoubtedly instrumental in saving the life of the patient with gas gangrene infection. Good uterine retraction was obtained by the use of pituitrin and ergotin. In the cases of Caesarean section drainage into the cave of Retzius was employed, and steps were taken to obtain early and free bowel evacuation. In regard to the source of infection, the frequent presence of a non-haemolytic streptococcus and *B. coli* suggested an intestinal origin. The speaker made it a rule that there should be no vaginal examination until the patient had been given a bath and the vulva shaved and thoroughly washed down over a douche pan. She emphasized the undesirability of making internal examinations either in ante-natal clinics or elsewhere very late in pregnancy without taking special precautions. She

agreed with those who believed in correcting the posterior position, and always advised the exaggerated Sims's position. She thought ante-natal teaching was beginning to bear good fruit, and there was a big field waiting for those doctors who would perfect themselves in it, so that the normal cases could be left to the midwives whilst the borderline cases might be more carefully watched or sent into hospital. Also, the education of students in midwifery was better, and the more recently trained graduates were realizing how easily a case could be spoilt for Caesarean section. She did not think that remuneration had much to do with the quality of medical work. If it had, the honorary work carried on in voluntary hospitals would not be so highly valued as it was.

Replying to the discussion, Dr. MILLER referred to the criticism of the expression "dying child." He agreed that this description was misleading. The cases he had in mind were those in which fractures of the foetal skull could be detected. The small number of failed forceps cases admitted to the Rotunda spoke volumes for the teaching there. He explained the apparent discrepancy in the figures applied to rupture of the uterus and Caesarean section. Professor HENDRY referred to a case to illustrate what he meant by a test labour. It was a very serious matter when patients did not turn up for ante-natal examination. It was difficult to say when forceps had been applied tentatively. He agreed with what had been said about attempting version or craniotomy when the uterus was irritable and the patient was suffering from shock. He did not advocate instrumental rotation, but much preferred manual rotation. He objected very strongly to remarks deprecating the value of x-ray ante-natal examinations. Mr. FLETCHER SLAW said that ante-natal work was carried out in Manchester as a routine long before Dr. Ballantyne had published his paper from Edinburgh. Lysol had done more harm in midwifery than anything else, it was not used in sufficient strength. With regard to fees for ante-natal treatment, these should be composite to cover everything. The ideal way would be for the doctor to have care of the patient before labour, the midwife to attend the normal confinement, the doctor to attend again during the puerperium.

SECTION OF MENTAL DISEASES AND NEUROLOGY

Wednesday, July 27th.

AUTOTOXAEMIA AND THE PSYCHOSES

Dr. EDWIN GOODALL, President of the Section, in a brief introductory speech, referred to the achievements of Professor W. Weygandt, the opener of the discussion on autotoxaemia as a factor in the causation of the psychoses. Professor W. WEYGANDT (Hamburg) remarked that in the course of the past century a great change had taken place in the doctrine of the causation of psychoses, it had become more firmly settled that mental derangements were cerebral diseases, and that a morbid influence on the brain represented the cause of mental disorders. In 1896 Kraepelin described dementia praecox as a metabolic disease, and called attention to an inherited disposition in 70 per cent of cases. The realization that an endogenous cause of the disease must be assumed had induced an intensive investigation of the blood and endocrine glands. Professor Weygandt then considered in detail the forms of retarded evolution in relation to endocrine metabolism. One of the most important problems of psychiatry was to determine the pathogenesis of dementia praecox, or schizophrenia. In 70 per cent of cases there was an inherited factor. Pathological changes were found in certain cerebral cells, especially those of the third cortical stratum. The fifth and sixth strata also might exhibit atrophy, while von Monakow claimed to have found changes in the choroid plexus. The basic conditions of manic-depressive psychosis (cyclothymia) he considered entirely different. The inherited factor in this was most important, and could be traced in 90 per cent of cases. There was no question of an anatomical basis, and in his opinion we could not attribute great importance to the factor of autotoxaemia. Generally speaking, there was present an instability of affective mind caused by heredity, and possibly connected with vasomotor fluctuations. Autotoxaemia was of great importance in

truo or cryptogenic epilepsy, as distinct from symptomatic epilepsy. As regards treatment, the facts discussed had been put to abundant use. Thyroid preparations were successful in the treatment of myxoedema and cretinism, while results in pituitary disorders were possible by x-ray treatment and glandular feeding. Malarial or pyrexial treatment had as yet no apparent success in dementia praecox, epilepsy, etc. Weissen had treated the endocrine glands with x-rays in 28 cases of idiocy, including Mongolism, and in 54 cases the clinical condition and quality of the serum reactions had improved. Diagnosis, as well as therapeutics, demanded that research in the antotoxaemic influences in psychoses was to be regarded as one of the most important tasks of psychiatry. Dr PICKWORTH showed slides illustrating sphenoidal sinusitis and its relation to pituitary disturbance, in order to suggest that many symptoms of metabolic disorder were referable to dysfunction of a small portion of the brain near the pituitary stalk.

Dr E. MAROTER suggested that Professor Weygandt's paper would have been better entitled "Anomalies of metabolism associated with psychoses." He thought all were equally agreed that every mental process was only the subjective aspect of a bodily one, which left traces and originated habits and reactions. As regards gross endocrine abnormalities and mental disorder, he believed that in most cases, with the possible exception of the thyroid, the suggestion was rather one of frequent occurrences than of causal dependence. Sexual disturbances and the psychological reactions arising therefrom appeared to have more psychiatric importance than all the rest of the endocrine disorders. Such conditions as erotism and nymphomania on the one hand, impotence and frigidity on the other, were extremely common, and the reactions arising from these conditions were important.

Dr I. S. WILK (New York) considered that the terms toxæmia and psychoses were employed in too broad connotation, they could not disregard heredity and infectious endocrine disorders and psychoses might be due to a common underlying cause, as syphilis, he concomitant, as in presence of cerebral tumour and diabetes, he in causal relation, as mental enfeeblement and athyroidism, be co-existent, but with variation in time and intensity without causal relation. It was necessary to show causal relationship rather than coexistence of symptoms. In his opinion the distinctions between the biochemistry of psychoneuroses and psychoses were not marked or clear. Dr MAX BARKAS said that the association of these physical disorders with mental disease might be explained otherwise than as direct causes of psychoses, and that the psychiatrist might promote the development of psychiatry far more by concentrating on the study of the mental processes of patients than by a flight into the laboratory. She believed that autotoxaemia and similar disorders might be related to mental disorder in the following ways: (1) as a precipitating factor, (2) as a source of mental stress, (3) as joint effect of some primary cause, (4) as chance concomitant, and (5)—and most important—as the result of the mental and emotional or psychomotor disorder. Moreover, Dr Barkas thought they should consider whether the attempts at cure which were based on the bodily changes they found might not act indirectly through the mind, rather than directly through the body. Finally, she suggested that another factor should be considered in this relation of cause and effect. In many psychotics a sense of guilt and craving for self-punishment played a prominent part, as was often seen in attempts at self-mutilation or self-destruction. This might well be a factor in decreasing the resistance to disease. If these considerations were valid, Dr Barkas thought it evident that investigation of the mental state of the insane was at least as likely to throw light on the causation of mental disorder as was laboratory research. She would urge that for the majority of asylum medical officers clinical psychiatry offered a far more fruitful field.

Dr R. D. GILLESPIE said that the conception of autotoxaemia in this country had been restricted largely to conditions of supposed intestinal absorption. The bacteriology of the colon in persons mentally normal was in too vague a condition to make it safe to draw definite con-

clusions from a bacteriological examination of the faeces in the psychoses. Similarly, regarding Dr Pickworth's work, it was very dangerous for him to argue from his interesting findings to the psychoses in general. Regarding intestinal toxæmias, Dr Gillespie said that clinical experience with Hirschsprung's disease showed that mental symptoms were usually absent in spite of the extreme stasis, when they were present they were of the confusional type. Ulcerative colitis, when absorption certainly occurred, was not associated with mental symptoms as a rule, whereas mental symptoms of a kind accompanied the so-called mucous colitis, when absorption was probably absent. Dr HELEN BOYLE (Brighton) remarked that it was cheering that Professor Weygandt talked of recovery in dementia praecox. Clinicians would agree with him that some such patients appeared to recover. From his paper there seemed to be hope that some of his tests might serve to distinguish these cases from others. It was not satisfactory to assume merely that it was faulty diagnosis should recovery take place. With regard to manio-depressive states, she said that many patients seemed to show an association with Graves's disease to a marked degree.

The PRESIDENT remarked that acute and recent cases admitted into mental hospitals and clinics were well known to improve in large measure with a preliminary enema or two, and systematic colonic lavages. The same applied to obstructions in habits of mental hospitals. Admittedly these cases were not pure instances of auto-intoxication. There had been published, from the laboratory at Cardiff, work upon the distribution of the various nitrogen constituents of plasma, cerebro-spinal fluid, and urine in some forty, mostly newly admitted, cases of mental disorder. All were males, excepting eight, the ages ranged from 21 to 52 years. They found that non-protein nitrogen was high in the plasma, that urea nitrogen tended to be low, that the amino-acid nitrogen was low. These conditions were irrespective of the type of case. In fourteen cases the unknown nitrogen—which was got by subtracting the sum of the various non-protein nitrogen constituents estimated from the total non-protein nitrogen—was high in the plasma. It formed 20 to 40 per cent of the total non-protein nitrogen (a high proportion). With the high non-protein nitrogen and the frequently high urea nitrogen in the plasma went a low total nitrogen and urea nitrogen in the urine. The above results appeared to point to anomalies of protein metabolism in the mental cases studied. Of late years little had been heard of the Abderhalden method in psychiatry, and, therefore, it was very significant that the method of Abderhalden was now believed to give a positive result with the blood of schizophrenic patients, with cerebral cortex, gonads, and often with thyroid and pituitary. If these things were so there should surely by now be a welcome means of diagnosis between true schizophrenia and recoverable states resembling such. They had at the present time under investigation at the Cardiff Mental Hospital laboratory the relation of anti-substances in the blood to testicular and thyroid extracts, using rabbits for inoculation with the latter.

SECTION OF PATHOLOGY AND BACTERIOLOGY

Wednesday, July 25th

ENCEPHALO-MYELITIS IN THE COURSE OF VIRUS DISEASE AND THE EXANTHEMATA

At the opening meeting of this Section the chair was taken by the President, Professor E. H. KITTLE, who called upon Professor H. M. Turnbull to introduce the discussion on encephalitis. Professor TURNBULL gave a detailed account of the histological appearances, dividing them into acute and subacute types. He distinguished thus post-vaccinal encephalitis from poliomyelitis and encephalitis lethargica, assigning it to the group of conditions characterized by demyelination. Similar histological conditions had also been observed in other conditions, such as chronic gonorrhoea, and in affections of the central nervous system complicating exanthemata.

Professor JAMES MCINTOSH described an experimental and pathological study of encephalo-myelitis as found in encephalitis lethargica, small pox, and after vaccination. Vaccinal lesions in the brain were more meningeal than

encephalitic, and frequently showed large areas of necrosis. He gave reasons for indicating a vaccinal etiology in these conditions, and defined the differences between the vaccinal lesions and those of poliomyelitis and encephalitis lethargica.

Dr J G GREENFIELD, whose paper was read by Professor HADFIELD, had examined a case of fatal encephalitis following measles. In this patient, four days after the fall of the temperature to normal, there were fever, coma, convulsions, and death within thirty-six hours. The histological changes found in the brain were a universal perivascular infiltration of a diffuse type, including a number of plasma cells, and perivascular demyelination, which was strictly confined to the white matter, occasional deposits of free stainable fat were demonstrable in these areas. The changes thus closely resembled those of post-vaccinal encephalitis.

Dr S PHILLIPS BEDSON discussed the hypothesis that post-vaccinal encephalitis was actually due to the virus of herpes activated by vaccination. This virus had been found in the brains of nine cases of epidemic encephalitis examined by Levaditi and in three examined by Peidrau. He rejected this hypothesis on the grounds that no herpetic eruption occurs in encephalitis, that in pneumonia, malaria, and cerebro-spinal fever, which frequently activate the virus with the production of a herpetic eruption, encephalitis is unknown, that no antibodies to the virus are demonstrable in the blood from cases of encephalitis, and, finally, that the virus had been found by Flexner in the cerebro-spinal fluid from a case of cerebral syphilis. He referred to the difficulty of working on this subject with rabbits owing to the existence of two other varieties of encephalitis in the rabbit itself, and suggested that the resources of an institute devoted wholly to this subject could alone cope adequately with the problems involved.

Professor G HADFIELD (Bristol) had examined the brain of one case of post-vaccinal encephalitis which showed lesions similar to those described, and four brains from children dying from other causes between the eighth and fourteenth days after vaccination, in none of which were any histological abnormalities demonstrable. He emphasized the need of defining accurately the histological picture in post-vaccinal encephalitis, its most salient feature hitherto demonstrated was the rapidity of myelin destruction, and the absence from some demyelinated areas of any cellular infiltration. A possibility of further distinguishing the changes from those of other forms of encephalitis lay in the more minute study of the type of cellular infiltration, and of the nature of the microglial reaction.

Professor J H DIBLE (Cardiff) regarded all the positive results obtained in work on lethargic encephalitis with rabbits as invalidated by the possibility that the lesions in rabbits were due to the virus of herpes. This hypothesis was supported by the fact that brain material from cases of human encephalitis does not produce ketatitis in rabbits, whereas this lesion can be produced with the brain of a rabbit succumbing to encephalitis after being inoculated with the same material. Discrepancies in the incubation period which varied from three to sixty days, when attempts had been made to transmit the disease to monkeys, taken in conjunction with Flexner's failure to produce the disease in monkeys at all, cast a similar doubt on the work which had been done with this animal. It was his belief that transmission of this disease to animals had not yet been accomplished.

Dr C FORBES observed that the word "virus" had been used in different senses, and urged that the precise definition of pathological terms should be periodically reviewed. Dr BARCROFT ANDERSON asked whether in post-vaccinal encephalitis, and in the encephalitis of measles, there was any diminution in the lytic power of the blood for bacteria in general. Professor J CRICKSHANK (Aberdeen) observed as a noteworthy fact that herpes occurred in diseases of ordinary bacterial origin, and encephalitis in diseases believed to be due to a virus. He asked whether the calves used in the preparation of lymph were known ever to suffer from encephalitis. As bearing on the question of whether the agent producing the encephalitis was in the lymph or in the patient, he quoted an observation of Levaditi's, that a hatch of lymph used for many thousands of cases in

Spain without causing any encephalitis produced this complication in a number of patients in Holland.

Professor TURNBULL, in his reply, expressed interest in the case of measles described by Dr Greenfield, and in the controls examined by Professor Hadfield. Professor McINTOSH said that he regarded encephalitis due to the virus of herpes as clearly distinguished by the changes in the parenchymatous cells of the brain. His general convictions were summed up in the statement that all exanthemata may be complicated by encephalitis, and that the encephalitis was due in each case to the virus of the exanthem itself.

The PRESIDENT, in summing up the discussion, thought it had done much to clear their ideas on this difficult subject. There seemed no doubt that a form of encephalitis was definitely associated with vaccination, and the evidence seemed to show that it was directly due to the vaccino virus. But from the practical point of view it did not greatly matter whether the vaccination actually caused encephalitis or whether it merely lighted up a latent infection. If an individual suffering from heart disease was assaulted with fatal results his assailant could not escape punishment by the plea that the violence offered was insufficient to kill a healthy man. Similarly, vaccination could not be held blameless if it lit up a latent infection. The possibility of encephalitis following vaccination could not be denied, and he had hoped that the discussion might have brought out some official information as to the number of fatalities associated with vaccination in recent years, so that the medical practitioner might be able to reassure the public, which was already fully informed of the complication by the lay press.

SECTION OF DISEASES OF CHILDREN

Wednesday, July 25th

CHRONIC SPLENOMEGALY IN CHILDHOOD

Dr ALFRED HOWELL (Cardiff), President of the Section, took the chair at the first discussion of this Section, which dealt with chronic splenomegaly in childhood, with particular reference to diagnosis and treatment. Dr ROBERT HUTCHISON opened the discussion by emphasizing the points in diagnosis of splenic enlargement, and mentioned the difficulties which might arise with a tumour in the splenic region, proceeding to consider the different varieties of splenomegaly in childhood tumours, including cysts, new growths, abscesses, etc., were very rare. Of the chronic infections tuberculosis, syphilis, lymphadenoma, and chronic sepsis had to be considered. In the acute form of tuberculosis in young infants enlargement of the spleen was very common. With regard to congenital syphilis he thought that its frequency as a cause of splenomegaly was exaggerated. In pre-Wassermann days every splenomegaly of doubtful origin was ascribed to syphilis, but the test was very often negative in these circumstances. Lymphadenoma causing splenomegaly without enlargement of glands anywhere was very rare. Chronic sepsis was blamed for splenomegaly, but on rather doubtful grounds. The tropical diseases and splenomegaly presented the same features as in adults. Enlargement of the spleen in metabolic disorders chiefly meant the part that rickets played in causing such enlargement, here again the importance of rickets as a factor in producing splenomegaly was probably exaggerated. Gaucher's disease might also now be included under the metabolic disorders, and was to be diagnosed by finding the characteristic endothelial cell in splenic puncture fluid. The value of splenectomy in such cases was disputed. Splenomegaly in diseases of the blood formed a big group. The leukaemias in childhood were almost always acute and therefore not a cause of chronic splenomegaly. The splenic anaemia of infancy (von Jakseh) was apparently becoming rare. Dr Hutchison believed it to be a disease *sui generis*, and said the blood picture during the acute phase was characteristic. The disease tended towards spontaneous recovery, and this must be remembered in considering treatment. In acholic jaundice splenomegaly was well recognized, and splenectomy was the only effective form of treatment. Splenomegaly was not likely to be a presenting sign in purpura even in the chronic forms. True erythraemia probably did not occur in children as a cause

of splenomegaly. The next group of cases was very interesting—splenomegaly associated with cirrhosis of the liver, of which three varieties (excluding Banti's disease) were recognized. Idiopathic non-alcoholic progressive cirrhosis, resembling the ordinary portal cirrhosis of adults, was always associated with enlargement of the spleen to some degree, in these cases the value of splenectomy was debatable. The second variety was syphilitic cirrhosis associated with splenomegaly, met with in later childhood. The third group consisted of splenomegaly with biliary cirrhosis, believed to be the form which Hanot's cirrhosis took in the child. Another group of cases with chronic splenomegaly in childhood was the result of thrombosis of the splenic vein. The treatment of splenic anaemia of the adult type was splenectomy, but opinions differed as to the value of operation once cirrhosis of the liver had supervened. Dr Hutchison then suggested some points for discussion, and summed up the question of treatment.

Mr L E BARRINGTON-WARN said that the surgeon usually saw cases of splenomegaly when the diagnosis had already been made by the physician, who had generally decided that the spleen ought to be excised. Splenectomy was, incidentally, not so very frequently performed, for in the last ten years at Great Ormond Street the operation had only been employed on ten occasions, in each case for acholuric jaundice. From a surgical point of view, splenectomy was required in two groups of cases. First, where a cure or amelioration of symptoms was expected, as in tumours, localized infections, and abscesses, all of which were rare, but instances of which had been recorded. In this group also came chronic familial haemolytic jaundice cases and cases of thrombocytopenic purpura haemorrhagica. The second group consisted of cases in which there was some hope of bettering the patient without real cure. In Gaucher's disease there were apparently only four cases in which successful removal of the spleen had been carried out in children, and in such cases splenectomy as a palliative operation was justifiable. In Banti's disease, which Mr Barrington-Warn believed did occur in childhood, he pleaded for earlier removal of the spleen. He had no personal experience of splenectomy in von Jaksch's anaemia. In operating upon cases of splenic vein thrombosis great difficulties were experienced owing to the large efferent vessels connecting every surface of the spleen with adjacent organs. Dealing lastly with splenectomy as an operation, the speaker said that blood transfusion before and after was essential in every case, and retransfusion of the splenic blood was also valuable. He had no experience of preliminary irradiation of the spleen, but W S Mayo spoke highly of it. "Gas and oxygen" was the anaesthetic of choice, and the left paramedian incision was the most useful.

Professor L FINDLAY (Glasgow) agreed with Dr Hutchison that rickets did not play an important part in the production of chronic splenomegaly. Since the spleen could not be embraced the true state of its size was difficult to estimate, and all conclusions were drawn from its degree of palpability. The normal spleen could be displaced downwards by tumours, including enlargements of the liver, and also by deformities of the chest. He had never seen an enlarged spleen in rickets unless complicated by anaemia, syphilis, tuberculosis, or severe deformity of the chest. He had once seen the spleen as the only palpable evidence of tuberculosis, when the diagnosis was made by splenic puncture. Professor Findlay agreed that the incidence of congenital syphilis had been overestimated, and this accounted for only a small number of splenomegalies. Nevertheless in the presence of anaemia and enlarged spleen, syphilis must be eliminated in every case, and he placed great faith in the Wassermann reaction when properly carried out. He had seen a palpable spleen as the only evidence of lymphadenoma, which was diagnosed at autopsy. With regard to splenectomy in such conditions as Von Jaksch's anaemia he had never seen it do any harm, but there was no sudden alteration in the blood picture, such as occurred after splenectomy in Banti's disease and the operation apparently interfered little with the natural course of the disease. With regard to the relation of splenomegaly to cirrhosis of the liver and the place of Banti's disease Professor Findlay thought that

the cases described by Dr Hutchison would do for either condition. In the past the tendency had been for many pathological states to be included under one heading, but now one pathological state was given more than one name. In Banti's disease cirrhosis was present from the earliest stage, but the presence or absence of ascites varied greatly and caused much confusion. What was needed was a careful study of clinical and pathological findings in a large series of such cases. Whatever the truth of the pathological condition the procedure in coming to a diagnosis was, however, certain—a complete blood count, a Wassermann reaction, fragility estimation, and a splenic puncture (unless splenectomy was immediately contemplated) were essential in every case.

Dr O PAGET LAPAGE (Manchester) agreed that the difficulty of diagnosing an enlarged spleen was not small, and he described cases where a tuberculous omentum and a kidney tumour had caused uncertainty. The nature of the enlargement gave some help, the hard "pane-like" spleen of von Jaksch's disease and the nodular enlargement of new growth or lymphadenoma were characteristic. He went on to deal with twenty-two cases of von Jaksch's anaemia which he had seen during the last sixteen years. The disease had certainly diminished in frequency, but was now increasing again. In his series of cases Dr Lapage said the family history was good, syphilis played no part, the sex incidence was equal, all were under 3 years of age, and two cases occurred in twins. There was a history of dyspeptic disorders in many cases, and rickets also occurred, probably as a secondary condition. Bruising and purpuric spots were present in certain cases, but leukaemia had to be considered if the purpura was very marked. The temperature was not raised. The blood picture varied very considerably, and there was a large personal factor in making the blood counts. In treatment he employed arsenic, and sometimes benzene, and recently he had tried liver on one case with apparent improvement. In following up his cases Dr Lapage found that eleven patients had been discharged improved, one of whom had subsequently died, five were discharged *in statu quo*, but at least two of these had made a good recovery. Two cases had died in hospital. In view of the fact that on the whole patients did well he was not inclined to recommend splenectomy. Dr J W SCOTT (Nottingham) said that with regard to splenomegaly and chronic sepsis he had seen cases with arthritic changes in which chronic pyogenic infection was believed to be the cause. In cases with haematemesis and enlarged spleen he found the diagnosis difficult. In two cases recently seen the patients had been in good health when haematemesis occurred with a rise of temperature and slight ascites, and he considered that some active condition was present, possibly a perisplenitis. The shrinkage which followed haemorrhage also supported this, as did the condition of venous anastomosis found at operation. He said that there were cases of enlarged spleen with anaemia in which everything else was normal, and they did very well.

Dr HILDA STROSSIGER described a case of splenectomy for Banti's disease in a boy aged 14, who was under the care of Dr Branson at the Royal Free Hospital in 1926. Before operation the patient had complained of abdominal discomfort for a few months, and slight anaemia, leucopenia, and a negative Wassermann reaction were present. A levulose tolerance test showed marked hepatic inefficiency, and at operation cirrhosis was well marked. Two years later the boy was very well, growing quickly, but puberty was delayed and hepatic inefficiency was still marked. Dr L G PARSONS (Birmingham) commented on the difficulties of diagnosis of splenic enlargement. He had felt typical notching on a mass of tuberculous glands, and he had never found the traditional colonic resonance over a splenic tumour. He was especially interested in the cases of splenomegaly with hepatic cirrhosis. Wallgren's type with splenic vein thromboses had not been mentioned in the discussion at the Royal Society of Medicine in 1925, but two cases which he, Dr Parsons, had then described as cases of Banti's disease had been claimed by Wallgren as examples of his syndrome. The differentiation was very difficult, and the only point between Banti's disease and "cirrhosis with splenic predominance" appeared to be that the latter was more rapid in its course. The question

of whether to operate or not in cases showing evidence of early cirrhosis was answered by Dr Hutcheson's patient, who was living twelve years after operation, and by a patient of his own living six years after Dr Parsons asked about the presence of spleniculi, and their removal at operation and also inquired about the presence of gall stones. He agreed that in rickets there was mechanical depression only, but prolonged pre-existence in this disease would also lead to splenic enlargement.

Dr E. A. Cockayne agreed that in acholuric jaundice removal of the spleen removed the symptoms but not the disease. He inquired about x-ray treatment of cases where operation was refused. He had tried this ineffectively in one case, and he wondered if such treatment made a later operation more difficult. He thought he had seen one case of biliary cirrhosis in a child in which the spleen was just palpable. In splenic anaemia, since primary disease of the spleen appeared to go on to produce cirrhosis of the liver, early splenectomy was correct treatment, but diagnosis was difficult.

The PRESIDENT mentioned some difficulties in diagnosis, quoting a case in which a tuberculous pyonephrosis had been mistaken for a spleen. He said that in acholuric jaundice excessive fragility of the red cells was sometimes absent, and he described a case in a lad aged 18. Mayo had found concretions in the gall-bladder in three out of five cases of acholuric jaundice, and it was therefore possible to get acholuric jaundice with an added obstructive jaundice in such cases. He said he was rather frightened of splenic puncture in some cases, and he inquired if there were any risk.

Dr R. HUTCHESON, in reply, summarized the discussion which had arisen around the points he had raised. He thought that a clear history of splenic enlargement for some years before cirrhosis of the liver developed put a case out of the category of idiopathic cirrhosis, but it was difficult to lay down any hard and fast rule as to the period. He had not much experience of splenic puncture, but thought it ought to be performed more frequently. He believed that cases of "residual spleen" were not uncommon in which splenomegaly persisted.

Mr BARRINGTON-WARD agreed that spleniculi should be looked for and removed in operating upon cases of acholuric jaundice. Exploration of the upper abdomen should always be carried out in splenectomy cases. He thought that the effect of x-rays in producing adhesions had been exaggerated. Splenic puncture, in his opinion, was free from serious risks.

SECTION OF OPHTHALMOLOGY

Wednesday, July 27th

VISUAL EFFICIENCY AND WORKING ABILITY

Mr F. P. S. CRESSWELL, President of the Section, was in the chair at its first session. Dr FREELAND FERGUS (Rothsay), in opening a discussion on visual efficiency and working ability, pleaded that much work could be done by persons who suffered from very defective eyesight. He considered that too much stress had been laid on macular vision. Uncorrected myopes had little macular vision beyond their punctum remotum, but he knew of colliers with high myopia who had no difficulty in making as much money as the best sighted collier could, what was true of coal mining was true of almost every other form of manual work. In the field of vision important features were the sense of projection and the subconscious estimate of distance, which depended on such factors as the light sense, the colour sense, convergence, and parallax. Interpretation was not a physical process but a mental one. Many men who had sufficient sight for their work were thrown out of employment because of the discovery of a trivial defect in their sight which had caused insurance companies to refuse the risk. To a considerable extent the dole in this way was the necessary corollary of the Workmen's Compensation Act. The opener cited cases of men who had performed useful work with very defective sight, and of others whose employment had been lost on account of errors of refraction.

Sir JOHN PARSONS said that Dr Fergus had dealt with

a small example of a wide general principle, which was elaborated in his book *The Theory of Perception*. When a stimulus, whether tactile, visual, auditory, or of any modality, was applied to a normal animal it impinged on an already present complex perceptual pattern, which it consciously or unconsciously modified. Any such pattern was an integration of all the responses to all the stimuli which the animal was experiencing. It was not a mere mathematical summation, but a psychological integration *suu generis*. It was natural that biological, and especially visual, problems should have been attacked by mathematical treatment, but it was wrong to treat 6/6, 6/12, etc., as respectable members of the family of fractions. Standards of vision for different occupations were called for during the war, and the Ophthalmic Section of the British Medical Association passed a resolution at the Portsmouth Meeting which resulted in the formation of the Physiology of Vision Committee of the Medical Research Council. That committee had already a large amount of valuable work to its credit.

Mr BISHOP HARMAN said modern conditions of industry demanded good vision, and that meant standards of vision, for the purblind worker was likely to be both an inefficient worker and a danger to himself and others. Vision had many factors: acuity, field, colour and light sense, binocular vision, accommodation, and power of convergence. Each of these factors was a necessary part of the sense of sight that made a whole man. Each factor could be tested, and their tests must be simple, for they might have to be applied by the works doctor, and they must be understandable by both employer and employee, and recognized by both parties as reasonable, otherwise the doctor would be the promoter of strife rather than work. There had been attempts to depreciate the utility of some factors of vision. Acuity had been said to be less valuable than field, and so forth, he thought this was to be deprecated. Acuity marked the "vision" of those animals which were hunters, and "field" the hunted animals. Field made for general safety, but acuity was essential to skill and cunning. Man was easily first in this dual possession, and he "was a mighty hunter before the Lord!" The improvement in mentality, or the expression of it, that could be brought about in children by the correction of defective visual acuity was remarkable. So certainly established was this observation that it was now routine practice in the educational treatment of defective school children to determine the state of the vision when the mental state had been called into question. His experience led him to the conclusion that poor visual acuity was a common cause or associate of mental dullness and failure in attainment. The man who saw "men as trees walking" was out of joint with his time and place—a misfit that suffered accordingly.

Air Vice-Marshal DAVID MUNRO dealt with the visual requirements for flying officers and mechanics. At the end of the war 178 survivors applied for permanent commissions in the R.A.F., and of these 177 were found to have high visual acuity and perfect binocular vision. In other words, the men with lower standards of visual efficiency had dropped out. Mr CAIGER (Sheffield) spoke of the ease with which one-eyed men could accustom themselves to their loss.

The discussion was continued by Messrs Mackay (Hull), Spencer (Baghdad), Robson (Penarth), Coulter (Newport), the President, and Mr Tudor Thomas (Cardiff), and Dr Freeland Fergus replied.

EXAMINATION OF THE EYES IN YOUNG CHILDREN

Mr T. H. WHITTINGTON read a paper on "The examination of the eyes and eyesight of young children," in which he dealt with the necessity for and various difficulties met with during examination of children at different ages. He discussed the amount of error and visual defect which should be counted abnormal, and emphasized the necessity for a wide outlook upon the general mental condition of the child. The paper was discussed by Mr Bishop Harman, Dr Freeland Fergus and Sir J. H. Parsons.

Mr FRANK JULER read a paper on bilateral obstruction of the central retinal arteries which was discussed by Mr Caiger, Sir J. H. Parsons, and Mr. Frank Thomas. Mr COULTER (Newport) read a paper on the light sense in 100 cases of miners' nystagmus.

SECTION OF TUBERCULOSIS

Wednesday, July 25th

RELATION BETWEEN TRAUMA AND TUBERCULOSIS

Dr H MORRISTON DAVIES (Ruthin), President of the Section, took the chair at its opening meeting. The subject to be discussed was the relation between trauma and tuberculosis, especially from the point of view of compensation and accident insurance. In opening the discussion from the physician's standpoint, Dr NORMAN TATTERSALL confined his remarks to pulmonary tuberculosis, and excluded local skin lesions such as hutchers warts and the acute miliary form of the disease. The question to be answered seemed to him to be whether the accident localized a tuberculous lesion at the site of injury, or whether it merely mobilized an old focus. He thought that there was little evidence to suggest that injury produced a lowered resistance of the tissues to the tubercle bacillus, and that it was probable that an injury directly or indirectly affected an existing focus of the disease, such as a caseous root gland or a latent apical focus. With this opinion all subsequent speakers agreed. Dr Tattersall regarded the intensity of the injury as less significant than its nature and diffuseness, so that a crush from falling coal was more likely than a high velocity bullet to light up a latent lesion in the lung. A careful history of the case should always be taken, and the diagnosis verified by x-ray evidence. In most cases it could not be proved that, apart from the injury, the patient would later on have suffered from tuberculosis, but if the evidence convinced the observer that trauma had adversely affected the existing condition, it must be considered the materially effective cause of the ill health. In every case the questions to be asked were (1) Was the patient actively or passively tuberculous before the accident, and, if the former, what was his expectation of life? (2) Was the fact of injury definitely established, and was it of such a nature as to be likely to damage an active or quiescent lung focus? (3) What period of time elapsed between the injury and the diagnosis, and was this period covered by "bridge" symptoms? (4) Was the condition of the patient and the course of the disease such as might be expected if the injury had reawakened or aggravated an existing latent or active focus of disease?

Mr ROBERT MILNE illustrated his remarks on the surgical aspect of the discussion by means of lantern slides. He called attention to the difficulty which arose in compensation cases, when a patient with old tuberculous disease of the knee suffered from physiological weakness of the quadriceps muscle. The weakness of the muscle might cause the accident for which the patient claimed. Mr Milne was of opinion that the old figures of 15 or 20 per cent of tuberculous joints being caused by injury could not be upheld. Probably 5 per cent was the maximum proportion in which trauma played any part whatever. He had found that an examination of cases in which trauma was said to have caused tuberculosis showed that many conditions were included as tubercle which were not due to the tubercle bacillus at all. In such conditions as Kummell's disease, pied forcé, and coxa plana, trauma did undoubtedly play a great part. In other cases the history given was not unbiassed. Thus many patients stated that "My doctor says I must have hurt the joint", and the suggestion was sufficient to cause the patient to link up the tuberculous lesion with a supposed or at any rate an inadequate injury.

From the insurance point of view, Dr OTTO MAY described some of the difficulties with which the doctor was faced in compensation cases. His own attitude was to refrain from dogmatizing, but if there was a history of the injured part having never quite recovered from the injury, he was willing to testify as strongly as possible in favour of the workman. If, on the other hand, there was a clear interval of apparently full recovery between the injury and the onset of the disease, he refused to uphold a causal connexion between the two conditions, even if there was a possibility of its being true. This touch of dogma was more helpful in the dispensation of justice than the cleverest exposition of scientific agnosticism. If the medical practitioner came to the conclusion that the causal

relation, while possible, was not definitely probable, he should say so, and refuse to support the claim.

Sir ROBERT PHIPPS thought that while an accident did not cause tuberculosis, it might lead to serious developments. There was no object in dividing these cases into groups, since the tuberculosis existed before the trauma, and the whole question was a matter of degree. He emphasized two practical points: first, that not only one x-ray examination, but a series, was required, and secondly, that an accident might sometimes be a blessing in disguise by revealing the existence of tuberculosis which was previously unsuspected.

Dr BROWNLEE disagreed with the opinion that only a small percentage of tuberculous joints could be attributed to trauma. In a statistical inquiry he had found a history of previous injury in from 22 to 32 per cent of the cases, and in children a history of injury was frequently given, but he had to admit that amongst athletes, with whom he had frequently to deal, he had met with no case of tuberculosis following injury. He thought that the length of time up to which tuberculous disease might be attributed to an injury ranged from six months for a knee to two years for a spine. Dr CECIL WALL called attention to the effect of multiple minor traumata in activating quiescent tuberculosis. He regarded it as probable that such multiple traumata might act in the same way as fatigue by lowering the resistance even in those not previously infected. Dr JAMES CROCKET had found strain a prominent factor in producing exacerbation of the disease. Even massage might cause a flare-up and dissemination of the condition. Every tuberculous individual had his limit of strain. Dr W E WATSON said that an immediate report of the accident, and a continuous record of the symptoms which followed it, were essential if the patient's claim was to be supported. Dr H V CANTOR described the distress resulting to certain patients who had developed tuberculosis after the war, and had failed to make a claim to the Ministry of Pensions before 1925.

In reply, Dr TATTERSALL was gratified to find from the unanimous opinion of the Section that a blow had been struck against the notion of the implantation of the tubercle bacillus on damaged healthy tissues. He recognized fatigue and continued strain as causes of tuberculosis. In reply to Dr Cantor, he said that the Ministry of Pensions limit of seven years erred on the side of generosity, and had opened the door to much deception.

Papers were read subsequently on factors in the biochemistry of tuberculosis by Dr L S T BURRELL on the therapeutic value of the heavy metals, by Dr J C HOYLE on the serum calcium in experimental tuberculosis, and by Dr W H TYTLER on the tuberculin-active fraction of the tubercle bacillus. Drs J R GILLESPIE, H V CANTOR, and MARY NANNETTI contributed their experience in the use of sanocrysin. In the afternoon demonstrations were given of the after-results of surgical treatment of tuberculosis, and cases were shown in the x-ray department of the Cardiff Royal Infirmary.

SECTION OF RADIOLOGY AND PHYSIO THERAPEUTICS

Wednesday, July 25th

ULTRA-VIOLET RAYS AND THE GENERAL PUBLIC

THIS Section was presided over by Dr OWEN LEWELLIN RHYS (Cardiff), who, in opening the proceedings, said that the subject arranged for discussion was one of exceptional interest and importance to the public. He had no doubt that the audience would have been much larger but for the concurrent meeting of the International Congress of Radiology at Stockholm. The subject of ultra-violet rays was coming increasingly into prominence. Only recently, in Cardiff, an unqualified practitioner was sued for damage, done to a person's eye, and was called upon to pay. Two papers were read to the Section. The first was by Dr W E DIXON (Cambridge), who discussed the nature of the radiations, the physiological action of light generally, and the question of skin sensitiveness and of injurious effects, and insisted upon the need for careful examination of the patient before treatment. Treatment by radiation, he said, might be either beneficial or harmful, its employ-

ment by unskilled people might cause serious effects on the patient, and he suggested that the time had come when some sort of protection must be extended to the public. The second paper was by Dr C B HEALD (London), and dealt in particular with the harm which might be caused by electrical treatments. Dr Heald urged the need for the setting up of a register of persons regarded by a competent authority as suitably qualified to administer medical electricity. The register, he thought, should be somewhat on the pattern of that of the Central Midwives Board or the Dental Board. If the unqualified, unregistered chemist, dentist, and midwife were forbidden by law, then the unqualified electrotherapist, who certainly handled therapeutic measures as dangerous as those of an alchemist's shop, and performed operations as delicate as those of any midwife or dentist, ought to be put in the same position. The PRESIDENT thought that the most striking point brought out in the two papers was that here was an agent with potentialities of danger still largely unknown. Dr A J H ILFS (Taunton) thought that a penal clause regarding unqualified practice should certainly be imposed, and that it should also be made illegal for a registered electrotherapist to employ people who themselves were not qualified. When the register was compiled it should be made quite clear that admission to it did not imply permission to employ others who were not qualified. It should be made clear also to medical practitioners throughout the country that if they sent their patients to an unqualified radiologist they themselves were responsible for any damage that might be done to them. In reply to a question from a layman present, as to whether the proposed registrants would be required to be medical men or thoroughly qualified physicists, the PRESIDENT said that the qualification in physiotherapeutics must be defined hereafter, he took it that a certificate would be necessary from some board of examiners. Dr HEALD considered that a registrant should be required to produce some evidence of qualification such as the B.Sc. in physics, and should undertake that he would not act except under medical guidance as to treatment. Dr DIXON agreed with the views expressed by Dr Heald. It was the function of the physician to diagnose and then to prescribe treatment, but in a number of cases the treatment required was of a very special kind which the physician himself might not have the time, or perhaps not the skill, to carry out. The physician did not make up his prescriptions, they were made up by skilled people called chemists. If a medical man decided on ultra-violet light treatment he should put down in the prescription the light source, the area to be irradiated, the time, and so forth, and the administration of the treatment should be carried out by people trained in a particular way, that they should not be unskilled people was perfectly obvious. Dr MARIA ARMSTRONG (Ballymena) asked how far responsibility rested with the prescribing physician for any mistakes or unavoidably bad effects that might arise from special idiosyncrasies of the patient. In a cottage hospital with which she was connected "artificial sunlight" lamps had been instituted, and the committee had thought that the treatment might be in the hands of the masseuse, who, by her own admission, knew nothing about light treatment, and was not even qualified in electricity. The doctors, however, refused to allow the treatment to be placed in the hands of this woman, or to be responsible for any mistakes which might be made by her. Dr P W HAMOND (Croydon) said that this matter had been discussed in the Representative Meeting, and the conclusion arrived at was that no absolute rule could be laid down, and that, if legal proceedings resulted, each case would have to be decided according to the circumstances. Dr GARFIELD EVANS (Cardiff) considered that there should be a definite course of training undertaken by the people who were going to administer light treatment, and that a register should be set up. Dr T MARLIN (London) said that he had refused to instal a mercury vapour lamp (although it was very convenient for treatment) because he felt that this was an agent of which so little was known. He did not blame others for using the lamp, for results were obtained therewith which were not got with the carbon arc, but he thought it safer to stick to the more natural form of light.

SECTION OF TROPICAL MEDICINE

Wednesday, July 25th

HUMAN HELMINTHIASIS

Dr P H MANSON-BAHR, President of the Section, took the chair, and called upon Lieut-Colonel CLAYTON LANE, I.M.S. (ret.), to open the first discussion, on recent advances in the diagnosis and treatment of human helminthiasis. This opening paper will be found at page 191 of this issue. In the course of the discussion which followed the PRESIDENT said that he had found in the long needed accuracy of diagnosis now afforded by "direct centrifugal flotation" a valuable clinical advance. His clinical experience had made him positive that no infection with ancylostomes, however slight, should be neglected, both on its own account, and also as an important, because harmful, complication in other diseases. In his own hands, under conditions obtaining in hospital in England, carbon tetrachloride had proved a safe and effective drug in scores of cases of hookworm infection. There was, however, great need of standardization of anthelmintics.

Dr EDWARD HINDLE had noted, as the result of periodical examination of faeces of unselected patients in Cairo, that many recovered naturally from their hookworm infestation without any treatment. Prevention of reinfection was, therefore, of chief importance. Dr C M WENTON thought that the main objection to herd treatment without diagnosis appeared to lie in the unforeseeable lethality of one of the drugs used. Discovery of a safer, yet effective anthelmintic would remove that objection. Dr B M WILSON described the anti-hookworm campaign in Jamaica. A sanitary unit, dealing with village sanitation in general, and latrines in particular, took charge of the selected area, after their work was well established the treatment unit began to operate. This plan was based on the fact that treatment was largely wasted unless reinfection could be prevented. Deaths after carbon tetrachloride had occurred in Jamaica, and there thymol was now the drug of choice, and an effective one, against hookworms. Dr H M HANSCHELL recounted his experience of the success of "direct centrifugal flotation" in revealing very small ancylostome infections, where other not more time- or labour saving technique had failed to do so. In certain of his cases of secondary syphilis proving unexpectedly resistant to treatment, discovery by this method, and expulsion by thymol, of the small number of hookworms present had been followed by rapid clinical and serological response to the same antisyphilitic treatment. Carbon tetrachloride was a proved potent liver poison. It should not, therefore, be given to a purged and fasting patient unless sufficient glucose were given at the same time. For the same reason, to protect the liver, glucose should be given with antimony drugs also.

Dr J B CHRISTOPHERSON held that antimony acted directly on the schistosoma, though possibly not as antimony tartrate, but perhaps in an organic combination. There was no evidence that action of the drug on body tissues produced an "antibody."

Dr MANSON-BAHR read a communication from Dr F G Cawston of Natal, reporting success in treating "creeping eruption" with intramuscular colloidal antimony, or intravenous tartar emetic, injections, and also with carbon tetrachloride by the mouth and intravenously in human schistosomiasis, and in distoma infestation of cattle.

TRANSMISSION OF KALA-AZAR

Dr C M WENTON, in opening the discussion on this subject, pointed out that development of kala-azar and oriental sore parasites into leptomonas forms was strong evidence for an insect host. Leptomonas were essentially parasites of insects or other invertebrates. The flea had such an infection, which spread from flea to flea as small rounded bodies resembling leishmania. They escaped in the flea's faeces, were ingested by flea larvae, and appeared as leptomonas in the hind-gut of the adult flea. All insect leptomonas had that simple life-history. A sand fly which ingested parasites of kala-azar or oriental sore acquired leptomonas infection, but in stomach, oesophagus, and even buccal cavity, not in hind-gut. If such sand-fly fed through membrane into a fluid, it injected the leptomonas, it must therefore inject these also into wounds it inflicted.

in skin That no one had actually transmitted kala-azar or oriental sore by its bite was not due to lack of infectivity, for if the flagellates were removed by dissection from sand fly and injected into man's skin (oriental sore) or into hamster's peritoneum (kala-azar) infection occurred Perhaps a "receptive" condition was necessary to ensure infection from small doses injected through the proboscis Leishmania parasites would develop in the head-bug, but that could not be the host, for distribution of bug and disease differed, and if few leishmania were ingested by the bug only few flagellates developed In the natural host there was progressive increase of flagellates which attached themselves to cells of intestine No attachment occurred in the bug Association of canine with human kala-azar in the Mediterranean region gave rise to the theory of flea transmission, but careful experiments had failed to incriminate that insect Kala-azar parasites in the intestinal villi of man indicated their possible escape in faeces, and they had been demonstrated in the urine Contamination infection was unlikely, for the parasites could not withstand drying and would not survive in water Ancylostomes were possible ingesters of the parasites, but these helminths from cases of kala-azar had not revealed a trace of infection In the sand-fly, from a small dose of leishmania there developed large numbers of flagellates, attached to cells of the stomach and persisting for the life of the fly, thus the parasite behaved as in a natural insect host Probably the site of infection, originally in the hind-gut, had changed, or perhaps the sand-fly was not the original insect host Man having become infected from the original insect host, which might or might not now function, the sand-fly might have become secondarily infected from man A similar problem was presented by tsetse fly transmitted trypanosomes, where development in the tsetse fly was also an anterior one It was a posterior one in the primitive *Trypanosoma lewisi* in the flea, thus spread from flea to rat by the latter's ingesting flea faeces containing infective trypanosomes If the sand-fly were the vector, there were several possible modes of infection of man Flagellates might be occasionally ejected from the fly's rectum on to the skin, but the dose deposited would be even smaller than that injected from the proboscis Crushing of the sand fly gave a larger dose, which might be inoculable by scratching or by conveyance on the fingers to mouth or conjunctiva In India distribution of kala-azar corresponded with that of the sand fly *Phlebotomus argentipes* In China the disease was found only north of the Yangtze There was no information regarding existence of sand-flies south of it In India *P. argentipes* was most suspected, though development occurred also in *P. papatasi* In Northern China *P. major* var *chinensis* and *P. sergenti* var became infected, but the former was the better host With oriental sore *P. papatasi* in Palestine and Biskra had been infected, and in Baghdad *P. sergenti* In India a single infected *P. argentipes* had been captured in a kala-azar house With South American dermal leishmaniasis a single experiment suggested that *P. intermedius* might be the vector There were infections of animals—for example, gecko and chameleon—and plants with leptomonas, but nothing was known as to the relations these might have to the human diseases At present, therefore, the transmission problem of kala-azar and oriental sore centred around sand flies The extraordinary flagellate development of leishmania parasites in them was convincing evidence that they were the vectors

Dr I DWARD HINDLE then gave an account of recent work supporting the view that sand-flies were mainly responsible for the transmission of leishmania He pointed out (1) The specific nature of the development in the sand-fly, the stomach of which did not serve merely as a favourable culture tube, for, if this were the case, different strains of leishmania should develop equally well in any one phlebotomus species Yet, though four different strains of leishmania all developed into the flagellate stage in the Chinese sandfly *P. major* var *chinensis*, only the local strain of leishmania showed attachment of flagellates to stomach wall, and subsequent invasion of pharynx and buccal cavity This presence of flagellates in the anterior gut occurred only in the species of sand fly and with the

particular strain of leishmania that seemed to be transmitted by it (2) The virulence of the flagellates in the sand-fly, proved by inoculation of contents of infected flies into susceptible hosts As a corollary, since these flagellates were present in the infected fly's proboscis, and must therefore be inoculated into the skin when that fly fed, that fly's bites would sooner or later produce infection (3) The geographical evidence, in both India and China there was close agreement between distribution of kala-azar and that of the sand fly presumably responsible for transmission of the disease He criticized the transmission experiments hitherto carried out, and showed that with kala-azar they were inadequate in number to prove or disprove infectivity of the sand-fly In China kala-azar occurred in infants who, by reason of age, could not have been exposed to sand fly bites Low and Cooke's case of kala-azar in an infant born in England, whose mother had contracted kala-azar in India, demonstrated that the disease might be congenitally acquired The Chinese infant cases were doubtless of that kind Referring to the possibility of a second insect host in the cases of leishmania and trypanosoma, in which the flagellate stage occurred only in the anterior gut of the insect vector, Dr Hindle said that here the parasite had more or less lost the hind-gut flagellate stage in becoming more closely adapted for life in the vertebrate host Suppression of development in the insect host reached its limit in the disease "doanina," where the trypanosome had become a parasite of the vertebrate host only, and transmission was only by direct contact in coitus

Dr J B CHRISTOPHERSON pointed out the profound biological difference between the morphologically indistinguishable parasites of trivial oriental sore and fatal kala-azar Parasites of oriental sore experimentally inoculated into human beings always produced only oriental sore Clinical evidence suggested that oriental sore was the result of skin infection with insect flagellates, and kala-azar resulted after the flagellate had been further pathogenically modified by additional developmental cycle in another host His own experience of naso-oral and dermal leishmaniasis in the Sudan showed that lesions could be the result of inoculation by insect, and also by direct contact infection

Colonel A G MCKENDRICK, I M S, quoted results of his statistical inquiry in support of the theory of sand fly transmission of kala-azar Sir FRANK CONNOR described his cases in Baghdad and in India of familial and of multiple oriental sore His clinical observations of these and other cases, their personal habits and circumstances, favoured the view of the frequent occurrence of direct contact transmission of oriental sore The President, Dr P H MANSON-BARN, said he had observed oriental sore appearing in one parent in India, and six months after the family of four had returned to England, the sore appearing in the other parent and the two children before the lesion in the first parent had healed This suggested direct contact infection He pointed out that to Dr Wenyon we owed valuable and indispensable pioneer work on the transmission of oriental sore

SECTION OF THERAPEUTICS AND PHARMACOLOGY

Wednesday, July 25th

RECENT ADVANCES IN THE TREATMENT OF GASTRIC DISEASES

Dr W LINGDON BROWN presided over the meeting of the Section of Therapeutics and Pharmacology, the first subject to be discussed being recent advances in the treatment of gastric disorders Dr A F HUNTER, the opening speaker, described in detail the modern treatment of gastric and duodenal ulcer He said that the acid factor ought to be considered first, hyperacidity must be combated by diet and by such drugs as belladonna and alkalis The second factor—focal sepsis—was equally important, and search must be made in the nasal sinuses, and even in edentulous jaws, for possible overlooked sepsis Tobacco, worry, and fatigue were important causes, the last two made treatment in bed necessary in many cases Having shown charts illustrating the effects of drugs and diet on gastric acidity, he passed to after-treatment, and said that he was convinced that there was an ulcer diathesis, and

that a return to faulty dietetic habits must be prevented. Recent observations on the value of various antacid substances had shown that sodium citrate was efficient, and Dr HURST advocated the use of this and of tribasic magnesium phosphate rather than of sodium bicarbonate and magnesium oxide, because the latter substances would in some cases produce alkalosis.

Dr IRON BARNETT, who followed, dealt with treatment by diet and drugs. He said that the statement made a week before that the present treatment of gastric ulcer was merely the revival of a very old method was a complete misconception, the modern treatment involved the logical application of certain scientific principles over a period of time which must in some cases be somewhat lengthy. The essential principles were (1) the removal of septic foci, (2) the prolonged neutralization of hydrochloric acid, (3) the reduction of peristaltic movements by using frequent fluid feeds, (4) the maintenance of treatment long enough to secure permanent healing, and (5) the prevention of relapses by prophylactic treatment. In Dr Bennett's opinion every patient should be re-examined every three or six months for a long time after all symptoms had been relieved and complete recovery had occurred. In his experience the results of treatment by medical methods were eminently satisfactory.

Dr J. H. ANDERSON (Rathfriland Castle), in an account of the medical management of gastric ulcer, outlined the dietary used by himself and Dr L. I. Spriggs. They advised four weeks' institutional treatment, followed by four weeks' convalescence, and a third month during which the patient might gradually return to work. The appendix was a frequent septic focus, but if operative intervention

was required the patient should return to medical treatment afterwards. He supported the use of magnesium salts, although other antacid remedies were being investigated.

Dr PHILIP HAMILL stressed the importance of securing the active collaboration of the patient. He agreed with the opinion that sodium citrate was very valuable, especially on account of its effects in preventing the clotting of milk. Blood transfusion was a most useful adjuvant in cases with haemorrhage, and he had found the duodenal tube valuable in cases in which vomiting had been prominent. Dr A. P. CAWARIAS emphasized the fact that focal sepsis was only one factor, he regarded inborn errors of the endocrine and autonomic systems as of importance. He had found protein shock therapy of considerable value in producing alleviation of pain and disappearance of the signs and symptoms. Dr BUCHAN (London) was depressed by the unpalatability and complexity of the diet advised by Dr Anderson, and Dr J. F. BLUNTON (Nottingham) referred to the frequency of relapses during hot weather.

The PRESIDENT remarked on the increasing frequency of ulcer cases, but agreed that medical treatment was to-day very satisfactory. He strongly opposed the doctrine that ulcers should be excised on account of the danger of their becoming malignant, and held that the public had been needlessly alarmed on the subject. In his reply Dr HURST reviewed the results of surgical treatment, and expressed the opinion that medical treatment was infinitely safer, and satisfactory in the vast majority of cases.

Dr J. MANSON of Warrington then read a short paper on the effects of valerian in gastric disorders, this was discussed by the President, Dr Hamill, and Dr Foster of Worcester.

Rebichus.

SPECTACLES

A THIRD edition of Mr A. S. PERCIVAL's book on *The Prescribing of Spectacles* has been issued. It is to all intents and purposes a new book, for so much new work has been done in optics since the last edition that the author has practically rewritten his material. Under this most modest title Mr Percival offers a masterly work in which all the craft and art and science of the skilled ophthalmologist and mathematician and worker in lenses are displayed to the reader. The author is a master in mathematics, he revels in formulae. But let it not be supposed for one moment that his work is so altogether mathematical that it is of little use to the average hand and the average head for figures. Mathematics apart, the book is full of practical observation and advice, attention to which will greatly advance the skill of the already skilful. Some effects which we commonly obtain by traditional rule of thumb are here explained and placed upon a properly authenticated basis of proof. Many of the pitfalls in prescribing are indicated, and well marked for the warning of the unwary. Particularly good are his observations upon the intricacies of the use of periscopic lenses, of bifocal lenses, and of prisms. No less useful is his comment upon the use of the ophthalmometer, and we are inclined to think that many, if they had read and checked his observations thereon, would have spared themselves the expense of highly complicated instruments, and concentrated upon the perfection of their skill in retinoscopy. Mr Percival's work is a credit and an ornament to British ophthalmology, and that is saying a good deal, for there has never been wanting a succession of British ophthalmologists who were able surgeons and brilliant mathematicians.

SPECIAL CYTOLOGY

THE remarkable advances made in experimental cytology in recent times have placed new methods in the hands of investigators engaged in the study of the physiology and pathology of the cell. A general survey of this field from

the new points of view was given in Cowdry's *General Cytology*, published four years ago. This volume, which was the collective effort of a number of workers, gave a general account of such topics as cell permeability, tissue culture, microdissection, cell inclusions, and the chromosome basis of heredity. The work just published is entitled *Special Cytology*.² It is the joint production of thirty-five authors, under the editorship of Dr E. V. COWDRY, and is published in two volumes of approximately seven hundred pages each, with nearly seven hundred figures in all.

In the preface the editor explains that the principle underlying the organization of the work has been that each section should be "entrusted to an investigator who, through his own researches, has personal knowledge of the subject on which he writes." The result is that the work is divided into thirty-seven sections. Such a method has undoubted advantages. It also has its disadvantages, in that a certain amount of overlapping is almost inevitable. We find, for example, the Kupffer cells of the liver described in the section on the cytology of the liver, and again in that on the macrophages. A certain noveness is also bound to occur in a collective work. The editor says that in order better to understand physiological processes, or more intelligently to treat disease (which amounts to much the same thing), the contributors have resorted to a study of the fundamental living units—that is to say, of the cells of the tissue with which they are concerned. The purpose of the book is therefore to present a detailed account of the "types of cells which make up the body, and which serve different functions." Certain of the sections are an admirable practical expression of this aim. We might cite as illustration the sections by Maximow on lymphocytes and plasma cells, and on macrophages, which are of particular interest to pathologists. The result of the application of the new method of research to these cells is described—what has been learnt from tissue culture, intra-vitam and supra-vital staining, and the result of applying the best modern methods for the study of cytoplasmic structures. Some readers will regard the beautiful illustrations as the most valuable part of this contribution.

We have particularly noted Maximow's contribution to this work as dealing with topics of special interest in pathology at the present day. Other sections might equally well have been chosen for special commendation as

¹ *The Prescribing of Spectacles*. By Archibald Stanley Percival M.A. M.B., B.C. Cantab. Third edition rewritten. Bristol: John Wright and Sons Ltd. London: Simpkin Marshall Ltd. 1928. (Cr 8vo p. 239 29 figures. 15s. net.)

² *Special Cytology*. Edited by Edmund V. Cowdry. In two volumes. New York: P. B. Hoeber, Inc. 1928. (6 1/2 x 9 1/2 pp. 1548, 633 illustrations.)

fulfilling the aim set out by the editor in his preface, but, judged from this point of view, some of the contributions are disappointing. We have some chapters without a single illustration at high-power magnification of the fundamental cell types. Others are badly illustrated from this standpoint. To us it seems that more attention might have been paid in the illustrations to representing the changes that occur in cellular structure under varying conditions of functional activity. Diagrams representing alterations in cell structure under varying conditions of metabolism are of much greater value to the average student than mere description. They also have the advantage of conveying to the trained inquirer at a glance more than a great deal of descriptive writing is able to do.

Finally, there is the introduction by Dr Alexis Carrel. We deal with it last because it points rather to the future than to our present knowledge. It emphasizes the possibilities of the new methods of tissue culture and microdissection. It points to our ignorance of the chemistry of protoplasm, and expresses the hope that "some chemist will take up the study of vital staining in collaboration with a cytologist, as there is a need of new dyes for the discrimination of cytoplasmic structures."

Regarded as a whole, this work is a valuable contribution to biological and medical literature. It represents the most concise and up-to-date work on the cytology of the mammalian tissues. It will undoubtedly be of great value to students of cytology and microscopic anatomy, and to all scientific workers who require a knowledge of the structure and function of cells.

GENITO-URINARY SURGERY

THE second edition of Dr G. MARION'S *Traité d'Urologie* contains several new chapters and a large number of additional coloured plates. Since the appearance of the first edition in 1921 advances in genito-urinary surgery have been made in various directions, particularly in methods of diagnosis. For this reason much has been added on the subject of cystography and pyelography.

Dr Marion has had an immense experience which few men can rival. He may be regarded as the senior exponent of genito-urinary surgery in Paris. His style is dogmatic, and he defers little to the opinion of other surgeons. In a less senior man, and in one who had not received worldwide recognition as a leader, this might be regarded as a fault, but actually it will be found to increase rather than diminish the value of the book. Too many medical works are found on examination to be but a compilation of the opinions and writings of others. Unlike these, Marion's *Traité d'Urologie* is the outcome of a life devoted to the subject of urology. Few people, for example, could have written as he does on the treatment of prostatic obstruction, and have furnished the numerous small details which can come only from long practical experience. It is because the information to be found within its covers is essentially practical that this book is so valuable. Even where we disagree with the author's opinions we feel bound to pay deference to them, since they are the outcome of a very wide experience. That he refuses to admit the existence of stenosis of the bladder, of the fibrous prostate, or of the fibrous bars of the American school of urology as clinical entities may cause us surprise, but we feel it is an honest view that has not been lightly arrived at. We can only assume that Marion's heterodoxy in this instance is to be explained by a difference of terminology, and that he would include such cases under his heading of congenital hypertrophy of the bladder neck. At the same time, we cannot help feeling that more often than not this type of obstruction is acquired rather than congenital in its origin.

The excellence of the coloured plates was noted in our review of the first edition, all that it is necessary to say is that these have been almost doubled in number and that the previous high standard has been maintained. Marion's *Traité d'Urologie* has established itself as a standard work of reference, and the new edition will enhance its reputation.

* *Traité d'Urologie*. Par G. Marion. Deuxième édition entièrement refondue. Paris: Masson et Cie. 1928. (64 x 81) Tome I pp 663 196 figures 28 plates. Tome II pp 529 280 figures, 3 plates. 200 fr sans majoration the two volumes.)

SENSATION

A book with a title so attractive as *The Basis of Sensation** will not fail to attract a public of diverse interests. Lest these be deceived, let it be known that Dr E. D. ADRIAN'S book is a study in experimental physiology. It employs neither the language of metaphysics nor yet that of psychology. Its vocabulary is that of the physiological laboratory. The book is, in fact, a review by the author of his own brilliant researches during the last few years into the nature of the nervous impulse and its relations with external stimuli and with the central nervous system. The philosophical reader should not be deterred by this description. The work of Dr Adrian is recognized to be a fundamental contribution to the problem of the relation of the organism to its environment. Moreover, his language is very simple.

The argument centres around the three words—rhythm, adaptation, and integration. It appears that a stimulus to an organ must achieve a critical intensity in order to evoke any sensory recognition. Above this level it releases a rhythmic discharge of impulses whose rhythm varies with the intensity of the stimulus. If these impulses are crowded together the sensation resulting is intense, if they are separated by long intervals the sensation is correspondingly feeble. Moreover, the amount of information which the central nervous system can glean from a single organ is governed by the rate of adaptation of that organ to a constant stimulus. There is little to distinguish the messages sent out by different receptors in response to such stimuli as heat, light, touch, etc., but the rates of adaptation of these various organs are characteristic. In this way the quality of the sensation evoked must depend apart from degrees of intensity, upon the path which each particular impulse must travel. Finally, there occurs somewhere, somehow, a process of integration of these messages which traces the rise and decline of a sensation as a fair copy of the rise and decline in the excitatory process in the receptor. Dr Adrian recognizes that here is the great gulf fixed. We can only say with him "Perhaps some drastic revision of our systems of knowledge will explain how a pattern of nervous impulses can cause a thought or show that the two events are really the same thing looked at from different points of view. If such a revision is made I can only hope that I may be able to understand it."

NUTRITION AND DIET

THE number of textbooks and monographs dealing with dietetics is now so large that the reader is justified in adopting a severely critical attitude with regard both to subject matter and mode of presentation. Many of these works he will very justly condemn as being ill-balanced, ill-informed, or tedious. *Nutrition and Diet in Health and Disease*,* by Professor McLESTER, must, however, claim both his admiration and his gratitude. At first sight its bulk is a little disconcerting, but the size is largely explained by the insertion of tables which, while undoubtedly invaluable in certain circumstances, yet are so arranged that they do not intrude themselves unduly on the general reader who, for the moment at least, is not interested in them. The book is characterized by a sane and well-balanced outlook and a comprehensive and succinct treatment of the several aspects of dietetics. The opening chapters give a clear and readable exposition of the physiological principles of nutrition. Following this, there is a brief discussion of the phenomena of digestion. In the section dealing with "nutrition in health" the author deals with the physiology of the various classes of food-stuffs, their availability and cost, and with the normal diet for persons of different ages and varying financial resources. There is also a chapter on infant feeding. The practical details contained in this section are, we feel, of particular value, though, since they are written for the American, the English reader has to translate them for

* *The Basis of Sensation*. By E. D. Adrian. M.D. F.R.C.P. F.R.S. London: Christophers. 1928. (Demy 8vo, pp 122 31 figures, 7s. 6d. net.)
* *Nutrition and Diet in Health and Disease*. By James S. McMaster. M.D. Philadelphia and London: W. B. Saunders Company. 1927. (6 x 9½ pp 783 365 net.)

himself into terms of more familiar materials and dietary habits. The rest of the book is concerned with nutrition in disease. The ground covered is wide and the method of classification good. The question of slight but chronic vitamin deficiencies is considered, and many helpful practical details have found a place. The work of Ijstein on nephritis is dismissed perhaps a little too briefly, the discussion of differential diagnosis and treatment of obesity and leanness are, on the other hand, excellent. We note Professor McClester has made a slip on p. 70, where the author suggests that tryptophan is concerned in the formation of thiroxine, and is 'pot-licker,' on page 88, a misprint or an Americanism?

TRAPS FOR TRANSLATORS

Les faux amis,⁶ notwithstanding its title, is, as its authors point out, not a piquant love story. MM. MAXIME KESSLER and JULES DEROCQUIGNY have compiled a list of English words which, while similar in appearance to certain French words, have in fact a very different meaning. They doubt, for example, if the motorist would be grateful to the French translator of an English book who advised his readers to apply Ambroise Paré's huile de castor to his clutch instead of huile de ricin. The former would probably prove a false friend. And if, with Carlyle, the translator stated that of two universities, "Cambridge is decidedly the more catholio" (catholique), most of his readers would jump to a wrong conclusion. Such a book as this must be of the greatest use to those who undertake to interpret the thoughts of one nation to the understanding of another, and similar work might well be done for other languages. But we venture to think that the authors made a mistake in not associating with themselves in its preparation an Englishman with a knowledge of French. It is plain that they relied largely on the *New English Dictionary*, and in the list of acknowledgements for assistance no English name appears. As a result the book is not wholly free from the strange little mistakes which it seeks to help others to avoid. Again, the authors have relied too much on Shakespeare as an exponent of English usage, and consequently have laid stress on many archaisms. Who, for instance, would have connected *souiller* with the verb "to file"? Yet a quotation from *Macbeth* is produced which may possibly bear this meaning. On the other hand, there are evidences of acquaintance with some of the latest Americanisms, as in the use of the expression "to jacket documents." The close examination of the meanings of words has led MM. Kessler and Deroquigny into unnecessary, and doubtfully valid, refinements. Thus the English word "bier" must undoubtedly come from the French "bière." But the authors are concerned because *bière*—unless "wet"—is now usually applied to a coffin, while a bier is no more akin to a brancard or civière. Surely the Frenchman would not attribute to the last two words any meaning other than that of litter or stretcher, and bier would still be reproduced best by translating it *bière*. The book is remarkably well put together, it displays much erudition, and, as suggested by M. Louis Cazamian in his introduction, it should help to cement the entente cordiale by removing erroneous interpretations of word and phrase in the two languages.

NOTES ON BOOKS

In recently published writings by Mr. VINCENT NESFIELD a method of treating deafness by operation has been advocated. Those who fear to condemn this method because there may be something in it have perhaps afforded undeserved encouragement, which has resulted in the production of a book.⁷ The author states that the mastoid antrum always disappears in middle ear catarrh, he does not distinguish between the attic and the antrum, the aditus ad antrum from the attic is apparently unknown to him as such, for he calls it

the fenestra spes, he is unable to make a diagnosis of otosclerosis without an exploratory operation on the temporal bone, and in describing his operation he refers to the sigmoid sinus as the external jugular vein. Further comment seems needless, but if there still be any who regard this operation seriously chapter iv, entitled "Some cases, will disillusion them. The author gives notes of nine cases, but, incredible as it may appear, there is no record of hearing tests. One of the patients had suffered from acute inflammation of both ears for two years, another was able to hear a bell after the operation—an improvement scarcely worth the danger and discomfort of an operation—and another improved her hearing still further after the operation by attending classes in lip reading.

In his scholarly work on *Medical and Allied Topics in Latin Poetry*,⁸ Dr. HEINRICH OPPENHEIMER has collected from the poets of the Augustan and Silver Ages all the passages more or less remotely connected with medicine in the widest sphere of the term, with an English metrical version in the footnotes. Extracts will be found applicable to almost every branch of medicine, including infectious diseases, various internal disorders, balneology and hydrotherapy, toxicology, alcoholism, insanity, sexology, surgery, midwifery, dermatology, and diseases of the eye, ear, nose, and throat. Of the twenty-six poets laid under contribution, those most frequently quoted are the satirists and comic dramatists, such as Horace, Juvenal, Martial, Plautus, and Terence, the philosopher Lucretius, and Ovid, whose value as an historian of the social life of ancient Rome is universally recognized. The work, as the author and publishers surmise, is not likely to have a wide circle of readers, but it will be welcomed alike by the medical historian and antiquarian.

The fourth edition of the late Dr. LEO HIRSCHLAF's manual on hypnosis and suggestion treatment⁹ appears with a preface by Professor J. H. SCHULTZ, who justly calls attention to its high practical and clinical value, both as a textbook for students and also as a handbook for those who use these methods in general practice. In less than 300 pages a good account is given of the history of this subject, with special reference to the influence of Liébeault, a concise catalogue of the conditions in which this method is useful, a careful outline of the methods, and a critical appreciation of the degree of benefit likely to be obtained. Dr. Hirschlaff had little sympathy with the followers of Freud and similar exponents of the sub-conscious self, and this may, for some, limit appreciably the utility of this handbook, but it can be recommended to those who are interested in the physiological methods associated with the names of James Braid, Forel, Charcot, and Bernheim. Two useful indexes—one of authors, the other of subjects—facilitate reference.

We found it difficult at first to say for what class of readers Dr. OSCAR LEVIN intends his book on *The Care of the Face*.¹⁰ It is not sufficiently technical for the medical practitioner. Although written in a popular and breezy style, it lays down no rules for the guidance of the otherwise uninstructed patient. In the end we have come to the conclusion that its real object—an exceedingly worthy one—is to induce the numerous members of the public, of both sexes, who are interested in facial conservation to abandon the nostrums of the quack and the beauty parlour and to seek instead the consulting room (or in American the office) of the properly qualified and registered dermatologist. May his efforts be crowned with complete success!

One of the most recent additions to the To-day and To-morrow Series is *Metanthropos or the Body of the Future*,¹¹ by Professor RONALD CAMPBELL MACFIE. While admitting that it is impossible to argue from man's far past state as a 'glorious worm' to the far or even near future, or to infer that the rate of progress in the future will be the same or nearly the same as in the past, the author is on the whole optimistic. The most striking feature in man's evolution has been the growth in size and complexity of the neopallium, and Professor Macfie considers that the metanthropos of the future will live a fuller and richer life than the man of to-day, partly because sexual selection, based on intellectual rather than on physical attraction, will have improved his brain, and partly because previous generations of brains will have improved his brain's environment in the way of books, wireless, and so forth.

⁶ *Medical and Allied Topics in Latin Poetry*. By Heinrich Oppenheimer. M.D. Heidelberg. M.R.C.P. Lond. London: John Bale Sons and Danielsson Ltd. 1928. (Demy 8vo pp. vii + 455. 30s. net.)

⁷ *Hypnotisme und Suggestivtherapie*. Von Dr. med. et phil. Leo Hirschlaff. Vierte Auflage durchgesehen von Prof. Dr. J. H. Schultz. Leipzig: J. A. Barth. 1928. (Gr. 8vo pp. xli + 274. R.M. 10.)

⁸ *The Care of the Face*. By Oscar L. Levin. M.D. London: W. Heinemann. 1927. (Gr. 8vo, pp. xi + 225. 3 figures. 6s. net.)

¹¹ *Metanthropos or the Body of the Future*. By Ronald Campbell Macfie. M.B. Ch.B., LL.D. To-day and To-morrow Series. London: Regan Paul, Trösch, Trubner and Co. Ltd. 1928. (Pott 8vo, pp. 66. 2s. 6d.)

⁸ *Les faux amis ou les Traductions du Vocabulaire Anglais*. Par Maxime Kessler et Jules Deroquigny. Avec un avant-propos de M. Louis Cazamian et une lettre de M. Emile Borel. Paris: Vuibert. 1928. (42 x 74 pp. xviii + 389. Paper cover 30 fr. bound 32.50 fr.)

⁹ *Deafness and its Alleviation*. By Vincent Nesfield. F.R.C.S. Eng. London: H. K. Lewis and Co. Ltd. 1928. (Demy 8vo pp. v + 85. 19 figures. 7s. 6d. net.)

British Medical Journal.

SATURDAY, AUGUST 4TH, 1928.

THE CARDIFF MEETING

ALL who took part in the ninety sixth Annual Meeting of the British Medical Association, held at Cardiff last week under the presidency of Sir Ewen Maclean, will agree that the two salient features were the admirable organization and the hearty welcome everywhere accorded to the visitors.

The beauty of the chief buildings of Cardiff is enhanced by their position in Cathays Park, and excellent internal arrangements add much to the convenience of their close proximity one to another. The Lord Mayor and Corporation placed at the disposal of the local executive the magnificent City Hall for the annual session of the Representative Body, and the same assembly room, with its fine ceiling and Ionic decoration, made an appropriate setting for the presidential, civic, and Branch receptions, and for the Annual Dinner of the Association, reported in the *Supplement* this week. The governing body of the University College of South Wales and Monmouthshire, by granting the use of its impressive building for most of the Sectional meetings, for the ladies' club, and for various general purposes, deserves also a warm tribute of thanks, many members from other parts of the country will henceforth take a livelier interest in the progress of higher education in the Principality. Some of the Section meetings were held in the Technical College, by kind permission of the Education Committee of the Cardiff Corporation. The beautiful National Museum of Wales attracted many visitors throughout the week, excellent musical performances were given daily by the National Orchestra of Wales, and the collection of manuscripts and other objects illustrating the contrasts between ancient superstition and modern medicine in Wales was much appreciated. The Council of the Museum, moreover, entertained members of the Association there at a delightful reception on Friday evening. Cardiff Castle, with its beautiful grounds and ancient buildings, was greatly admired by the large number who accepted the generous hospitality of the Marquess and Marchioness of Bute at the garden party on Thursday, which also marked the opening of the festivities in connexion with the coming of age to day of their eldest son, the Earl of Dumfries. The Marquess, moreover, invited members of the Association on more than one occasion during the week to Caerphilly Castle and Castell Coch, and entertained a large party to dinner in the banquetting hall of Cardiff Castle. Some account of the many other agreeable social functions will be found in the *Supplement*.

As had been expected, the attendance at this Annual Meeting fell short of the very large figure recorded last year at Edinburgh, but during the week some 1,300 members registered, not counting the many wives and daughters, and all were deeply impressed

with the cordiality of their reception. A considerable part of the scientific programme of the meeting had been planned with an eye to practical questions of the hour, and the debates in the principal Sections drew large audiences despite the many pleasant diversions provided elsewhere. There were no doubt other reasons, but the unusual number of subjects of general and topical interest, and even of controversy, must have been responsible in some measure for these good attendances. Arrangements have been made to publish in the *British Medical Journal* during the next three weeks fuller summaries than heretofore of each day's proceedings in the Sections. By this means it is hoped to arouse greater general interest than has been possible in previous years, when detailed reports of the scientific and clinical discussions were spread over five or six months. The first instalment of our concise accounts of the work of the Sections will be found at page 198 of the present issue. As usual, the Pathological Museum (housed this year in the Library of the University) was a great centre of attraction, illustrating as it did several of the discussions and reinforcing points made by word of mouth.

Of the great mass of political and domestic business carried through by the Representative Body of the Association, under the courteous and vigilant chairmanship of Dr Hawthorne, we need only say here that, though in several important matters substantial progress has been made, in two others the outcome of much debating has been a reference back to Council, while in regard to the International Union of Medical Organizations and the direction of infant hygiene clinics for the middle classes the Council's recommendations have been reversed. Notwithstanding the efforts made by electricians to improve the acoustics of the hall, many speakers found it difficult to get contact with their audience as a whole, and this favoured neither the presentation of an argument nor the dispatch of business. We publish in this week's *Supplement* the remainder of our full report of these proceedings, and on another page will be found the conclusion of a series of notes giving impressions of the Representative Meeting by an onlooker in medical politics.

It is almost a truism that an assembly like the Annual Meeting of 1928 takes its tone and colour from the personality of those who act as hosts. Sir Ewen Maclean, with his genial grace of manner and his intimate knowledge of the Association from past work in the middle of its affairs, had singular advantages for the leading part his colleagues called upon him to play, and the success of the meeting owed much to his high conception of what a President should be and do. His chief of staff, Dr Gilbert Strachan, upon whose shoulders lay the heavy burden of local secretariatship, earned general praise for his unremitting work and inexhaustible good humour, and Dr Strachan would be the first to wish that a share of the credit for this effective administration should go to the deputy general secretary, Dr Tudor Thomas. The good offices of the Lord Mayor and Corporation have been referred to, and among many others who worked unselfishly to make the week a success must be mentioned, in particular Dr W. E. Thomas (vice chairman of the General Committee), whose friendly greeting made everyone feel at home in South Wales, and the city,

treasurer, Mr John Allcock, who gave skilled service as honorary treasurer of the Meeting. All these may feel assured that their labours are highly appreciated, and will be held in grateful remembrance by everyone who attended the Cardiff Meeting.

ETHYL PETROL.

We summarize elsewhere (p 219) the interim report, issued at the end of last week by the Departmental Committee, dealing with the risks to health of adding lead tetra ethyl to petrol for use in the internal combustion engine. The Committee states in brief that any poisonous effect on the users of this spirit or on the public at large has yet to be proved. The only preparation of this kind on sale in Great Britain is "ethyl petrol," which is petrol with lead tetra ethyl dissolved in it in the proportion of 1 part in 1,300 by volume. No European country has, as yet, used the spirit to any extent, and most of the evidence on which the Committee bases its report has been of American origin, in which country the spirit has been largely employed for some years past.

Several interesting facts emerge on reading the report. Lead tetra ethyl in the pure form is extremely toxic. It is lipid soluble, and when placed on the skin is absorbed quickly and may cause death. Unfortunate accidents happened in the United States a few years ago during its manufacture and before its very poisonous nature was appreciated. It is easy to demonstrate that a few drops placed on the skin of small laboratory animals are absorbed, and may induce death in a few days, but this by no means proves that lead tetra ethyl dissolved in petrol in the proportion stated is toxic. The evidence so far available goes to show that the lead compound is held by the petrol so firmly that its absorption by tissues does not occur. Carbolic acid in oil lacks antiseptic properties because the oil holds the carbolic acid and leaves none available for destroying bacteria, it seems possible that the same principle may hold for ethyl petrol. A second danger might arise from inhalation of the vapour, but the report informs us that no lead is evaporated in the first half of any ordinary distillation at body temperature. It is, however, less reassuring about what happens when a considerable amount is spilled about garages and allowed to evaporate slowly, perhaps to dryness. Here, undoubtedly, some lead would vaporize and find its way into the atmosphere, though in amount it would, perhaps, be negligible. The third possible danger of using this petrol is one which most nearly concerns the public, a small amount of lead must be deposited from the exhaust gases of all motor cars using ethyl petrol. This will no doubt continue to be insignificant for a long time to come, but if all cars used ethyl petrol it is difficult to believe that this lead may not be a potential factor of some importance to the public health.

Lead tetra-ethyl has an action different from that of ordinary lead salts, in that after absorption it is distributed in the body in an unusual way, the central nervous system absorbing relatively large amounts. Here it is apparently converted slowly into ionic lead, and induces cerebral effects which are not usual with inorganic lead. It may be compared with lipid-soluble arsenic compounds such as salvarsan, which are specifically absorbed into certain tissues, where ionic arsenic is slowly liberated.

It should be particularly noted that this carefully phrased report does not say that petrol containing lead tetra ethyl in the proportion of 1 part in 1,300

by volume is harmless, but rather that there is at present no proof that it is harmful. We await with much interest the Committee's final verdict, which, no doubt, will afford some positive proof on one side or the other.

ANNUAL MEETING NOTES.

The Representative Meeting

In the *Supplement* this week we conclude publication of the full report of the Annual Representative Meeting at Cardiff. The short notes printed below are intended to give, in very general and informal terms, an outline of the course of the discussions during the latter part of the meeting.

Monday, July 23rd

The outstanding items on the agenda for Monday were the report on puerperal morbidity and mortality, the memorandum on the Report of the Royal Commission on Lunacy and Mental Disorder, and the speeches of the Dominion and Colonial representatives on the report on overseas Branches. The puerperal morbidity and mortality report met with but little criticism, but its presentation gave the chairman of the Committee, Sir Ewen Maclean, an opportunity, of which he made good use, to emphasize the importance—international, national, individual, and professional—of its subject and its recommendations. After his clear and detailed exposition of the method pursued by the Committee, the nature and object of the proposed action on the part of the Association, and the development of public policy since the drafting of the report, the amendments proposed by Edinburgh and Leith and South-West Wales served to illustrate the keen interest of the Divisions and Branches in the work already done, and their desire to accept full responsibility for development along the proposed lines, rather than to strike any note of criticism. The discussion of the memorandum on lunacy and mental disorder was, on the whole, disappointing. The representatives were not, it is true, prepared to follow Dr Roxburgh and Dr Temple Grey in referring the report back on the ground that specific action had not been taken to promote legislation for the protection of the practitioner in the interval during which the policy now recommended for the purpose had been under review. Nor did they seem, on the whole, inclined to dispute the primary importance of securing means for adequate treatment. But something better might have been expected in the circumstances. The Divisions had had a full year to reflect on the issues at stake, the Committee on Lunacy and Mental Disorder had had a year in which to consider the exact terms best fitted to embody principles already fully debated, or to modify propositions which had failed to secure support at Edinburgh, and during a great part of that period there had been no specially hard case before the courts in connexion with certification in lunacy to alarm the profession. Yet the debate was characterized by a general confusion of terms and uncertainty as to facts, as opposed to feelings, and a tendency to discuss at large and at cross-purposes instead of to join issue on specific points. Of the amendments proposed some were already explicitly covered by the terms of the memorandum, others were so worded as to obscure rather than clarify the particular points under discussion, whilst the terms of the two principal amendments actually carried were such as to reduce them, in form if not in intention, to pious opinions. The overseas report was short, and contained no recommendations, but it gave the meeting the pleasure of hearing from Mr Leopoldt, Dr Spencer, and Sir Malcolm Watson something of the work of the Association in and for the overseas Branches. Mr Leopoldt's shrewd criticism of the outlook and procedure of the Representative Body

from the standpoint of a member from South Africa, Sir Malcolm Watson's testimony to the Association's work to secure efficiency for the medical service in Malaya, and Dr Gordon Spence's triumphant claim to a membership of 100 per cent in the nine-years-old Mesopotamian Branch could not but appeal powerfully to the imagination and sympathy of the meeting. On the items outstanding from the Medico-Political report two discussions merit special notice. That initiated by Dr Peter Macdonald on the motion from York in connexion with ambulance lectures, and developed under the reduced time limit, was an ingenious piece of propaganda, and the rejection of the motion left the representatives pledged, personally at least, to a far more active support of the existing policy of the Association than has been general heretofore. The debate on the classically phrased proposition from Edinburgh and Leith for reinforcement of the voluntary system for controlling venereal diseases by imposing a "compulsitor" on infected persons allowed the Representative Body to express, by the decisive rejection alike of the motion and the amendment suggested by Mr Turner, its opinion on a question which has been much before Parliament and the public in the past twelve months. The remainder of the day's session was given to the report on medical benevolence, and the points arising from the opening recommendation on public health.

Tuesday, July 24th

The business remaining for discussion on Tuesday included three of the most important matters on the agenda, and it was unfortunate that the necessity for bringing the session to an end by 4 o'clock not only imposed a time limit for speeches early in the proceedings, but also reduced to a hurried formality the presentation of the Scottish, Irish, and Naval and Military reports, and the votes of thanks to those who had contributed to the success of the meeting. On the Public Health report the motion defining the extension and limitation of the functions of an M.O.H. was passed as it stood, after a discussion which showed at once the thorough manner in which the Committee had gone into the whole question, the adequacy of the terms in which it had embodied its recommendation, and the need for further light on points whose elaboration was beyond the compass of the Annual Report of Council. The extension of the time limit for temporary adjustment of the salary scale for public health appointments in Scotland was another matter on which full explanation of the conditions in the course of debate was all that was wanted to satisfy legitimate doubts about the need for this expedient. The remaining items under public health, including the motion from Edinburgh and Leith on noise and public health, went through without controversy—though this last resolution was one in which acceptance of the principle may well prove easier than its translation into effective action. The debate on the section of the national health insurance report dealing with spa treatment for insured persons was of considerable interest. Dr Dain, with the support of Dr Brackenbury and Dr Thomson, was able to satisfy the representatives as to the details of the proposed scheme, but failed, even after Dr Brackenbury's *reductio ad absurdum* of the proposed amendment, to carry the basic definition of spa treatment, which was referred back for further consideration. This result may have been due to pressure of time and the consequent difficulty of finding a better formula. The Representative Body, as a whole, clearly felt that the claims of sea water should not be ignored, though reluctant to relax the safeguards applied by the Council's definition. The debate on co-ordination of hospital provision was perhaps of more interest than any that had gone before, and its outcome was a signal success for the policy drawn up by the Hospitals Committee. The real point to be decided was whether hospital co-ordination

on the basis of co-operation in the common interest is a practical policy, or whether the dominant consideration must be the individual interests of the several existing hospital systems and the bodies of workers concerned in promoting their efficiency. By its decision the Representative Body proclaimed that the medical profession is ready for the co-operation necessary for co-ordination, and left the Council in a position to take steps to secure that the voice of the profession is heard before any Governmental action by way of a partial readjustment can prejudice the main issue. In the discussion on criteria for practitioners treating private patients in paying wards or in nursing homes attached to hospitals a different note was struck. The danger of prejudicing the hospital policy of the Association by a new definition which might lead to dissection in areas where working arrangements are established, the difficulty of setting up criteria equally applicable in so many differing circumstances, and the fact that the Association's policy in regard to middle-class hospital provision has yet to be formulated—all these combined to send the recommendation back for further consideration. Among the motions brought up at the end of the meeting and accepted by the Chairman for consideration in the coming session, that by Dr G. W. Hurst of Wellington, New Zealand, requires special mention, because it voiced a demand which has been growing more and more insistent since the war. The need for better post-graduate facilities for overseas members becomes more urgent every year, and it is only natural that these members should look to the Association at home to take effective action on their behalf.

Popular Lecture: Medicine in Art.

The New Theatre, Cardiff, was crowded in every part for the Popular Lecture delivered by Sir Berkeley Moynihan Bt., P.R.C.S., on Friday evening. The lecture, which was illustrated by many lantern views, was on the subject of "Medicine in art," and although some doubtless had heard the substance of it before, the charm of its delivery, the many humorous and affecting touches, the culture and wisdom which lay behind it, would have made it worth hearing for the twentieth time.

Sir Berkeley Moynihan began by remarking on the heavy load of responsibility which the medical man had to carry. The doctor held in his hands the health and lives of his fellow creatures. When he ended his arduous day's work—a work which had made huge demands upon his nervous as well as upon his physical energies—he realized often that virtue had gone out of him. Even if he failed to realize it, it was none the less true. That store of virtue could be replenished in no other way so well as by the contemplation of things of beauty. It was of little use to play the indifferent round of golf or indulge in some other form of physical exercise, he had better devote himself to some quiet contemplation of art—beautiful furniture, china, pictures, books. Hero was indeed rest for the weary mind. The lecturer then went on to speak of how the alliance between art and medicine was foreshadowed by the Greeks, how in the Greek mythology Apollo, the god of light and giver of life, was also the god of medicine, and bestowed on his favorite son, Aesculapius, the divine gift of healing. The association between art and medicine, thus begun, had been carried on in some of the works of the greatest artists, of which he proceeded to give examples. He began by showing some representations of deformities in sculpture—in the gargoyles of cathedrals, for example—and then passed to the innumerable examples in mediaeval painting of devil-possession and exorcism. People in the throes of such possession had been depicted by Raphael and many another with more or less truth to the recognized picture of hysterical epilepsy. He commented upon the extraordinarily widespread and long-standing prevalence of the idea of an interior "not ourselves." Indeed, one found

the same thing in Socrates, with his "divine sign," and Joan of Arc, with her "voices," not to speak of Sir James Barrie's "McConachie" or the Irishman's "Eimagan." The idea of "somebody else inside us" went right through the art of the Middle Ages. No testimony in a law court to-day was more confidently advanced and more unquestioningly accepted than the testimony in old time as to spirit-possession. It was vouched for by troops of witnesses. People said on oath and under torture that they had actually seen the evil spirits which Rembrandt and other artists grotesquely represented as being exorcised from the head or out of the mouth or fleeing the church. Even from far-away Peru he was able to show the representation of a female skull which had evidently been subjected to primitive trepanning for no other purpose than to allow of the escape of the evil spirit.

Next came a series of studies of emotional expressions, including some by Sir Charles Bell, one of the greatest artists that the profession of medicine had produced. This series naturally included Reynolds's famous picture of John Hunter in reverie. Another example was "The Ecstasy of St. Jerome," in the Louvre, which the lecturer declared to be the picture that, of all others, had the greatest effect upon himself, nothing in the world spiritually did him so much good as to spend a few moments on every visit to Paris in contemplation of that work. (We are bound to say that the black-and-white reproduction which he showed had nothing of this quality, and appeared indeed to be rather repulsive, but the lecturer said that, having seen the original, he could see its beauty in the inadequate reproduction.) He concluded with a few pictures showing how artists depicted diseases, among them achondroplasia. Curiously enough, the achondroplasia was invariably represented as being in charge of animals. Then there were such deformities as club-foot, a drawing of which was found at Luxor dating from 2500 B.C. Chronic rheumatoid arthritis existed in Egypt very badly, said the lecturer, in the period of the dynasties. Hydrocephalus and acromegaly were other abnormalities represented in art. Rodent ulcer was depicted in one of Albert Dürer's engravings, dated 1502. A delightful picture was one by Franz Hals, showing the operation for removal of sebaceous cyst from the scalp. The expressions of both patient and surgeon were eloquent, the patient in extreme apprehension, while the surgeon took the proceedings with quite phenomenal calm—very unlike Astley Cooper, who removed a sebaceous cyst from the King's scalp, and spent the ensuing days in a dreadful state of anxiety lest anything should befall the royal patient. In the Franz Hals picture, by the way, the doctor's diploma is shown hanging on the wall, and, to make matters doubly sure, the surgeon was wearing a replica of it in his hat! Sir Berkeley Moynihan concluded by saying that the medical man, visiting galleries abroad or at home, could, from his professional knowledge, find much to interest him in the details of many pictures which were not apparent to the ordinary public. Moreover, as he had said at the beginning, the contemplation of beautiful things did help him in his daily work, and it was well for every devotee of Aesculapius to turn aside now and then and worship at the shrine of his father, Apollo.

Sir Ewen Maclean, who presided at the lecture, and Dr C. O. Howthorne both expressed the thanks of the gathering to the lecturer, the latter remarking that what Sir Berkeley Moynihan had said about the use of leisure for the study of art filled him with a certain sadness at his own wasted opportunities. In responding to a vote of thanks, Sir Berkeley Moynihan said that it had been a privilege to give the address to an audience so attentive. It seemed to him that the big and important concerns in one's life, which might be likened to the bricks in a wall, needed to be held together by something scarcely visible, the mortar filling the interstices. These things, these

interests, of which he had been speaking that evening, were the mortar between the bricks. Surgery was not merely a craft or a science, it was something bigger and better than either or both. It was a spiritual devotion, and in order to set it forth as an example recourse must be made constantly to some spring or well of refreshment. That was why he had rejoiced in the opportunity that evening, not so much to show pictures or to tell more or less trivial tittle-tattle, but to put into the minds of his colleagues in the profession that this way of refreshment was open to them.

The Pathological Museum

The spacious library at University College was not too large to house the extensive and varied collection of exhibits which formed the Pathological Museum. Almost every branch of medical science was represented, and there can have been no visiting members, whatever their specialized interests, for whom the exhibition held nothing new and instructive. It is only possible to mention specifically a few of the individual exhibits in my short account of so large a collection. Morbid anatomy naturally took the foremost place, being represented both by mixed collections of bottled specimens, contributed chiefly by the Department of Pathology and by the Surgical Unit of the Welsh National School of Medicine, and by series of specimens of the same organ designed to illustrate variations in a single pathological process. In this category the organs treated were the stomach, the heart (from the point of view of coronary disease), the gall-bladder, and the appendix. The stomach received perhaps even more than its fair share of attention, no fewer than three contributors—Professor Dible, Mr C. A. Joll, and Mr J. B. Haveraft—showing specimens illustrating peptic ulcer and its sequelae, and carcinoma. A remarkable feature in the section dealing with coronary disease was a series of skiograms of injected hearts prepared by Dr C. B. Perry, showing the changes in the vessels occurring in related patients exhibiting familial coronary disease. Specimens in some of these categories were accompanied by histological sections, and an interesting controversial note was struck in the nomenclature of renal tumours, as also in the series of sections of bronchial new growths shown by Dr J. B. Duguid, illustrating varieties of structure from a squamous to an apparently sarcomatous type. Radiology was the subject of five exhibits, four consisting of miscellaneous skiograms, and one, by Dr Lambert Rogers, confined to the appearances of spinal lesions, especially after lipiodol injection. "Foreign bodies" found a considerable place in the museum, the most notable collection being that of Dr D. R. Paterson, consisting of objects in great variety removed from the upper air and food passages, including the first recorded series of foreign bodies removed by operation in this country, amongst these being a fish hook, the removal of which is still believed to be unique. As a curiosity perhaps none of these equals the forbidding black boulder inserted by a male patient into his rectum for reasons and by means unstated, and removed with difficulty by midwifery forceps, with a fatal result. Another rarity must surely be the large leukaemic spleen, removal of which is said to have been followed by recovery. Much interest was excited by Dr Hilda V. Cunningham's living tadpoles, illustrating the effects of feeding with functionally distinct portions of thyroid gland. An exhibit of no little topical interest was the brain of a bilingual Welshman, who after abscess formation and softening of one side of the brain, remained able to speak only Welsh! Pride of place was finally taken by a long series of memorabilia of Lister, presented to the Welsh National School of Medicine by the Wellcome Historical Museum, and ranging from documents and photographs to apparatus and original antiseptic solutions used

by Lister himself. The organizers and exhibitors are alike to be congratulated on the success of the museum, which will be memorable for the range of its subjects and for the excellence of its individual exhibits.

History of Medicine in Wales

In the National Museum of Wales at Cardiff an interesting little exhibition had been gathered together for the purpose of illustrating the history of medicine in the Principality, various manuscripts, charms, remedies, and other objects having been selected from the National Library, the National Museum, and the Cardiff Public Library. Specimens of "hydrophobia stones" were shown, these were composed of a kind of alabaster, and scrapings of them were mixed with milk and drunk by those who had been bitten by dogs and cats. The owner of one of these stones knew a man who, after a lile, about the year 1850, "meowd" like a cat, and was not relieved until he had received a dose of the medicine. The "Laws of Hywel Dda," in the tenth century, prescribed the status of the doctor, who was one of the officers of the royal household. He received his linen from the queen and his woollen cloth from the king. He had to attend all within the court gratuitously, except in certain emergencies, for which he received ninenpenco and his food, together with the "blood-stained clothes" of his patient. His "sarhad" (in English "insult") was six kine and sixpence in silver, his social value was estimated at six score and six kine. One portion of the Laws dealt with the value of the members of the human body. Thus the value of a finger was one cow and twenty pence. The organs of generation were equal to one-half of all the organs, as also was the tongue, which must have rendered computation occasionally difficult after an aggravated assault. The exhibition included the text of the "Meddygon Myddfai," to which the President alluded in his address, containing the medical lore of the twelfth century physicians of Myddfai in Carmarthenshire. A fifteenth century manuscript on vellum consisted of a Latin translation of *Almansor*, a popular Arabic medical work. The manuscript showed very fine workmanship, being rubricated throughout, and with an illuminated capital letter at the beginning of each of the ten books. In connexion with this exhibition at Cardiff it is interesting to note that the directors of the Wellcome Historical Medical Museum have announced the publication shortly of a book on the history and lore of Cymric medicine. It was hoped that this work would be ready in time for this year's Annual Meeting, but the contributions of historical interest which are still being received have made it necessary to delay publication.

THE STOCKHOLM CONGRESS OF RADIOLOGY

THE second International Congress of Radiology met this year in Stockholm under the presidency of Professor Gösta Forssell. The proceedings opened on July 23rd and lasted for four days. The importance of this congress is shown by the following points. In the first place, nearly 1,000 enrolled as members, and these were drawn from thirty-nine different countries, with ladies and others the total number interested in the congress amounted to 1,500. The meeting was treated in Sweden as one of national and municipal importance, and the congress meetings were held in the House of Parliament, which the Government lent for the purpose, the neighbouring streets and important buildings were befagged. H.R.H. the Crown Prince of Sweden declared the congress open in an admirable speech delivered in English. This meeting was held in the large concert hall, and opened with a speech from the president. The Prince stayed on to hear several of the opening papers, and also attended some of the section meetings. A badge and chain of office was presented at the opening meeting by

the British radiologists. Mr Thurstan Holland thanked, on behalf of all the foreigners present, His Royal Highness, the chancellor of the Swedish Universities, and the president and board of management of the congress. In the afternoon the members and then friends were entertained at the palace by the King and Queen. On the following evening the municipality gave a banquet and ball in the magnificent town hall, 750 guests attended the dinner, at which Professor Kaye made an eloquent speech, which was much applauded. Later on, close on 2,000 attended the dance which took place in the famous Blue Hall. The organization of the congress was wonderfully carried out. All publications were printed in French, German, and English. Abstracts of all the papers, some 250 in number, were supplied to each member, and also a book containing the portraits, etc., of those registering. One of the notable communications was a paper, read by invitation by Dr Robert Knox, on "The rationale of radiation therapy", this drew a large audience. Professor Forssell's demonstration of cases showing the after-results of radium and x-ray therapy illustrated in a remarkable manner the success of this kind of treatment in malignant disease. A further feature of the congress was the exhibition of instruments, etc. A notable exhibit was that of the British manufacturers, who arranged a joint show. The next congress will be held three years hence in Paris, under the presidency of Professor Beclère.

PARATYPHOID FEVER IN HERTFORDSHIRE

THE outbreak of paratyphoid fever which occurred in Hertfordshire during the closing quarter of 1927 is well set forth by Dr W. V. Shaw of the Ministry of Health in a report¹ just issued. The district affected includes the borough of Hemel Hempstead and the rural districts of Hemel Hempstead and Watford. Between October 23rd, when the first cases sickened, and December 29th, when the outbreak terminated, the total cases were 166. The number of cases week by week during the six weeks of prevalence were 8, 86, 56, 14, 1, and 1. The peak of the epidemic was on November 4th, when 28 persons fell ill. The curve declined more gradually than it rose, presenting a positive skewness. Though no deaths took place, the type was not wholly mild. Many of the early cases were considered to be influenza, but the blood of almost every patient was subjected to Widal's test, with positive results to *Bacillus paratyphosus B*, and the same organism was demonstrated in the urine and faeces of a number of cases. The clinical manifestations varied. The onset was often abrupt, especially in children. Some attacks began with epistaxis, followed by headache and anorexia. Many had sore throat and general malaise. Some had laryngitis and bronchitis, and a few pneumonia. Diarrhoea was not a constant feature, and many suffered from constipation. Intestinal haemorrhage was not infrequent. Three cases had severe abdominal pain suggestive of appendicitis, and one operation was performed. Some had an early skin eruption resembling scarlet fever, which later developed into rose spots, a quarter of an inch and more in diameter. Pyrexia was intermittent, and hyperpyrexia up to 105° F. occurred. Several cases had relapses. The mild attacks with little constitutional disturbance made the outbreak difficult to deal with, and it is probable that in a number of instances no medical advice was sought. In early stages, before the significance of the outbreak was realized, a number of the sick were treated at home. Dr Shaw pointed out that in the interests of all concerned all patients fit to be moved should be admitted to hospital. The stress of the arrangements fell upon the committees of the joint hospitals, and

¹ Ministry of Health Reports on Public Health and Medical Subjects, No. 63. H.M. Stationery Office, 1928. Price 3d. A preliminary account of this outbreak was given in the *British Medical Journal* of November 25th 1927 p. 1002.

beds were freed for the reception of the sick, not only in the Hemel Hempstead and Watford Joint Isolation Hospitals, but also in the West Herts General Hospital, and, the necessary sanctions having been obtained, in the Hemel Hempstead Poor Law Infirmary. The distribution of cases was limited to a well defined area in the situation stated, and the only factor common to the persons infected, as inquiry showed, was the delivery of milk to them by a retailer whose premises were in Hemel Hempstead borough. The retailer obtained his milk—170 gallons daily at the date of the outbreak—from eleven sources, collecting it in the farmers' churns by means of his own motor. He cooled it on his own premises, and distributed it in cans. Of twelve persons who took part in the retailing no fewer than seven figured as cases of paratyphoid, but in the times of their sickening they did not antedate the general outbreak, and could not be held responsible for it. Dr Shaw therefore followed the line of milk supply a stage further back. He investigated the eleven farms from which the milk was derived. Ten were blameless, but at one he found that the farmer's wife had been ill early in October, and one of his children later in the month. The wife admitted illness with reluctance, one of her symptoms had been diarrhoea. In the case of the child a doctor was called, he diagnosed broncho-pneumonia. Dr Shaw advised the removal of both wife and child to isolation hospital. The faeces of both, on bacteriological examination, contained *Barillus paratyphosus* B in abundance. The farmyard was ill drained, a pail closet was in use. The cows coming in for milking plashed through slop water from the house. The milk strainer was defective the wire gauze was lost and replaced by butter-cloth. Dr Shaw found the butter-cloth hanging on the clothes line along with domestic garments. Under these conditions two persons suffering from paratyphoid fever were resident in the farmhouse, one of them engaged in nursing the other, and at the same time washing the milk utensils, cooling the milk and occasionally milking the cows. It seemed as though every precaution had been taken to ensure infection of the milk, which took place with the results recorded.

REDUCTION OF FRACTURES UNDER LOCAL ANAESTHESIA

THE best results in the treatment of fractures are only to be obtained after the displacement of the fragments has been corrected, but such correction is often prevented by the reflex muscular spasm or the pain which manipulation causes. In a recent paper in the *Journal of the American Medical Association*¹ Dr Carl O. Rice of Minneapolis advocates the use of local instead of general anaesthesia for the immediate reduction of fractures of the lower part of the forearm. The objections to inhalation anaesthesia in emergency cases are well known. Chief among them is the unpreparedness of the patient, who may not have the empty stomach which is indispensable for the administration of chloroform or ether, and preferred for the inhalation of nitrous oxide gas. Dr Rice says that at the Minneapolis General Hospital fractures of the forearm are seen almost every day, so that a fair field is there offered for a trial of new methods or of old methods revived. As long ago as 1885 J. R. Conway, jun., advocated the use of cocaine as an anaesthetic in fractures and dislocations in an article published in the *New York Medical Journal*, but although that drug or one of its substitutes has been employed for this purpose here and there ever since, its use has not become general. As already stated, Dr Rice has found local anaesthesia very useful in a well-equipped general hospital, but it seems probable that its advantages will be still more evident to the general practitioner, who must often have to deal with

Colles's or other fracture of the forearm single-handed without skilled assistance, in circumstances which preclude the use of a general anaesthetic. To all such the precise directions which are given in Dr Rice's paper should be valuable. The method he favours is that of circular conduction anaesthesia, whereby all afferent stimuli are cut off from the sensorium by a zone of procain (novocain) hydrochloride injected close to the bone. The solution recommended is of the strength of 1 per cent, containing "one drop of epinephrine solution per drachm." In the case of the radius—which alone is dealt with in this paper—the whole circumference can be injected through two punctures, by one of which the anterior and outer surfaces can be reached and the posterior surface by the other. It is obvious that the ulna could be anaesthetized with equal ease by a similar procedure. Some 4 or 5 c.c. of the anaesthetic solution is also injected below the fractured surface of the bone. The amount of 1 per cent procain hydrochloride solution used has varied in the cases reported from 15 to 60 c.c. Generally speaking, Dr Rice prefers the smaller quantity, which should be sufficient to produce anaesthesia without obscuring the bone-ends by swelling. Thirty minutes is allowed for the anaesthetic to take effect. Should, however, a second manipulation be found necessary the injection should not be repeated until several days after the first one, for, owing to swelling, it is unlikely to be effective. The ease with which reduction is effected is said to be surprising. So far Dr Rice has treated fifty cases in this way, seven of which are reported in full, including fractures of both bones, as well as typical cases of Colles's fracture and of displaced epiphysis. There is nothing very new in this method, but it is as well that attention should be recalled to it, for it is simple, safe, and efficacious.

REPORT OF THE MINISTRY OF HEALTH VACCINATION COMMITTEE.

IN February, 1926, a committee was appointed by the Minister of Health, in conjunction with the Medical Research Council, to consider matters relating to the preparation, testing, and standardization of vaccine lymph, the practical methods available for diminishing or removing any risks which may result from vaccination, the most appropriate methods of vaccinating in epidemic and non-epidemic periods, and to co-ordinate investigation of these questions in this country and abroad. We have just received the report¹ of this committee, to which further reference will be made in a subsequent issue. One or two outstanding points, however, deserve mention at once. The pathology of encephalo-mylitis occurring in the course of virus disease and the exanthemata was discussed in the Section of Pathology and Bacteriology at Cardiff on July 25th, and a summary appears at page 202. It is therefore interesting to note that in the report just issued it is stated that the available evidence acquiesces vaccine virus of being the sole cause of encephalitis, though vaccination cannot be exonerated from playing some part in its etiology. The committee declares its belief that "the co-operation of vaccine with the viruses of poliomyelitis or of encephalitis lethargica, or possibly some unknown neurotropic virus harboured by a vaccinee must for the present be retained as a working hypothesis of causation pending further research into the nature and properties of neurotropic viruses in general." Among the recommendations is one that in order to promote the acceptance of vaccination the customary four insertions of vaccine should be replaced by one and that multiple scarification should not be used, though vaccination by multiple insertions should be made available for those who desire to obtain at one operation the maximum protection against small pox.

¹ June 2nd 1928 p. 1768

¹ London: H. K. Stationery Office, 1928. Price 7s. net.

PARENTHOOD AND BIRTH CONTROL.

IN reviewing, in the *Journal* of March 12th, 1927 (p 475), a book entitled *Medical Views on Birth Control* we concluded by recommending it to "all those, medical or lay, who wish to be acquainted with the facts and to be helped to form a reasonable opinion upon a very difficult and important subject." The final conclusion of all the distinguished medical writers whose essays composed that book was adverse to the practices about which they had been arguing. We think it right, therefore, to direct attention to another booklet by a medical man, whose identity is properly undisclosed, entitled *Parenthood Design or Accident?*¹ in which the opposite conclusion is heartily commended, but in regard to which we can with equal sincerity use the words quoted above. There is a preface by Mr H G Wells, in which he says of the book that "it is written extremely clearly and well," that it is "right-minded and well done," that it is "never vague, sloppy, lyrical, nor shamefaced." Whether its thesis be accepted or not, there may be general agreement that these commendations are not undeserved, and it may be agreed further that "people who do not want to practise birth control—and some very good reasons exist for restraint in its employment—people particularly who want to oppose it altogether ought to possess the minimum of lucid knowledge here conveyed." The booklet or pamphlet is, in fact, the most moderate, clear, and useful presentation of the case for birth control that we have seen. It is published under auspices which seem to be directly or indirectly associated with the Labour Party, but while its special appeal is evident this does not really vitiate the exposition or the argument, except in so far as the last few pages are concerned with the internal question of whether that party should come to a definite official decision on this subject. The statements of the book are so logically made throughout that it may be worth while to point out two or three instances in which the full consequences of the arguments are just shirked, or in which certain of their bearings are avoided. The author deals with the suggestion that the use of contraceptives may result in the production of sterility, and he properly asks for evidence, especially for statistical evidence, that in fact it does so. He triumphantly concludes with the statement "There is no evidence that birth control produces sterility, no couple need be deterred from practising birth control for fear that it will prevent them having children when they want them." He cannot, however, properly stop there, his conclusion is not established, his case at the best only half proved. It is equally incumbent on the supporters of birth control to produce the statistical data required and to show from them that sterility is not so produced. In the absence of such evidence the proposition that sterility must be produced, or is usually produced, by the prolonged use of contraceptives is not proved. It remains equally true that this may be the case, and therefore the fear of it cannot confidently be dismissed by those practising methods for the control of conception. Again, dealing with the argument that a wide knowledge and practice of these methods would lead to men and women becoming "less restrained in the expression of their sexual desire," and so to increased illicit intercourse, he replies that conduct is not virtuous when it is produced by fear. "There is no virtue in refraining from sexual intercourse through fear of undesired consequences." Even this may be arguable, but should the soundness of the argument be admitted on the ethical plane, it can scarcely be admitted on the social, for, except in certain communistic circles, an increase in illicit sexual intercourse would admittedly entail un-

desirable consequences. Further, there seems to be some inexactness as to what is disallowed by authority in county or municipal maternity clinics. "In this matter all help or information is taboo" is the statement, but while it is true that any general teaching or demonstration of birth control methods is forbidden, it does not appear that advice on this matter in individual cases in which it is medically justified would be interfered with. In a book of the general character of that under review it is a pity to discover any overstatement of its case. The best advice we can give is that both the publications mentioned in this note should be read together.

DIRECT REPRESENTATION ON THE GENERAL
MEDICAL COUNCIL.

ON Monday, July 23rd, the Representative Body of the British Medical Association adjourned at 12.30 p.m. to enable the representatives of English and Welsh Divisions to hold a special meeting for the selection of two candidates at the forthcoming by-election of direct representatives on the General Medical Council. It will be remembered that on receiving notice of the vacancies caused by the death of Dr J A Macdonald and by Sir Robert Bolam's resignation of office as direct representative on his nomination to represent the University of Durham, the Medico Political Committee circulated a notice to all Divisions in England and Wales advising them of the vacancies and requesting them to call meetings of the whole profession in their several areas for consideration of the matter. The list of nine names presented to the special meeting of English and Welsh representatives at Cardiff was the result of the nominations received from these meetings of the profession. The representatives themselves were instructed by the Divisions as to their vote, and the two candidates chosen, Drs J W Bone and E K Le Fleming, will in due course be put forward as the Association's candidates at the by-election in October.

FOOT AND MOUTH DISEASE.

THE third progress report¹ of the Foot-and-Mouth Disease Research Committee has just been issued. Owing to the pressure upon our space this week in consequence of the Annual Meeting more than a brief announcement is not possible, but we hope in an early issue to consider the report at greater length. This Committee, which was appointed in 1924, published its second progress report rather more than a year ago, and in referring to it on March 5th, 1927 (p 438), we expressed the hope that the time would come when the eradication of this scourge would be by means of the hypodermic syringe rather than the pole-axe. The present report indicates that some slight advance in this respect can be recorded, though, unfortunately, the virus—whatever its nature—seems to have very little ability to immunize for longer than about six months. It is now possible, however, to distinguish between an animal which has recovered from an attack and one which has not suffered, this suggests that the way may be opening for more efficient methods of controlling the infection.

THE contributors to the Fernier Memorial Fund met on July 18th under the chairmanship of Sir Charles Sherrington, and resolved to invite the Royal Society to accept the sum of £1,000 in trust to found a David Fernier Memorial Lecture. It was further decided that the balance of the fund shall be applied as seems best when the total contributions are known. The fund will be closed on September 30th. The honorary treasurer is Dr W Aldren Turner, 18, Harley Street, W 1.

¹ *Parenthood Design or Accident?* A Manual of Birth Control By Michael Fielding. Preface by H G Wells. London: The Labour Publishing Co. Ltd. 1928. (4 x 7 pp 86 illustrated. Paper cover 1s. cloth 2s. 6d.)

LEAD TETRA-ETHYL IN MOTOR SPIRIT

INTERIM REPORT OF THE COMMITTEE OF INQUIRY

THE Departmental Committee on Ethyl Petrol, appointed by the Minister of Health on April 2nd to inquire into the alleged danger to health arising from the use of this type of motor spirit, issued an interim report¹ on July 27th, in which it is stated that the Committee has concluded that there are no reasons for prohibiting the use of ethyl petrol, so long as certain precautionary measures are maintained. The terms of reference of the Committee were as follows:

To inquire into the possible dangers to health resulting from the use of motor spirit containing lead tetra-ethyl or similar lead containing compounds and to report what precautions, if any are desirable for the protection of the public or of individuals in connexion with the use or handling of such motor spirit.

Sir Frederick Willis, who was until recently chairman of the Board of Control, is chairman of the Committee, which is composed of the following members:

Departmental Representatives—Ministry of Health: Sir George Buchanan, G.B., M.D., Home Office; Dr J. G. Bridge, F.R.C.S. (Senior Medical Inspector of Factories); Air Ministry: Mr D. R. Pyc, M.A. (Deputy Director of Scientific Research); Medical Research Council: Sir Charles J. Martin, C.M.G., D.Sc., F.R.S.; F.R.C.P. (Director of the Lister Institute); Government Chemist: Sir Robert Robertson, K.B.E., D.Sc., F.R.S.; War Office: Major W. R. Galway, O.B.E., M.C., M.B. (Director of Experiments in the Chemical Warfare Department); Department of Scientific and Industrial Research: Dr C. H. Lander, D.Sc. (Director of Fuel Research).

Non official Members—Mr A. Chaston Chapman, F.R.S., F.I.C.; Sir William Willcox, K.C.I.E., G.B., M.D., F.R.C.P.; Professor W. E. Dixon, M.D., F.R.S.

The Committee held four meetings in public and heard evidence from representatives of the producing and importing companies and of the United States Public Health Service, and from other authorities. The members had the advantage of a conference with Surgeon General Cumming, head of the United States Public Health Service, which during the past three years has given a considerable amount of attention to the investigation of the question now under review in this country. In their efforts the Committee had at their disposal the results of the exhaustive inquiries carried out in America by a committee appointed to determine what health hazards, if any, were involved in the retail distribution and general use of lead tetra-ethyl gasoline as an automobile fuel. After reviewing the work upon which the United States Committee based its conclusions, and considering the experience gained since the British Committee has reached the view expressed above.

Need for Precautionary Measures

The comment is made that certain safety measures are necessary, these, however, are already being observed by the vendors of ethyl petrol, which is the only motor spirit on the market containing any lead compound. The Committee expresses its general conclusions, and summarizes its work in the following terms:

Although there is no evidence to show that the use of ethyl petrol as a motor fuel involves more dangers to health than the use of ordinary petrol, we think for the time being the precautions indicated in the regulations suggested by the United States Committee are desirable. In particular we wish to emphasize the warning that ethyl petrol should be used only as a motor fuel and not for such purposes as cooking and cleaning. No regulations have actually been made in the United States as regards the distribution of ethyl petrol but careful observance of the regulations recommended in regard to notices to the public—the labelling of cans and pumps, the distribution of leaflets, and the dyeing of the substance red as an additional check against its use otherwise than as a motor fuel—has been secured by the terms of the contracts between the proprietors of the fuel and the retailers. Sales in this country are governed in the same way and we do not desire to recommend any legislative action so long as the terms of the contract are maintained.

Four sets of regulations were suggested by the United States Committee, these related to (1) the manufacture of lead tetra-ethyl and the blending of the latter with other

materials to make ethyl fluid, (2) the mixing of ethyl fluid with petrol, (3) the distribution of ethyl petrol, and (4) the ventilation and cleansing of garages, etc., irrespective of the use of ethyl petrol.

Safeguards in Mixing Ethyl Petrol

The report states that the manufacture of lead tetra-ethyl or its blending to make ethyl fluid is not undertaken in this country, but the Committee understands that its manufacture in the United States is carried out in accordance with the regulations referred to above. Ethyl fluid is imported in drums from America and is mixed with petrol at nine stations in this country. The Committee visited one of these stations and is satisfied that the precautions suggested by the United States Committee are observed in all respects, and that the arrangements are such that the health of the workers at these stations is fully safeguarded.

It is pointed out that adequate ventilation of all garages, whether or not ethyl petrol is used, is a matter of considerable importance, and that the danger from carbon monoxide in an unventilated garage is very serious.

Dealing with the events which led to the inauguration of these inquiries, the report explains that ethyl petrol consists of a mixture of petrol and ethyl fluid, the ethyl fluid being composed of lead tetra-ethyl, ethylene dibromide, and mono-chloronaphthalene. The amount of ethyl fluid added varies according to the nature of the petrol, but in no case does the amount of lead tetra-ethyl in ethyl petrol sold for ordinary commercial purposes exceed 1 part in 1,300 parts by volume, or about 1 in 650 by weight. "Lead tetra-ethyl," it is stated, "is a very poisonous substance, and its manufacture, its blending with other materials to produce ethyl fluid, and the mixing of the latter with petrol, must be carried out with very great care." The absence of due precautions at first in the manufacture and handling of lead tetra-ethyl was the cause of a number of deaths in the United States in 1924, this occurrence leading to the institution of an official inquiry in that country. These deaths, however, were in no way attributable to the use of the diluted mixture sold as ethyl petrol.

The investigations carried out in the United States proved that drivers of cars using ethyl petrol showed no definite signs of lead absorption after exposures approximating two years. In the case of garage employees and similar workers it was found that they might show evidence of lead absorption and storage, and that the amount was somewhat increased where ethyl petrol was used. The effect, however, was slight in comparison with that shown by workers in other industries where there was a severe lead hazard, and for the periods studied was not sufficient to produce detectable symptoms of lead poisoning. It was further revealed that in the regions in which ethyl petrol had been used to the greatest extent for a period of between two and three years no definite cases had been discovered of recognizable lead poisoning or other disease resulting from the use of ethyl petrol. In view of these conclusions the United States Committee reported that there were, at the time, no grounds for prohibiting the use of ethyl petrol, of the composition specified, as a motor fuel, provided that its distribution and use were controlled by proper regulations. Subsequent inquiries, which are still being continued, have not so far detracted from the validity of these conclusions.

Fear of Cumulative Effects

The fear of danger to health arising from the use of ethyl petrol is mainly due, the report observes, to the recognition of the lipid solubility and peculiar toxic qualities of lead tetra-ethyl and of the cumulative effects of lead. It is also feared by some that harmful results may occur and may not be evident until many years hence. The insidious nature of chronic lead poisoning is such that some of our witnesses have raised the question whether an experience of even three or five years would be sufficient to give practical value to a conclusion that there is no demonstrable risk. Spread over a still longer period they argue some form of lead poisoning may yet result, possibly a specific form not ordinarily associated with lead, and this possibility must be taken into account. In regard to this contention we have been impressed by the reassuring fact brought out by the United States inquiries that garage workers who have been

¹ Cmd. 3159 London: H.M. Stationery Office or through any book seller. 1928. 4d. net.

² Reports of the proceedings were published in the *British Medical Journal* on May 5th (p. 770), May 19th (p. 871), June 16th (p. 1053) and June 23rd (p. 1073).

handling ethyl petrol continuously for between four and five years, though subjected to close and frequent medical supervision, have shown no signs of lead poisoning.

Investigation to Continue

The concluding paragraph of the report indicates why the Committee has deemed it necessary to issue an interim report, and explains that, having taken this step to reassure the public, it is proposed to proceed with further investigations. The Committee states:

Having regard to the somewhat alarming statements made in the House of Lords and in the press it has seemed to us desirable to make this interim report and to publish the evidence which we have taken. Owing to the small consumption of ethyl petrol in this country it would be impossible at present to embark upon an extensive examination of human subjects, and in view of the scope and thoroughness of the investigations of this type made in the United States we consider it would be superfluous to do so. The value of such work is in proportion to the length of time it has been carried on and in this respect any investigations in this country would necessarily fall short by three years of the United States investigations, which are still being continued. We have, however, decided to make some investigations with a view to confirming certain points in the work carried out in the United States and possibly elucidating some points which are not covered by that work.

England and Wales.

Epsom College

THE seventy-fifth anniversary of Founder's Day was celebrated at Epsom College on July 28th. During the past year the five courts have been renovated, and a new one added, the swimming bath is being improved, and a system of daily disinfection has been introduced. Towards the erection of the new sanatorium more than £5,000 has been received, and it is hoped that the receipt of further donations will soon enable a start to be made with the building, the plans for which have been approved. Together with the valuable structural additions, such as the chapel, chemical laboratory, class rooms, and cricket pavilion, to which reference has been made previously in our columns during the last five years, there has been a considerable augmentation of the scholarships which enable the sons of medical practitioners to be educated at the school and to receive subsequently assistance in medical training at certain London hospitals. The headmaster, Mr. A. C. Powell, in his annual report described the outstanding features of a very good year's work. The number of successes in previous years in the London University school examinations had been surpassed, and it was clear that the already high standard of education in the College was being raised still further. A senior open classical scholarship had been won at Pembroke College, Oxford. Mr. Powell mentioned also successes in athletics and shooting and added that a very good report had been received on the O.T.C. He referred with gratitude to the substantial increase in scholarships open to Epsom boys, and notably to those made available recently at St. Thomas's and Charing Cross Hospitals. Lord Riddell, who gave away the prizes, addressed the large audience on the subject of "verities," which had not changed since the teaching of Hippocrates had defined them. They included devotion to truth, the recognition of the importance of training in observation and method, and retention of a view of the main objective, together with honesty of purpose and the use of tact. Dr. Raymond Crawford, in a brief witty speech, thanked Lord Riddell for his address. The usual cricket match with a team of old boys was a popular item of the programme, and the band of the 1st Battalion of the King's Own Royal Regiment played a selection of music. In the evening an excellent choral performance of *Iolanthe* was given by the College Musical Society.

The Interpretation of Vital Statistics.

Lord Cozens-Hardy, chairman of the St. Helens Insurance Committee on July 24th gave a report on the vital statistics of the borough for 1926, which, besides possessing considerable local interest, served to illustrate the misleading results which may follow from a comparison of 'over all' death rates for populations not identical

in age composition. He pointed out that the true relative mortality in St. Helens, as compared with England and Wales, could be ascertained only by making a separate calculation for each age, he had therefore divided the total population of 110,000 into males and females and into their respective age groups, comparing the figures with the corresponding figures for the whole country. Taking the English Life Table No. 9 (contained in the Registrar-General's Decennial Supplement last year) he then calculated the "expected" number of deaths in St. Helens for each age-group in 1926, comparing with this the actual number of deaths recorded. The result showed that the number of deaths under 5 years in St. Helens was higher than the standard (for England and Wales) by 30 per cent for males and 24 per cent for females, for ages 5 and over, males were 13 per cent and females 15 per cent higher than the standard. Lord Cozens-Hardy stated that, observing that the over-all death rate in 1926 in England and Wales was 11.6 per 1,000, and in St. Helens 12.0 per 1,000, many people had thought that the death rate in St. Helens was only about 3 per cent too high. This comparison was misleading owing to differences in age distribution, the "expected" over-all death rate in a population with the St. Helens distribution of age, if the death rate at each age were in accordance with the life table mentioned, was 10.2 per 1,000, which indicated that in 1926 the St. Helens death rates were 18 per cent higher than the rates for England and Wales as a whole. Analysing the chief causes of death in a similar fashion, Lord Cozens-Hardy stated that the male death rate from pneumonia was no less than 59 per cent above standard, from bronchitis it was 46 per cent too high, from congenital debility, etc., it was 37 per cent too high, and from tuberculosis 7 per cent too high. For heart disease St. Helens was 2 per cent, and for cancer 15 per cent, better than standard. These six causes were responsible for more than half the male deaths in St. Helens, and the male death rate from them, taken together, was 20 per cent higher than the standard for England and Wales. The figures given, the speaker concluded, did not pretend to be absolutely accurate, but they might be taken as giving a fair picture of the position.

Notification of Mentally Deficient Children

The Board of Education has issued a draft of the proposed new regulations for the notification of children under the Mental Deficiency Acts, the revision of the regulations has been made necessary by the passing of the Act of 1927, amending the Act of 1913. It is intended that the new order, the Mental Deficiency (Notification of Children) Regulations, 1928, shall come into force on October 1st. An important modification is the withdrawal of the requirement (imposed by the 1914 Regulations, now repealed) that every proposal to notify a child who is not either an idiot, an imbecile, or a moral imbecile must be referred to the Board. The regulations cover cases in which the certifying officer (the school medical officer or other practitioner appointed for the purpose) has certified that a child of 7 years or upwards is incapable by reason of mental defect of receiving benefit or further benefit from instruction in a special school or class or is mentally defective and cannot be instructed without detriment to the interests of the other children. In such cases the local education authority is required normally to notify the name and address of the child to the local authority under the Mental Deficiency Act 1913, furnishing the local authority with copies of the certificate and report of the certifying officer. In cases in which, upon consideration of the reports of the certifying officer and of teachers or others, the local education authority is in doubt as to the capability of the child, the education authority is required to refer the matter to the Board before notifying the child. If it is proposed to notify a child who is blind or deaf the case must also be referred to the Board. It is further provided that if the certifying officer reports that a child is not incapable by reason of mental defect, etc., and the education authority is satisfied that it is desirable that the child should be placed under supervision or guardianship or sent to an institution, the Board may authorize

the notification of the child. Local education authorities are instructed to notify to the local authority under the 1913 Act the name and address of any mentally defective child who, on or before attaining the age of 16, is about to be withdrawn or discharged from a special school or class, and in whose case the education authority is of opinion that it would be to his benefit to be placed under supervision or guardianship or sent to an institution. The parents of children affected by the regulations must, it is laid down, be informed by the education authority of any action it is proposed to take in this connexion.

Following-up by Almoners' Departments

The report of the lady almoner of the Royal London Ophthalmic Hospital, Moorfields, on the work of the social service department during 1927, contains an interesting account of an investigation into the results of sending certain children to the Metropolitan Asylums Board's Ophthalmic Schools at Swanley. During the years 1924 and 1925, fifty children, suffering from diseases of the cornea, conjunctiva, and eyelids, were transferred from Moorfields to Swanley. Only twelve of these children had been ill for less than six months, and some had been out-patients for years. The average stay at Swanley was seven months. After allowing a year to elapse, the almoner had each patient visited at home. It was found that 70 per cent of the patients had been cured by one period of residence at Swanley, 8 per cent relapsed but were cured by a second course, 16 per cent relapsed after three to eight months, and underwent further prolonged treatment at hospital, three of the fifty were still at Swanley at the end of 1927. Such well organized following-up of cases by almoners' departments would be of great value in other directions, such as some surgical procedures, and tuberculosis. These departments are particularly well fitted to undertake inquiries of this nature.

Ireland.

Fermanagh County Hospital

THE committee of the Fermanagh County Hospital received recently a deputation from the county Fermanagh medical practitioners. Dr Leonard Kidd, medical officer of the county hospital, stated that the hospital committee had received a letter from the Ministry of Home Affairs asking for comment on a letter of complaint which had been received to the effect that deaths of mothers and children had occurred for want of proper provision being made for their care and nursing. Dr Kidd remarked that this allegation was serious. He had read recently that the total sum spent by the district councils in Fermanagh on maternity and child welfare was £120, a very inadequate sum for the care of the fathers and mothers of to-morrow, the makers of the nation to come, in comparison with the amount spent on the care of bees and hens, on sheep dipping, on the proper raising of turnips and carrots, and the prevention of weeds. Maternity wards were urgently necessary, there was no place in the county for a woman requiring obstetrical treatment in an institution unless she became a pauper and went to the workhouse. Such a problem in Fermanagh was much more important than raising money for the provision of maternity wards in Belfast. Dr Kidd added that some of them might live to see the putting into force of the Poor Law Commission's report, but in the past many commissions' reports had been only noted and pigeon holed. He had authority for saying that the Northern Government, which had received the commission's report seven months previously, had now appointed another commission to examine it and to advise the Government. A special committee was appointed to consider the question raised by Dr Kidd.

A Hospital Patient's Injury

Judge Wakely, in the Circuit Court last May, awarded £60 in the case of Mary Mulrennan a minor suing through her father, against the Board of Health, King's County. The action had been brought to recover damages for

personal injuries sustained by the minor plaintiff while under treatment in the hospital at Tullamore for appendicitis, one of her feet, it was alleged, had been burned by a hot-water bottle placed in her bed by a convalescent patient while the plaintiff was in an unconscious condition following a successful operation. The County Health Board appealed against the decision of Judge Wakely and a reserved judgement was delivered, dismissing the appeal by a majority (Mr Justice FitzGibbon dissenting). The Chief Justice, delivering his own judgement and that of Mr Justice Murnaghan, said that arrangements were made to admit the plaintiff to the hospital, an agreement being made to whereby she was to pay 4s a week. The jury found that the defendants were guilty of negligence or breach of duty in the care and maintenance of the patient, and that the negligence was by reason of an insufficient staff. In their opinion, the jury were entitled on the evidence to hold that the hot-water bottle was negligently placed in the patient's bed, and that the absence of nurses, due to an insufficient staff, was the cause of the injury. Considering the legal consequences that followed from these facts in regard to the powers and duties of the defendants, the Chief Justice said that the plaintiff was not in the position of a pauper or poor person eligible to receive treatment as provided by the legislation giving sanction to the county scheme. The jury found that the plaintiff was received under contract to be cared for and maintained, and the Board of Health was empowered to contract for the admission of paying patients in the county home, subject to such regulations and conditions as might be approved by the Minister. The defendants had not made out allegation that they had exceeded their powers by entering into the contract or that at the time of the bargain they had exempted themselves from providing proper treatment and accommodation. At the trial of the action the defendants sought to make the case that the plaintiff must establish a statutory duty on the defendants to have sufficient nurses. For the reasons that he had stated, the duty was not a statutory duty, but was based upon express contract, there was abundance of evidence that the contract was broken, and in their opinion the appeal should be dismissed. Mr Justice FitzGibbon in his judgement, said that he could not accept the view of the facts or the law as stated in the case. The staff of the hospital had been approved by the Minister, and the defendants had no power to exceed it. There was no suggestion that the attendants were not properly qualified, and, in his opinion, the defendants had no power to contract that they would supply at the expense of the rate-payers a greater measure of accommodation to a paying patient than they had power to supply to poor persons. He could see no ground for awarding damages in this case. In his opinion the action should be dismissed.

Correspondence.

DISTRICT CO-ORDINATION OF HOSPITAL SERVICES

SIR,—It seems an immense pity to start our campaign of co-ordination and unification of hospital services by insisting that one system is the better and must therefore put the other under its heel—would it not be preferable to seek at once both the spirit and method of co-operation? I write to suggest a method which, although local conditions will vary greatly, might have some application in one district or another, or at any rate which conveys what I think must be the right outlook.

We want to keep the voluntary hospitals—both large and small—and the spirit that animates them, but we need not look far to find great work done in State departments of medicine. We have also to remember that the clinical field will have to be adequately staffed wherever it may be—whether in a voluntary, county council, or Poor Law system. Let us suppose that the co-operation, or even unification, of hospital services is decided on for some more or less self-contained district or area—say, for example,

ono of the suburbs of London. This area is likely to contain a fair-sized voluntary hospital, one or two biggish Poor Law hospitals, and a number of smaller institutions run on the cottage hospital system. The most centrally situated hospital, which for preference will be the largest of the group, should, for obvious reasons, take the bulk of the out-patient and ambulatory work, and function as a central general hospital. The smaller hospitals should retain their voluntary capacity and keep their local patriotism by setting aside some part of their accommodation for urgent local cases. With the remainder of their beds they would specialize in some branch of medicine or surgery, undertaking this specialty for the whole area. This would be their contribution to the scheme, what they gave in this way they would receive back in different departments from other special units.

So far as government is concerned, there would have to be a central governing body compounded of all interests concerned, including local practitioners, and with a general director of the service acting under it. Each hospital unit should keep its autonomy and local government. There should be a unified visiting staff for the whole area made up in the first place of the combined visiting staffs of the associated hospitals. Subsequent appointments would be made by the central body to the district hospital service, rather than to the individual hospitals. A system of rotation of nursing staffs throughout the district hospitals would be possible, so that all nurses would be fully trained. The scheme might be aided by the co-operation of local practitioners as a form of post-graduate study, and in selected cases a post-graduate medical college would have ample scope. (These points I have dealt with at length in a previous communication to the *Journal* on May 28th, 1927, p. 985.)

The question of finance is beyond the scope of this letter, and, though it is obviously a crucial point, it is of no significance in this aspect of the case, for it has to be dealt with in some way or another by whichever route we approach the subject. I am by no means convinced that such a scheme as I have outlined would be feasible or acceptable to the units, but it seems to me to put medicine and the good of the patient first, and to illustrate the spirit of co-operation and equality, rather than that of dictation. I may add that for myself I work under both voluntary and Poor Law systems—I am, etc.,

London W1, July 23rd. T H C BENJAMIN, F.R.C.S.

LEAD ETHYL PETROL

Sir,—The Departmental Committee has to-day issued its interim report, which endorses the verdict of the United States Committee that "there are no reasons for prohibiting the use of ethyl petrol." Thus it becomes almost certain that its final report will be similar.

Now does it follow that because careful expert inquiry can find no evidence of insidious damage to the public health resulting from lead ethyl petrol that no deterioration of health has resulted, or will do so? I think not, and for these medical reasons:

1 Ordinary lead poisoning can be recognized by the characteristic blue line, dropped wrist, and colic which it produces. Lead ethyl, being non-ionized, seldom or never causes these symptoms, but has an affinity for the nervous system. Severe poisoning can be recognized (by an expert) by stippling of the blood cells and by its effects on the nervous system, but for the detection of mild poisoning or slow cumulative deterioration of health there appear to be no tests available for doctors. The comforting statement that "no evidence of evil effects are to be found" is therefore valueless and misleading.

2 Doctors experienced in the old form of lead poisoning know its insidious cumulative effect, and will be very hard to convince that habitual inhalation of small doses of vaporized lead in garages and crowded streets is free from deleterious effects on our tissues, even if we cannot detect them by our present crude methods.

3 It is like the old fallacy—not yet extinct—that because an expert cannot detect consumption in a patient with the tests available we are entitled to say it is not there. We

know that it always exists (in a very curable stage) months before it makes recognizable noises in the lungs. It becomes a matter of definitions. If consumption is defined as a disease which makes noises in the lungs it is logically correct to deny its existence till it can be heard, though this attitude still sacrifices hundreds of lives. Similarly, if it is denied that lead ethyl poisoning exists till it can be recognized clinically, the reasoning is logical, but the public health will suffer in consequence of this lack of common sense. Recently I saw a man who for twelve years had been steadily inhaling silica dust at his work. For many years (probably ten) the slow poisoning would have been unrecognizable clinically, and yet it caused his death in thirteen years.

The matter is not only one of analysis and definitions, but also tests our sense of values. Are we to put a higher value on a slightly increased efficiency of our engines than on a certain—even if slight—impairment of the health, efficiency, and longevity of our exquisite bodily machinery? Even the prophetic vision of the author of *Erewhon* failed to anticipate the folly to which their idolatry of machinery would lead mankind. He would laugh (or weep) to see them feeding their engines with a deadly though diluted poison, and inhaling the gaseous excreta in garages and in the tall stagnant streets of their human ant-heaps.

Whether intentionally or not this interim report will serve as a kite by which the Government will judge which way the breath of public opinion blows. Whether they will accept lead ethyl with mock indifference or with blasts of indignation strong enough to compel its exclusion from this country (save perhaps for aeroplanes).

I believe that organized medical opinion is the last ditch in our defence against invasion by this diluted poison. It is part of the training of doctors to examine new discoveries (and the reports of experts on them) in the light of common sense. They know very well that lead in the system is not good for anyone, and that if let loose on an ignorant, careless public lead ethyl petrol will do harm, however many precautionary leaflets are printed. They alone know their powerlessness to diagnose mild poisoning by lead ethyl, and they should be consulted on the matter.

May I therefore venture to suggest that organized medical opinion (preferably the British Medical Association) should at once appoint a committee to scrutinize the evidence as it becomes available, so that when the final report of the Departmental Committee is issued they may possibly be able—without challenging the results—to point out that the clinical and medical aspects of this problem do not coincide with the scientific verdict? Thus it would sound almost stultifying for a Departmental Committee to report, "We find no evidence against lead ethyl petrol, but we nevertheless advise its exclusion from this country." But in the light of what I have written a medical committee would very possibly report in this sense—I am, etc.,

Hull, July 27th.

F C EVE, M.D., F.R.C.P.

HAEMATURIA AND INSULIN

Sir,—The apparent rarity of haematuria occurring in diabetic patients under insulin treatment is noted by Lawrence and Hollins in the *British Medical Journal* of June 9th (p. 977). The following case shows some points of contrast with the cases there detailed.

A boy, aged 5 years, was admitted to the Midland Hospital for Sick Children in April 1928. There had been no illness except chicken pox and measles at 2 years of age until two months before admission when he became poorly, lost weight, and had polyuria with glycosuria.

On admission on April 17th he was noted to be moderately wasted and had a strong odour of acetone. The urine contained 1.7 grams per cent of sugar, and gave a strong reaction for ketones. The blood sugar was above normal. There was no albuminuria or other abnormal urinary constituent. There were a few carious teeth but the tonsils were small and clean. There was no evidence of infection. His progress in hospital was very good, and his diabetic state was well controlled by dieting and insulin. Apart from the first twenty-four hours in hospital when he had 20 units of insulin he never had more than 10 units of insulin in twenty-four hours. On May 8th he was able to take an adequate diet without insulin. On May 10th the urine remained sugar free, but there was a slight positive Rothera's test. He had commenced to get up.

On May 11th at 8 a.m. whilst in bed the boy had profuse haematuria the urine being copious and heavily loaded with

bright blood. There were no symptoms or signs otherwise. The temperature (as usual) was quite normal. There was no renal or vesical pain or tenderness. The urine was moderately acid to litmus, contained a cloud of albumin, and no sugar. A slight ketosis was present.

Microscopically, there were very numerous red blood cells, but no epithelial or blood casts. Successive specimens of urine passed during the day showed a rapid progressive diminution in the amount of blood in the urine. At 6 p.m. on the same day the specimen was practically normal to the naked eye, but a haze of albumin was present together with a few red blood cells. The blood pressure was 105/60.

Two days later the urine was quite free from albumin, and no abnormal elements were present microscopically. The boy went home a few weeks later, and no further haematuria occurred.

The points of peculiar interest in this case are (a) That the haematuria was extreme but of very short duration (b) The rapid return of the urine to the normal (c) The haematuria occurred two days after the last dose of insulin (d) There was at this time only a slight ketosis.

I do not propose to discuss the true relationship of the haematuria, but I thought perhaps the former writers and their critics might be interested in the case. In accordance with Dr Lawrence's remarks the benign nature of the urinary abnormality is apparent also in this case—I am, etc.,

Birmingham.

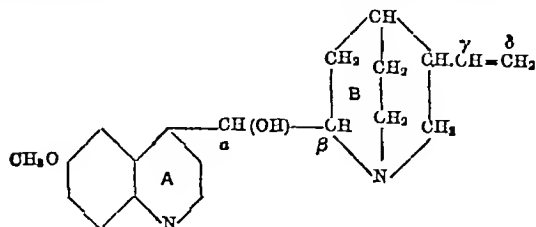
A V NEALE

THE MECHANISM OF BLACKWATER FEVER

SIR,—I was greatly interested in the recent communication by Professor D B Blacklock and Dr G Macdonald, in the *Journal* of July 28th (p 145), which makes it perfectly clear that sarcolactic acid by its haemolytic properties and its production in blackwater fever is closely connected with the mechanism of the disease. It is obvious, however, and thus in spite of the arguments brought forward by these authors on page 147 that sarcolactic acid by itself does not account for the precipitation of blackwater fever by quinine. In this latter case I have shown¹ that urines of thirteen cases of blackwater fever examined by me contained large quantities of a strongly haemolytic disintegration product of quinine to which I have assigned the name "haemoquinic acid." Like sarcolactic acid, haemoquinic acid is normally present in the organism (after the administration of quinine), but only in very small quantities, the ratio found being

Haemoquinic acid in blackwater fever urines	578
Haemoquinic acid in malarial urines	1

The production of haemoquinic acid in large quantities in blackwater fever thus accounts as much for the haemolytic phenomena of this fever as does sarcolactic acid. Like sarcolactic acid, haemoquinic acid is an oxidation product, the latter being derived from quinine through the fission of the two nuclei A and B. This process takes place between the two carbon atoms α and β , and is followed by oxidation, the α carbon atom being oxidized to a carboxyl group



However, the production of haemoquinic acid from quinine is of a highly specialized character, which is probably subordinated in the case of malaria, since quinine when oxidized by administrations in animal experiments,² by emulsions from guinea-pig and ox liver,³ and by hydrogen peroxide,⁴ only yields quinine, no haemoquinic acid being produced. Here the oxidation proceeds

on quite different lines, the two γ and δ carbon atoms and not two α and β carbon atoms being attacked.

These specific oxidizing properties of the organism prone to blackwater fever are probably due to specialized oxidases, the action of which may be described as an idiosyncrasy, but which have to be taken into consideration. They form, in my opinion, a very important factor in the mechanism of blackwater fever if viewed either from the point of the formation of sarcolactic acid or from that of haemoquinic acid.

May I, in conclusion, be permitted to quote from Sir David Bruce? In a letter to me, dated April 8th, 1919, Sir David wrote as follows: "Blackwater fever is one of the most interesting conundrums. I suppose as knowledge grows light will be thrown upon it, and I hope that your haemoquinic acid is a particularly bright streak." The discovery of sarcolactic acid as applied to blackwater fever by Blacklock and Macdonald is such a bright streak—I am, etc.,

M. NIERENSTEIN, Ph.D., D.Sc.,

July 30th.

Lecturer in Biochemistry in the University of Bristol.

"ACTIVATED" FLUORESCIN IN INOPERABLE CANCER

SIR,—Will you kindly afford me the opportunity of removing a misconception which might arise in connexion with the brief reference to my paper in your report of the proceedings of the recent International Cancer Conference? Your reporter refers to "the enhanced effect of irradiation after painting the surface with activated fluorescein," whereas in fact activation is brought about by mild irradiation subsequent to the use of the fluorescein. A 2 to 5 per cent solution of the sodium salt is employed for painting the surface in the case of external growths, and, when necessary, the drug is administered internally in doses of 30 grains of the powder. Owing to the extreme diffusibility of the salt it suffices to give it by the mouth, thus avoiding the trouble of intravenous injections.

Within a few hours of giving fluorescein internally the whole surface of the skin takes on a yellowish coloration, which disappears again after a varying interval, elimination of the drug being mainly by the kidneys. It is also worthy of mention that the application of fluorescein to an ulcerated surface causes no pain, and further, that its internal administration has not given rise to any unpleasant symptoms—I am, etc.,

Brighton July 28th.

S. MONCKTON COPPEMAN

THE GUILLOTINE AND ETHYL CHLORIDE

SIR,—In reference to the article by Mr Sandiford and Dr Clayton (*British Medical Journal*, July 28th, p 149), when a gag is inserted before induction it is not always possible with a struggling child to "hold the lower teeth tightly against the gag." I found some years ago that a small piece of rubber (rectangular, with its lower corners rounded and a slit near its upper edge through which the lower plate of the gag is passed) will stay between the lower teeth and lip, so that nipping of the latter is prevented. May I draw attention to the importance of removing loose front teeth which are likely to be displaced by the gag or other instruments?

As an anaesthetist I wish every operator would use La Forge's adenotome for the main mass of adenoids. When a guarded curette is used even by a skilful operator, the mass may escape from it or tags may be left, and one may have to restrain or re-anaesthetize the child in difficult or dangerous circumstances. The adenotome, acting like a shovel and not like a hoe, brings the central mass cleanly away in a box—I am, etc.,

London W.W. July 30th

J. D. MONTIMER

HOSPITAL PATIENTS AND DOCTORS' LETTERS

SIR,—In these days when the sphere of the general practitioner is being encroached upon in so many and various directions by infant welfare centres, school and ante-natal clinics, and the like, it is rather disheartening, and I may say alarming, to find that the great London hospitals are

¹ War Office Observations on Malaria 1919 p 68 *Journ. Royal Army Med Corps* 1918, p 220.

² Gleason and Schanmann *Arch. f. Schiff- und Tropen Hyg.* 1907 p 84, and many other papers on the subject.

³ Lipkin *Ann. Trop. Med.* 1909 p 149.

⁴ Nierenstein *Biochem. Journ.*, 1920, p 572.

accepting one's patients for treatment without the time-honoured "doctor's letter"

Within my own practice of late I have heard of this happening in several instances, and this among patients who are quite capable of paying the moderate fees charged in this country for private treatment

Whilst making this protest I should fail in my duty if I did not acknowledge gratefully the magnificent work done by the general hospitals and the great help afforded to us as general practitioners in the treatment of those cases we refer to the hospitals

Surely the British Medical Association can use its influence to protect the mass of its members from this form of attrition. Let the hospitals refuse patients who present themselves for treatment unless they bear a letter from their private medical attendant—I am, etc.,

Sutton Surrey July 26th.

R H A RITCHIE

Obituary

SIR ARTHUR CHANCE, F R C S I,

Late President, Royal College of Surgeons in Ireland, and Royal Academy of Medicine in Ireland

WE have to announce with deep regret the death of Sir Arthur Chance, which occurred at his residence in Dublin on July 26th

Arthur Gerald Chance was born in Dublin in 1859. He was educated at the Catholic University, Dublin, and obtained the diplomas L R C S I in 1880 and L R C P I in 1881, being admitted to the Fellowship of the Royal College of Surgeons ten years later. While still comparatively young he won an outstanding position, and in the course of his professional career held many important offices, taking a leading part in affairs connected with medical education.

He was senior surgeon to the Mater Misericordiae Hospital and consulting surgeon to a number of other Dublin institutions, including Dr Steevens's Hospital, the Orthopaedic Hospital of Ireland, the Dental Hospital of Ireland, and St Michael's Hospital. From 1904 to 1906 he held office as President of the Royal College of Surgeons in Ireland, and during his tenure of that office he received the honour of knighthood. He was an honorary Fellow both of the Irish Royal College of Physicians and of the Royal College of Surgeons of Edinburgh, and was President of the Royal Academy of Medicine in Ireland from 1921 to 1924. For two periods, from 1892 to 1895 and from 1906 to 1915, he was surgeon-in ordinary to the Lord Lieutenant of Ireland. During the war Sir Arthur held a commission as colonel in the Army Medical Service, and from 1917 to 1920 was inspector of special military surgical hospitals in the Irish Command. He was at one time a member of the Senate of the National University. For some years he represented the Royal College of Surgeons in Ireland on the General Medical Council and the Dental Board, and was a medical visitor in lunacy under the Irish High Court. From 1919 to 1924 he served as a member of the first General Nursing Council for Ireland, having previously been chairman of the Irish Nursing Board, and in 1927 he was appointed a member of the Free State Medical Council on its formation. Sir Arthur Chance found time for active interest in the work of the British Medical Association, he had been vice-president of the Leinster Branch and held office as chairman of the Dublin Division in 1903-4.

A colleague writes: The reputation which Sir Arthur Chance enjoyed in the domain of surgery might be said to be world-wide, it was certainly European. His solicitude for the interests of his great profession never relaxed, and for many years he took an active interest in all matters that affected the welfare of even the humblest of his colleagues. The citizens of Dublin and the people of Ireland generally on many occasions recognized and appreciated his sterling worth, and King Edward VII put his seal on that approval when he knighted the famous surgeon in 1905. Sir Arthur was an indefatigable worker, and his devotion to his profession was such that his services

were at the disposal of patients at all hours of the day and night. His activities were particularly in evidence at the Mater Hospital, Dublin, of which for many years he was senior surgeon, it may be said that it was mainly due to his exertions and self-sacrificing labours that this noble institution attained to the eminence which it now enjoys. No complete record could ever be made of the many charitable and devoted acts which Sir Arthur Chance performed during his connexion with the hospital. His kindness to the poor was proverbial, and no deserving subject was turned away. He might, indeed, be well described as the poor man's surgeon.

In 1886 he married Martha, daughter of the late Daniel Rooney of Belfast, who died in 1891. In 1900 he was married to Eileen, daughter of the late Mr William M. Murphy, Dарты. He was the father of eight sons and five daughters. After the death of Mr William M. Murphy Sir Arthur Chance became one of the directors of the Independent Newspapers, and displayed characteristic energy and capacity in the duties of this office. In his zeal for the development of the publications of the company he always bore in mind the welfare of the staffs, and was ever kindly and considerate in his relations with the employees. He was an unsuccessful candidate in the election for the Seanad Éireann in 1925. He seldom appeared on public platforms, but on the rare occasions when he did speak in public he was effective, terse, and interesting in his utterances. Sir Arthur's brother, Mr P. A. Chance, who pre-deceased him, was a member of the Irish Parliamentary Party from 1885 to 1894, representing the constituency of South Kilkenny. The funeral, which was private, was held on July 28th after High Mass at Westland Row Catholic Church, Dublin.

Dr JOHN RANDLE, who died at Lagos, Nigeria, on February 27th, was one of the oldest practitioners of his race in West Africa. Born in 1855, he was a native of Sierra Leone, where he became a dispenser in the Colonial Hospital, being later employed in the same capacity on the Gold Coast before coming to Great Britain. He received his medical education at the University of Edinburgh, graduating M.B., C.M. in 1888. On his return to West Africa he was appointed an assistant surgeon in the Nigeria Medical Service, and as such served with the Jebu Expedition in 1893, leaving the service soon afterwards to commence private practice in Lagos, where he was successful in building up an extensive connexion. He was a member of the British Medical Association. Dr Randle played an active part in public affairs in Nigeria, and was at one time a temporary member of the Legislative Council. He had also served on a number of Government committees. The interests of his own people engaged his attention unceasingly, and he was at the time of his death president of the People's Union and of the Reform Club. He contributed largely to the funds of the Fourah Bay College to supplement a legacy given by his friend and colleague Dr Ohadijah Johnson for the introduction of the teaching of science, while the poor of his native village in Sierra Leone were the subject of an annual benefaction. His funeral was attended by a large number of his colleagues, including Dr D. Alexander, Director of Medical and Sanitary Services, Nigeria.

Universities and Colleges.

UNIVERSITY OF LONDON

At the June matriculation examination there were 168 successful candidates in the first division and 1109 in the second division, in addition, 48 took supplementary certificates in Latin.

UNIVERSITY COLLEGE

The following awards have been made in the Faculty of Medical Sciences:

Physiology: Sharper Scholarship T. Orden. Senior Class Prize (gold medal) L. G. Norman. Junior Class Prize (silver medal) K. K. Cohen and G. F. Donkerley (equal). Organic and Applied Chemistry: General Course (silver medal) E. A. Dovenish. Pharmacology: (silver medal) D. Davidson.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL

The following scholarships, etc., have been awarded

Raymond Geoch Scholarships J H Peel G H Nouns Burney Yeo Scholarship A B Stokes Burney Yeo Exhibitions G T Cook N M James Bowman Scholarship N C Lardt Pathology Scholarship J W Summerhayes Science Scholarship H Kinnear Senior Scholarship Todd Price Turner Prize D W S Kaye Jett Medical Miss H T Parker Laurillard Prize D H Haler Special Prize for Diseases of Children T V Crichlow Special Prize for Orthopaedic Surgery P C O De Silva

ST THOMAS'S HOSPITAL MEDICAL SCHOOL

The following scholarships have been awarded

William Title Scholarship (£25) Mr B Gilhott Entrance University Scholarship (£100) Mr L P Bon Entrance Arts Scholarships (£50 each) Mr H B C Carter-Loock Mr A B Dempsey Entrance Science Scholarship (£150) Mr H F Chard Entrance Science Scholarship (£50) Mr S J L Taylor

UNIVERSITY OF MANCHESTER

DR A D MACDONALD has been appointed Reader in Materia Medica and Therapeutics

QUEEN'S UNIVERSITY, BELFAST

DR A M DRENNAN, Professor of Pathology, Queen's University, Dundee, has been appointed to the Chair of Pathology

ROYAL COLLEGE OF PHYSICIANS OF LONDON

An ordinary meeting of the College was held on July 25th, when the President Sir John Rose Bradford, was in the chair

Membership

The following gentlemen were elected Members

Charles Nathaniel Armstrong M B Durb Ramananda Bandopadhyay M B Calcutta L R C P Philip Rayer M B Alford John Lawrence Edwards M B Camb. Frank Rex Fletcher M D Lond Robert Dick Gillespie M D Glasgow Frank Goldby L R C P Hamilton Hart-ridge M D Camb Thomas Howland M B Lond L R C P Horace Joules M B Lond L R C P Charles Ernest Kellett M B Camb Robert Mertins Bird Mackenna M B Camb L R C P Patrick Henry O Donovan M B Lond L R C P Ian Henry Kinnaya Stevens M B Lond L R C P Arthur Sewell Wesson M B Lond L R C P

Licences

Licences were granted to the following 167 candidates (including 31 women) who had passed the 11th Examination in medicine, surgery, and midwifery of the Examining Board in England

G Algeo J McAll Anderson W R Ashby Julia O H Avery G Ctrudo C Banks S Behrman W A G Bell A Bennett Mary Berkeley T H Bevell R P Blisla O H Blit E A Blackwood Kathleen L Bland J H Bond V G Horscough N J Boulton R V Bradlaw J V Broad Nellie Brown E O B Butler Beatrice A Butterworth E N Oulman Catherine F Cameron L A Canaco Maria H D Carr T H Carr B R Caygill Muriel G E Clark W A Clements Nellie Clifton Lillian M O Clorot Dorothy M Conyers T M Corcoran O J O Conn E Coorlin J H Crawford A T Crocher A M Connelman D W Currie T Dargor A Daniel H W Danks W P M Davidson E L F de Mel W F de Villiers P Dickman C J V Dohlin G H Dohner J F Doeherry W Ellis R O Evans A O Fisher Cecelia F Fox P H Fox E Fulford G H Garfield R J B Garrow E W Gilbert A G G Giespie Kelta Glenneen L Goddove S Goldman J P Gubbin J O Heather Kathleen M Henderson Connel K Henry Heon M Herbert Alice D M Hodge E E G Hopkin D R House L M Hughes E A Hunter M Jafar M K Jilani A W Johns S Kaul G H Kennett B Kettle G G King M L Krellmayer Nellie L Lanchester K E Lane T O Larkworthy E G Lawrence R R Leasing J O Leigh G Leighton G E Lewis I B Linsbury Kathleen M MacLaren G O MacVicker M J Maller F B MaLison H M Mikball Hermula M Mills L Minner W E Morton R H Morley L Morris L H Morris O N Morris J E Morton Millicent Moseley J H Moynihan B Natarajan L A Newton H G Nimbalter G P Nixon G W Oikpatri L G M Palmer W Watson Margaret E Parker M G Pearson A L P Peoney R L P Percgrine F Phillips J A Pocock H G Pritchard V L Robert A Rablnowitz R R Raine R J H Raites E A P Rawlings R G B Richmond D T Robinson J B Robinson W P Rice M V Sammi Eluned Saunders Christine F T Saville E H Sears H M Seln H Selby Brown H T Simmons W H Simonds D Sivachabramaniam Constance H Smith Edith J L Smith Elizabeth B Smith E H Buckle T R Stuart D M Stern R Ström-Olsen A R Sullivan A R Taylor J G Thwaites R Timothy W E Tooker G N Unnithan B T Utley L E Vine F H Ward D H Weston D B J Willeysekora P Wiles Glauys E Wilkinson G W Wilcox Enid M Williams L D Williams W A Wilson E W Winch H S H Wood J L M Wood Eisle E Wright T O Yip H D R Zecherpe

* Under the Medical Act 1876.

Diplomas

The following diplomas were conferred jointly with the Royal College of Surgeons

LARYNGOLOGY AND OTOLARYNGOLOGY—J Acomb N Attergale H K Baen N E H Box O H Carroll G D Maibontra T G Millar A A Miller G W Morey W J Robertson L Mol Steel D B Sutton M R Wedla

PUBLIC HEALTH—Dr R Bernhardt R A D J Bernhardt H P Billmoria H B K Colson A C Connell G J Davies O H Dharm M Farid F Harris G H Hayes Margaret Holdsworth D R Jandial Iris A Jenkin Lloyd Eva M Mathews E N Michaels Josephine W Nattel M A Nicholson F W Oldershaw D B Parakh Jess e L Robb Mary Schofield Beatrice M Smithes Josephine I Terry D L Tucker G R Waller

OPHTHALMOLOGY AND SURGERY—C H Aakroyd O H Bamford W J Chapman A L El Kirdani Charlotte E Fleher B B Ghosh J B Hamilton R J Harley Mason D B Jadaia D Katz G L Khirwadkar D G Kothbaskar F J Lavery H H Mahmood T M O'Neill F W G Smith A P Stewart J M Thomson A Walbank J Wood

The names of the recipients of diplomas in Laryngology and Otolaryngology and Physiological Medicine were printed in the report of the council meeting of the Royal College of Surgeons of England published in our issue of July 21st (p 136)

Election of Officers

The following officers were elected for the ensuing year—Censors Lord Dawson of Penn M D A P Boddard M D J S Collier M D and B A Young C B E, M D Treasurer Sidney P Phillips M D Registrar Raymond Crawford M D Harveian Librarian Arnold Chaplin M D Assistant Registrar E O Moon M D

Harveian Oration and Bradshaw Lecture

Sir Wilmot Herringham was appointed to deliver the Harveian Oration and Dr J A Arkwright the Bradshaw Lecture in 1929

The following lecturers were appointed Dr G E Still, FitzPatrick Lecturer for 1929 Dr R A Young Lomelan Lecturer for 1929 Dr E B Veruev, Goulstonian Lecturer for 1929 Dr F M R Walshe Oliver Sharpey Lecturer for 1929 the Right Hon H A L Fisher Lloyd Roberts Lecturer for 1929, Sir Charles Martin, Croonian Lecturer for 1930

Appointment of Representatives

Sir Humphry Rolleston was re-elected as representative on the Executive Committee of the Imperial Cancer Research Fund Sir Frederick Andrewes and Dr William Hunter were elected delegates to the International Conference (1928) of the British Empire Cancer Campaign and Sir William Hale White as the representative of the College on the British National Committee for Intellectual Co-operation

Murchison Scholarship

Mr Arthur Sturgess Hollins M B Camb M R C P, of King's College Hospital, was awarded the Murchison Memorial Scholarship

Disciplinary Action

The Censors' Board reported that they had considered the case of a licentiate, Mr H F Strickland, whose name had been removed from the Medical Register and had interviewed him personally After reviewing all the facts they had decided that his conduct, both as a man and as a practitioner, had been very dishonourable, and they had reprimanded him severely on that account

CONJOINT BOARD IN SCOTLAND

The following candidates have been approved at the examination indicated

FINAL EXAMINATION—Medicine J T F Pearce J H Brush D N Chisholm H A Mohamed G Kahn H Lazarus L O Aberyaratne O Joseph L Myers A K M Attila B S Naji H Isaac Surgery J R Martin J T F Pearce H Barsom J H Brush O H Wilkie O Joseph L Craig O Ajithade A L Malik Manoeur, A K M Attila H Craig K Kanagasabay Midwifery and Gynaecology J R Martin F R B H Kennedy H Barum B A D Robert H A Mohamed J Elliott W P B Winston L Craig T B Jansen L Myers S W Cruickshank D S McWilliam D Brink H Isaac Medical Jurisprudence and Public Health Mollers O Smith W O Molander F B H Kennedy W P Kennedy G G Brown H G Somerville Margaret Leslie J McConnell A Madwar Dorothy Williams R L Allan T O Leslie H Michelson Agnes F Millar R T Amour J E Morrison J W Gregory W V Anderson

Out of 113 candidates entered the following have passed and have been admitted L R C P E, L R C S E, L R F P and S G—

Betty O Hamilton E A Dwyer J Campbell D A Herd A J A Gray O Stern J L Dodgson C V Sallabury S K Milal M J B Phil A M D Gotta Manu Heaton H S Lawrence A P B Mackay A El Saded El Khalifa A B Meade R Rajaratnam Tambur N S Fraser O L X S Muttikumar L MacG Chisholm A M Fraser D Hendel H Schulman F E L Stewart H Lazarus H M C de Silva B S Swan E H B Gooch W D Aivis J B Jacobovitch R A F M Saunders A J F Almeida F A Silva J B Gooding

LONDON INTER-COLLEGIATE SCHOLARSHIPS BOARD

The following awards have been made on the results of recent examinations held by the Board

UNIVERSITY COLLEGE—Bucknill Scholarships (100 guineas) E Gallinsky (50 guineas) D Andersen Exhibitions (55 guineas each) Freda Yarnatinsky J W James

KING'S COLLEGE—Warneford Medical Scholarships (£10) J F Jarvis (£120) J O Winteler Sambrooke Scholarships in Medical Science (£20) G B Davis

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL—Scholarship in Science (£50) H Korman

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN—St. Dunstan's Medical Exhibition (£150) M M C London Isabel Thorne Scholarship (£30) M E Mayeur Mabel Sharrman-Crawford Scholarship (£30) B F Goldsmith

LONDON HOSPITAL MEDICAL COLLEGE—Price Scholarship in Science (£100) A. Birnbaum Science Scholarship (£50) O E Langley

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT]

THE parliamentary session was ended this week, arrangements being made to prorogue the House on August 3rd till November, when a new session will begin and last into the new year. All outstanding estimates were voted, debates arising on the Scottish Estimates and those for the Ministry of Health. On the latter the Labour Party arranged to discuss slums, the administration of the Poor Law, and the position of the Welsh Board of Health.

The following bills passed through various stages in the House of Lords. On July 27th the Offices (Scotland) Bill was read a third time. On July 30th the MARQUESS OF SALISBURY moved the second reading of the Registration (Births, Deaths, and Marriages) Bill. Lord STRACHEY moved the rejection of the bill, and the debate was adjourned. The Criminal Law Amendment Bill was read a second time on July 30th, and passed through Committee the next day. On July 31st the Rag Flock Amendment Bill and the Merchant Shipping (Line Throwing Appliance) Bill were read a second time. The Marriage (Prohibited Degrees of Relationship) Bill passed through Committee.

It has been necessary to hold over a few notes on matters connected with medicine dealt with in Parliament this week.

National Health Insurance

On July 25th, in answer to Mr Hayday Jones, Sir KINGSLEY WOOD said that during 1927 £5,400 had been discounted from the accounts of chemists who supplied drugs and appliances in Wales at a cost of 29½d per insured person. It was untrue to say that the surplus which arose in Wales had been taken to meet deficiencies in England.

On July 26th Mr CHAMBERLAIN told Mr Short that he knew the East Sussex Insurance Committee had, on July 3rd, expressed the view that a practitioner should not cease to prescribe drugs which he believed to be reasonably necessary for the adequate treatment of panel patients. Mr SINOT asked whether Mr Chamberlain knew that regional medical officers had recently brought pressure upon panel doctors respecting their prescriptions, thereby limiting their discretion in prescribing medicines for panel patients. Mr CHAMBERLAIN said the duty of insurance practitioners was to prescribe proper and sufficient medicines and the interviews arranged between certain practitioners and regional medical officers were solely to secure that this duty was performed.

The Noise Nuisance

Sir W. JOYNSON HICKS, in a reply on July 26th to Sir Robert Thomas said he was aware there was much complaint, he thought with good ground, against the noise of urban streets. He had done all in his power to see the nuisance was abated, so far as that was possible by police action under present powers. He would discuss with the Ministers of Health and Transport whether anything further could be done. He had noticed that a medical authority at the recent meeting of the British Medical Association had estimated the loss in efficiency to the nation owing to these noises at £1,000,000 a week. Mr LANSBURY asked whether Sir William would communicate with the London County Council and ask them to keep their tramway tracks in order so as to prevent noise. Sir WILLIAM said he thought it would be the duty of the Minister of Transport to communicate with the London County Council.

Mr CHAMBERLAIN on July 30th told Major Edmondson that he had not received a resolution passed at the Annual Meeting of the British Medical Association at Cardiff on July 24th about the effect of noise on public health. He could add nothing to the statement made on the subject by the Home Secretary on July 19th.

Conjunctivitis among Artificial Silk Workers.—Reports from inspectors of the Home Office show according to Sir W. JOYNSON HICKS, that except in one works where the number of persons employed has largely increased the number of cases of conjunctivitis among men and women in the artificial silk industry has decreased during recent months. This industry was receiving close attention from the medical inspectors and from the general staff of the Home Office and much was being done to improve its conditions.

Proposed Cancer Hospital at Withington.—Mr CHAMBERLAIN, answering Sir Thomas Watts on July 26th said his attention had not been called to the proposed establishment of a cancer hospital in Palantine Road Withington a residential district of Manchester. Sir THOMAS asked whether, having regard to the depreciation in the value of property which would result Mr Chamberlain would set up an inquiry. Mr CHAMBERLAIN answered that if, as he assumed, a voluntary hospital was to be established, he did not know that any action was open to him.

Early Treatment of Mental Patients.—Dr VERNON DAVIES asked Mr Chamberlain on July 26th if he was aware that the only hope of reducing the incidence of insanity and improving the

recovery rate was by altering the law so as to allow and encourage the early and skilled treatment of persons mentally ill, and whether he would, at any early date, give this matter his serious consideration and take the necessary action. Mr CHAMBERLAIN said he would be sorry to think that the only hope of reducing the incidence of insanity and improving the recovery rate lay in the measures which Dr Davies suggested, but he fully realized the great importance of improving the facilities for early mental treatment and hoped to be able to take the necessary action as soon as it was practicable to introduce legislation.

Tuberculosis Mortality Rate.—Sir KINGSLEY WOOD told Sir Robert Thomas, on July 25th, that the tuberculosis mortality rate for males between the ages of 15 and 25 had been little reduced since 1910, and that for females between the same ages it had increased, but at the present time the rate for both males and females between those ages appeared to be decreasing. The Ministry of Health had considered the discrepancy between the rate of decrease in the mortality from tuberculosis in the general population and that in these age groups but the causes of this discrepancy were obscure. Investigation was proceeding, and the tuberculosis officers of local authorities would be asked to give special attention to the question.

Tuberculous War Pensioners.—Major TRYON replying on July 26th to Major Cohen, said approximately 9,000 disabled men suffering from tuberculosis were discharged from treatment with allowances during the past twelve months. During the same period 5,000 cases were admitted to treatment with allowances. The conditions under which allowances were payable had not been changed, but Major Tryon had endeavoured to secure more effective co-operation between local tuberculosis officers and the medical officers of the Ministry of Pensions in the handling of cases of tuberculosis. The arrangements for reassessing had resulted in a substantial increase in the average rate of pension.

Notes in Brief

At the suggestion of Dr Vernon Davies, the President of the Board of Trade will consult with the Minister of Health about the suggested issue of an annual report on the health of the merchant service.

Mr Chamberlain stated on July 26th that the committee which had inquired into the London Lock Hospital was considering its report. He could not say when it would be ready for publication.

Mr Chamberlain knows of no reason for revising the regulations in force concerning the treatment of casuals but officers of the Ministry of Health have been instructed to secure full compliance with the regulations.

The Scottish Board of Health has decided that the condition of the River Lochy does not warrant the local authority in calling on the proprietors to introduce a new water supply from another source.

All local authorities now provide for the medical treatment of school children.

The Minister of Health is not aware that there is any menace to the health of the inhabitants of the parish of West Thurrock from the sewage works of the West Kent Sewerage Board.

Medical News.

THE old students annual dinner of St Bartholomew's Hospital and College will be held on Monday, October 1st, at 7.30 o'clock, in the great hall of the hospital, with Sir D'Arcy Power in the chair. The honorary secretary is Sir Charles Gordon Watson, 82, Harley Street, W.

THE annual meeting of the Smoke Abatement League of Great Britain, followed by a conference, will be held in Harrogate during the week end commencing Saturday, September 29th, at the Harlow Manor Hydro. The office of the league is at 23, King Street, Manchester.

CONDUCTED visits, in aid of King Edward's Hospital Fund for London, will be made to the Tower of London on August 9th and 23rd and September 6th at 2.30 p.m. Mr Walter Bell, F.S.A., will give addresses on the Tower and conduct parties round the building. Tickets (price 7s 6d) can be obtained from the secretary of the Fund, 7, Walbrook, E.C.4.

THE Central Association for Mental Welfare has organized two courses of training each lasting three weeks and commencing on Saturday, September 8th, one is intended for persons engaged in the training of mental defectives in occupation centres, institutions, or mental hospitals, the other is for officers of local authorities and local associations for mental welfare engaged in the ascertainment and supervision of defectives. The courses comprise lectures and practical work emphasis being laid, in that for persons engaged in providing training, on teaching methods, while for others the legal and administrative side receives more attention. Hostel accommodation has been secured at the centre at which the courses will be conducted in London.

The courses have been approved by the Board of Control. Further information may be obtained from the honorary secretary of the association, 24, Buckingham Palace Road, S W 1.

AMONG the speakers at a study conference to be held at Oxford in September under the auspices of the Industrial Welfare Society, is Dr. Millais Culpin, whose subject will be 'Nervous disease and its significance in industry'—a question associated with work now being undertaken by Dr. Culpin for the Industrial Fatigue Research Board. The conference will take place at Balliol College, from September 7th to 11th, Dr. Culpin's lecture being on Monday, September 10th.

DR. EDWARD I. HOWE, barrister at law, and neurologist to the Ministry of Pensions, has been appointed H.M. coroner for the county of East Sussex.

THE Minister of Health, on July 23rd, received a deputation from the representatives of twelve metropolitan borough councils, who urged the reconsideration of letters recently issued by the Minister announcing a reduction in the Exchequer grant for the supply of milk by maternity and child welfare authorities during the present financial year. In reply, Mr. Neville Chamberlain said the reduction had been made in view of the general need for economy. In the estimates of the Ministry of Health he had come to the conclusion that there were only two possible ways in which the necessary saving could be effected, one was to stop for the time being any further development of maternity and child welfare services, and the other was to make some reduction in the grants paid for the supply of milk. He had decided without any hesitation in favour of the latter course, but he wished to make it clear that he was not insisting that local authorities should reduce their expenditure on milk. All he had done was to intimate to local authorities the maximum expenditure for this purpose which he could recognize for grant during the present year.

THE second annual report of the Manchester, Salford, and District Mothers' Clinic records that during the year the clinic has given advice to 334 new applicants making 757 since it opened in March, 1925. A statistical examination of the first 600 case papers of the clinic has shown they record 2,331 previous pregnancies, the number of living children being 1,783, showing a loss of 578, or 24.8 per cent., of all pregnancies. Nearly half of all losses were due to miscarriages of which a considerable number were definitely recorded as self-induced abortions. The hope is expressed that the newly appointed official committee on maternal mortality will give due hearing to experienced workers in birth control clinics, who, it is pointed out, have had a unique opportunity to hear the unvarnished histories of mothers.

THE forty third annual medical report of the Trudeau Sanatorium has been issued and is combined with the twenty third medical supplement for the year ending September 30th, 1927, and the eleventh collection of the studies of the Trudeau Foundation. These studies which are mainly reprints of articles published in current medical literature, include a discussion by Drs. Lawrason Brown and H. L. Sampson of the originability of intestinal tuberculosis, an account of immunity in tuberculosis by S. A. Petroff, and the report of a case of primary pulmonary mesothelioma.

THE last report of the Old Cairo and Menouf Medical Missions, Egypt, which are under the aegis of the Church Missionary Society, shows that in spite of political troubles and economic depression—which at times decreased attendance at the hospitals—a vast amount of work has been carried on at these institutions. At the Old Cairo hospital now out patients numbered 21,567 in 1926 and 21,903 in 1927, while the numbers of in patients in the two years were 8,913 and 8,644 respectively. Most of the latter were ankylostomiasis cases, 13,167 being treated in the two years. Other wise, surgical treatment accounted for the greater part of the work, 9,677 operations being performed. The smaller hospital at Menouf dealt with over 5,800 new patients in this period, while the three dispensaries, the camp hospital, and the welfare centres cared for many more. It is stated in the report that the group receives patients every year from about 1,000 villages most of these are of course, in the Nile delta, but some patients travel from remote parts of Upper Egypt and the Sudan for treatment, and a number have come from Morocco. During the past two years the organization has been handicapped by the inadequacy of the European staff, particularly at Menouf, where the work was carried on from November, 1926, to the end of 1927 without a regular European doctor. There is thus urgent need for reinforcements from England, both of doctors and nurses.

THE first Latin American Congress of Neurology, Psychiatry, and Legal Medicine will be held at Buenos Aires in the second fortnight of September, under the presidency of Professor Arturo Amigiano.

THE German Society for Diseases of Digestion and Metabolism will hold a congress at Amsterdam from September 12th to 14th, when the following subjects will be discussed: Physiology and pathology of hunger, introduced by J. Hindig of Apeldoorn, van Leeuwen of Amsterdam, Morgulis of the United States, and Determann of Wiesbaden, relations between the small intestine and diseases of the blood introduced by Morawitz of Leipzig and Nordmann of Berlin, relations between the liver and diseases of the blood, introduced by Schottmüller of Hamburg, tropical diseases and the blood, introduced by Schiffner of Amsterdam, diagnosis and therapeutical errors in alimentary diseases and their prevention, introduced by von Bergmann, Kuttner, and Berg of Berlin, and von Haberer of Düsseldorf, importance of raw meat, introduced by Friedberger of Berlin, Schennert of Dresden, and Stopp of Breslau. Further information can be obtained from the general secretary, Professor R. von den Velden, Bamberger Str. 49, Berlin, W.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1**.

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The **TELEPHONE NUMBERS** of the British Medical Association and the **BRITISH MEDICAL JOURNAL** are **MUSEUM 9561 9562 9563** and **9564** (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are

EDITOR of the **BRITISH MEDICAL JOURNAL** *Antiology Westcott London*

FINANCIAL SECRETARY AND BUSINESS MANAGER

(Advertisements etc.) *Articulate Westcott London*

MEDICAL SECRETARY *Mediscera Westcott London*

The address of the Irish Office of the British Medical Association is 16 South Frederick Street, Dublin (telegrams *Facillus Dublin* telephone 62550 Dublin), and of the Scottish Office 7 Drumsheugh Gardens, Edinburgh (telegrams *Associate, Edinburgh* telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

DERMATITIS EXFOLIATIVA

"W. M. B." wishes for suggestions for treatment of a case of dermatitis exfoliativa in a man over 50 years of age. It is of five years' duration. He asks if glandular treatment is of any avail in such cases and if "light" treatment has been tried with success.

ADIPOSITY OF BREASTS

"W. A. R." would be glad to have suggestions for the treatment of a lady who has marked adiposity of the breasts and abdomen. He asks if ultra violet ray treatment would be beneficial.

DRESSING FOR FISTULA

"R. T." would like to hear of a dressing suitable for the skin of the abdomen in a patient aged 72 years following laparotomy for intestinal obstruction (benign) who developed a fistula high up in the small intestine, the discharge causing intense pain and inflammation.

RATE OF FLUID ABSORPTION BY THE BODY

DR. A. H. SKINNER (Haukow) writes: Are there any experiments showing the comparative rates of absorption of fluid injected under the skin and into the peritoneal cavity? The fluids under consideration are physiological saline, isotonic glucose solution, and horse serum. The matter is of importance in cholera where it is not always possible to give all patients in an epidemic the routine intravenous saline. I see that recent work has shown glucose given per rectum to be useless. I have seen it stated that a shipwrecked crew without water can be spared the pangs of thirst by the administration of sea water per rectum. Is there any experimental proof of this?

INCOME TAX

Allowance for Garaging Cars

"T. C." and his assistant make use of one car and three cycles. There is one garage at the surgery and another at "T. C.'s" private house. What should he deduct for the cost of garaging? Would a commercial rate of 7s. 6d. for the car and 2s. 6d. for each cycle be reasonable?

* * The amount of the deduction must be determined by the actual facts of the case, but the commercial rate basis may be

needful to check the amount arrived at—but it has to be remembered that those figures would presumably cover owner's profit and expenses of management which do not arise on the present facts of the case. The amount deducted is a reasonable proportion of the rate paid on the promise of which the garage forms a part and of the net Schedule A assessments also. These assessments will include the ground rent payable, which, therefore, cannot be reckoned as an additional expense. If the surgery garage is separately assessed, that will, of course, simplify the calculation. Repairs, and any other expenses specifically relating to the garage, will obviously need to be included.

Benefit of Free Board and Lodging

"T V D" asks for a reference to the leading case referred to in an income tax reply in our issue of July 14th.

* * The decision of the House of Lords in *Tennant v Smith* [1892] A.C. 150, is the authority for the proposition that an advantage not convertible into cash is not assessable as tax. The distinction between such a case and that where a salary is paid after a deduction for cost of lodging, etc., as provided by the agreement for service, was dealt with in the Divisional Court in the more recent case of *Cordy v Gordon*, [1925] 2 K.B. 276.

Change in Proprietorship—Cash Basis

"DORSET" explains that up to a date in June there were four partners in the practice, but one partner died and the practice has since been carried on by the remaining three. As a result if the present proprietors join with the executors of the deceased partner they may now require the income tax assessment for 1928-29 to be treated as if the practice had ceased and been recommenced. If they do so, can they discard the cash basis as regards the "new" practice?

* * We know of no reason why the cash basis should be continued and if it is dropped, and the legally correct method of gross bookings, less a specific deduction for bad debts, substituted, the revenue authorities cannot claim to bring in the old debts as chargeable to tax in the hands of the "new" firm. They could presumably claim that the past assessments should be revised to put them on the basis of bookings, on the ground that if the cash basis is abandoned the new basis should be applied to all the years now within the assessment time limit of six years. But if the practice has been fairly constant during that period, the result would not be very substantial. It should, perhaps, be pointed out that if 1927 was a "good" year the deceased partner's executors may be unwilling to join in the re-election as it would involve them in an increased payment of tax for 1927-28.

LETTERS, NOTES, ETC.

THE "MEDICAL DIRECTORY"

THE Editors of the *Medical Directory* inform us that their annual circular has been posted to each member of the medical profession. Should any form not have reached its destination, they will be glad to send a duplicate. They hope that completed forms may be sent to them at 40 Gloucester Place, Portman Square, London W1 by an early post.

MEDICAL TREATMENT IN CHINA.

FLEET SURGEON W. E. HOME (Kew) asks whether there is any truth in the oft-repeated story that the Chinese so long as they are well pay retainer fees to their doctors which are discontinued during illness. He adds that his Chinese informant—one, a Manchurian lady formerly on the staff of the old Empress—declares that they have never heard of the system. He suggests that some medical missionary might be able to supply first-hand evidence to settle the question.

MOHAMMEDAN PILGRIM SHIPS

DR. RISTEAD MAO EOIN (R. A. Tobson) writes from Trichinopoly South India. With regard to the letter of "Port Said" (May 26th, p. 930) I served as surgeon on a cargo boat in 1924 which carried about 1,000 pilgrims from Singapore to Jeddah. The pilgrims were housed for the most part in space which is ordinarily occupied by cargo, temporary latrines and cook houses were erected and rations of fresh water and firewood issued. All foodstuffs were carried by the pilgrims themselves. An adequate supply of medicines was provided by the company. The ship's officers were attentive and considerate. Deaths during the voyage were nil. The daily sick rate was about 10 per 1,000 of which about 3 per 1,000 were too ill to walk to the dispensary. I might mention that the company with which I served—the Blue Funnel Line—has the reputation of being the best English company in the pilgrim carrying trade. I agree with Dr. Pope (June 9th, p. 1007) that conditions of health on the return journey from Mecca are always much worse and that much of the sickness on the westward journey is due to many invalids and feeble old people undertaking the pilgrimage. They are not refused a passage for that reason unless their disease be infectious. One of my pilgrims walked aboard at Singapore

during an attack of acute lobar pneumonia. Only one pilgrim was rejected by me at the embarkation port—an infant suffering from ophthalmia neonatorum. I understand that pilgrim ships sailing from Dutch ports are subject to strict regulations as regards the housing and comfort of pilgrims. Mohammedans living under English rule are not, so far as I am aware, given any such protection. The only restriction I know of in their case is a rule forbidding the carrying of more than 1,000 pilgrims under the care of one surgeon.

INSULIN PATHIC SYNDROMES

IN the course of an address to the New York Academy of Medicine on the endocrine glands in relation to infancy and childhood Professor L. T. Barker of Baltimore after referring to the now well known syndrome of hypoglycaemia after a dose of insulin, has discussed the spontaneous hypoglycaemia, which is perhaps due to a pathological oversecretion of insulin. In adults carcinoma of the islets of Langerhans has been incriminated as causing "hypoparathyroidism and hypoglycaemia" (Wilder), and in Professor Bari's case a patient with frequent hypoglycaemic crises attributed after blood sugar estimations to overactivity of the islets was operated upon by Dr. Finney who removed the part of the pancreas where the islets were most numerous, the result was that the hypoglycaemic tendency was definitely diminished and the general condition much improved. This case is to be published in full by Drs. Sprunt and Trescher and is obviously of much interest as bearing not only on the possibility of a disease of the islets of Langerhans analogous to ophthalmic goitre, but on the way in which advances in treatment may stimulate by their untoward results, investigation into previously unrecognized forms of disease.

A BEGGING LETTER FRAUD

EVIDENCE of a systematic begging letter campaign directed against members of the medical profession was given at Cardiff in a case in which Jenn Marie Atherton, 22, was sentenced to twenty-one days' imprisonment for attempting to obtain 30s by false pretences from Dr. Sydney Blugham of Alfreton. It was stated that the accused sent Dr. Blugham a letter saying that her father was a former medical student of the same hospital and continuing: "He died a year ago of consumption and his allowance died with him. I am nearly desperate with worry as I have no relative to turn to." The letter then asked for 30s to enable the writer to travel to Llandudno where she had been offered a post. It was shown by the prosecution that the girl's father was alive and had lived with his daughter for some years. The police stated that they had had complaints from seventeen doctors who had received similar letters, and that the girl had previously been convicted for obtaining charitable contributions by fraud. In the *Journal* of August 13th 1927 (p. 290) we published details of a begging letter received by a London medical man from Cardiff and evidently from the same person appealing for help for the writer's family. The recipient in each case was told "you will probably remember him" (the father of the writer), but according to the earlier letter the father was not yet dead although seriously ill with consumption. As a rule, only a small minority of those who receive begging letters trouble to inform the police, even when they suspect the nature of the appeal. If seventeen complaints have been received at the Cardiff police station, it is probable that a much larger number of letters have been sent out and that others will follow in due course when Miss Atherton is at liberty.

ACCIDENTS WITH RAILWAY CARRIAGE WINDOWS

DR. B. W. RYAN (Bradford) writes: The holidays call attention to accidents peculiar to such times—one of these is that caused by a person thrusting his head through the centre pane of a railway carriage window under the impression that the window is lowered. Such accidents are most common in persons who are completing a long journey and sleeping in snatches. On awakening they find themselves in their exact situation and attempt to get out. Their accommodation has not time to adapt itself for the glass window. Added to this the uniformity of clear glass makes the surgery of accommodation and convergence peculiarly difficult. I suggest that all the centre panes of railway carriages should bear some prominent object embossed or engraved upon them about 6 in. below the upper crossbar which would not as an object of fixation and serve to stimulate the accommodation. Two of these accidents have been recorded in the past week.

ANGOSTURA BITTERS

Messrs. HENDERSON and Co. (LONDON) LTD., write with reference to a note on this subject in the *Journal* of June 2nd (p. 965). Angostura bitters do not contain and have never contained any angostura bark. The name "angostura" is derived from the fact that the bitters were originally manufactured as far back as 1824 in the town in Venezuela then called Angostura. The name of the town was changed by official decree in 1845 to Ciudad Bolívar, but the old name was still used for the bitters.

VACANCIES

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 33, 39, 40, 44, 45, and 46 of our advertisement columns and advertisements as to partnerships, assistantships, and locumtenencies at pages 42 and 43. A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 83.

Remarks

ON

HISTORICAL ASPECTS OF IDEAS
REGARDING DROPSY.

BY

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F.R.C.P. Ed.

Physician to the Royal Infirmary, Edinburgh

The appearance of dropsy or hydrops, to give it the original Greek form of the name, is a symptom which cannot fail to attract attention, although it is probable that in a primitive state of society a person affected by a malady sufficiently severe to produce this symptom would not long survive. Dropsy is mentioned in the *Ebers papyrus* and on the clay tablets of medical prescriptions from ancient Assyria, with the treatment, material and magical, believed to be appropriate to the condition.

Hippocrates (400 B.C.) naturally has a good deal to say on dropsy, and he divides it into the three types of hydrops, *anasarca*, and *tympantes*. The first of these was a collection of fluid in the abdomen, by the second term he meant a collection of fluid dispersed generally through the flesh, while in the third there was an associated condition of flatulence.

In accordance with the general idea of disturbance in the humours as the cause of disease, he attributed dropsy, so far as he professed to theorize regarding the disease, to a malady of the spleen, in consequence of which the tissues liquefy and the belly and lower parts become full of water.¹ In other cases the formation of liquid was attributed to the liver, in others to the production of white phlegm, and in still others to dysentery.

Although this process of liquefaction of the tissues is regarded by Hippocrates as the essence of dropsy, he evidently distinguishes dropsies which, from their clinical aspect, are of different nature and of very different importance in their influence upon health and life. Dropsy in the legs, when it is combined with cough (by which apparently he means to indicate the filling up of the chest with fluid) he pronounces to be bad.² He recognizes that *anasarca*, beginning in the course of an acute illness with urine coming in small quantities and having little sediment, is of a bad type. The dropsy which is succeeded by epileptic attacks (and by this he evidently indicates *uraemia*) is also very serious. Dropsy accompanied by colic is bad, when it is associated with diarrhoea (and here he is perhaps thinking of tuberculous peritonitis with enteritis) it is fatal, while dropsy which yields to treatment for a time and then recurs is to be regarded by the physician as hopeless.³

In respect of treatment Hippocrates recommends that the flesh which has broken down and liquefied should be removed by laxatives, or the belly may be opened near the umbilicus and the fluid let out.⁴ As a purgative he recommends *veratrum in vinegar*.⁵

It is evident that the Father of Medicine does not profess to draw a clear distinction between different kinds and varying causes of dropsy, although he clearly indicates some of the conditions in which dropsy is a serious feature of illness.

At the Alexandrian School of Medicine Erasistratus attributed dropsies to sluggishness and hardness of the liver—what he called *scirrhus*, and we should designate *cirrhosis*.⁶

Galen, five centuries after Hippocrates, had a good deal more to say in detail in regard to dropsy, although he repeated most of what Hippocrates had pronounced. It is interesting to note that Galen, who wrote voluminously on the pulse, described the pulse of auricular fibrillation in *anasarca* as being small, rapid, irregular, and soft.⁷ Galen, however, failed to recognize weakness of the heart as the important causal factor in dropsy, in fact, he completely inverted the matter, and described the softness of the pulse and weakness of the heart as due to the softening of the heart and arteries caused by the dropsical fluid.⁸

He held that dropsies should first be treated by purgatives and at a later stage by the addition of remedies which drew off the humours from their place of formation, such as drugs which produced vomiting, provoked urine, etc. By blood letting also he declared that he had in some cases brought about cure of the dropsy. He was a great believer in various local applications which had the power of absorbing the fluid through the skin. Among these he mentioned with favour a paste, introduced by Asclepiades and consisting chiefly of cornflour, manna, and lard, which was smeared over the dropsical parts, also Egyptian earth and various forms of plasters. For the surgical cure he recommended that the abdomen should be punctured a little under the umbilicus towards the left with a knife shaped like a mrtle (leaf).⁹

As Galen had left the matter, so it virtually remained all through the Middle Ages, dropsy being regarded as a primary disease, like epilepsy or fever, of which the cause was practically undiscoverable. It continued to be regarded as in some way connected with disorder of the liver or the spleen, but there was no clear connexion between the two sets of phenomena. So matters remained right up to the seventeenth century.

I may be pardoned here, in this year of the tercentenary of Harvey's discovery, for making a short digression to the new idea regarding the functions of the body in health and disease which followed as a corollary to his principle of the circulation. Galen perfectly understood the function of the valves of the heart, and is at considerable trouble to describe them.¹⁰ He and his followers, however, imagined apparently a leisurely ebb and flow of humours, and had no conception of the whirling rush which proceeds constantly like a mill race through all the tissues of the body. When the vigour with which this process goes on is grasped it is easy to understand at the present day that any interference with it will naturally cause a stagnation of the fluid. The wonder is that nearly two centuries elapsed after Harvey's publication of the *De Motu Cordis* before the idea was generally accepted that failing power on the part of the heart was one of the main causes of dropsy. Malpighi and Leeuwenhoek, towards the end of the seventeenth century, demonstrated with their newly invented microscopes how the tissues were everywhere penetrated by minute vessels through which the blood corpuscles, floating in a fluid, passed in single file. Borelli and Pitcairne, about the same time, worked out with mathematical precision the hydrodynamics of this remote part of the circulation in a state of health, but there was as yet no attempt to apply the principle to the processes of disease.

A contemporary of Harvey, Theophilus Bonetus of Geneva, was the first person to issue a textbook of morbid anatomy. This, which was called the *Sepulchretum* and published in 1679, is a storehouse of all that was then known in regard to the anatomy of disease. He records numerous cases of dropsy, and mentions in one that the heart was of a great size, in another that a hardening was found in the heart, in a third that the right ventricle contained a pituitous substance like the yolk of egg, etc., but he does not anywhere connect these appearances with the cause of the dropsy.¹¹

A century later Morgagni's great work *On the Seats and Causes of Disease* carried the matter a little further. In regard to the cause of dropsy his pronouncement¹² was

"That by the force of hypotension, rather than by the authority of Hippocrates or the dissection of dropsical bodies most physicians were formerly induced to believe the liver first and after that the spleen to be the cause of dropsy you will learn from the *Sepulchretum* either in the place where it is shown that in the books of Hippocrates not any one or two viscera are supposed to be in fault but many or where many examinations of the viscera of dropsical bodies being produced, both of these viscera are demonstratively cleared from the charge. And certainly whatever part or whatever cause can for a considerable time retard the motion of the blood or lymph, or immediately increase the secretion of the moisture with which all the cavities of the body are furnished or in short prevent or diminish by any means its absorption may give origin to this disorder."

Morgagni is generally credited with having been the first person to describe disease of the mitral valve, and he cites numerous cases in which either this valve or the aortic valve was thickened, hardened, nodular, or even

¹ The opening paper in a discussion in the Section of History of Medicine at the Annual Meeting of the British Medical Association Cardiff 1928.

ossified. In several of his cases he demonstrates the co-existence of this and a collection of fluid in the pleural cavities,¹⁴ but he does not anywhere clearly specify the valvular defect as the mechanical cause of the dropsy.

Matthew Baillie appears to have been one of the first persons to be impressed by the important influence that must be exerted by a valvular defect of the heart on the general functions of the body. In notes on the illustrations in his atlas (1789), which show thickening and ossification of the heart valves, he remarks that it is obvious that such valves must perform their office very imperfectly.¹⁵

Meantime, the subject of dropsy was being approached from another point of view, that of clinical medicine and therapeutics, and it gradually became clear that, as regarded treatment, dropsy must be considered as a disease which in different cases is of diverse natures and due to varying causes.

In the year 1775 William Withering, M.D., physician to the General Hospital at Birmingham, was shown a family receipt for the cure of the dropsy which had been used for long by an old woman in Shropshire, and had sometimes made cures of this condition after the more regular practitioners had failed. The prescription contained some twenty herbs, but it was obvious that the active ingredient was foxglove. Withering accordingly, in the summer of 1776, obtained a quantity of dried foxglove leaves with which he commenced to experiment upon patients attending the dispensary at Birmingham, using first of all a decoction, then an infusion, and, later, occasionally the powdered leaves themselves. He used digitalis especially for a number of dropsical cases which presented themselves in 1779, following upon an epidemic of scarlet fever and sore throat, which had raged generally at Birmingham in the preceding year. As he had obtained good results with it, the use of the drug was communicated to the Medical Society at Edinburgh in February, 1779, and digitalis appeared in the new edition of the *Edinburgh Pharmacopoeia* in 1783 on the recommendation of Dr. Hope. Withering himself did not publish his results until 1785, by which time he had collected over 160 cases of dropsy, in some of which the use of digitalis had been attended with remarkable benefit, while others had shown no improvement whatever.¹⁶

The cases of dropsy in which he found digitalis effective as a cure were those in which the pulse was feeble or intermittent, the countenance pale, the lips livid, the skin cold, the swollen belly soft and fluctuating, and the anasarcaous limbs readily pitting under the pressure of the fingers. These were obviously cases in which the dropsy had followed mitral disease. There was, indeed, at the time when he wrote, no means available for making a correct diagnosis of this condition. He concluded that, though digitalis would not act universally as a diuretic, it did so more generally than any other medicine. He also observed that it had a "power over the motion of the heart, to a degree yet unobserved in any other medicine, and that this power may be converted to salutary ends." He did not, however, draw any closer connexion between the dropsy and the heart disease. He excluded from the beneficial action of digitalis ovarian dropsy and hydrocephalus or dropsy of the brain.

An important monograph upon dropsy of the ventricles of the brain appeared in the year 1768 from the pen of Robert Whytt, professor of medicine in the University of Edinburgh. This treatise was the first description of tuberculous meningitis, and gave an almost perfect clinical description of the condition as we now know it, although of course Whytt could not trace its cause to the tubercle bacillus. He showed that it was due to some compression of the absorbent veins, while the normal amount of secretion of fluid went on from the small arteries.¹⁷

Dropsy of renal origin was not recognized for another fifty years, but meantime fresh light was being thrown upon the development of dropsy by investigations into the function of the lymphatic vessels.

As early as 1622 Aselli, professor of anatomy at Pavia, had discovered the lacteals and their valves. By 1651 Pecquet had noted the existence of the receptacle of the chyle and its continuation as the thoracic duct, and in 1652 Jolive, an Englishman, in taking his doctor's degree

at Cambridge, presented in his thesis an account of the lymphatics, a matter which was more fully described in the *Nota Exercitatio Anatomica* of Olaf Rudbeck, professor of anatomy at Upsala, in 1652. Rudbeck described, under the name of *vasa serosa* or *aqueosa*, the vessels containing a clear watery liquid, which we now call lymphatics. A whole century passed, however, before people began to inquire seriously into the functions of these minute vessels. Priority in elucidating the nature of these vessels was claimed both by William Hunter and by Alexander Monro (secundus) of Edinburgh, and formed one of the celebrated medical controversies of the eighteenth century. Up to 1755 everyone supposed that the lymphatic vessels were simply a class of very minute veins which originated, like the red veins, from the arteries. Monro and Hunter suggested that the lymphatics were the absorbents of the body, and Monro, in 1757, published a thesis, *De Venis Lymphaticis Icturiosis*, in which he dealt with their origin from spaces in the connective tissues, a subject which he traced by a method of injection. Hewson, in 1774, published his celebrated *Description of the Lymphatic System in the Human Subject and in Other Animals*. After this time the absorption of fluid from the tissues by the lymphatics was fully established. This matter of scientific knowledge practically coincided with Withering's experiments on the use of digitalis in removing dropsy and with Morgagni's statement that dropsy was due to any cause that retarded the lymph or prevented the absorption of moisture from the cavities of the body.

The next step in clearing up the question of dropsy was the recognition of a cardiac type of this disease. Morgagni and other observers had already, about the middle of the eighteenth century, recorded numerous cases of dropsy in which, as an incident, abnormality of various heart valves or of the structure and size of the heart had been found, but they had not traced a connexion between the two sets of phenomena. The earliest case that I have been able to find in which suggestion is made of a definite causal connexion is recorded by Dr. Donald Monro, and is worth while quoting. He says:

"In the year 1750 I dissected the body of a man who died of an universal dropsy, in the presence of Dr. John Rutherford, professor of medicine in the university of Edinburgh. We could find no other cause of the disease than the ossification of the *valvula mitralis* in the left ventricle of the heart by which the orifice of that ventricle was so straitened, that I could scarce force my little finger into it. The heart itself was very large. While the man was alive, all the soft parts of the neck were raised by every systole of the heart in such a manner that the veins there seemed to have a pulsation."¹⁸

Monro, however, did not press this point of narrowing at the initial valve as being a common cause of obstruction to the circulation and consequently of dropsy. No doubt other cases were from time to time recorded in medical literature, but the first standard publication in which cardiac dropsy was definitely recognized seems to have been Corvisart's *Essai sur les maladies et les lésions organiques du cœur et des gros vaisseaux*, first published in 1806. He refers to the opinions of Bichat and others, so that the idea of cardiac dropsy may be said to have taken root with the beginning of the nineteenth century. Corvisart describes the case of a blacksmith, aged 20 years, who complained of dysentery and hæmorrhage from the bowels, accompanied by palpitation of the heart and general oedema of the body. From the strong, quick, and irregular intermissions of the pulse, Corvisart diagnosed at one of his clinical conferences "an organic lesion of the heart." The patient having died twenty-five days after admission to hospital, the *post-mortem* examination revealed dilatation of the left auricle and contraction of its opening into the left ventricle to "a kind of osseous slit through which a thin coin could scarcely have passed."¹⁹ Corvisart therefore contended that the dropsy, hæmorrhage, and other symptoms had all been due to the narrowing of the mitral valve and not to dysentery, to which, on the old view, the whole of the symptoms had originally been attributed. Since Corvisart's book had a wide circulation and great reputation, this may be regarded as definitely establishing cardiac disease in the position of a cause of dropsy instead of the dysentery, disease of the liver and spleen, etc., which had previously been considered the essential origin

It is important to note in passing that the method of diagnosing in percussion collections of fluid in the abdomen and in the pleural cavities had been first invented by Auenbrugger and announced in his *Inventum Novum*, published at Vienna in 1763. This practically coincided with the publication of Morgagni's great treatise. It was, however, for long completely disregarded, and became generally known only after a French translation had been published by Corvisart in 1808. Thus we may conclude that in most cases with only a moderate amount of ascites or hydrothorax the presence of the dropsy was missed during life until the beginning of the nineteenth century, when diagnostic methods became more precise.

A few years later we find the whole subject of the diagnosis of small collections of fluid in the pleural cavities and abdomen and the recognition of cardiac valvular disease during life placed on a firm basis by Laennec. This writer, in his *De l'Auscultation Mediate*, describes how, in the year 1816, he discovered by chance that he could hear the heart sounds more clearly through a rolled-up exercise book than when he applied his ear directly to the chest. This was the beginning of the stethoscope. Moreover, Laennec's careful observations on the sounds made by the normal and diseased heart, compared with the observations which he made on the same patients after death, laid a sure foundation for the diagnosis of organic heart diseases and their complications.¹ He described clearly, for example, a bruit "analogue à celui d'un soufflet" which corresponded to the contraction of the left auricle in a case that presented dropsy of the hands and legs, hydrothorax and ascites, and in which the cause was found after death to be a state of warty vegetations on the mitral valve with rupture of one of its tendons and dilatation of the two ventricles. He gave also vivid pictures of other cases in which cartilaginous changes and narrowing of this valve had been the cause of dropsy.² Laennec's work may be regarded as the statement of our present-day knowledge regarding cardiac valvular disease as the mechanical cause of one form of dropsy.

A new chapter in the history of dropsy was gradually opening while the elucidation of cardiac dropsy was still obscure. William Charles Wells seems to have been one of the first to call attention to another type of dropsical cases in a paper "On the presence of the red matter and serum of blood in the urine of dropsy which has not originated from scarlet fever." The fact that dropsy accompanied scarlet fever and other acute disease, and often led to the patient's death had, of course, long been recognized. Wells, in 1811, drew attention to the fact that dropsy sometimes came on gradually, with a scanty secretion of urine, sickness, and other disorders of the digestion, bad smelling breath, and convulsions. For years after these patients recovered, the urine, although clear, was found to contain blood serum because "being boiled it became turbid, and afterwards deposited a considerable quantity of curdy matter." "Nitrous acid" was also used as a test by Wells. Wells mentioned twenty-nine cases of dropsy of the skin not preceded by any disease to which dropsy was generally attributed, among which the urine of twenty-three gave this test. As, however, he did not bring any of the cases to post mortem examination, the cause of the dropsy still remained in doubt.³

The subject was pursued further very shortly afterwards by John Blackall, physician to the Devon and Exeter Hospital, who published a manual upon *The Nature and Cure of Dropsies*. Blackall divides dropsy primarily into that form in which the urine is coagulable by heat and that in which it is not coagulable. Despite the work of Corvisart, however, he does not recognize the mechanical effect of cardiac disease as an essentially important cause. He refers to observations by previous persons, such as Cotunnus, who had described a "mucilaginous diabetes connected with the beginning of some dropsies," Latham, who in 1795 had described "diabetes with a copious discharge of serum from the kidneys," and others. Blackall's work deals largely with the matter of treatment and the clinical indications for the use of different remedies, such as squills, oil of turpentine, cantharides, copper sulphate, potassium citrate, tobacco, digitalis,

infusion of broom tops, tincture of opium, tapping, and scarification.

It is not till we come to the classic work of Richard Bright, of which the centenary was celebrated last year, that a precise account is presented to us of disease in the kidneys as a cause of one type of dropsy.⁴ Bright made a careful and complete study, both clinical and pathological, of his cases, and published admirable plates showing the actual changes in the kidneys of the dropsical patients. Laennec had published in 1826 the second edition of his great work, and the connexion of heart disease with dropsy was firmly established. Bright had made a three years' study of dropsy in the wards at Guy's Hospital, and he says:

"Where anasarca has come from exposure to cold or from some accidental excess, I have in general found the urine to be coagulable by heat. During some part of the progress of these cases of anasarca, I have in almost all instances found a great tendency to throw off the red particles of the blood by the kidneys, betrayed by various degrees of hæmaturia, from the simple dingy colour of the urine which is usually recognized or the slight brown deposit,—to the completely bloody urine when the whole appears to be little but blood and when not unfrequently a thickropy deposit is found in the bottom of the vessel."

He describes other chronic cases as follows:

In persons long the subjects of anasarca recurring again and again worn out and cachectic in their whole frame and appearance and usually persons addicted to an irregular life and to the use of spirituous liquors. In all the cases in which I have observed the albuminous urine it has appeared to me that the kidney has itself acted a more important part and has been more deranged both functionally and organically than has generally been imagined. In the latter class of cases I have always found the kidney disorganized. In the former when very recent I have found the kidneys gorged with blood. And in mixed cases where the attack was recent although apparently the foundation has been laid for it in a course of intemperance I have found the kidney likewise disorganized.

The matter was subsequently verified in 1829 by Christison, who reported several instances of albuminuria with renal disease and who mentioned the progressive diminution of the urea in the urine and the increase of the urea in the blood.⁵ Bright recurs to the subject in the second volume of reports of medical cases, published in 1831, where he deals with dropsy as it affects the brain both in cases of kidney disease and those due to various local causes. The importance of kidney disease as a cause of epileptiform convulsions, paralysis, and other signs of dropsy interfering with the nervous system was fully described by Bright, and has, perhaps, come to receive too little attention in recent times.⁶

Still another chapter, clearing up what had been regarded by earlier physicians as a puzzling group of dropsical cases, commenced with the description by Sir William Gull in 1873 of two cases showing a cretinoid state supervening in adult life in women. He gave a clear clinical picture of two elderly women who had come under his observation because of increasing languor and the development of a gradual appearance of dropsy. He described the complexion as having been

entirely different to what one sees in the bloated face of renal anasarca. This suspicion of renal disease failing anyone who should see the case for the first time might suppose that the heart was the faulty organ and that this general change in the features and increase of bulk were owing to venous congestion. But neither would this be confirmed by an exact enquiry into the cardiac condition.

He had at that time no explanation to give of the cause that led to this state. With regard to treatment all he could say was

The best suggestions I can make are to let events take their course very much maintaining the strength by ample regimen and fresh air and by the occasional or more or less continuous use of such remedies as quicken the peripheral venous circulation. Hot air bath or warm bath, frictions etc. but the general good effect will I think be limited.

Four years later William M. Ord, physician at St. Thomas's Hospital, went further and described in detail five cases of this condition which he carried to autopsy and showed to be associated with atrophy of the thyroid gland. He found that the skin, when cut up into small fragments retained its oedematous condition, whereas the skin of dropsical patients collapsed when treated in this way, and he further found that fifty times the normal quantity of

mucin could be extracted from the subcutaneous tissues of these persons. He therefore gave the name of "myxoedema" to supposedly dropsical cases of this type.²² The separation of these cases, which formerly had been classed as a type of dropsy, was further made in 1823 by Kocher, who found that the condition developed after removal of the thyroid gland,²³ and by Semon,²⁴ who in the same year suggested the identity of cretinism, myxoedema, and cachexia strumipriva, and whose suggestions on identity of origin were confirmed through an investigation held by the Clinical Society of London in the following year.²⁵

In contrast to the helplessness expressed by Gull in 1873 for the betterment of these cases, Murray²² in 1891 used with good result hypodermic injections of glycerin extract of sheep's glands, and, in 1892, the treatment was further improved and simplified by Hector Mackenzie and Fox,²² who independently and successfully used the administration of sheep's thyroid gland, or its extract, by the mouth in the treatment of myxoedema.

Other forms of dropsy of a localized nature have from time to time been shown to be due to conditions which offer a local obstruction to the circulation of blood or lymph. It is unnecessary to particularize these, but one may simply mention the discovery by Bancroft in 1876 of the filaria which causes elephantiasis and allied conditions that were for long a puzzle to physicians practising in tropical regions.

SUMMARY

Dropsy from the earliest times was an obvious morbid condition, and was for long regarded as a disease *suu generis*, due to liquefaction of the tissues. The ancient Greek physicians attributed it chiefly to a disorder of the liver, and hardening of this organ was regarded as the principal cause by the Alexandrian School of Medicine. Galen regarded the defective action of the heart, which is often an accompaniment of dropsy, as an effect rather than a cause. In the eighteenth century Morgagni drew attention to the frequency with which the heart is found to show valvular defects and other disorders in cases of dropsy, but he did not carry the matter further. Withering, who introduced the use of digitalis in 1775, recognized that only certain cases of dropsy were amenable to treatment by this drug. He described as the type of case in which the dropsy was chiefly benefited persons showing symptoms which we can now recognize as being those of advanced cardiac disease, although the means of diagnosing valvular disorder was not at the time available to him. In the beginning of the nineteenth century Corvisart followed by Laennec, placed the diagnosis of cardiac disease on a sure foundation and showed that dropsy was frequently simply a sequel of this type of disease. The recognition of kidney disease as a cause of dropsy was first made early in the nineteenth century when Wells, Blackall, and others pointed out the fact that the presence of albumin in the urine was a prominent feature in certain dropsical cases, and these observations were placed on a sure footing by Bright in 1827. A further group of cases in which neither the heart nor the kidney is found to be at fault was demonstrated by Gull and Old, in the seventies of last century, to be due to atrophy of the thyroid gland and to be of a different nature from simple watery oedema.

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DISEASES OF THE CORONARY ARTERIES*

BY

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THE maintenance of an efficient circulation to the heart muscle is of fundamental importance if the heart is to be able to perform its function in health or disease to the best advantage. One of the essential requirements for this purpose is the possession of healthy coronary arteries, and it is to a consideration of diseases of these vessels that I have been asked to direct your attention.

Before embarking on the subject proper it might not be inappropriate to indicate the scope of the discussion in relation to the title. Although diseases that affect the coronary arteries are the same as those that affect arteries in general, discussion of minute points in classification or of pathological details would be unfortunate and probably profitless. One should concentrate rather on the effects produced on the heart by such diseases as receive general acceptance. Again, because of the widely recognized connexion between angina pectoris and these diseases, one must guard against any concentration on the theories of angina pectoris, interesting though that might be in itself, as a detraction from the value of the main subject before us.

Further, coronary artery thrombosis is an important manifestation which has attracted much attention in recent years and will no doubt be freely discussed to-day, but it would denote a narrow outlook if discussion became limited to this condition. There is a danger in any of these directions of overlooking other important considerations.

In so far as special aspects of the subject will be dealt with in detail by subsequent speakers, these opening remarks will best serve their purpose if I survey in a general way some of the essential features of the problem.

HISTOLOGICAL

Disease of the coronary arteries has been recognized for a considerable time, and its association with angina pectoris as more than a coincidence has been widely accepted, though many have refused to accept the view that coronary disease offers a complete explanation of that condition. Prominent among the latter have been Allbutt,¹ Mackenzie,² Cabot,³ and Vaquez.⁴ In recent years, fifteen to twenty at most, prominence has been given to certain symptoms, anginal in nature, which have been found to be associated with coronary blockage—usually by thrombosis *in situ*. The importance of this syndrome, to which further reference will be made, is undoubted, and has now directed attention to these vessels. Inquiries into the literature have been made by Hamman,⁵ and more recently by Parkinson and Bedford,⁶ and while it would appear that the association of special symptoms with occlusion of the coronary blood supply had been recognized as far back as 1878, it is only during the last few years that it has received intensive study and that a clear distinction has been established between it and the more widely recognized syndrome of typical angina pectoris.

In this country the papers published in 1925 by McNee⁷ and by Gibson⁸ have helped to focus attention on this subject. It is interesting to note, however, that in 1887

*A paper read in opening a discussion in the Section of Medicine of the Annual Meeting of the British Medical Association Cardiff 1928.

Landsay¹² of Glasgow, whom I had the privilege of assisting in his clinic for a few years, in a lengthy paper on "Fibroid degeneration and allied lesions of the heart and their association with disease of the coronary arteries," made a careful analysis of the literature. One of the earliest cases he noted was recorded by Sir William Gairdner in 1854—¹³ a case of ossification of the coronary arteries with tendinous degeneration of the heart. Steven¹⁴ recorded sixteen cases with clinical histories and post-mortem reports, emphasized the relationship existing between disease or obstruction of the coronary arteries and fibroid degeneration, and distinguished in this connection between this fibrous transformation and chronic interstitial myocarditis due to other causes. It may be mentioned at this point, though somewhat anticipating subsequent remarks, that in two of the cases recorded Professor Coats demonstrated, by injection with Prussian blue, free anastomoses between a perian coronary artery and the branches of a blocked vessel, and also between branches supplying the two auricles and the two ventricles.

Coincidental with this increased attention to the clinical aspects very important anatomical investigations have been made, and to Gross¹⁵ and his collaborators physicians owe a debt of gratitude. It may be appropriate at this point to mention some of the results of their work. The blood supply to the heart is subject to much variation, but certain main facts ought to be borne in mind.

The right coronary artery emerges between the pulmonary artery and aorta, passes to the right in the auriculo-ventricular groove as the right circumflex branch, and, crossing the acute margin, continues to the posterior aspect of the heart, where it gives off the posterior descending branch in the inter-ventricular groove. It supplies the entire right ventricle except the left third of the anterior wall. It also supplies the right half of the posterior wall of the left ventricle and a strip of the inter-ventricular septum.

The left coronary artery divides, almost immediately after its origin from the left anterior sulcus of the aorta, and under cover of the left auricle, into two branches, the chief branch being the anterior descending branch which passes down in the anterior inter-ventricular groove to the apex, curves round the apex, and ascends the posterior wall. The other, the left circumflex branch, passes to the left in the auriculo-ventricular groove. The left coronary artery supplies the left ventricle except the right half of the posterior wall, the left third of the anterior portion of the right ventricle, and part of the septum. Thus both vessels supply part of the posterior wall of the left ventricle, the anterior wall of the right ventricle, and the septum. The left aspect of the left ventricle and the anterior papillary muscle of the ventricle are only supplied by the left coronary artery. Further, the right branch of the auriculo-ventricular bundle is only supplied by the left coronary artery, while the left branch is usually supplied by both.

From his studies Gross also concludes that the heart is perhaps the richest organ in the body as regards capillary and pre-capillary anastomoses between branches of the same artery as well as between branches of both arteries, and, further, that as age advances there is also an anastomosis between the vessels in the epicardial fat and other adjacent parts and the coronaries—a fact which has a certain clinical bearing in explaining some of the features presented by cases of occlusion in later life.

Recently Kugel,¹⁶ a co-worker with Gross, has more fully demonstrated that an artery, called by him the "arteria anastomotica auricularis magna," which constantly links the right and left coronary arteries, usually passes from the circumflex branch of the left coronary artery to the circumflex branch of the right coronary artery through the inter-auricular septum. Incidentally this is the artery which sends twigs to the aortic cusp of the mitral valve when that valve is vascularized.

The question of anastomosis has been investigated much earlier and from different standpoints. In more immediate connexion with our discussion one might mention the work of Millar and Matthews¹⁷ on ligation of the descending branch of the left coronary artery in dogs from which the presence of anastomosis was inferred, and the more recent

and more extensive work of Smith,¹⁸ who arrived at the same conclusion by a similar method. Smith further correlated certain electro-cardiographic results with ligation of the left descending branch in dogs, and among several clinical cases reports,¹⁹ with electro-cardiographic records, one of a man who had the left descending branch ligatured for the stoppage of hæmorrhage from the heart wall following a self-inflicted wound.

MONOD ANATOMY

When we come to consider the morbid processes which are prone to affect the coronary arteries, we find that these can be classified into four clearly defined conditions. A classification built on minute histological detail is not necessary for the purpose of this discussion, and would probably in any case lead to pointless argument, but unless some uniform and simple classification is accepted confusion is likely to arise owing to the variety of terms that are often applied to the same pathological condition.

The four conditions with which I shall deal are atheroma, arterio-sclerosis, syphilis, and calcareous degeneration. As an example of the need for uniform nomenclature may be cited the cases of three recent papers directly or indirectly dealing with coronary artery disease. Apart from syphilis, in one English paper atheroma is the only term employed to denote lesions of the coronary arteries, while in another English paper the term arterio-sclerosis alone is employed. In an American paper the term arterio-sclerosis is used with hypertension as an added condition, while the term atheroma is not once mentioned. The term athero-sclerosis also occasionally crops up. A definition of the terms proposed to be employed would therefore appear to be necessary.

Atheroma—The commonest primary lesion in the coronaries is a patchy disease, first affecting the deeper layers of the intima. While there may be proliferation of fibrous elements on the aspect nearer the lumen of the vessel the deeper parts tend to degenerate, and in the later stages deformity is produced, encroaching on the lumen. Whether beginning originally as a fatty degeneration or not it is essentially the same condition as that called atheroma in the aorta, and, though with less frequency in the coronaries than in the aorta, is liable to produce atheromatous ulcer with a special tendency to thrombus formation. Atheroma is the term which I shall employ for this condition, as it affects the coronaries. It is to be noted that not only is the disease patchy in its local manifestation, but that it is also quite irregular in its incidence in different parts of the same body, so that the aorta, the coronaries, or the cerebral arteries may be the seat of well-marked atheroma though the accessible arteries of the body give no indication of its presence.

Arterio-sclerosis—The second lesion met with is a much more diffuse process, characterized by thickening of the media and intima, probably beginning in the media as a hyperplasia and leading at times to a certain degree of fibrous transformation of the muscular wall. It is the same as that described as the arterio-sclerosis of high blood pressure, and it may or may not produce any narrowing of the lumen of the vessel. It is much more uniform in its distribution throughout the body than is atheroma, and may be found throughout the vascular system, though certain parts may suffer more than others. The term arterio-sclerosis shall be confined to this type.

Syphilis—While aortic syphilis is one of the commonest visceral manifestations of that disease its presence in the course of the coronary arteries is comparatively rare. The coronary arteries, however, are liable to be implicated at their orifices in a patch of syphilitic mesoarteritis, thus producing narrowing of their lumina where they arise just above the aortic cusps.

Calcification—The fourth condition met with is calcareous degeneration, and it is frequently found superimposed on either atheroma or arterio-sclerosis, though it may occur as a primary medial degeneration. The deformity it produces in the coronary arteries in association with atheroma makes it a potent factor in diminishing the lumen, either directly or by the formation of thrombus on its surface.

If the purists in pathological terminology will agree to

accept such a classification it will, I am sure, meet all the requirements of the present discussion.

To obtain some idea of the relative frequency of these lesions of the coronary arteries, through the courtesy of Professor Muir, I took the figures from 1,000 consecutive *post-mortem* examinations made in the Western Infirmary, Glasgow, using only the routine reports of the naked eye findings. It will be understood, therefore, that the figures will be below, rather than above, the actual, because the state of the coronary arteries was not mentioned in every report, and, further, the coronary arterioles did not come under observation.

Under these conditions I was surprised to find that out of 1,000 consecutive *post-mortem* examinations made, there were 371 cases in which note was made by naked-eye observation of a lesion, whether trifling or severe, of the coronary arteries (see table). Of this number the average

*Lesions of Coronary Arteries with Accompanying Muscle Defects,
Found in 1 000 Consecutive Post-mortem Examinations*

Coronary Lesions	Number	Fibrosis Patchy or Diffuse	Fibrosis and Fatty	Fatty Only	No Fibrosis or Fatty
A	162	63	7	26	66
A and A S	96	52	1	12	31
A and C	26	18	3	1	4
A and S	8	2	0	0	6
A A S and C	6	6	0	0	0
A A S and S	1	1	0	0	0
A S	60	30	1	8	21
A S and C	4	1	0	1	2
A S and S	1	0	0	0	1
C	4	3	0	0	1
S	3	2	0	0	1
Total lesions found	371	178	12	48	133
No lesion	629	68	—	—	—

A = Atheroma A S = Arterio-sclerosis C = Calcification S = Syphilis

age of the patients was 55.4, the youngest being 13 and the oldest 85 years, and the causes of death were about as varied as one gets in any general hospital. Of these 371 cases 238 showed a definite lesion of the myocardium, 178 presented fibrosis, either patchy or diffuse, 12 fibrosis with fatty change, 48 fatty change alone, and in 133, or 35.9 per cent, no obvious change was present or there was only simple or brown atrophy or hypertrophy. Thus the predominant lesion present was fibrosis, as it was found 180 times (51.2 per cent) in 371 cases with coronary artery lesions. In the remainder of the 1,000 cases in which no lesion of the coronary arteries was noted fibrosis occurred in only 68 (10.8 per cent), the average age being 48.4 years. The lesions found in these 371 cases, with the percentage incidence of fibrosis were as follows:

Atheroma	299 (80.6%)	with fibrosis in	153 (51.2%)
Arterio-sclerosis	168 (45.3%)	"	92 (54.7%)
Calcification	40 (10.8%)	"	31 (77.5%)
Syphilis (at or near an orifice)	13 (3.5%)	"	5 (38.0%)

Using fibrosis, then, as an index of the effect of the various lesions of the coronary arteries, we found that calcification when present was the factor most likely to produce a lesion of the myocardium. It was usually found in association with atheroma or with atheroma and arterio-sclerosis.

There were 97 cases in which the lesion of the arteries was specially noted as producing definite narrowing or actual blockage of the lumen.

Atheroma was present	in 85	with fibrosis in	82 per cent
Arterio-sclerosis	in 31	"	84
Calcification	in 33	"	85
Syphilis	in 7	"	57

Fibrosis was present in 78, or 80.5 per cent of the 97 cases in contrast with 51.2 per cent of the whole group.

Thus, it may be inferred that when a lesion is sufficiently severe to narrow the lumen, no matter what the lesion, fibrosis is the natural result.

The last group I extracted from this series was that of 58 cases in which the patients died suddenly from coronary artery disease, or in which there was definite occlusion of a coronary artery or main branch. The average age in this group was likewise 55 years. Of the 58, atheroma was present in 49, or 84 per cent, arterio-sclerosis in 13, or 22 per cent, calcification in 20, or 34 per cent, and syphilis in 11, or 19 per cent. It is important to note that while this group is a little less than one-sixth of the total, about one-sixth of the cases of atheroma are found in it, one half of the cases of calcification, three-fourths of the cases of syphilis, but only one twelfth of the cases of arterio-sclerosis. This supports the view that atheroma, the commonest lesion, is also a serious one, while calcification or syphilis materially increases the gravity of the case in the direction of promoting occlusion of the vessel. Fibrosis was present in 48 of these cases, but there were 10 in which there is no note of any fibrosis in the heart muscle.

These cases present striking instances of the adaptability of the anastomotic channels in suitable circumstances, one of the conditions being slowness of the constricting process. The average age of the 10 patients was only 41. Space alone forbids details of these patients, all of whom died suddenly, all had well-marked, often extreme, old coronary lesions, and yet presented no gross fibrosis. More than half the cases had syphilis. One case must serve as an example. A female, aged 40, had suffered from angina for five years. At autopsy the right coronary artery was completely occluded with arterio-sclerosis, and there were syphilitic lesions in the aorta. The left coronary artery was small. There was no gross fibrosis and no recent thrombosis.

From this study, in addition to the general information regarding the frequency of the lesions and their effects, three points emerged which are worthy of note: (1) severe coronary artery narrowing may be present without obvious lesion in the myocardium, (2) old standing severe arterial lesions and actual occlusion with fibrosis may be present with no clinical history of its occurrence, (3) patients may die with symptoms suggesting coronary artery occlusion in which no such lesion is found.

GENERAL EFFECTS OF CORONARY ARTERY DISEASE

In general it may be said that there is a tendency for disease affecting the coronary arteries to produce diminution of their lumen. Rupture of a coronary artery, a condition analogous to that producing cerebral haemorrhage, must be very rare. Undoubted embolism causing blockage was not noted in this series.

The effect of the narrowing is to produce starvation atrophy in the parts supplied, followed by replacement fibrosis, or, if sudden complete occlusion is produced, infarction results, which may show necrosis and at a later date fibrosis, or sudden death may occur before either is manifest. The infarction is usually smaller than the area supplied by the blocked artery and is generally found to affect the middle or inner two-thirds of the heart wall. Fibrosis may, if sufficiently general, lead to dilatation of the chamber affected, or, if more localized and sufficiently severe, to aneurysm of the heart wall. As the descending branch of the left coronary artery is the vessel most commonly involved, the fibrosis is usually most marked towards the apex of the left ventricle, in the anterior papillary muscle of the left ventricle, and in part of the inter-ventricular septum.

If one takes a sufficiently wide outlook of the subject, it will be apparent that there can be no diagnostic symptomatology which will cover all cases of coronary artery disease. Thus it may be remembered that in the series of cases to which I have alluded the disease did not progress so far as to interfere appreciably with the blood supply in 133, or 35 per cent of the cases, at least no gross lesion in the muscle was apparent. In the remaining 238 cases only 58 could be said to have died as an immediate result of coronary artery lesions. In some of these a preliminary diagnosis, which would have been of value as

a guide to treatment, could not have been made, as the terminal event was the first indication of ill health. In an unknown proportion of the remainder, the coronary artery narrowing was no doubt a factor which promoted a fatal termination in the disease from which the patient chanced to die. In some patients death was due to ordinary cardiac failure, with or without dropsy, without any special symptoms or signs which might distinguish them from those dying with myocardial degeneration from other causes. In cases of arterio-sclerosis with high blood pressure, or in cases with evidence of atheroma in peripheral vessels, one might surmise that fibrosis of the myocardium due to these lesions in the coronary arteries was the cause of disease, if no other obvious cause was present. In some of them no doubt a more careful inquiry into the history during life might have directed the attention to the coronary arteries and made a diagnosis possible in view of the symptoms and signs that we now know occur in typical cases.

CORONARY ARTERY OCCLUSION

When the blockage is abrupt, as from thrombosis on an atheromatous or calcified patch, certain features are present with such regularity as to make diagnosis reasonably sure. Even when coronary artery thrombosis is recognized it must be understood that the result is still variable, depending on the size of the artery blocked, the actual branch that is affected, and the age of the patient. Hamman,⁵ in his review on the subject, has divided cases of coronary artery thrombosis into six classes, according to the course of events—namely (1) Cases of sudden death (2) Death in a few hours or days (3) Continued myocardial insufficiency, with death in weeks or months (4) Recovery after grave symptoms (5) Cases that are not grave but recognizable (6) Mild or uncertain cases.

The clinical features and diagnosis of coronary artery thrombosis will be dealt with in detail by subsequent speakers. The features that demand attention in coming to a diagnosis, and which I trust will be fully discussed, are, among others, the duration and situation of the pain, the associated symptoms such as collapse, vomiting, respiratory and mental distress, such signs as the rate and rhythm of the heart, the fall of blood pressure, pericardial friction, fever and leucocytosis, and the information that may be derived from electro-cardiograms.

I forbear to say more on these points than to repeat what emerged from the pathological inquiry. In a few cases old organized thrombosis may be present at autopsy without a history of antecedent acute illness, or there may be what appears to be a typical history and no thrombosis is found. The diagnosis must therefore be carefully assessed or it may readily overstep the truth.

PROGNOSIS

Once the diagnosis has been made the outlook is uncertain, and even the immediate prognosis can only be assessed after time has elapsed to gauge the response to treatment. In almost all cases the ultimate prognosis is bad, particularly in view of the absence of any evidence that arterio-sclerosis, atheroma, or calcification can be influenced materially by any known line of treatment. Gradually increasing cardiac weakness and sudden death at a subsequent date are not uncommon features. Until the diagnosis of minor manifestations is more accurate the number who recover cannot be stated. Judging from the old lesions found at autopsy those who make a good recovery, at least temporarily, must be fairly numerous.

TREATMENT

In considering treatment one must clearly distinguish between treatment of the actual disease which is affecting the coronary artery and treatment of a complication that may arise in the course of that disease, such as thrombosis.

It may be advisable to speak first of treatment of a case of coronary artery thrombosis. When the patient is struck down with such a catastrophe the first indication is to relieve the pain. The pain presents a striking contrast, in respect of its response to treatment, to that of true angina pectoris, where vaso-dilators may give instant relief. In this condition morphine is required, and often in large

doses. It may be stated that in cases of persistent anginal pain, or of low blood pressure, amyl nitrite is seldom effective and is usually dangerous. Morphine also aids in giving to the patient the mental and physical rest that is so essential. Some find digitalis of great value when the heart rate is accelerated, and in cases with auricular fibrillation the indication is obvious. Cases that rally from the initial attack, but present in time the ordinary signs of cardiac failure, should be treated along the usual lines for that condition.

I have for some time been impressed with the value of glucose in strengthening the heart in cases of myocardial weakness, but I have not been able to follow a sufficiently large series of cases to make any dogmatic statement. The dose I have employed has been half a pound daily, and I should like to have the views of others who have adopted this line.

In considering treatment of the actual disease of the coronary arteries one must admit that the ideal stage at which to deal with it is the stage before it has produced any effects on the heart, and the treatment resolves itself ultimately into the prevention of such conditions as atheroma and arterio-sclerosis. This implies a knowledge of etiology that is far from efficient.

Arterio-sclerosis of the hypertensive type has been much discussed for many years. As we have seen, it is a widespread condition as a rule, and so may be recognized before it has produced any effect on the cardiac muscle. Since the introduction of the sphygmomanometer some useful and much useless speculation has been printed. In certain cases it would appear that the thickening of the arterial wall is a direct result of hyperpiesis without kidney disease, while in others disease of the kidney appears to produce both. Over twenty years ago W. Russell¹¹ enunciated the view that arterio-sclerosis was due to the putrefaction of protein bodies in the intestine, and a few years ago Batty Shaw,¹ in his work on hyperpiesis, gave further support to that view. Treatment directed against the causes of hyperpiesis may then be of some value. The association of arterio-sclerosis and hard physical labour has not been clearly defined, though all conditions that tend to raise the blood pressure, even intermittently, over a long time may be expected to play a part.

Atheroma is more elusive even than arterio-sclerosis, there need be nothing in the patient to give a clue to the condition. Irregular in its distribution as it usually is, and not infrequently confined to inaccessible vessels, no history of its presence may be forthcoming till an accident, such as cerebral or coronary thrombosis, occurs. Its predilection for the aorta should direct attention to a careful assessment of all points that might assist in a diagnosis. It causes a weakening of the elastic tissue and leads to fusiform dilatation, which may be detected by x-rays, by percussion over the manubrium, by palpation in the episternal notch, or by accentuation of the aortic second sound, these being of most value when the blood pressure is low and the Wassermann reaction negative.

With regard to the causes, one title—that of senile atheroma—suggests that it is a natural process associated with old age. Though resident physicians have been known to index cases as senility and enter them on dismissal as cured, the prospect is not so hopeful for those who have had a little more experience in their profession. It is scarcely possible to assign any cause for the condition in the present state of knowledge. It is essentially a degenerative process. Age, physical strain, infections, and disorders of metabolism have all been assigned as causes in different cases. The special susceptibility of the coronary arteries has suggested that one of the factors may be the constant buffeting they receive from the contracting ventricles, and it has been suggested that the relative predisposition of the descending branch of the left coronary artery might be explained by the position of the vessel in relation to the sternum.

In these remarks I am afraid I have only presented what are to me the difficulties and have not added anything constructive to the treatment of these diseases. It is important, however, to face the facts, and not to rest content with merely treating what ails, after all, the accidents superimposed on the primary condition. I have

attempted, and have only very imperfectly managed, to present you with the broad aspects of the subject. Diseases of the coronary arteries present a varied picture, and certain of the more dramatic aspects are apt to blind one to the fundamental condition. These remarks, however, will have been justified if they lead to a very general discussion this forenoon.

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THE ETIOLOGY OF GLAUCOMA.*

BY

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FROM the days when ophthalmology was first a science the etiology of glaucoma has given rise to investigations and discussions innumerable, to-day, although our knowledge has advanced, we are still quarrelling over the matter. I do not imagine for a moment that we have solved the problem, or that we have ended our quarrels, it is more likely that we are starting them afresh. But I would suggest that the trend of modern thought is throwing some new light upon the subject, and is introducing us to a completely new aspect of it. For too long the attention of investigators has been focused upon the gross pathological changes which have been observed in eyes excised for established glaucoma. The findings in these have almost invariably been interpreted as the essential causal factors in the disease, while it is more than possible that they may have been merely subsidiary causes, or even results. The essential cause is almost certainly something deeper and more subtle, and to discover its nature we shall have to go more deeply into the problem. Before we are in a position to understand pathological changes in the tension of the eye we must investigate first of all the more fundamental question of the maintenance of the intraocular pressure at its normal level and the variations to which it may be subjected under physiological conditions.

At the outset of any problem which concerns itself with the intraocular pressure the first matter to be settled is the nature of the processes controlling the formation of the aqueous humour, for these essentially must play the most predominant role in the determination of any pressure conditions, and, until agreement can be reached upon this, we can never arrive at a satisfactory or generally acceptable theory of the etiology of glaucoma. This is, indeed, the most fundamental question in the physiology of the eye, and, strangely, it is a question on which there is, as yet, a great diversity of opinion. To it I propose to suggest a very definite answer: the aqueous is not a secretion, nor is it, in normal circumstances, a transudate. It is, on the other hand, a dialysate of the capillary blood, formed by the same processes as the other tissue fluids, the only difference being that the process is modified by the relative impermeability of the ocular capillaries in order to allow the physiological requirements of the eye to be met. If the eye is to be an efficient organ of vision it is essential that its fluid contents be kept clear and practically free from colloidal micelles to allow the light to pass through undisturbed, and this is accomplished by making the capillary walls relatively impermeable. If the dioptric apparatus of the eye is to be kept properly adjusted it is essential that

the various elements in the refractive system be kept each accurately in its own proper position, a condition which is brought about by making the eyeball taut and filled with fluid under pressure, this again is accomplished, as we shall see later, by the same process of making the capillary walls relatively impermeable. The permeability of the capillary walls varies within wide limits throughout the body from organ to organ, and, in each organ, from time to time, adapting itself to suit the requirements of each peculiar case, thus, for example, in order that the functions of the liver may be carried out efficiently, the capillaries here are extremely permeable. By a modification of the same universal physiological process in the opposite direction, the eye has become biologically adapted as an organ of vision, no more simple means could have been chosen, and I know of no more beautiful example of the purposive and teleological activities of the living organism.

The argument which has led me to adopt this view would take too long to go into in detail. It is essentially a physico-chemical one, and in essence it is as follows: A dialysate in equilibrium with its parent fluid must have a very precise and definite chemical composition, it must have a very definite osmotic pressure, a definite reaction, a definite electrical potential, and there must be a definite relationship between the hydrostatic pressure at which it is maintained and that of the parent fluid.

During the past few years we have analysed the aqueous humour chemically, comparing it with the arterial and venous blood. We have measured its osmotic pressure, its electrical potential, its reaction, and determined the pressures in the chambers of the eye and in the arteries and veins. We have done it in normal conditions and in experimental variations from the normal, taking minute precautions against sources of error, and we have satisfied ourselves that the aqueous in all conditions is in complete thermo-dynamical equilibrium with the plasma—chemically, osmotically, electrically, and hydrostatically.

It must be remembered that these relationships are very complicated and very precise, and if the aqueous shows all these very complex properties, it seems illogical to deny that it is a dialysate in the absence of any definite reason to the contrary. There is no evidence, experimental or otherwise, which I know, or which I can find in the literature, and which will bear legitimate criticism, which can detract from this conclusion, to my way of thinking, at any rate, we are forced to accept it. Indeed, I think that the physico-chemical evidence which we have put forward is the most unequivocal obtainable. In the last resort the formation of the aqueous humour is a physico-chemical process. In a case such as this, anatomical evidence must be subservient to physiological findings. In much of the physiological work which has been done upon the eye confusion has arisen from a failure to appreciate the ease with which the normal equilibrium is disturbed, and many of the results lay themselves open to the criticism of reasoning from the abnormal to the normal. From this criticism a physico-chemical method of inquiry is almost entirely free. We can separate the aqueous from the influences of the complex changes which beset it *in vivo*, and in the isolation of the test tube we can determine with a very great degree of precision what the normal really is. Similarly, after introducing abnormal conditions, we can repeat the same process, and by comparison construct a coherent picture of the train of events as they have actually occurred.

The second fundamental question to be answered is that of the circulation of the aqueous humour. It is to be remembered that although I have used the word "equilibrium," the meaning is a dynamic and not a static equilibrium. All vital equilibria are of this nature. Three factors enter into the circulation of the fluid in the eye. There is in the first place a continuous metabolic interchange between the blood and the aqueous humour through the capillary walls, on either side of which the balancing hydrostatic and osmotic pressures are continually fluctuating, conditioning a flow of fluid now in one direction, now in another, so that the whole is continually renewed. Secondly, there is an internal thermal circulation caused by convection currents in the anterior chamber. More important, there is a through-and-through pressure circulation. We measured the pressure in the intrascleral

* The opening paper of a discussion in the Section of Ophthalmology at the Annual Meeting of the British Medical Association Cardiff 1928.

veins, and we found that, while in normal circumstances the venous pressure here was higher than the intraocular, when the intraocular pressure was raised it rose more rapidly than the venous pressure and readily exceeded it. The canal of Schlemm is in direct continuity with these venous exits, and it seems to follow that when the chamber pressure rises suddenly it exceeds the pressure here, and this excess will condition an outflow of aqueous. Such rises of pressure will be continually provided by the movements of the ocular muscles, for these have a larger effect on the tension of the eye than may be imagined. By stimulating the orbicularis to contract it has been found with a manometer inserted into the eye that pressures of the order of 40 to 60 mm. of mercury are easily attained. This action is doubtless assisted by the suction of the scleral spur described by Professor Thomson, and the result of the two factors will be an almost continuous, though very minute, circulation of fluid. This appears to act as a safety valve mechanism to maintain the intraocular pressure at its normal level, for in a globe like the eye, whose walls are feebly distensible, the expulsion of a very small quantity of fluid entails a large fall of internal pressure.

Based on our experimental studies we have thus arrived at the conclusion that the aqueous humour is in a state of continuous dynamic equilibrium with the capillary blood through the capillary walls, and that it is propelled through the eye with a small but efficient circulation. Using this as a basis for our inquiry into the cause of pathological rises of pressure, we may summarize the position from which we start under these three heads:

I. The intraocular pressure is maintained at its normal equilibrium by the height of the blood pressure in the capillaries, less the difference in osmotic pressure between the aqueous humour and the plasma.

II. Being maintained at this level the intraocular pressure may be varied:

1. By altering the equilibrium level (a) by raising the blood pressure in the capillaries, either by varying the arterial blood pressure, the venous pressure, or the local capillary pressure, (b) by varying the difference between the osmotic pressure of the plasma and the aqueous. Since the capillaries are freely permeable to crystalloids, the only common clinical condition wherein this can occur is when the colloid (protein) content of the aqueous is raised.

2. Since the sclerotic is practically non-distensible, the pressure may also be raised by increasing the volume of the contents of the eye. The only common condition wherein this occurs is when the volume of the vitreous and lens are increased by physico-chemical influences involving changes in turgidity pressure.

III. In normal circumstances these changes in pressure are to a large extent compensated by the expulsion of some of the aqueous through what we have called the safety valve mechanism of the canal of Schlemm, the lens and vitreous partially filling up the anterior chamber. The aqueous thus acts, within limits, as an elastic cushion, tending to maintain the intraocular pressure at its normal level. If, however, the swelling is great, the anterior chamber may be abolished, in which case an acute rise of tension will ensue, and again if the exit channels are rendered inefficient so that they cannot deal with an increased, or even with a normal, pressure circulation, whether it be by the formation of synechia, or by sclerosis, or by any other means, a rise in pressure will be evident at a much earlier stage. Not only will aqueous be pushed out under these conditions, but the uveal blood channels will be compressed as well, in which case the feeding arteries will pile up pressure to maintain the circulation at a higher level, until eventually their limit of effective pressure may be reached and finally overcome, in the first case the tension will be permanently raised, in the second the eye will be strangulated.

Starting, then, with these basic factors as a foundation we can proceed to apply them to the clinical condition of glaucoma.

With regard to the first of these influences—the blood pressure in the capillaries—it is evident that the influence of both the arterial and the venous pressures will be felt only

in so far as their effects are manifested in this part of the circulation. There is a large amount of statistical evidence now available, which indicates definitely that a high blood pressure in itself is not an essential, nor even an important factor in the etiology of glaucoma. The reason for this is obvious when we remember that the arterio sclerosis which usually accompanies a persistently elevated blood pressure damps down the capillary flow to such an extent that the circulation here is frequently less than normal. There is one important thing to be remembered in this connexion: in the normal individual the blood pressure is kept at a remarkably constant height, but in the high pressure subject the regulating mechanism has ceased to be adequate, and the pressure, in addition to being kept at an abnormally high level, is subject to sudden and extensive variations excited by influences so slight as would have little or no recognizable effect in the normal person. To this extent, therefore, a hypertensive diathesis will predispose to an acute crisis in the eye. The venous pressure also is effective only in as far as its influence is felt in the capillaries. Since its variations, in comparison with the arterial side of the circulation, are less adequately damped down by a vasomotor mechanism, any local interference with the venous return from the eye readily produces a rise in capillary pressure which may precipitate a glaucomatous attack. The frequency with which phlebitis and periphlebitis of the vortex veins are seen in the pathological examination of glaucomatous eyes is significant in this connexion.

There remains for consideration the essential question of the capillary pressure itself. This is controlled by many factors as yet little understood—physical, chemical, nervous, hormonal, and psychical. The tendency for the occurrence of acute glaucoma in persons of an emotional temperament or during a nervous crisis is well known, and the etiological importance of the endocrine group of glands and their association with the sympathetic nervous system is also significant. Whatever the action of these ductless glands and the sympathetic nerve—and at present it can only be expressed as a vague and indefinite association—there is no evidence that any other action than vasomotor is called into play. The essential feature seems to be a state of capillary instability and a tendency to dilatation. There may be other factors than these, possibly the accumulation of some toxic material, of the nature and action of histamine, may have some influence. It is possible that such an injurious substance might be biochemical in nature, the result of faulty metabolism, such as might upset the delicately balanced mechanism of the endocrine glands or induce a condition of sympathicotonus. Whatever it is, it is unknown, and mere speculation is useless, all that we do know and can be sure about is the essential condition of capillary instability and dilatation.

We now come to the second factor—the difference between the osmotic pressure of the aqueous humour and the blood. The osmotic pressure may be considered to be made up of two components—that of the crystalloids and that of the colloids. Since the capillary walls are freely permeable to the former, only the latter can have a permanent influence on the tension of the eye. It may be of some significance, however, that there seems to be a tendency to hypotonicity in the blood of glaucomatous patients, for on the average in these subjects the total osmotic pressure is less and the sodium diminished in comparison with normal people. I do not think, however, that the changes which have been found are great enough or constant enough to entitle us to attach much etiological importance to them, such as they are, however, they tend to indicate a change in the general metabolism. Colloids, on the other hand, are normally unable to pass the capillaries of the eye, and therefore any tendency towards an equalization of the colloid osmotic pressure of the aqueous humour and of the blood will raise the pressure level in the eye. This may be done either by lowering the concentration of colloids in the blood or by raising the colloid content of the aqueous. The first of these is again unimportant clinically, and the blood of glaucomatous patients shows no decrease in its protein content. An increase in the protein content of the aqueous humour,

however, is a common occurrence in inflammatory states and cases of intinocular haemorrhage and thrombosis wherein pathological rises of tension are by no means unknown. It is to be remembered that in these cases the influence of the increase in colloids in raising the pressure level is increased by the obstruction to the free exit of fluid which the albuminous nature of the aqueous will bring about. Finally it is to be noted that the original cause of the entrance of colloid particles into the chambers of the eye is a dilatation of the capillaries involving an increase in the permeability of their walls, and thus we return again to our first consideration, the essentially important capillary circulation.

The remaining point to consider is the matter of changes in the volume of the contents of the globe, and among these the greatest interest centres round the changes which occur in the vitreous. The general appearance of a typical glaucomatous eye, with the anterior chamber shallow and the iris and lens pushed forward, strongly suggests that one of the commonest and most important changes which occur in this disease is an increase in the volume of the vitreous. The vitreous is a gel bathed in aqueous, its chemical constitution and its structure as seen under the ultra-microscope show that it is so. The main determinant of the volume of such a system is the amount of water which it retains in association with it—that is, the degree of hydration of its colloid particles. This question of the swelling of gels is an extremely interesting one, and, unfortunately, one about which little is known at present even in the domain of pure physical chemistry. We are working on it at the moment but the experiments are long and take weeks of observation, and it is too early yet to dogmatize on the results. This much we know, however, that the pressures generated on occasion may be enormous, it is the same turgidity pressure which the Egyptians used to such good purpose in their gigantic building operations. They inserted dry wedges of wood into the crevices of rocks, and when they poured water upon them the swelling of the wood split the rock asunder. We are as yet unaware of all the factors controlling the swelling. One influence is a change in the reaction of the vitreous within the limits compatible with life: an increase of the pH causes an increase of turgidity pressure, while a decrease of pH has the opposite effect. The concentration of salts is another determining factor, and there are others about which we know less. Whatever the mechanism may be in clinical conditions, it is evident that pressures may be generated in the vitreous of sufficient magnitude to push forward the lens and the iris, to expel most of the aqueous, and to compress the uveal blood vessels to a degree which will strangulate the eye.

These then, appear to be the main mechanisms whereby the intraocular pressure may be raised. When the pressure is raised the 'pressure circulation' makes its influence more markedly felt, and by the expulsion of some of the aqueous the normal pressure equilibrium is still maintained. With the anterior chamber rendered shallow, however, the margin of safety is lowered and a comparatively small increase of pressure, one with which the normal eye could deal quite safely, becomes a source of real danger. When, in addition, the exit channels lose their efficiency, the danger becomes greater, small rises of pressure become cumulative and large rises lead to complete and sudden strangulation of the globe. Probably many influences may act, either together or severally, in obstructing these channels, the formation of peripheral synechiae, sclerosis of the pectinate ligament, the deposition of iris pigment in the meshwork of the filtration angle, a defective inward pull of the ciliary muscle, or the pressure and obstruction of a gradually growing lens—each or all of these may be present and obstruct the exit of fluid but it seems obvious that in the majority of cases their influence is adjuvant rather than primary, consequential rather than causal.

It will be realized from what has been said already that the etiology of glaucoma is not to be sought in one direction alone. The rise of pressure which we call glaucoma is a symptom common to many clinical conditions, further, there are clinical conditions wherein many of the symptoms characteristic of glaucoma are present in which no rise of

pressure can be detected. It is easy to argue that in these cases rises of pressure may occur intermittently at times when they have not been detected, but this can hardly explain the fact that it frequently happens that the progress of symptoms does not by any means run parallel with the tension, and frequently continues after its efficient operative relief. If we admit that physico-chemical changes do occur in the vitreous in some of these cases, it does not seem improbable that they continue after the mere mechanical relief of tension. After all, the normal processes in the retina are ultimately physico-chemical in nature, and it is conceivable that they also may be deranged concomitantly. There is a considerable amount of experimental evidence, for example, that scotomata can be formed by inducing retinal oedema, but this question raises matters upon which so little has been done that their discussion seems unprofitable at the present time.

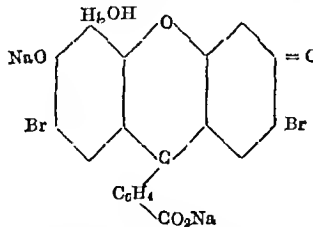
Taking glaucoma, then, as a pressure symptom merely, I would suggest that the two main factors in its etiology are these: first, a derangement of the capillary circulation, involving a capillary dilatation, which produces a rise in capillary pressure, or an increased permeability of their walls allowing an excess of colloids in the fluids of the eye, secondly, changes of a physico-chemical nature in the vitreous. About the first we know little, but are rapidly learning more, about the second we know less, but are slowly finding out more. These two may act either alone or together, and their effectivity in causing a permanent rise of pressure depends directly on the efficiency of the drainage channels in the region of the angle of the iris.

MERCUROCHROME 220 SOLUBLE

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In 1920 E. C. Whitto¹ obtained from dibromo fluorescein and mercuric acetate an insoluble amorphous substance which he regarded on analytical grounds as dibromohydroxymercuri fluorescein. He also analysed some commercial specimens of its disodium salt, "mercuromochrome 220 soluble," obtaining results which differed considerably from the theoretical values for the formula



Allowing for the water content of his samples, the agreement was better, but it is obvious that slight modifications in the method of manufacture might lead to the presence of one or more of the following impurities: (a) dibromofluorescein, (b) dibromo-*di*-hydroxymercuri-fluorescein, (c) mercuric salts, and (d) sodium acetate. Contamination with appreciable quantities of (a), (b), or (c) might considerably modify the therapeutic properties of the drug (cf. Macht and Harden²). Elementary analysis affords the only criterion of purity for a non-crystalline substance of this type, and mercury determinations alone are not sufficient for this purpose, since, for example, the presence of (b) or (c) might be masked by that of (a) or (d). Accordingly it became of interest to examine a number of commercial samples of mercuromochrome 220 more thoroughly, in order to determine first how nearly they approach in composition to the above formula, and, secondly, whether the pure specimens are pharmacologically superior to the others. The analytical results given in Table I for what purport to be four samples of the same compound are surprising. A, B, and C were obtained from ordinary trade

sources whilst D was manufactured by the published method by Messrs. British Colloids Limited

TABLE I

Mercurochrome 220 soluble	Found				Calc. for dry material		
	Hg%, ^a	Br%, ^b	Acetate % C H ₃ CO ₂	H ₂ O%	Hg%,	Br%,	CaH ₄ O ₂ %
Theoretical for CaH ₂ O ₈ Br ₂ N ₂ Hg					26.7	21.3	0.0
White (loc. cit.)	23.0				24-25		
A	37.4	10.4	6.9	8.5	40.9	11.4	7.5
B	24.1	17.4	1.2	11.3	27.2	19.6	1.3
C	28.2	23.0	2.4	10.5	31.5	25.7	2.7
D	23.2	18.8	1.5	10.5	25.0	21.0	1.6

^a By White's method (loc. cit.).

^b By the Carius method.

^c Loss of weight at 110° and 15 mm. pressure. Since all samples lost a trace of mercury under these conditions the water contents and in consequence the values for the composition of the dried products are probably rather high but in view of the relatively large discrepancies observed this is of little importance.

The high acetate content of A indicates that the insoluble intermediate from which it was prepared has been insufficiently purified by washing while the high mercury and low bromine values show that approximately 40 per cent of (b) (c), or similar impurities must be present. C, which contains, in addition to a rather large amount of acetate, more than the theoretical amount of both bromine and mercury, was probably prepared from an impure dibromofluorescein containing tetrabromofluorescein. Its composition could be imitated by adding a mixture of tribromohydroxymercuri fluorescein and dibromo-dihydroxymercuri-fluorescein to mercurochrome 220. On the other hand, samples B and D are fairly pure. Allowing for the moisture and small quantity of acetate present, D has nearly the theoretical composition.

Young White, and Swartz,² in their original paper on mercurochrome stated that 10 mg./kg. invariably killed rabbits in twenty-four hours and that *post mortem* examinations showed no gross lesions, 5 mg./kg. caused albuminuria lasting about a week. On the other hand, 10 mg./kg. were well tolerated by dogs. In later papers it is stated that this toxicity is about the same as for men.³ Other observations⁴ have been made both on animals and on men suffering from gonorrhoeal urethritis, from which the conclusions are made that the intravenous injection of mercurochrome with glucose is less toxic than mercurochrome alone, and that the therapeutic efficiency is either not affected or is even enhanced. Mercurochrome glucose therapy is strongly advocated in the treatment of all types of genito-urinary infection.⁵ Macht and his co-workers point out that mixtures of mercurochrome with glucose soon undergo a change with the precipitation of mercury, and although they agree that the glucose renders the mercurochrome less toxic, they insist that the mixture should be made immediately before injection.⁷ The same writers give evidence to show that the toxicity of mercurochrome 220 soluble is lower than has been stated: the average lethal dose for a rabbit being about 30 mg./kg. They regard their figures as due to the elimination of impurities by improving the method of production.

Clinical experience of the intravenous injection of mercurochrome in man during the past four years has impressed the fact upon one of us that a concentration of 1 per cent frequently gives rise to symptoms of mercurial poisoning as shown by acute colitis and diarrhoea with pinkish stools and that comparable doses of 0.4 per cent solution are relatively free from this objection. The present experiments were undertaken because our attention was drawn to the fact that certain samples of mercurochrome obtained in the open market were more toxic than others.

In the following toxicity experiments the injections were always made as a 0.4 per cent solution. Young adult rabbits, weighing about 1.5 to 2 kilograms were selected

for the toxicity tests, injections were made directly into the ear vein of doses varying from 10 to 27 mg. or more per kilogram of body weight.

The results at first obtained were somewhat discordant, since doses up to 25 mg./kg. of body weight were well tolerated by some animals, while similar or even smaller doses proved fatal in others in from five to ten days. The results of some experiments tabulated in ascending doses of the drug make this point clear.

TABLE II

Rabbit No.	Body Weight in Grams	Sample of Mercurochrome 220	Dose in mg./kg. of Body Weight	Loss of Weight in Grams during following 48 hours	Result.
1	3,000	A	10	Nil	Recovered
2	2,400	B	15	100	Recovered
4	2,200	A	18	401	Died (10 days)
5	2,000	B	20	300	Recovered
6	2,300	D	20	200	Recovered
7	1,850	A	22	200	Died (5 days)
9	1,900	A	25	300	Died (5 days)
10	1,750	D	27	250	Recovered
17	2,500	D	30	300	Recovered
18	2,400	D	50	400	Died (2 days)

The *post mortem* appearances observed in animals dying shortly after the intravenous injection of mercurochrome 220 were quite characteristic, and in addition to pinkish staining of the tissues and organs, especially the lungs, there was a marked excess of fluid, rose pink in colour, in the peritoneal and pleural cavities, the intensity of colour being in inverse ratio to the length of time that elapsed between injection of the drug and death.

These results suggested that the "source of origin" of the drug was of more importance than the magnitude of the dose given, within certain limits. At this stage the chemical constitution of several of the commercial brands, as already detailed, became available and on reading the results of the toxicity tests in the light of this information it was seen that toxicity depended, in part at any rate, upon the amount of mercury in the mercurochrome. This point is well shown in Chart A (showing experiments with sample A), and in Chart B, in which sample D was used.

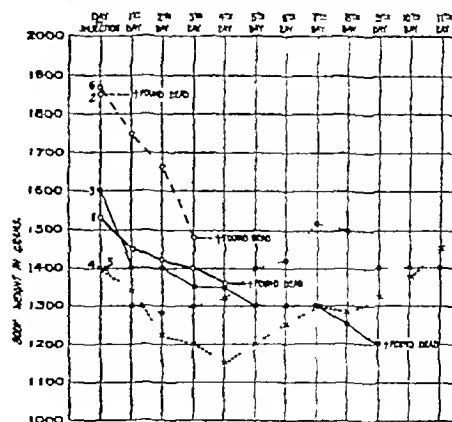


CHART A

The same dose—that is, 25 mg. per kilogram of body weight—was used for each of six normal animals of nearly equal weight.

The results shown in tabular form may be summarized by saying that four of the rabbits in Set A died within nine days with typical *post-mortem* appearances, the rabbits in Set B showed in most cases similar initial loss of body

weight, but were otherwise unaffected, and were alive and well at the end of six weeks' observation, with but one exception, which was killed accidentally.

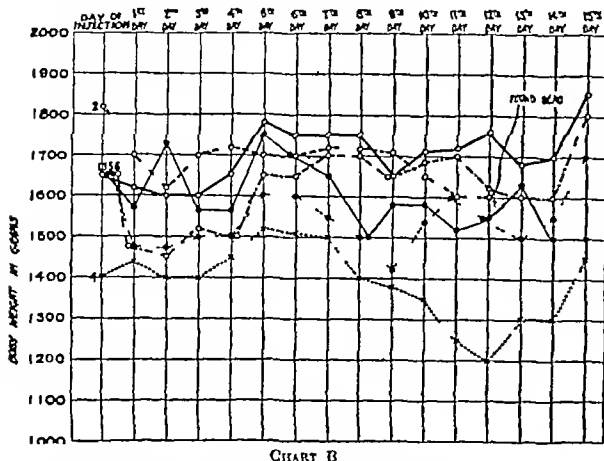


CHART B

Repetitions of the series of experiments set out in Chart B were made, and established the fact that the young adult rabbit would tolerate a dose of 25 mg/kg of body weight of Sample D when the concentration of the drug did not exceed 0.4 per cent. Further experiments were

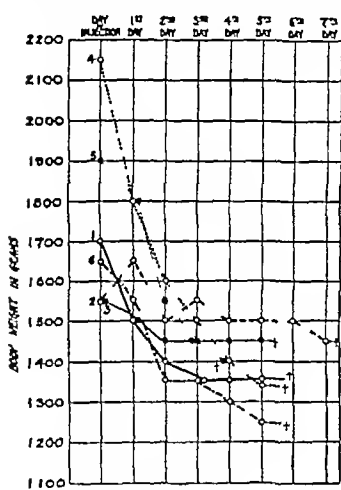


CHART C

carried out to investigate the effect of employing the same dose—namely, 25 mg/kg—but increasing the concentration of mercurochrome to 1 per cent solution. A typical series of experiments is set out in Chart C, which shows clearly the marked drop in body weight (in one instance amounting to 650 grams), this was associated with obvious malaise within forty-eight hours after injection, and later a fatal termination. These observations appear to support the

clinical statement referred to, that 0.4 per cent was to be preferred to the 1 per cent concentration for intravenous injection.

INHIBITION COEFFICIENT

At this stage tests were begun with Sample D to determine the inhibition coefficient—that is to say, the percentage of the drug which, when present in the nutrient medium, is sufficient to prevent the growth and multiplication of the test bacterium. The test organisms employed were *B. coli communis* isolated from a normal stool, and a highly virulent *Streptococcus longus* (haemolyticus) isolated from a fatal case of septicaemia following an infected insect bite. In the case of *B. coli* a solution of 1 part mercurochrome in 3,500 nutrient broth (equivalent to 0.002 per cent mercury) was the smallest quantity inhibiting growth, whilst, with the more sensitive streptococcus, growth was inhibited by a 1 in 8,000 dilution (=0.0004 per cent mercury).

THERAPEUTICAL OBSERVATIONS

During the past few months, among both hospital and private patients, an unusually large number of cases of pyrexia have occurred, which when first seen were of unknown origin. These cases presented the clinical picture of septicaemia, and in a number it was decided to employ mercurochrome. For this purpose Sample D was employed, because analytical results conformed most closely to the theoretical constitution.

In many of these cases we failed to establish bacteriologically the diagnosis of septicaemia based on clinical appearances. For example, in one instance—a schoolboy, aged 13—*Streptococcus longus* and *Staphylococcus aureus* were isolated from the pus of a suppurating nodule on the shin following a septic corn, which was the starting point of the illness, but no laboratory evidence could be obtained to show that either of these organisms had entered the blood stream. The result of the injection of mercurochrome in this case was dramatic. The symptoms immediately disappeared and the patient made an uninterrupted recovery.

In the case of another schoolboy, aged 14, a "blood blister" on the heel became septic, and on the third day rigors and a temperature of 104° F occurred. On the fifth day a spreading cellulitis of both legs and the left hand and wrist necessitated incisions, an antistreptococcus serum was injected, without improving the condition. Bacteriological investigations were made on the sixth day and showed a growth of *Staphylococcus pyogenes aureus* from the various incisions, and a blood culture showed the presence of the same organism in the circulating blood. Mercurochrome 15 ccm was injected after the withdrawal of the blood for culture, and further 10 ccm doses were injected on the eighth, tenth, twelfth, and fourteenth days. The temperature fell to a lower level, but the patient's condition became very grave. Cultures of blood made on the thirtieth day were sterile. Transfusion with Group IV blood was performed on the thirty-third day, and at the same time a specimen of blood was taken for cultural purposes, this also was sterile. A further transfusion was undertaken, but the patient gradually sank. In this case mercurochrome would appear to have dealt effectively with the general septicaemia, although it did not prevent a fatal termination.

From the remaining cases, three of puerperal sepsis and one of mastoid disease have been selected for description.

In these the septicaemic nature of the disease was demonstrated by the isolation of the responsible micro-organism from the peripheral blood, and the duration of the infection was sufficiently short to permit reproduction of the temperature charts, in which the arrows indicate the injection of mercurochrome (M) or antistreptococcus serum (S).

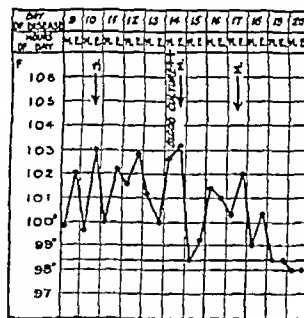


CHART D—D M.

A married woman (D M), aged 32, required forceps delivery after a prolonged labour. Rigor and a temperature of 104° F followed on the ninth day of the puerperium when 20 ccm of an antistreptococcus serum (polyvalent) was injected without producing any fall of temperature. On the fourteenth day a blood culture produced a growth of *Streptococcus longus* (haemolyticus). 15 ccm of mercurochrome was injected at the time the blood was withdrawn. The temperature fell to normal on the following morning. After forty-eight hours the temperature rose again (to 102° F). A second dose of 15 ccm mercurochrome was given, and was followed by a fall of temperature to normal on the nineteenth day, after which convalescence progressed uninterruptedly.

In another married woman (M T) aged 27 labour was uncomplicated. She was attended by a midwife. On the third day of the puerperium there occurred a rigor with a temperature of 106° F. A blood culture gave a heavy growth of *Streptococcus longus* (haemolyticus). On the fourth day 10 ccm of mercurochrome was injected intravenously. This was followed by a fall of temperature on the following day. On the sixth day a second dose of 10 ccm of mercurochrome was injected. On the eighth day there was a sudden rise of temperature to 104° F at which point 20 ccm of mercurochrome was injected. The temperature then fell steadily and was normal on the nineteenth day.

Pyrexia of unknown origin occurred in an unmarried woman (N W) aged 23. The clinical symptoms suggested typhoid, but examination of the faeces and urine gave negative results. The serum agglutination tests against typhoid and paratyphoid bacilli were negative also up to the twenty-first day. A blood culture on the twenty-seventh day showed a heavy growth of *Streptococcus longus* (haemolyticus) within forty-eight hours. On the twenty-ninth day 20 ccm of mercurochrome was injected intravenously followed on the thirtieth day of illness by 35 ccm of mercurochrome.

chrome immediately after the withdrawal of 10 ccm of blood for culture purposes. Of this culture three tubes only containing 2 ccm, 2 ccm and 2.5 ccm respectively of blood showed *Streptococcus laqueus* (*haemolyticus*) after seventy-two hours incubation. On the thirty-third day mercurochrome (21 ccm) was again injected. A blood culture on the fortieth day was sterile. On the next day the temperature fell to normal and did not rise again.

A girl (D. L.) aged 12 contracted measles at school eight days later she complained of earache which passed off. On the fifteenth day of illness the temperature suddenly rose to 103° F. with return of the earache. On the seventeenth day the tympanum was incised and a radical mastoid operation was performed. On the twentieth day a rigor occurred and the temperature rose to 103° F. 20 ccm

mercurochrome can effect a cure in a considerable proportion of cases.

We are, of course, aware that it has been stated that animals and men who have received mercurochrome exhibit no bactericidal properties in the blood and bile. This suggests that the action of this substance is not a simple effect on the micro-organisms, but that it follows the law of chemotherapy in that it acts only through the body tissues. Bayer 205 has little apparent action on typhus *in vitro*, though it may suffice to cure animals and men suffering from *T. gambiense*.

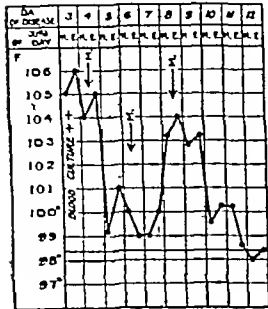


CHART E—M. T.

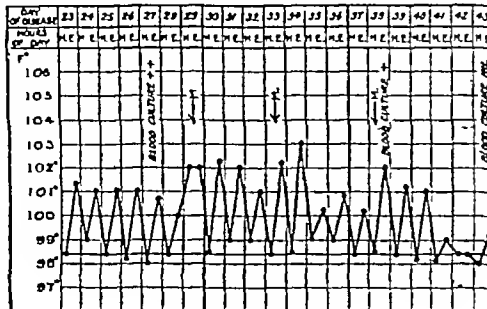


CHART F—A. W.

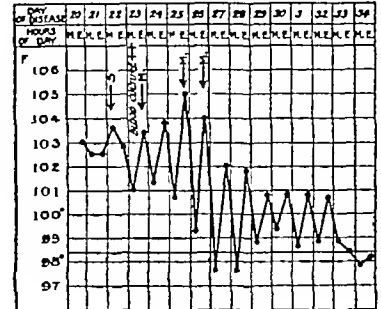


CHART G—D. L.

of a polyvalent antistreptococcal serum was injected without obvious improvement. On the eighteenth day a blood culture showed a heavy growth of the *Streptococcus pyogenes laqueus* (*haemolyticus*). 15 ccm of mercurochrome was injected immediately after the blood had been withdrawn from the vein. On the twentieth day 12 ccm of mercurochrome was injected on the twenty-first day 10 ccm and another 10 ccm on the thirtieth day of illness. The temperature had become normal on the thirty-first day and convalescence thereafter was uninterrupted.

The general impression produced during the use of mercurochrome D was that its therapeutic activity was similar to other types of mercurochrome used during the previous four years, but that it was distinctly less toxic. It is, of course, impossible to discount entirely the operations of the long arm of coincidence. In dealing with clinical evidence of the type here presented it is equally impossible to affirm that no other treatment would have been equally effective, or, indeed, that the patients would not have done equally well without any treatment. But controlled experiments on animals have made it clear that

CONCLUSIONS

- 1 The various specimens of mercurochrome on the market differ markedly in their chemical composition.
- 2 Toxicity appears to bear a direct relationship to purity of composition.
- 3 The neutral mercurochrome approximates in its analytical results to its known chemical constitution, the better the preparation as regards therapeutic efficiency and low toxicity.

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ARTIFICIAL HELIOTHERAPY IN THE ROUTINE TREATMENT OF SURGICAL TUBERCULOSIS

BY

ERIC C. MCKIE, M.B., Ch.B., F.R.C.S. Ed.

WITHIN the past decade much attention has been paid to the curative effect of sunlight and more especially to the effect of the ultra-violet rays, in many kinds of disease: rickets, marasmus, skin conditions, neurasthenia, rheumatism, hay fever, surgical tuberculosis and a host of other conditions have been described as being amenable to treatment by heliotherapy. Indeed, a reviewer of a recent publication on this subject says, "apparently there is hardly any condition for which they [the authors] fail to recommend ultra-violet light." Rollier has been the chief advocate of heliotherapy as a method of treating surgical tuberculosis, his results in alpine sanatoriums having been very successful. Owing to the lack of natural sunshine in this country artificial heliotherapy has been strongly urged as a useful and practical substitute, and many hospitals have installed artificial sunlight lamps.

Such an installation was introduced in Edinburgh City Hospital in the latter part of 1924, and since then all cases of surgical tuberculosis in which there was no definite contraindication such as pulmonary lesions or intolerance to light, have had routine heliotherapy.

Apart from the use of heliotherapy all the cases have been treated in the same manner as previously. The

treatment of the local lesions consists in putting the part as completely at rest as possible. In the case of bone and joint infection this is attained by splinting; in the case of abdominal tuberculosis and other gland lesions where such anatomical rest cannot be secured, physiological rest is as far as possible obtained. In all cases the general health of the patient has been thoroughly investigated, rest in bed is enforced during the earlier part of treatment, all foci of infection are sought out and, if possible, eradicated. The open air life of a sanatorium is insisted on and the wards are so constructed that whenever possible the patients are wheeled out in their beds into the open.

The results of treatment by heliotherapy in cases of surgical tuberculosis have been gauged hitherto chiefly by the clinical observation of individual cases, but statistics of larger series of cases are now available.

I have attempted in the following statistics to tabulate the results of the treatment of surgical tuberculosis in the Edinburgh City Hospital and to compare these with the results obtained before the introduction of heliotherapy.

The method of heliotherapy employed has been general exposure to the rays from a carbon arc lamp—using tungsten-coated carbons. The patients commenced with an exposure for ten minutes and this was increased daily by ten minutes until a daily exposure of two hours was being received. With this routine very few patients have come under my notice on whom the treatment had any deleterious effect such as skin irritation, gastro-intestinal upset, rise of temperature, loss of sleep, or general malaise. In a few

cases patients were found to be more tolerant to treatment by the mercury vapour lamp than by the carbon arc, the maximum exposure to the mercury lamp being half an hour.

The clinical result of this treatment was frequently most gratifying. I have personally observed how the general condition of the patient was improved, the muscle tone maintained or bettered, the appetite became good, the skin rapidly assumed a healthy tanned appearance, and how well the patients slept. In many instances the blood changes resultant upon the commencement of heliotherapy were studied, and in almost every case there was material increase of the red cell count and the haemoglobin content. The white cells also seemed to respond rapidly to the exhibition of ultra-violet rays, and a moderate leucocytosis has been demonstrable within a few days of the commencement of treatment. In a considerable number of cases the lymphocytes showed a relatively greater increase than the polymorphonuclear cells.

The statistics of the results of treatment have been compiled from the case records and discharge notes of the patients, and the features selected have been chosen as being most likely to exclude errors and anomalies, and so to form a sound basis upon which to draw conclusions likely to be of value. Certain facts had therefore to be considered: (1) In many of the cases it was impossible to estimate with any degree of accuracy the extent of the lesion when the patient commenced treatment. (2) Many of the patients had long-standing disease, and some showed gross deformity which demanded, if any such treatment were possible, operative intervention when the tuberculous process had quieted down. (3) The results of the treatment in hospital have been estimated by different medical officers, by some the results are claimed as cures in a higher percentage of cases than by others, who more modestly have estimated the majority of their patients as having made marked improvement or simply improvement. (4) The number of the cases is comparatively small when the different types of the disease are separately considered.

In order to exclude fallacies and arrive at sound conclusions the statistics given below have been selected as follows:

(1) The results of treatment classified as "cures" or "much improved" have been taken together in the statistics given as "very satisfactory." Further, to obtain broad general results, all cases shown as "cures," "much improved," or "improved" are classified as "satisfactory." All other cases are recorded together as "unsatisfactory."

(2) The cases have been dealt with in two age groups—up to 21 years and over 21 years, the total results for all ages have also been considered. It is hoped that by this division into age groups the majority of the frankly chronic cases will fall into the second age group, and can therefore be considered separately from the more recent cases.

(3) The average stay of the cases in each group in hospital has been approximately estimated in months.

(4) Only in those types of disease which were represented by a considerable number of cases are the figures tabulated in detail. The smaller groups of cases were also studied, and a note is added about their similarity to the other groups given.

The total number of patients with surgical tuberculosis treated before the introduction of artificial heliotherapy was 169, of whom 125 were below the age of 21. Since the artificial sunlight was introduced 153 patients have been treated, 114 being under 21 years of age. Table I shows the various types of disease treated.

TABLE I

Type of disease or site.	Cases before light treatment	Cases since light treatment.
Hip disease	26	25
Knee	7	20
Spinal	40	37
Abdominal	44	42
Glandular (cervical)	16	14
Lupus	5	3
Genito-urinary	5	2
Dactylitis	4	6
Ankle	4	2
Bone (miscellaneous)	5	4
Multiple	14	8
Joints (miscellaneous)	—	3
Other cases (eyes etc.)	3	2

Several cases where only two lesions were demonstrable have been included under two groups rather than classifying them as multiple.

The detailed analysis of all these types of disease and the results of treatment to a very great extent agree, and the salient features to which I would draw attention may best be demonstrated by the table given below.

TABLE II—Patients under 21 Years of Age

	Hips.	Spine	Knees	Abdomen	Glands
<i>Pre light Cases</i>					
No. of cases	13	28	7	40	10
Percentage very satisfactory	46.15	14.28	42.8	27.5	10
Percentage satisfactory	92.3	57.13	85.6	52.5	80
Average stay in hospital in months	10½	10½	13	4½	½
<i>Post light Cases</i>					
No. of cases	14	26	18	38	10
Percentage very satisfactory	57.14	26.92	38.9	21.05	10
Percentage satisfactory	71.43	69.3	88.9	68.42	80
Average stay in hospital in months	22	16½	16½	6½	6

In abdominal disease it was impossible to classify the different varieties of tuberculosis in the abdomen, such as plastic peritonitis, ascitic peritonitis, and tubercles mesenterica. The total figures have therefore been taken for comparison.

The patients with tuberculous cervical adenitis who came to Edinburgh City Hospital for treatment were those severer cases in which the lymph glands on both sides of the neck were extensively involved and frequently complicated by the presence of one or more sinuses. Not infrequently the patient had had one or more operations for the removal of the glands, but recurrence had followed.

Table III shows the results in all cases in those types of the disease where the figures for the total number of cases is considerably greater than for Age Group I (under 21 years) alone.

TABLE III—Total Results

	Hip	Spine	Abdomen
<i>Pre-light Cases</i>			
No. of cases	25	40	44
Percentage satisfactory	53.8	55	54.5
Average stay in hospital in months	12	11½	6
<i>Post-light Cases</i>			
No. of cases	25	37	42
Percentage satisfactory	44	69.8	64.3
Average stay in hospital in months	22½	13½	7

COMMENTS

1 The statistics of the other groups are from so few cases that it would be unwise to base any definite conclusions on them, but the results resemble closely those obtained from the larger series of cases.

2 In the figures detailed it should be noted that there has been an apparent improvement in the results obtained by the treatment of spinal disease and abdominal disease since the patients have had routine treatment by ultra-violet light. The results of treatment of hip disease by heliotherapy are apparently less satisfactory than those previously obtained. The results of treatment of disease of the knee-joint and of cervical glands show no definite difference since heliotherapy has been introduced.

3 It is to be noted also that the average duration of stay in hospital of patients in each of the five types of disease studied has materially increased. In cases of hip joint disease the average stay in hospital has been doubled, in disease of the spine the stay in hospital has been increased by six months, in knee joint cases the increase is three months, in abdominal disease two months, in glandular

disease three months' treatment is now, on the average, increased to six months. In the few instances of adults above the age of 21 the figures of the results roughly correspond with the figures of the younger patients.

CONCLUSIONS

A study of this series of cases forces me to the conclusion that the opinion which many of the earlier observers held that artificial heliotherapy would prove an almost specific treatment for cases of surgical tuberculosis has not been justified.

Without placing too great weight on any of the figures, and without seeking to arrive at final conclusions, I think it may be stated that in the series here detailed the results of cases treated by heliotherapy do not show any marked improvement over the cases of a similar nature treated without heliotherapy. There are figures which suggest that spinal disease and abdominal disease have been benefited by the ultra-violet light treatment but must we then conclude that the glandular disease in the neck and disease of the knee joint are unaffected, while disease of the hip-joint is definitely made worse by the heliotherapy? I prefer to draw the simple conclusion that on the whole the results obtained by the use of artificial heliotherapy when combined with routine sanatorium treatment and efficient local treatment, do not show any material improvement over the results obtained by treating cases by similar methods but without heliotherapy.

I believe that the reason for the increased average stay in hospital is due to the fact that the patients look so well and tanned that we are inclined to give the local lesion, however resistant to treatment, "another chance." One is almost tempted to ask the question, What would the results of the earlier cases have been if they too, had enjoyed the more prolonged sanatorium treatment?

The conclusion reached is that artificial heliotherapy does not change the fundamental principles of treatment of surgical tuberculosis. The efficient local measures taken to ensure rest and the general sanatorium treatment are the main methods to be adopted, heliotherapy is a useful aid to treatment as are many drugs. This last point I would specially emphasize because it is frequently observed that patients are moved in order that they may go to the sun room, splints and other apparatus which are usually religiously kept in place and undisturbed are then regarded as merely a nuisance and a hindrance to the transporting of the patient to the health giving rays.

I have to express my indebtedness to Mr F E Jardine for his permission to use these figures.

TUBERCULOSIS AS SEEN BY THE GENERAL PRACTITIONER*

BY

R CAMERON, M D, Ch B, D P H,
Cardiff

TUBERCULOSIS, from the general practitioner's point of view, embraces the whole range of this widespread and fatal scourge of man, from the predisposing and infecting agencies to the successful or unsuccessful termination. There is no one who has more opportunities to watch its inception and course, and there is no one who has more cause to regret lost chances of early recognition. Early diagnosis is in some cases tragically simple, in others as difficult as any which the physician has to make, since signs may be absent, and symptoms may be few, misleading, or equally applicable to other conditions of ill health. It is on early recognition that I wish to speak shortly.

It will be of service in considering our problem if one gets in focus some figures and conditions of the tuberculosis population in such a town as Cardiff and considers the relative numbers of those treated in their own homes and elsewhere. In the year 1926—according to the last available report of Dr Ralph Picken, the medical officer of health—527 new cases were ascertained by notification and otherwise, and the number of deaths was 283, both being

relatively reduced numbers for this city on account of the absence of any serious epidemic of influenza during the year.

These figures include both pulmonary and non-pulmonary cases, but they indicate only a small part of the question. The average duration of life of a phthisical person is roughly assumed to be about three years, and an actual survey of the proved cases at the end of 1926 showed that there were 1,274, while at least 150 cases of suspected tuberculosis were under the observation of the public health department.

The mortality mentioned (288) gives a tuberculosis death rate of 1.28 per 1,000, and it is important to note that the proportion of deaths from phthisis alone to deaths from all causes in Cardiff, between the ages of 16 and 65 years, was roughly 20 per cent (or one-fifth of the whole).

A further investigation revealed a serious condition, which is probably equally prevalent in other towns, and may not be well known to doctors who visit by day only 46.1 per cent of the patients slept by themselves or in a separate room, and therefore at least an equal number of contacts were exposed to infection, for eight out of every twenty-four hours, from that class of carrier who is chiefly responsible for dissemination.

It is chiefly of importance to recognize that of the 1,274 patients with frank tuberculosis known to exist in December, 1926, 96 were in institutions and the rest were in their homes. Some of these were having treatment from the general practitioner alone, or in consultation with the tuberculosis physician, but a larger number were quiescent cases. It is obviously desirable that a larger number of beds should be available in hospital for active and advanced stages of the disease.

The practitioner may therefore be said to have his full share in co-operating with the Welsh National Memorial in treatment, and it is to be hoped that he will share also, so far as lies in his power, in the responsibility for preventive measures. Those include incessant vigilance for indications of the disease, especially in the finding of any material which may be used for laboratory examination, early notification, and early consultation with the tuberculosis physician, in and behind whom lies the whole strength of the tuberculosis service and organization. This includes services of pathologist, radiographer, hospital, and sanatorium. The general practitioner can assist to improve the patient's physique, his habits, and personal hygiene, and note and try to remedy domestic conditions.

To recognize pulmonary tuberculosis when physical signs are well established and sputum abundant is to be wise after the event, to diagnose the disease at such an early period of its course as to afford a reasonable prospect of its cure is an investigation requiring many factors. Two of these are: patience to collect all symptoms which point to the condition, and such knowledge of other diseases with similar onsets as to be able to exclude them. Pottenger's classification of all the well-known symptoms into three groups seems to me of great significance when we are aiming at the diagnosis of an obscure early case. They are: (1) Pulmonary—cough, expectoration, haemoptysis, and plenisy. (2) Reflex—pain, hyperaesthesia cough and laryngeal irritation. (3) Toxic—pyrexia, malaise, loss of weight, tachycardia, anaemia, indigestion.

Any or all of these may appear in every case of phthisis, but the order of their appearance in the march of events is certainly not always the same. In some they are frankly pulmonary from the beginning—cough, sputum, or haemoptysis—though even here those obvious signs probably obscure our observation of toxic effects. In the others—the larger number and those most easily overlooked—the only evidence of tuberculosis in the early stage of the disease is toxæmia, with the train of symptoms I have already mentioned. This superficial difference between two groups is due to the one being mainly a local reaction of the pulmonary tissue to the presence of a toxic foreign substance while the other is chiefly, but not entirely, a poisoning of the tissue cells of the body generally. In reality both processes are taking place in both groups, though not in the same degree of intensity. Even in the catarrhal group physical signs are later in appearing than symptoms, while in the remaining cases reliance has to be

*Read in opening a discussion in the Section of Tuberculosis of the Annual Meeting of the British Medical Association Cardiff, 1928.

placed on symptoms alone, mainly those of toxæmia, for directing attention to the possibility of pulmonary tuberculosis. For this reason it is well to consider the various modes of onset and how these vary in detail, since one of the chief pitfalls is found in concentrating on the discovery of physical signs which probably do not yet exist.

Some cases begin without any localizing signs, and only pyrexia, loss of weight, and cardiac and muscular weakness are present. In others anaemia is marked in addition, and such are frequently treated on the lines of chlorosis. Some complain of digestive disturbance, with extreme fatigue at some part of the day. In others again the neurones seem so susceptible to the toxin that neurasthenia fills the picture. Some patients have repeated attacks of something which resembles influenza—even to the pains of limbs and back. I have personally overlooked it in patients who had attacks like ague, and who had a history of malaria during the war.

The less ambiguous onsets, of course, are those in which bronchitis, pleurisy, or hæmoptysis is the first symptom. Even when all pulmonary symptoms are latent, the persistence for a time of pyrexia, malaise, and loss of weight should point strongly to tuberculosis. It is true that, in the complete absence of sputum, without which at an early stage diagnosis is never complete, the group of blood diseases must be excluded—Addison's and the secondary anaemias, leukaemia, and even typhoid—but each of these has distinctive tests which can be easily applied.

Of the symptoms mentioned rise of temperature is perhaps the most important. A constant use of the thermometer will save many mistakes in this, as in other branches of medicine. As pyrexia may not be present to a marked degree a proper method of observation must be practised. Skin temperature has no constant reliable value, and I object personally to the routine use of the rectum. A half-minute thermometer should be placed under the tongue for at least five minutes, with the lips quite shut. If the patient takes the evening temperature himself the thermometer need not be shaken down, but may be left for the doctor to read in the morning. Occasionally it may be necessary to take it several times a day. In such circumstances, or in any case, the patient should be provided with a thermometer, and his intelligent co-operation obtained.

The maximum temperature generally occurs between 5 and 8 p.m., but in acute *miliary tuberculosis* it may be higher in the morning. Exercise augments the temperature. A long walk—say, three miles on a level road—will raise the temperature of a normal individual. In convalescence, in anaemia, and in some debilitated conditions it will raise it to 100° F., and a temperature above this is indicative of tuberculosis.

The loss of weight can easily be taken by the patient himself and recorded regularly on a card with the temperature.

An important point in considering the value of such symptoms is to elicitate a clear family and personal history—in the former, because of the influence of tissue susceptibility and still more on account of the opportunities of infection. The personal history may help when there is a record of repeated febricula, of attacks of asthma lately developed, of pleurisy however remote, and, above all, of slight or severe hæmoptysis.

As lung tissue cannot be invaded without some damage to its elasticity, even at an early stage, deficient movement on the side involved may be present to a slight degree, and the other signs which may be present are cogwheel inspiration, deficient respiratory sounds, and a slight relative dullness. The route of spread, from the apex along the anterior margin, does not help at this early stage—if indeed any signs at all are present. Radiology may be of service, especially in hilar or bronchial gland tuberculosis, but I have seen the lung screened only in the later stages when physical signs are markedly present. Like all forms of x-ray practice, it requires expert interpretation.

Of the other indirect methods of diagnosis, the complement-fixation test and the tuberculo-opsone index have fallen into disuse on account of their uncertain value. The use of tuberculin for diagnosis, whether by injection,

skin inoculation, or the conjunctival route, has never found general favour, since in each case positive results have occurred in health or in healed lesions, while in certain cases of proved disease maximum doses have failed to cause a reaction (Madsen).

I have repeatedly said that the only real proof of tuberculosis is in producing the bacillus. This is comparatively easy when the case is one with cough and sputum, hæmoptysis, or pleural effusion. In all these material can and should be got which will reveal the organism on examination or animal injection. There is sometimes difficulty in obtaining such material in the other group I have attempted to indicate, but it can be had eventually in every case. In some cases of fibroid phthisis in children, in the insane, and in the closed bronchial gland cases it may also take time and trouble, but it is the duty of the physician to find it as early as possible. Since the tubercle bacillus is not destroyed by the gastric juice or by the putrefactive state of the intestine, it may be recovered from the faeces when sputum has been swallowed.

Next as an aid to diagnosis come symptoms, but these are present at an earlier period. They also continue throughout the course of the disease as the only real evidence of its activity and intensity. They are present from the beginning, but are frequently overlooked or ascribed to some other cause.

Physical signs and radiography are of service in judging the extent and progress of the pulmonary changes, but may occasionally support at an early stage the supposition which the symptoms imply. Family and personal history are valuable for corroborating other evidence.

The Sections.

SUMMARY OF PROCEEDINGS

(Continued from page 209)

SECTION OF THE HISTORY OF MEDICINE.

Wednesday, July 25th

IDEAS REGARDING THE NATURE AND TREATMENT OF DROPSY.

THE President of the Section, Mr. W. G. SPENCER, in opening the proceedings, referred to the fact that this was only the second year that the Section had been held, it was fitting that the inaugural meeting should have been held in Edinburgh, since the Edinburgh and Leith Division had been largely instrumental in bringing it to birth. Dr. J. D. COMRIE (Edinburgh) read a paper on the history of dropsy, which is published elsewhere in this issue (p. 229).

Discussing Dr. Comrie's paper Dr. J. A. NIXON (Bristol) referred to watery oedema or famine dropsy, first mentioned by Hesiod and subsequently by other ancient writers. In the Middle Ages the earliest allusion to it was in 1523, when it ravaged the French army besieging Naples. It was also noted among the defenders in the siege of Breda in 1625, and it was mentioned by Sydenham "Where scurvy leaves off, dropsy begins." In 1762 Lind quoted a letter from a British naval surgeon, necessarily familiar with scurvy, who notes as a novelty a form in which dropsy was an outstanding feature. Kollerthauer saw famine dropsy during Napoleon's retreat from Moscow. In 1847 the Medical Society of Ghent first defined its clinical characteristics—a form of oedema associated with bradycardia, polyuria, and asthenia, unattended by albuminuria, cardiac dilatation, or nourishment. The speaker quoted an interesting case of official stupidity exhibited by Sir Richard Temple during the Indian famine of 1877-78. This official mistook for fat the dropsical swellings produced by the cutting down of the diet of the people. His medical officer, Cornish, pointed out his chief's mistake, with the result that Temple received the K.C.S.I., while Cornish's name was struck out of the list of officers to be decorated for fighting the famine! Famine dropsy was reported in Lille in 1914 among the French civilians during the German occupation. Since then it had been heard of more and more

among prisoners of war and in some of the famine-stricken populations of Middle and Eastern Europe. The speaker had brought to his notice a curious instance of the difficulty of diagnosing these nutritional dropsies during the war. A form of dropsy was occasionally exhibited by Indian labour troops, was it beri-beri? Army officials, always ashamed of the presence of such nutritional diseases reflecting on the quality of the ration supplied, argued that it could not be beri-beri, because it did not occur among certain tribes—men fed in exactly the same way forming another detachment. However, after much difficulty the explanation was found in the confession that the immune tribesmen had, without authority to do so, supplemented their ration with rats eaten raw! The President referred to the surgical treatment of dropsy since the days when as a physician's clerk, at St Bartholomew's, he had seen cases treated by paracentesis, a painful and hazardous procedure, or alternatively by the use of Southey's tubes, with the danger of fatal erysipelas. He desired to say in word in favour of the old Talma Morrison operation of omentopexy, which had taught them much about the condition of the abdominal contents in dropsy, and had been occasionally successful in prolonging life for a considerable time. In a case in which he had been associated with de Havilland Hall he had, with the aid of omentopexy and other surgical procedures, lengthened a woman's life for at least four years, only to lose her from an overdose of some narcotic. Dr BUIST called the attention of the Section to the fact that percussion was used long before Auenbrugger.

WELSH PHYSICIANS AND THE RENAISSANCE.

Dr I. ROLAND WILLIAMS (Maenlochlog) read a paper on Welsh physicians and the Renaissance. He said that at that period there were two conflicting traditions: (1) of culture derived from the older universities, (2) a popular tradition, of course the older, originating in various superstitions and undoubtedly preoccupied with sheer filth and ordure as therapeutic agents. Traces of it still survived even to this day in out-of-the-way parts of the country. Another feature of this system was the fantastic employment of drugs of animal origin—for example, "eye of newt and toe of frog," etc. Even now goose grease and salt bacon had a distinct vogue. Such survivals showed how deep-rooted these beliefs and practices must have been, and by contrast therewith it was best possible to estimate the profound influence of the new learning on the practice of medicine in Wales. The physicians who came under it were stomped especially by the breadth of their cultural outlook. They laboured to extend the boundaries of learning in other subjects while pursuing their practice. Among the most notable of these Welsh physicians were Alexander Read, by birth a Scotsman, but who practised on the Welsh border, Robert Records of Tenby also a great mathematician, born in 1510, a Fellow of All Souls in 1531, at one time Comptroller of the Mint and inventor of the sign of equality (=). His chief medical work was *The Urinal of Physic*. Humphrey Lloyd of Denbigh (1527), who also studied at Oxford, was private physician to the Chancellor of the University. His chief medical works were *The Judgment of Urine* and *The Treasury of Health*. Among the early translators of the classics was a Welsh physician, Thomas Phaer, who translated nine books of the Aeneid into English verse. Many of the Welsh grammarians were also physicians, chief among them was John Dafydd Rhys, who, after studying for many years in Italy and writing a favourite textbook on the Italian language, returned to Wales to practise amid the sombre environment of the Brecknock Beacons. He was just such a personality as Browning has depicted in "The Grammarian's Funeral."

The sectional secretary, Dr FREDERICK, in the absence of the author (Dr DIVERRES) read the paper on the Welsh physician in the Middle Ages. He dealt with his subject from its Druidical beginnings, through the Roman era down to the end of the twelfth century, illustrating his remarks by quotations from Welsh manuscripts. Dr ROLAND WILLIAMS, in the discussion, said that the codifiers of the Welsh laws were preoccupied with the medico-legal aspects of medicine—for example assessments of damages and of the value of medical services.

History of Scarlet Fever

Dr J. D. ROLLSTON read a paper on the history of scarlet fever. He said that it was only since the time of J. P. Ingrassias (1510-80) that scarlet fever had begun to be separated from other exanthemata. He called it "rossalia" or "rosania." Next Baillon described the principal varieties of the disease in 1575. In 1600 (circa) Daniel Sennert identified an epidemic in Wittenberg with "rossalia," and gave a good account of its varieties. Sydenham was supposed to have been the first to use the term "scarlatina," but the term "scarlett fever" is also found in Pepys. Sydenham appeared only to have been acquainted with a very mild form of the disease but possibly when Sydenham saw a bad case he failed to recognize it as such. However, he established it as a separate disease. In the eighteenth century many epidemics were described by various writers. Rosen von Rosenstein was one of the first to mention the possibility of a non-eruptive scarlet fever. There was undoubtedly a considerable increase in the disease during the last quarter of the eighteenth century. Many observers during the nineteenth century had shown the tendency of the disease to give rise to malignant outbreaks succeeded by mild ones (Graves, Bretonneau, etc.). Bretonneau also clearly differentiated scarlatina anginosa from diphtheria. During the nineteenth century the disease appeared for the first time in several new parts of the globe (Madaira, South America, and other places). The mortality from scarlet fever in this country reached its maximum in 1863, since when there had been a steady decline. Since the war there had been a great advance in our scientific knowledge of scarlet fever. Klein had suggested a streptococcal origin for scarlet fever in 1887, but it was not until 1923 that George and Gladys Dick had proved it and had subsequently evolved the Dick test and a curative serum.

The President, in the course of the discussion, recalled that between 1885 and 1887 Klein had worked on scarlet fever attributed to cow's milk, and had cultivated the cow's milk and set up surgical scarlet fever in calves. He had had the opportunity of watching Klein's work. "Surgical scarlet fever" was a recognized condition occurring after injury especially burns and scalds. Although not so common as formerly, he noted that in 1927 there were references to post-operative scarlet fever in infants, surgical scarlet fever, and to traumatic scarlet fever.

History of Cinchona

Mr C. J. S. THOMPSON read a communication on the history and lore of cinchona. He said that the mass of material was so great that he would briefly consider it in three aspects: traditional, empirical, and chemical. Its origin was very obscure, it was doubtful if it was known to the Indians, with the possible exception of the Malocotos tribe, a chief of which was the first recorded to have used the drug in 1600 in curing a Jesuit missionary. A Spanish functionary is said to have been cured by it in 1630. However, since its local name was "quina-quina," signifying "bark of barks" it was probable that some special value was attached to it. In modern times, on the contrary, Indians had exhibited prejudice against it. It was introduced into Europe by the Countess of Chinchona, wife of one of the viceroys of Peru, in 1639, after she had just been cured of ague by it, administered by her physician. Dr Juan de Vega. She returned to Spain in 1640 and brought a quantity with her. In 1659 Roland Sturm wrote a treatise on it, whence it appears to have been known in Rome, Brussels, and Antwerp. There was considerable dispute as to its efficacy. It was introduced into England in 1655 as the Jesuit's powder, and was soon after exploited by Robert Talbot who made his name and fortune by employing it as a secret remedy after his death his methods were published. Among his patients were Charles II and the Dauphin of France. The first appearance of Peruvian bark in regular medicine was in 1677 in the *London Pharmacopoeia*. La Condamine, a Frenchman, was the first to attempt to bring the plant to Europe, and it was first described botanically by Linnaeus in 1753. In 1839 Roxley suggested the introduction of cinchona into India and ultimately this was effected, but the Dutch managed to grow it in Java earlier.

The Dutch were indebted to an Englishman, Robert Ledger, for their first seeds. On the chemical side Gomez of Lisbon was the first to isolate the basic properties of the drug. In 1820 French chemists isolated quinine and cinchonine. Since then more than thirty alkaloids had been found in it, but the most important by far was quinine.

SECTION OF LARYNGOLOGY AND OTOTOLOGY

Wednesday, July 25th

CHRONIC ETHMOIDITIS

THE President of the Section, Dr D R PATERSON (Cardiff) took the chair at the opening meeting. Dr ROSS HALL, SKILLERN (Philadelphia), who read the opening paper on "Chronic ethmoiditis: its treatment, conservative and surgical," divided chronic ethmoiditis into the suppurative and non-suppurative types. In the first the infection was characterized by the formation and exudation of a purulent secretion, the secretion sometimes being thick and almost pure pus, at others thin and almost watery. The non-suppurative type was characterized by polypoid hypertrophies and the polyp formation was unaccompanied by true leucocytic pus. He thought that all now recognized the hyperplastic ethmoiditis as a separate pathological entity in contradistinction to the earlier known suppurative infection. When the two conditions were found combined this was due to the suppuration being superimposed on the hyperplasia, in fact, the greater the polyposis the more likely that the commoner forms of saprophytic organisms would find a suitable medium for their growth. He then detailed a classification of the ethmoidal labyrinth infections and discussed the various types. In the treatment of ethmoidal disease it was essential to provide for aeration and drainage. He had long believed that removing all infected tissue was as unnecessary as it was radical, that with proper assistance nature would do much to bring about a resolution. In a case of simple catarrhal infection characterized by mild headache, stuffy nose, and a fairly constant mucoid discharge with very little to show on rhinoscopic examination, he found the removal of the swollen middle turbinate almost a *sine qua non* to treatment. The purpose of this was to allow for ventilation and permit the application of cotton poultices saturated with a silver preparation in glycerin. In cases of combined suppuration affecting the entire labyrinth he was quite satisfied that nothing but a so-called complete extirpation was of any avail. He described, with lantern slides, various operations for ethmoidal extirpation.

Mr WALTER G. HOWARTH approached the subject from the point of view of one who believed in the efficacy of an external operation in certain cases, and suggested that this method of treatment might be made use of more often. In chronic generalized polyposis improvement or cure might follow simple lavage and general hygiene. These cases were not usually seen until the cells themselves had become involved, and he did not then think that removal of the middle turbinate alone was of much use. The bone beneath must also be removed. In chronic suppuration with no polyp, but with crust formation and discharge, it was often found that after apparently thorough intranasal operative treatment there arose a doubt as to whether benefit was likely to accrue from any further operation. After many years he had come to the conclusion that some external operation assured complete exposure. He had employed the external operation for fifteen years, and had definitely noticed that ethmoidal suppuration was the key to disease of the frontal sinus. The approach from outside gave a more perfect exposure of all the ethmoidal cells, was not dangerous, and in actual practice the scar produced was almost negligible. He did not guarantee even this method to expose all the ethmoidal cells in every case.

The President emphasized conservative treatment. Looking over a few of his own cases he discovered some in which he had urged operation years ago but had been refused (both polypoid and suppurative type), and since some of these cases had done remarkably well. It was well known that many patients did very well by relying on regular removal of the polyp, which were obvious on rhinoscopy,

and therefore easy to attack. With regard to Mr Howarth's remarks about the external operation he cordially agreed, but thought that there was some risk involved.

Mr E B WAGGETT drew attention to the association of ethmoiditis and antritis. He considered that more attention should be paid to the bulla of the ethmoid, and in all cases operated upon this cavity should be opened.

Mr HERBERT TILLEY insisted that it was necessary to use the endoscope for the examination of the posterior ethmoidal cells in all cases. He considered the endoscope an essential instrument in carrying out a thorough examination of the nose. He also stated that in all cases of chronic rhinitis he was in the habit of aspirating the antial cavity for the purposes of diagnosis. Mr WILLIAM HILL, on the other hand, advocated more restraint in the matter of puncturing antra and exploring cavities in the course of a routine examination. He did not see much difference between the treatment described by Dr Skillern and that which had been constantly practised in this country during the last ten years.

Dr P WATSON-WILLIAMS (Bristol) considered that pathologically the non-suppurative and suppurative types described by Professor Skillern and Mr Howarth as separate entities were really the result of the same type of infection. He agreed that the treatment of nasal infection by means of tampon applications was likely to find more favour in the future, but he thought that tamponage with vaccines rich in the specific antibodies would prove more useful. As regards diagnosis of the position of the infected cells, he thought his own method of aspiration by means of suitable trocars and cannulas more accurate than those mentioned by Dr Skillern. He had long ago given up all external operations, as he considered the ethmoidal cells, etc., could be cleared up in all cases equally well by intranasal operations.

Mr SYME (Glasgow) believed that many cases of ethmoidal infection were not cured owing to the fact that the antrum and frontal sinus were not excluded as a focus of infection. He did not think that the external operation presented any advantages as regards complete removal of the diseased area when compared with the intranasal approach. Mr C A S RIDEAU (Portsmouth) drew attention to the constancy of pain between the eyes in cases of posterior ethmoidal suppuration. He was an advocate of the open operation in suitable cases, and stated that he had found that the maxillary antra were infected in practically all cases of infective ethmoiditis. Dr COVENS (Philadelphia) touched on the question of vaccine therapy as applied to nasal infections of the chronic type. He stated that in America the present tendency was not to rely greatly on this form of treatment. Mr HOGAN (Cork) upheld the methods of nasal examination recommended by Dr Watson-Williams, and drew attention to the advantages he had found accrued from the use of his transantral method of approaching the ethmoidal cells. Dr LOGAN TURNER (Edinburgh) thought that Mr Howarth's method of approach conformed more to the general principles of surgical treatment. He was himself personally convinced that infection could spread along the olfactory nerve sheaths to the meninges, and said that in the Edinburgh museum there were three specimens demonstrating this both macroscopically and microscopically.

Optic Neuritis due to Sphenoidal Sinusitis

Dr P WATSON-WILLIAMS read a short paper on a case of optic neuritis due to sphenoidal sinusitis located by the differential exploratory test and cured. He first mentioned that in cases of optic neuritis the saving of sight depended upon the drainage and cure of the focal infection. He reiterated the fact that the anatomy of the posterior ethmoidal cells and the sphenoidal sinus is very irregular. He then described a case of optic neuritis which had no nasal signs or symptoms of any kind. On examination by his usual technique both sphenoidal sinuses were found to be sterile, but the antrum and ethmoidal cells were infected on one side. Eventually, on more careful examination, a small left sphenoidal sinus was found, which had been missed on the first examination. It was filled with mucus and blood. Both sphenoidal sinuses

were opened and drained, and within three months the eye symptoms had disappeared. The object of reading the paper was to draw attention to the necessity of thoroughly investigating the nasal cavities in all cases of optic neuritis.

SECTION OF ORTHOPAEDICS

Wednesday July 25th

LOW BACKACHE AND SCIATICA

The first meeting of the Orthopaedic Section was held on Wednesday July 25th, with the President Sir JOHN LANN-THOMAS, K.B.E., in the chair. Mr W. A. COCHRANE (Edinburgh) opened a discussion on low back ache and sciatica. Mr Cochrane began by pointing out the frequency with which this complaint occurred, and estimated that back strains and injuries accounted for 20 per cent of all accidents in some large industrial concerns. He emphasized the difficulties of diagnosis and the importance of a routine clinical examination of every patient as well as the necessity for good stereoscopic roentgen photographs or ruling these, a lateral as well as an anterior-posterior view. He thought that milkinging was less common than many suspected, and that "compensation-itis" was often the direct result of delayed diagnosis and treatment; this delay produced a nervous mental state which would never have arisen if prompt treatment had been instituted. He classified the patients into five groups—namely (1) acute traumatic strain, (2) general postural strain, (3) lumbo-sacral strain, (4) sacro-iliac strain, (5) combined pelvic joint strain. Each of these required its own appropriate treatment. Mr Cochrane made a separate reference to "idiopathic sciatica," and referred to Professor Putti's views, with which he did not entirely agree, as he thought that certain abnormalities were more common and more important in producing "sciatica" than the discrepancies between the intervertebral canal and the nerve trunk. The speaker showed a number of excellent lantern slides illustrating the types of brel which often give rise to pain. He indicated how some could be diagnosed by inspection of the patient's back, and how others were revealed by x-rays or comparison with abnormal anatomical specimens.

Mr P. JENNER VERRALL, who had been investigating the backache which so often occurs in pregnant women thought that such patients were more orthopaedic than gynaecological and that the ideal attack was by a combination of the resources of these two branches of surgery. Similar pain was often due to a loaded rectum referred through the third sacral nerve. Apart from these causes he cited the following types: (1) Diminished lordosis with tenderness over the origin of the erector spinae and diminished postural tone of this muscle. This was due to prolonged strain from stooping, or from increased abdominal weight from pregnancy, abdominal fat or lorded and prolapsed intestine. (2) Increased lordosis, persisting after parturition leading to lessened tone of the abdominal muscles, and lumbo-sacral strain, curable by a temporary belt and exercises. (3) Increased lordosis, due to a flexed hip on one or both sides, often due to chronic inflammation or irritation of the ilio-psoas by the caecal appendix or sigmoid and curable by attention to the primary cause. (4) True sacro-iliac pain, characterized by the now recognized symptoms. Sacro-iliac subluxation after pregnancy was a real entity; these joints relaxed during the latter months of pregnancy, and their tone was restored *post partum* with that of the uterus. Too early strain would lead to weakness and displacement, an adequate rest time after parturition was indicated. A further pregnancy followed by a well-managed puerperium, would cure as in the case of the uterus but otherwise a suitable belt and pad, with or without mobilization, would meet the case. Somewhat similar relaxation occurred at the menstrual periods.

Mr D. MCNEAL AITKEN was impressed by the way in which the subject had been thrown open by previous speakers, especially in so far as they had emphasized the great importance of posture. He believed that "crush fractures" of the vertebrae were common and that such injuries might occur even in children when the vertebrae were largely cartilaginous. He thought that the quadratus lumborum was a muscle peculiarly liable to strain, and that it was

probably a factor in the production of one group of painful back. He agreed with previous speakers in their advocacy of prompt support and rest in accordance with the principles laid down so long ago by Hilton, and pointed out that muscular re-education was, as had already been stated by the opener, a very important part of the later treatment of such patients. Mr B. WHITCHURCH HOWELL spoke of the frequency of "lumbago" amongst the industrial classes. He treated simple cases of recent trauma of lumbar region by immobilization for a short time but mobilized the chronic cases under a general anaesthetic. He was against operative removal of a sacralized transverse process of the fifth lumbar vertebra in the present state of anatomical knowledge but thought exploration of the sciatic nerve gave very good results in stubborn cases of true sciatica. Mr A. ROCKY-JONES emphasized the importance of exactly locating the area of tenderness to pressure in any painful back. He described the physical signs on which he was accustomed to rely in diagnosing between the various groups, and spoke of certain difficulties he had found in the reading of x-rays of the lower third of the spine. Mr ALAN H. TODD thought that belts were at best a temporary remedy, and that the training of the abdominal muscles was a very important step towards permanent natural support. He believed that patients with injured backs suffered from the lack of medical men and masseuses possessed of special experience in this work, and that there would be little progress in this direction until hospital beds were available for such patients.

Dr MANNING WHITE (Nantwich) referred to possible infective causes, and Mr WATERFIELD (Banbury) and Dr SOLLY (Harrogate) followed. Dr MORRIS (Birmingham) considered that overwork and general debility played a large part in producing "lumbago." He had found Iaston's syrup a simple but effective remedy in several tired patients. The President spoke briefly of his past experiences in Cardiff, and then called on Mr COCHRANE to reply.

SECTION OF PREVENTIVE MEDICINE

Wednesday July 25th

CONTROL OF INFECTIOUS DISEASES

Dr F. COLSTON WILLIAMS (Cardiff), President of the Section in a brief opening address, said that the present age was characterized by much impatience on the part of the public in respect of the application of the results of modern scientific investigation to the prevention of disease. It was the duty of the administrator to glean what was most useful out of the results of such research, and then to apply it with firmness and tact. Dr L. J. RACHMAN (Geneva), opened a discussion on the value of the present methods of control of infectious diseases with special reference to small-pox, and exhibited many valuable statistical diagrams. He showed how the incidence in various countries had changed, and discussed the probable existence of two distinct types of this disease. Dr J. MIDDLETON MARTIN (Gloucester) remarked that in a short time great advances had been made in the knowledge of infectious processes and it was the more curious that the infecting agents of some of the common diseases remained unknown. Dr T. FURSTACE HILL (Durham) referred to the heavy incidence of small-pox in the county of Durham but said that the case mortality had only been at the rate of 0.27. It was therefore, a mild type of the disease but he would not agree that it was specifically different from ordinary small-pox, or that it was right to relax efforts to control it on account of cost. Dr R. P. GARNOW (Cheshire) expressed his belief that small-pox as now seen was a different disease from the severe form. People preferred to have it with the comforts of a hospital for a few weeks to undergoing the inconvenience of vaccination. If cases were isolated at home it would encourage vaccination. Dr R. BRUCE LOW said the proper method of prevention were clearly laid down in the memorandum of the Ministry of Health, but they were not always adequately carried out, especially in rural districts.

Sir MALCOLM WATSON (Malaya) said there were not two or three ways of controlling small-pox, but one, and that was adequate vaccination, which had entirely stamped out

small-pox in Malaya Dr BRINDLEY (Derby) referred to the great practical difficulty of actually tracing contacts, and Dr KERR (Newcastle) thought the difficulties would be lessened if vaccination were modified so as to produce a less severe reaction Dr PICKER (Cardiff) said there were different degrees in other diseases, such as enteric fever, but this did not justify the modification of methods of prevention in regard to them

Dr R A O'BRIEN (Beckenham), in a paper on the control of diphtheria and scarlet fever, dealt mainly with the practical steps advisable, and indicated possible improvements in testing an immunization He concluded that, as regards diphtheria, an almost complete control was now possible, and emphasized the serious risk entailed by the undetected "profuse" carrier Further investigation in scarlet fever was required before a similar satisfactory state could be reached Dr J GRAHAM FORBES discussed the recent progress made in this country in the application of the Schick and Dick tests and active immunization A number of statistical tables were shown as lantern slides

Dr B A I PETERS (Bristol) said that the Schick test had proved successful at the Westham Hospital, Bristol, in 98 per cent of cases, though it was not infallible in face of a very virulent strain of the organism Dr E H R HARRIES (Birmingham) gave the warning that the Schick test would not eliminate the immune carrier Surgical treatment of the naso-pharynx in suitable cases had reduced their percentage of return cases from 2.9 to 0.2 Dr GOODALL said he was convinced of the value of active immunization in protecting nursing staffs against diphtheria, but he had had no experience of the method in connexion with scarlet fever

SECTION OF MEDICINE

Thursday, July 26th

PREVENTION AND TREATMENT OF DIPHTHERIA

Dr J D ROLLESTON, in opening a discussion on the prevention and treatment of diphtheria, said it was doubtful whether isolation had reduced the incidence of the disease No uniformly successful method had been found for putting an end to the carrier state, the persistence of which was usually due to local infection in the tonsils, adenoids, and nasal sinuses, success in dealing with it had resulted chiefly from surgical attention to these factors Passive immunization by injection of antitoxin conferred an immediate immunity of short duration, usually not longer than four weeks, 500 units, irrespective of the age of the subject, might be given for this purpose either subcutaneously or intravenously, oral administration was useless As a general rule this method should be confined to children, and, in his opinion, in hospitals and in well-to-do families, where close observation could be kept up it was rarely necessary Active immunization, on the other hand, conferred a much more durable and possibly a permanent immunity Nowadays it was customary to dispense with a preliminary Schick test in children under 6 years old on the assumption that the large majority were susceptible, but in adults, who were much more likely to react severely to immunizing doses, a preliminary test was indispensable No fatal accidents following active immunization had occurred in this country, but the local and constitutional disturbances were occasionally severe With regard to treatment, it was usual in the Metropolitan Asylums Board hospitals to employ large doses of antitoxin—4,000 to 8,000 units for mild faucial or nasal cases, 12,000 to 16,000 units for moderate attacks, and 24,000 units, repeated if necessary, for severe cases The intramuscular route was unquestionably the best Antitoxin must, of course, be given at the earliest possible moment on clinical manifestations, independently of the bacteriological report He denounced the suggestion that unless given by the fifth day of the disease it was useless The chief advance in recent years in serum treatment was the introduction of the refined serum, the use of which had reduced the incidence of rashes and other unpleasant sequelae to a minimum Next to early antitoxin administration the most important item in treatment was the enforcement of rest in bed

Dr GRAHAM FORBES emphasized the need for keeping the

carrier under close observation, and in this respect a watch on the nasal passages was of prime importance Control of diphtheria by bacteriological methods by swabbing was unreliable, and dependence on immunization was more and more clearly indicated With regard to the evidence in favour of preventive inoculation, he pointed out that in self-contained communities, such as hospital and residential institutions, this rested on a sure foundation, but proof of undoubted benefit from extensive preventive inoculation in a community, such as that of New York, was still awaited For the acceptance of diphtheria in a Schick negative reactor it was essential that (1) the result of the test should be indubitable, (2) the clinical and bacteriological diagnosis must be firmly established, (3) the test must be carried out by an expert Park had stated that he had never seen a case in which these conditions were fulfilled With regard to the occurrence of diphtheria in those who had received the full immunizing course of three doses, he expressed the need for retesting three to four months after the third dose to show whether the original positive reactor had become immune as shown by a negative re-test Dr FORBES asked whether the presence of a large number of protected individuals who might become potential carriers would constitute a source of danger for the non-immunized In the immunization of some 50,000 individuals in this country, involving at least 300,000 injections, no known harmful effect had been reported

Dr E W GOODALL discussed the advantages of the various routes for the administration of antitoxin Undoubtedly the effect of the antitoxin was obtained more quickly by the intravenous route, but allergic reactions were an objection, and in children it might be very difficult to get the serum into the vein The clinical results obtained were insufficiently striking to commend the practice as a routine method, and it should be reserved for severe cases The antitoxin was absorbed more quickly if injected intramuscularly than by the subcutaneous route, and the former route should therefore be adopted in cases intermediate between the severe and the benign With regard to dosage, after experimenting with various doses up to 100,000 units, he had decided that a dose of 30,000 was the limit beyond which it was unnecessary to go The earlier the patient was brought under treatment the more satisfactory were the results, but a severe case was not necessarily a late case, nor was a late case necessarily a severe one, each must be judged entirely on its clinical merits apart from its duration, and so long as any membrane was present antitoxin should be given Dr Goodall emphasized, in conclusion, the folly of waiting for the result of a bacteriological examination in a suspicious case, and his advice was that the culture swab should be abandoned altogether

Dr JOHN MCGARRITY (Cardiff) related the results of the immunization experiments carried out in conjunction with Dr KER in Edinburgh in 1922-24, and the subsequent work that had been carried on there since Over 6,000 children had been immunized without any ill effects With adults, however, considerable local reaction and constitutional disturbance was apt to occur, this was noticed amongst those who had a pseudo-Schick reaction, and since the use of toxoid-antitoxin had been general it was unusual to get reactions even in an adult He maintained that there was now clear evidence that the practice of immunization was perfectly safe He recalled the evidence as to its efficacy contained in the recently published report of the medical officer of health for Edinburgh, and said that in Cardiff no child who had been a negative Schick reactor when tested in the schools had up to date developed diphtheria Dr McGarrity advocated strongly the routine administration of an initial intravenous injection of antitoxin in severe cases, following it up subsequently with intramuscular doses In ordinary moderate cases this procedure was unnecessary, intramuscular injections being quite sufficient The diphtheria patient must be kept flat in bed until all danger of paralysis or heart failure had passed The treatment of heart failure, as McEneaney had said, lay in its prevention by early dosage with sufficient antitoxin, but if it showed itself he had found caffeine sodium salicylate and camphor the best drugs to use, to be given hypodermically in from 1/2 to 2-grain doses according to

age every two to four hours. He had a liking for the use of alcohol in small doses and adrenalin chloride at the beginning was sometimes useful, but it must be stopped at once if any irregularity of the heart occurred.

Dr BLFASK (Aldershot) said that the public authorities now paid for every swab taken, and the results had been most satisfactory. Many early cases were diagnosed in this way before clinical manifestations of diphtheria had appeared, and cases left until too late had disappeared. This method of careful and early swabbing gave much more practical results than could be hoped for by immunization methods as yet. Dr G. W. GOONANT also advocated the use of early and adequate bacteriological examination, it was essential to give antitoxin on the earliest clinical manifestation of diphtheria, even in face of a negative swab. Many early cases of diphtheria presenting themselves as simple tonsillitis would be missed until a late period but for bacteriological examination.

SECTIONS OF SURGERY AND OF RADIOLOGY AND PHYSIO THERAPEUTICS

Thursday, July 26th

THE FALLACY OF X RAYS IN ABDOMINAL DIAGNOSIS

Mr HERBERT J. PATERSON, in opening this discussion, said that radiology must not be used as a substitute for clinical observation, but merely as an aid to diagnosis. The main fallacies could be placed in four groups. Those incidental to x rays were well exemplified in the use of a barium meal to ascertain the degree of intestinal stasis (the use of charcoal gave different results), and the numerous misinterpretations of local spasms of the alimentary tract. Fallacies due to technique were illustrated by the importance of taking exposures in varying positions in the cases of gastric or duodenal ulcers, the ulcers otherwise being often missed. Again, errors in diagnosis occurred if the stomach were not adequately filled with the opaque meal. Occasionally a radiological examination might divert attention from the disease suspected. Fallacies due to misinterpretation were numerous. Examples were mentioned—namely, scybalous masses indistinguishable from shadows due to gall stones, and the misinterpretation of phleboliths and calcareous glands as ureteric stones. Impacted faeces might show a well marked filling defect with a barium enema, even after apparent clearing out of the bowels, and on re-examination later might show a normal colon. Another possible fallacy was that the impacted faeces might be due to an early carcinoma, which would not be confirmed by x-ray examination until it was too far advanced for surgical treatment. Diagnosis of adhesions, especially in the right iliac fossa, was rarely confirmed at operation. Mr PATERSON said that radiology showed apparent healing of a gastric ulcer in three to four weeks of intensive alkaline treatment. He stated emphatically that the pathological evidence was against this rapid change, and that the x-ray interpretation was wrong and fallacious. Radiological evidence as a gauge of the progress of the healing of a gastric ulcer was obviously useless and misleading. In abdominal diagnosis radiology was still in its infancy, but its value was unquestionable, and would be even greater in the future when experience had taught the correct interpretations of what was seen. If the radiological findings did not support the clinical signs and symptoms they should be disregarded, and an operation should not be performed only on purely radiological diagnosis.

Dr F. HERNIMAN-JOHNSON said that the barium meal localized any stasis to a particular site in the gastrointestinal tract, and that the method of administration of charcoal, as suggested by Mr PATERSON, was of no real value. A good practical rule was to disregard stasis up to twenty-four hours. When spasm, as shown by the barium meal, resisted all changes of posture, was present for long periods, and was not affected by belladonna given in large doses, it was nearly always evidence of organic disease of some portion of the alimentary tract or its offshoot, the gall-bladder. Spasm of some part of the tract might constitute the disease. Thus the demonstration of spasm played an important part in abdominal diagnosis by radiology. Partial examination of the abdomen might lead to misdirection, but a complete one should not do so. Errors

in interpretation were then fully discussed, and the speaker referred to the cases described by Mr PATERSON. It was necessary to distinguish between radiological findings, and deductions. Regarding the diagnosis of adhesions, manipulations under the screen were unreliable, it was better to repeat the examination in a few hours.

Dr ARTHUR F. HURST said that charcoal was useless as a means of demonstrating stasis. It was most important to know the point in the alimentary tract at which stasis occurred. He now never diagnosed gastric or duodenal ulcer without x-ray evidence given by a competent radiologist. Radiological evidence was very important in the investigation of healing of ulcers. X-ray findings should not necessarily agree with clinical findings, to be of any value. Slides were shown of healing ulcers, and the speaker pointed out the possibility of misinterpretation of a shadow due to diverticulum of the cardiac region of the stomach. Dr HURST stated that inflation of the bowel with air helped in the radiological diagnosis of adhesions. He concluded by saying that the radiologist could not be expected to work alone, but must have the co-operation of his colleagues.

Mr W. McADAM ECCLES pointed out that diagnosis of disease of the appendix by a barium meal was often fallacious, and was the outcome of incomplete x-ray investigation. He referred to cases of young women with right iliac pain who were really suffering from spasm of the pelvic colon giving rise to distension and pain on the right side. A barium enema would clear up the diagnosis.

Mr FULLERTON (Belfast) said that the physician, surgeon, radiologist, and pathologist should piece together their various findings to reach the correct diagnosis. He referred to the fallacies of x-ray examination in cases of urinary calculus, and said that the radiologist must not be expected to work unaided. Sir WILLIAM DE COURCY WHIFFLER (Dublin) advised the radiologist to attend the operations or obtain a detailed report of them. He warned radiologists not to give too dogmatic a report when dealing with cases from busy country practitioners. He added that a photograph should be taken before the introduction of bismuth, to discover the presence of anything abnormal, particularly in the urinary tract. All subsequent pictures must be taken in exactly the same position.

Mr RENDLE SHORT (Bristol) said that screening was very important. A barium meal often missed a carcinoma of the colon and a barium enema was not infallible. Exploration was justified when symptoms were reasonably suggestive and when x-ray diagnosis had been obtained. He had found that when symptoms and signs disagreed with radiological findings the latter were more often correct. Dr CANDY (Newport) described the difficulties which had to be overcome. The radiologist needed the clinical history and findings and opportunity for complete investigation just as much as the physician and surgeon. Professor A. W. SHEEN (Cardiff) said that co-operation was absolutely necessary. The value of negative results was pointed out. Referring to barium enemata, he said that they were fallacious because often there was not enough fluid injected, and secondly the fluid did not show an early growth. Dr OWEN RHYS (Cardiff) was pleased to hear that the surgeons recommended co-operation with the radiologists and that they were ready to share the responsibilities.

SECTION OF SURGERY

Thursday July 26th

THE TREATMENT OF GANGRENE

Mr W. SIMPSON HANDLEY who opened this discussion, limited his remarks to the vasomotor surgery of gangrene. He said that Leriche, in order to divide the sympathetic nerve supply to an artery removed the outer coat of the vessel for some distance. This operation of arterial sympathectomy had met with success in Leriche's hands in cases of (1) causalgia after war wounds, (2) the painful pre-gangrenous crises caused by obliterative endarteritis, (3) painful neuropathic syndromes following bruises and wounds, especially of the finger, hand, palm, or sole of the foot, (4) Raynaud's disease, (5) sometimes in painful stumps, (6) in muscular spasms secondary to war wounds,

(7) in trophoedema, (8) in trophic ulcers, but here the result might only be temporary. The operation was not recommended for actual scirrhous gangrene. Mr Handley stated that his method of alcohol injection was a definite advance on Leriche's operation. He said that in certain cases it prevented threatened gangrene and arrested the spread of senile gangrene. It sometimes averted the necessity for an amputation, or permitted a lower amputation to be performed. The technique of the operation was simple: after exposure of the artery in Hunter's canal, 2 to 3 minims of alcohol were injected at four equidistant points around the artery. After the injection was completed a white band, about half an inch wide, was seen around the vessel, but there was no constriction. The immediate effect was vaso-dilatation with no preceding vaso-constriction. Mr Handley strongly recommended his method for threatened or incipient gangrene, especially during the prodromal stage, when pallor, coldness, and severe pains were present. In cases of extensive gangrene, owing to the risk of toxic absorption from the increased blood supply following the operation, the speaker did not recommend the injection unless it was followed immediately by a low amputation. The operation was contraindicated in cases of gangrene associated with already existing vaso-dilatation. It was useless for Buerger's disease and of doubtful value in Raynaud's disease. The greatest use of vasomotor surgery was during the pre-gangrenous period, though in the early stages of gangrene the vaso-dilatation of the vessels limited the spread and restored vitality to dying tissues.

Mr PHILIP TURNER limited his remarks to the clinical aspects of periarterial sympathectomy. Clinical observations certainly showed that there was improvement in the circulation and an increase in the amount of blood in the distal part of the limb. He gave a brief summary of eight cases of senile gangrene—two treated by sympathectomy and six treated by alcohol injection. He had not used these methods for threatened gangrene, but he thought in such cases that care should be taken that the pain was due to arterial disease and not to other causes. Mr Turner said that periarterial sympathectomy did not replace amputation, but was a valuable additional method of treatment. He agreed that it was difficult in some cases and that alcohol injection was a better method.

Mr E G SLESINGER referred to Langley's work on the course of the vaso-constrictor fibres, and said that the spinal nerves carried these fibres to the vessels. These nerves gave off branches to the vessel at different levels along the length of the artery. If this were true, periarterial sympathectomy could not produce vaso-dilatation in the distal part of the limb. The speaker thought, therefore, that the operation of periarterial sympathectomy destroyed the afferent fibres and so interrupted the reflex arc and abolished the painful spasms. Pain was relieved even if there was no improvement in the circulation. He had never seen the initial vaso-constriction described by Sampson Handley and Leriche. He favoured periarterial sympathectomy, since alcohol injection could not be controlled, and sympathectomy admitted of microscopic examination of the resected plexus. Referring to the classification of arterial disease, Mr Slesinger said that the functional type, which included Raynaud's disease and erythromelalgia, was only relieved by excision of the sympathetic ganglia concerned, while the organic type, senile arteritis, etc., was improved by periarterial sympathectomy and pain was generally relieved.

Mr W A COCKRANE (Edinburgh) said that he dissected the main artery for about two inches and swabbed the surface with gauze. No actual stripping was done. The operation gave good results in early cases of senile gangrene, and in promoting healing of varicose ulcers. No good effect had been obtained with perforating ulcers of the foot and endarteritis obliterans. In view of the good results obtained by Brown and Adson in endarteritis obliterans by sympathetic ramisection, it seemed that arteries had a segmental nerve supply. If this was so, the question arose as to the best site for the operation on the sympathetic path.

Sir WILLIAM WHEELER (Dublin) had found that neither alcohol injections nor periarterial sympathectomy improved

cases of thrombo-angitis obliterans. He disagreed with Mr Slesinger's statements that pain was relieved in such cases and that initial vaso-constriction did not occur. Care should be taken to divide all fibres. If the artery was sclerosed he employed alcohol injections. Varicose ulcers had healed rapidly after this method. Mr BROCKMAN (Sheffield) agreed that alcohol injection was easier and safer than periarterial sympathectomy. Sympathectomy presented real difficulties, especially when the vessel was hard. He thought that Mr Slesinger's explanation of the results of sympathectomy was wrong and that probably pain had a chemical basis in the periphery of the nerve. The speaker stated that a toxic patient could be improved in health by this method, in preparation for secondary amputation.

Mr SAMPSON HANDLEY, replying, said that the operation was of use for threatened gangrene, but was of no use for endarteritis obliterans. He could not explain the lack of initial vaso-constriction in Mr Slesinger's case, and regarding his physiological theory he said that it required laboratory confirmation.

SECTION OF OBSTETRICS AND GYNAECOLOGY

Thursday, July 26th

DIAGNOSIS AND TREATMENT OF STERILITY

Mr A E GILES opened a discussion on the diagnosis and treatment of sterility. He indicated the main lines of investigation necessary to ascertain whether the anatomical and physiological factors concerned were normal and healthy. He considered that marked retroversion and acute anteversion of the uterus undoubtedly produced a hindrance to conception, and that correction of these conditions frequently led to fertility. The patency of the tubes could be ascertained by the insufflation method. At this point their range of investigation ceased. They had no means of discovering whether healthy ova were maturing. He outlined the treatment called for in the different types of case. In under-development he spoke favourably of thyroid extract and hypodermic injections of freshly prepared ovarian substance. If the patient were too stout weight should be reduced by diminishing the total intake of food. If the vagina were too narrow a plastic operation might effect a remedy, in pinhole cervix dilatation to a moderate degree might be successful. Noxious discharges should be treated by curetting and the application of tincture of iodine. In tubal obstruction surgical measures were called for. Finally, in cases of endocrine inadequacy, laboratory investigations into basal metabolism and blood morphology might lead to a scientific and successful line of treatment.

Mr SIDNEY FORSDIKE reviewed those cases in which no gross lesion was present and no lesion sufficient to stamp it as the cause of the condition. He stated that 25 per cent of childless marriages were due to the condition of the husband. It was rare to obtain any living spermatozoa from the vagina, as they were rapidly killed, but living spermatozoa could be recovered from the cervical canal within a few hours of coitus. Investigation should then be transferred to the uterus, tubes, and ovaries. The possible lines of inquiry were exploration of the uterus by dilatation and curettage, inflation of the uterus and tubes, investigation of the uterus and tubes by means of opaque bodies, and exploration of the pelvis by laparotomy. Mr Forsdike outlined the methods of inflation which he employed. He did not consider that plastic operations carried out on the narrow part of the tube were justifiable. Obstruction at the fimbriated extremity was a different matter, though even then opinion should be guarded, as he had found that out of twenty cases, eleven were closed again within three months of operation. He described the results he had obtained in a hundred cases of inflation of the uterus and tubes, from which it would appear that 31 per cent of apparently normal women became pregnant after inflation. After inflation with closed tubes operation was to be recommended if an injection of lipiodol demonstrated the obstruction to be in the ampulla. In regard to the ovaries, cysts of one or both ovaries, in contradistinction to cystic ovaries, did present opportunities of success in cases of sterility. He had operated upon six cases, in four of which pregnancy occurred within three months. It was difficult to under-

stand or explain these cases, but there was no doubt that the relationship was cause and effect. There remained the type of case when an apparently healthy man was married to an apparently normal woman and yet the marriage was barren. He considered these cases to be due to the coincidence of minor defects in both parties, resulting in combined relative sterility.

Mr KENNETH WALKER discussed the diagnosis and treatment of sterility in the male. Of 57 cases of men who had been referred to him by gynaecologists only 25 could be considered entirely normal, 18 out of the 32 being completely sterile. Speaking generally, sterility in the male was more frequently the result of acquired conditions than of congenital abnormalities, and in the production of these venereal disease played the chief part. He then passed in review the conditions which might affect spermatogenesis, pointing out that the spermatogenic function of the testicle was far more sensitive to outside influence than was that of internal secretion. Thus mild infections, heat, and diet had been shown to affect the formation of healthy spermatozoa. Mr Walker then discussed artificial insemination; this procedure very rarely appeared to succeed in the human species, whereas in veterinary practice success was frequently achieved. He suggested that they should take a hint from the veterinary surgeons and change their technique. In regard to treatment, surgery offered very little help in cases of stenosis either of the epididymis or of the ejaculatory ducts. In cases of aspermatogenesis improvement in the general health undoubtedly increased fertility. Septic foci should be searched for and treated. Endocrine therapy was worth trying, anterior lobe pituitary extract being the most useful product, and it should be given over a period of six months. In elucidating the physiology of impregnation the gynaecologist and the genito-urinary surgeon must work together as colleagues engaged on a single task.

Professor BECKWITH WHITEHOUSE (Birmingham) said that in dealing with sterility it was striking how difficult it was to secure pregnancy when everything seemed favourable. They must concentrate in future on physiological function. Reference to questions of diet and sunlight were very interesting. In regard to anatomical defect, he was sorry that Dr Forsdike was so pessimistic in regard to plastic work. He did not think that they had yet arrived at the proper technique. In his cases he had injected lipiodol directly into the tube from the abdomen. He was a strong advocate of lipiodol, it prevented formation of adhesions. It was extraordinary how pregnancy might occur even after removal of the tubes. He had failed with artificial insemination, for the reasons, he thought, put forward by Mr Walker. At present he was advising swabbing the vagina with a diphtheria swab after coitus and painting the endometrium directly with the swab.

Professor VAUDESICAL (Paris) agreed with Dr Giles. Nil nocere was the best motto in dealing with these cases. Pregnancy might occur at the most unexpected moment. In retroversion the position of the os was of no interest in the determination of sterility. Insufflation and injection of lipiodol must be a recognized method, but must be used with great circumspection. He preferred lipiodol as one could see what one was doing. He thought that undoubtedly pregnancy occurred after lipiodol, and as the result of its use, and not from coincidence. Dr MARGARET BISCOE was much impressed with the frequency in which blocked tubes occurred in sterility. Nothing abnormal might be felt on vaginal examination. Blockage of tubes was much more common than was generally realized. She always used an anaesthetic during insufflation because of the possibility of spasm of the tube occurring. She had not yet used lipiodol, but had decided to do so. In the majority of cases stenosis was found to occur at the amputated extremity. Obesity was an important factor, and corpus luteum extract sometimes was very successful in such cases. Dr BUIST (Dundee) thought that the treatment for many cases of sterility could be summed up by the old-fashioned saying, "Live on a shilling a day and earn it." Vaginismus might be prevented by proper ante-marital education. He had personally experienced distress after taking a dose of ovarian extract by the mouth. Dr

FRANKLIN MURRAY (Newcastle) had examined a number of cases of sterility. In nearly one half he had found definite evidence of infection of some sort. He had obtained a positive test of sealed tubes in one-third of the cases. He always gave an anaesthetic. He did not advise laparotomy at once on discovering a sealed tube, his rule was to wait and see for a time. He carried out the test again before advising opening the abdomen. In five out of six cases he had explored he found evidence of tubercle, and he would not hesitate to open the abdomen where the history suggested tuberculosis. He had on two occasions embedded ovarian tissue in the uterine wall, but he could not say whether it was of value or not. Mr FREDERICK ENOE (Birmingham) said that sterility might be due to the ovum escaping at the wrong time, owing possibly to the density of the tunica albuginea. Dr GRAY WARD (New York) spoke on the subject of stimulation of the ovaries by x rays. This method was being used more and more in America. Only a very mild dose was employed.

The PRESIDENT thought that progress was being made in this subject. Twenty years ago the importance of the male factor was not appreciated. Rubin had pointed out in the beginning that one test was not sufficient for giving a definite diagnosis. The use of lipiodol was a distinct advance. Another method was to insufflate a barium powder into the cervix. A few hours later it would be found in the tubes, and later still in the peritoneal cavity. No operation should be advised without investigation. Insufflation might work by dislodging some small plug of mucus. He had never practised artificial insemination, but he thought that success might follow if the technique of the veterinary surgeons was adopted. Irregularity of menstruation was not necessarily a cause of sterility, but a harmless method like stimulating with x rays should certainly be tried in certain cases.

In replying to the discussion Mr GILES did not think that artificial insemination was called for in cases where normal intercourse was possible. He strongly advocated early operation in appendicitis as, if pelvic peritonitis occurred, the danger of the tubes becoming blocked was very great. Mr FORDSIKE agreed that lipiodol prevented the formation of adhesions. With a pressure of 300 mm of mercury in a conscious patient he was prepared to give a definite diagnosis of tubal patency on one test alone. He did not agree with using anaesthesia in insufflating. He did not believe that incompatibility existed. Mr KENNETH WALKER relied a great deal upon the veterinary surgeons in helping him to elucidate problems, and they did not believe in incompatibility.

MYOMECTOMY DURING PREGNANCY

Professor VAUDESICAL (Paris) in his paper on myomectomy during pregnancy, said that judgement and common sense were required in the selection of each case, as only exceptionally was that operation during pregnancy the correct procedure. The indications for operation, in his opinion, were (1) when the fibroid was large, was diagnosed early during pregnancy before the third month, and when the swelling of the tumour was easily distinguishable from that of the uterus, (2) if, at any time, unmistakable signs of necrobiosis appeared, (3) axial torsion of the uterus or partial retroversion due to the presence of a fibroid, (4) torsion of the pedicle, (5) when the fibroid was causing pressure upon neighbouring structures. He described the main points to be attended to in operative technique, and quoted his statistics for a period of six years. In 38 per cent of cases operated on myomectomy was performed, and in 62 per cent it was found necessary to do hysterectomy. Operative interference during pregnancy should therefore be postponed as long as possible in order to obtain a living child.

Mr GILES had performed some twenty myomectomies during pregnancy, seventeen cases going to full term. The indications for operation were of great importance. If the chances of a natural delivery appeared to be reasonably good he was disposed to wait if necessary dealing with the fibroids after parturition. He would prefer always to do a hysterectomy after involution than when the uterus was large from pregnancy. If symptoms of necrobiosis occurred then operation was called for. In properly selected cases

myomectomy in pregnancy was a very successful operation. Mr L. C. RIVETT thought there were two indications—the size of the fibroid and necrobiosis. He did not think that myomectomy should be attempted when performing a Caesarean section. He considered that myomectomy was called for if symptoms of red degeneration occurred. Dr FARQUHAR MURRAY (Newcastle) advised expectant methods in cases of red degeneration. Operation during pregnancy should be avoided where possible. Professor BECKWITH WHITEHOUSE (Birmingham) did not dread myomectomy since he commenced doing Caesarean sections under spinal anaesthesia, haemorrhage under these conditions being practically negligible. Mr THOMSON COLLINS (Cardiff) always removed fibroids of any size discovered at any period of pregnancy.

SECTION OF PATHOLOGY AND BACTERIOLOGY

Thursday, July 26th

THE INTESTINAL FLORA IN HEALTH AND CHRONIC DISEASE

SIR THOMAS HOUSTON occupied the chair during this session. Professor CRICKSHANK (Aberdeen), who opened the discussion, traced the development of the intestinal flora of the adult from that of the suckling. The main types of organism normally found were described, together with the effects on their numerical proportions which could be exerted by variations in diet. The experimental arguments for and against the hypothesis of toxin absorption by the intact intestinal mucous membrane were discussed. By the employment of appropriate selective cultural methods it was possible to isolate bacteria sometimes alleged to be pathogenic from the faeces of healthy individuals. The absence of a standard cultural technique, the multifarious action of such factors as diet, and the great variety of bacteria concerned, made it impossible to define a "normal" condition of the intestinal flora, and dangerous to accept the frequently alleged pathogenicity of individual organisms in given cases: this was usually unsubstantiated by any specific reaction, or by any form of proof acceptable as demonstrating the causal connexion of the organism with the disease.

Sir THOMAS HORDER, whose communication was read in his absence, regarded some of the criteria used to determine pathogenicity of intestinal bacteria as inadequate. Three such criteria were instance—namely, the so-called excessive proportion of streptococci, the late lactose-fermenting type of coliform bacillus, and what was known as the serum-resisting type of coliform bacillus. The setting up of such arbitrary standards of pathogenicity as these was apt to mislead the general practitioner.

Professor J. H. DIBLE (Cardiff), in dealing with the coliform group, observed that different techniques yielded a variety of results in culture, and emphasized the need of a standard and generally recognized method of cultivating faeces. In three series of over a hundred cases each in which non-lactose-fermenting coliform bacilli appeared in the faeces he had studied the incidence of Morgan's bacillus No. 1, and found that its frequency increased with the proportion of cases in which he found dysentery bacilli. In a study of the enterococcus he had compared the aesculin fermentation test with the heat-resisting property of the organism and found that they tallied in 206 out of 248 strains. In studying haemolysis among faecal streptococci in thirty-eight stools he had found streptococci exhibiting haemolysis on blood agar in thirteen cases, but of these only eight were truly haemolytic, as evidenced by haemolysin production in a fluid medium. He regarded the closed loop experiments described by Professor Crickshank as inconclusive, in that in clinical intestinal obstruction there was an increased degree of absorption from the bowel. He had noticed that those who knew least about intestinal bacteriology were most impressed by the phenomena of supposed auto-intoxication, the variable factors concerned were so numerous that he regarded conclusions drawn from an isolated stool examination as valueless. Dr A. F. S. SLADDEN (Swansea) observed that no branch of applied bacteriology stood in greater need of clarification. It was sometimes forgotten that the intestinal contents were outside the tissues: thus swabs taken by the sigmoidoscope from ulcers,

and mucus or muco-pus found in faeces, were likely to yield more informative cultural results than the faecal material itself, in that they represented a nearer approach to the tissues of the body. Cultivation of a specimen of faeces innocent of mucus or other abnormal element was a procedure he regarded with both distaste and mistrust. A new and simple cultural technique was necessary, and a better test of pathogenicity than agglutination of the organism by the patient's serum. The discovery of a similar organism in the urine sometimes helped to confirm the significance of bacteria found in the faeces. Dr L. P. GARRON discussed the significance of variations in the streptococcal content of the faeces. A quantitative method of examination was essential. The principal factor concerned was diet; this could be demonstrated both by feeding normal individuals with excessive and diminished carbohydrates, and by examining the faeces of carnivorous animals and diabetics, both showing few streptococci on a low carbohydrate diet, and herbivorous animals, such as the horse, and milk-fed infants, in whom the opposite phenomena was presented. In forty-two cases of normal subjects or patients suffering from no recognized intestinal abnormality the average proportion of streptococci in plate culture had been 36 per cent., in thirty-five cases of colitis, arthritis, pernicious anaemia, and alleged auto-intoxication the average proportion was 38.3 per cent. He submitted that the pathogenic significance of an "excess" of streptococci was unproved. Dr A. P. CAWADIAS drew a clinical distinction between the saccharolytic type of auto-intoxication, with diarrhoea, flatulence, acid light-coloured stools, and a positive Schmidt test, and the proteolytic type, with alkaline offensive dark brown stools and definite signs of toxic absorption. He urged that the significance of any bacteriological abnormality could only be determined by considering in conjunction with it the clinical features of the case. Dr BANCROFT ANDERSON asked what treatment was available when the patient's antibody-producing mechanism had broken down: was a vitamin deficiency concerned in this process?

Sir THOMAS HOUSTON (Belfast) believed that clinicians would never be persuaded that the intestinal bacteria were not concerned in chronic disease, an important fact in this connexion was the frequent occurrence of chronic infections in various parts of the body after abdominal operations. He himself had particularly studied the enterococcus, and believed it capable of assuming pathogenic importance both on the ground that it was sometimes to be found in other parts of the body, such as the urinary tract, the tonsil, and the post-nasal space, and because in many cases agglutinins for this organism were to be found in the blood. Anomalous results in agglutination experiments with the enterococcus were apparently due to the existence of both rough and smooth strains. The diplococcus alleged by Baigún of the Mayo Clinic to be the causative agent in ulcerative colitis was a non-mannite fermenting enterococcus.

Professor CRICKSHANK, replying, repeated that, in his opinion, the intact mucosa was an efficient barrier to toxic and bacterial absorption. An aspect of vaccine treatment in cases of supposed auto-intoxication which was sometimes forgotten was that antibody formation afforded no antidote to absorbed chemical products. He was convinced that special methods would reveal so-called abnormal organisms in the faeces of healthy individuals. The enterococcus was a widely distributed organism, discoverable in dust, in the mouth, the tonsil, and elsewhere, and without more specific evidence of its pathogenic action in the cases quoted by Sir Thomas Houston he could not accept the conclusions drawn from them.

SECTION OF PUBLIC HEALTH

Thursday, July 26th

THE TEACHING OF HYGIENE

THE President, Dr R. M. F. PICKEN (Cardiff) called on Dr W. W. JAMESON (medical officer of health, Hornsey) to open the discussion on the teaching of hygiene. Dr JAMESON dealt in an illuminating way with the training of health workers, the teaching of hygiene to school children, and public education in health, his remarks being mainly concerned with principles. He pleaded for the better education in this respect of medical students and of teachers in

schools. The part played by capable sanitary inspectors could not be overestimated, and broadcast talks were still insufficiently employed. More continuity in the various methods adopted was very desirable.

In the discussion that followed Dr H B BRACKENBURY explained that the General Medical Council had no power over the teaching bodies except in the limited sense that it could approve their curriculum and inspect their examinations. As Dr Jameson had mentioned, there were over a hundred voluntary organizations all engaged in promoting health teaching and propaganda, all doing the same thing and each with its own president and secretary. Perhaps the first step that should be taken would be to abolish these. The real places for education in matters of health were the school and the consulting room of the private practitioner. The education given in the schools was carried back to the parents, but the instruction should be given by the school teacher.

Dr LLEWELLYN WILLIAMS (Welsh Board of Health) claimed that the instruction given in the past was responsible for much of the improvement that had already taken place in the public health. The teaching of hygiene to medical students was accordingly of first-rate importance. The general practitioner was the person most likely to see disease in its early stages, and the proper person to educate the public in preventive measures. Dr OLIVE WHEELER (professor of education, University College of South Wales) emphasized the necessity of co-operation between educational and medical authorities. In the educational world there was a reaction against the over-intellectualism of the past, and the necessity of physical training and physical fitness was more fully realized. Professor KERR (Newcastle) said the teaching of hygiene was side-tracked in many medical schools, especially in London. He thought more attention was given to it in the provincial medical schools, and described the very full course of instruction given at Dundee University.

Mr J MACKENZIE (secretary, Industrial Health Education Society) described the work of his society and the great expansion that had taken place in a few years. There was a demand from the workers for such instruction, and they were entitled to have it. Dr FRANK JONES (county medical officer of health, Cardigan) thought that hygiene was not a new subject in the schools. It had been taught, but the teaching had been a failure because the teachers themselves were ignorant of the basic principles on which hygiene was founded. He described the methods adopted at Aberystwyth for the training of teachers as instructors in hygiene. Mr J CHEW (organizing secretary, Central Council for Health Education) said that the general practitioner was essentially a missionary of health and the panel doctor should more and more become a teacher of health. Mr BOYDAS (secretary for education, Dental Board of the United Kingdom) describing the educational work of his board, said he often noticed that local authorities had a scheme for instruction on dental hygiene on paper, but frequently it did not get beyond that stage. He generally found that the medical officer and the school medical officer were in sympathy with the aims of the board, but it was not always so with the education authorities.

Professor F E WYNNE (medical officer of health, Sheffield) said the most important thing in the training of the medical student was to disabuse his mind of the prevalent idea that hygiene was a matter of drains and smells. In too many cases in "non-provided" schools the teaching of hygiene to the scholars was a farce, owing to the abominable sanitary conditions of the schools themselves. Dr ROBB (medical superintendent, Belfast Fever Hospital) advocated an interchange of nurses between the general hospitals and the fever hospitals. Dr E COLSTON WILLIAMS (county medical officer, Glamorgan) said the general practitioner was already a very busy man, and it was difficult for him to devote much time to instruction in face of the demand of his patients for treatment.

Other speakers in the discussion included Dr Carstairs Douglas of Anderson College, Glasgow, Dr Leopoldt school medical officer of Capo Colony, Dr Hamilton of Newport, Dr Letitia Fairfield, London, Mrs Neville Rolfe, Dr Goodall and Dr T Evans, Swansea.

SECTION OF ORTHOPAEDICS

Thursday, July 26th

VOLKMANN'S ISCHAEMIC CONTRACTURE

Sir JOHN LYNN-THOMAS, President of the Section, took the chair at first, and later was followed in it by Mr P JENNER VERNALL. Sir ROBERT JONES (Liverpool) read a paper on Volkmann's ischaemic contracture, with special reference to treatment. The paper was described by later speakers as a classical monograph, and will be published in a subsequent number of the *Journal*. Sir Robert discussed the etiology of the condition, and referred to the experimental work of Brooks and Jepson on dogs. He considered that the essential factor in prophylaxis was immediate and complete reduction of fractures in the region of the elbow-joint. Open operation should be reserved for those rare occasions when reduction by manipulation was impossible. Treatment, when ischaemia was once established, ought to aim at the removal of all compression, either within or without the affected limb. He described and demonstrated his well known method of gradual and progressive splinting of these contractures, beginning distally at the terminal interphalangeal joint. His large experience showed that even the most unpromising limbs would partially recover over a period of years under appropriate treatment. Sir Robert Jones insisted that Volkmann's ischaemic contracture sometimes occurred without any suspicion of carelessness on the part of the attending practitioner, but that it was never justifiable to handage or strap the limb in anatomically full flexion. He had always used the "collar and cuff" method, and thought it excellent when once any bone deformity present had been corrected. He concluded by emphasizing the necessity for x-ray pictures of these patients and a medical defence society for their doctors.

Mr W ROWLEY BRISTOW described briefly the electrical reactions of the affected muscles. He thought that an operation to restore tactile and thermal sensation was justified in a bad case when nerves were damaged, even if there could be no hope of muscular recovery. Mr D McCRAE AITKEN said that it was important to realize that the circulation would often return when twisted blood vessels resumed their normal position after the reduction of a supracondylar fracture. He wondered whether the contracture was susceptible of a physiological explanation. Mr HARRY PLATT (Manchester) looked to anatomy rather than to physiology to provide the explanation. He thought that extravasated blood in a "closed box" of inter-fascial plane might induce venous stasis. Mr D STEWART MIDDLETON (Edinburgh) interestingly elaborated this point. He had been able to confirm Brooks's observations. Mr Middleton showed by a diagram that the superficial and deep veins of the forearm converged to a key-point in the ante-cubital fossa. He thought that even a small haematoma in this area might be a much more frequent cause of ischaemic contracture than splints or tight bandages. Mr ALAN H TODD described two patients in whom the contracture appeared, though no splints or bandages had been used. He thought it important from a medico-legal standpoint that every occurrence of this kind should be published. A considerable percentage of the recorded cases of Volkmann's contracture followed fractures of both bones of the forearm. He believed that it was necessary to correct the mistaken and dangerous idea that both anterior and posterior splints were necessary in treating fractures near the elbow-joint, he never used more than one. The best way of treating fracture of both forearm bones was by means of the "supination bar" plaster. Mr B WHITCROFT HOWELL mentioned several illustrative cases and discussed treatment from both operative and non-operative aspects. Mr P JENNER VERNALL and Mr A ROCYN JONES both spoke briefly, and Sir ROBERT JONES, in his reply, expressed the general opinion that the discussion had been particularly instructive.

The meeting then adjourned to a local cinema, where the President (Sir John Lynn Thomas) demonstrated films which he had caused to be made. The first of these showed special methods of muscle re-education for limbless men at the Prince of Wales Hospital, Cardiff. The second showed Sir Robert Jones successively reducing a Colles's fracture, putting up a fractured femur, and using Thomas's wrench on an example of club-foot.

SECTION OF OPHTHALMOLOGY

Thursday, July 26th

THE ETIOLOGY OF GLAUCOMA

Mr W S DUKE-ELDEN, in opening the discussion on glaucoma, reviewed the modern theory that the aqueous humour was a dialysate from the blood plasma and gave an account of this theory of the mechanism of the maintenance of the normal intraocular pressure. He then suggested the various ways in which the intraocular pressure was concerned and considered these in relation to the etiology of glaucoma. The paper is printed in full at page 236.

Mr THOMSON HENDERSON (Nottingham), in a spirited address, attacked the theory of dialysis. He did not believe that this was the main factor in the formation of the aqueous fluid. He contended that the eye and the cranium were alike closed boxes with unyielding capsules with total fixed volume, in which the fluid contents varied with the pressure in the exit veins, that being the lowest circulatory pressure possible. This was shown by ophthalmoscopic observation as regards the eye, the slightest digital pressure obliterating the retinal veins. The intraocular pressure, therefore, was not lower than the venous exit pressure, as Mr Duke Elden affirmed. Nor did he (the speaker) believe that accommodation or movements of the external muscles affected the intraocular pressure. He did not think that for a simple dialysis the ciliary body and choroidal plexus would have such complicated structures. He believed that the two primary influences in the production of glaucoma were (1) predisposing, a pathological excess of the physiological sclerosis of the ciliiform ligament, and (2) a strangling of the intraocular circulation between the unyielding capsule of the eye and the incompressible fluid contents of vitreous and aqueous. The train which fired the explosive glaucomatous attack was laid by the general systemic circulation.

Mr VISNOR HANZMAN expressed his admiration for the excellence of work by the anatomist and the physiologist on the etiology of glaucoma in recent years. In the small cockpit of the eye there was being fought out another round between structure and function. Each of them owned a bias towards one or other of these observations, and this would in some measure determine their practice. Admitting the correctness of the experimental evidence of the physiologists and the probable truth of their deductions, there would be a tendency to exploit treatment of medical order for the relief and control of this disease, and there was no one who would not desire this outcome. But the demonstration of structure was so striking, and the superior effectiveness of surgical measures so evident, that for himself he found structure and surgery influenced him most in his teaching of post-graduate students.

Mr A W ORMOND thanked the opener for his experimental observations, which he had found useful in his comprehension of glaucoma. Acute glaucoma had been produced by Dale by introduction of histamine, and possibly it might also be produced by toxins. All the signs of inflammatory glaucoma might be explained on the capillary dilatation theory. He mentioned Bayliss's experiments on the swelling of colloidal gels by the action of acids and alkalis. He believed that there were many types of glaucoma, with varying causes, and he expressed some doubt as to whether the more chronic types were due to alterations in the intraocular capillary pressure. He was sure that Priestley Smith's predisposing causes were of great importance. Mr G W HARTY (New Zealand) spoke on Koeppe's theory of pigment migration. He also referred to cases with increasing pallor of the disc after operative relief of the intraocular tension. Dr PARAKORE (Rugby) criticized the physiological facts given by the opener, especially with regard to alteration in ocular pressure being caused by a difference in osmotic pressure of the protein colloid content of the plasma and the aqueous. Oedema of the vitreous strongly appealed to him as a cause of glaucoma. Mr CYRIL WALKER (Bristol) asked for an explanation of the incidence of unilateral glaucoma, he suggested that it pointed to a local anatomical condition. Lieutenant-Colonel A E LISTER (Bristol) described the case of a woman said to have glaucoma. No change was

apparent and the eye was normal in tension to the Schiotz tonometer. The patient said that sewing produced attacks. The next day she sewed for three hours, and he then found her tension was 60 mm of mercury with the Schiotz tonometer. Trephining relieved her symptoms, but two years later the other eye became affected. He thought that the accommodation and convergence were here factors in an eye predisposed to glaucoma. He had noticed how commonly microphthalmic eyes became glaucomatous, pointing to an anatomical basis he had seen the condition in a young patient with a small coloboma of the iris. In reply to Mr Spencer (Baghdad) he said he had not found glaucoma common in trachomatous patients.

In reply, Mr DUKE-ELDEN doubted the accuracy of comparing the eye to a closed box. Fluid could be expressed by massage. He could not agree that the tension in eye and cranium were the same, the former averaged 20 mm of mercury, the latter 10 mm. He agreed that the venous pressure in the eye was about 15 mm of mercury above the intraocular pressure. The large size of the ciliary body was necessary for dialysis, as a large number of capillaries were needful. He agreed that some change in the pectinate ligament was often a determining cause in glaucoma.

SECTION OF DISEASES OF CHILDREN

Thursday, July 26th

CHRONIC NEPHRITIS IN CHILDHOOD

Dr J C SPENCE (Newcastle), in opening the discussion, said that there were no forms of chronic nephritis peculiar to childhood, and it was with the clinical features of the disease as it occurred in children that he proposed to deal. Three main groups could conveniently be considered: chronic interstitial nephritis, chronic parenchymatous nephritis, including nephrosis, and chronic ascending pyelonephritis. The last, although not a primary disease of the kidney, was of importance, since the renal function might be impaired as in chronic interstitial nephritis. Two other conditions were not included, chronic haemorrhagic nephritis and Heubner's "paedo-nephritis," in which children showed no other sign but albuminuria and anaemia; this was probably not a distinct entity. Chronic interstitial nephritis was at one time considered a great rarity, and for some time attracted little attention until in 1911 various workers described the association of the disease with chronic bony changes and dwarfism. There appeared to be three clinical types of the condition, but considered as a group the symptoms were thirst, polyuria, anaemia, and arrested development. Sometimes uraemia was the first sign of the disease. In a minority of cases a history of acute nephritis or a preceding illness of prolonged sepsis was obtained. The patients had coarse, dry, pigmented skins, and were liable to recurrent attacks of uraemic vomiting and headache. There was no mental defect, indeed precociousness was a common feature. Bony changes were characteristic, fractures were common, and the gait was slow and uncertain. Polyuria was a prominent symptom, and the amount of albumin passed was very variable, sometimes being very slight and overlooked. Retinitis occurred in those cases with high blood pressure. Renal function tests showed a great loss of function. All cases of chronic interstitial nephritis appeared to fall into three types. One, called the primary renal type without a history of acute nephritis or preceding sepsis, began insidiously, and cases were often first seen on account of dwarfism or bony lesions. The blood pressure remained normal in this type, and a terminal uraemia with muscular twitchings, vomiting, and coma occurred. The second group comprised a primary renal type with a history of acute glomerular nephritis or prolonged sepsis. Here the blood pressure was raised with cardiac hypertrophy, albuminuria, red cells in the urine, and azotaemia. The third group consisted of cases of primary arterio-sclerosis with secondary contraction of the kidney. Such cases, although rare in childhood, did occur, and Dr Spence quoted one of his own: a child of 10 with a blood pressure of 220 mm systolic. The renal function tests were normal, but so-called uraemic symptoms occurred, such as transient amaurosis and monoplegia of the left arm, which in the presence of albuminuria and retinitis were regarded as

uraemic, although more likely to be the result of a cerebral vascular disturbance. With regard to the aetiology of chronic interstitial nephritis, nothing positive was known about the renal dwarfism cases, although an intrauterine origin was suggested. In the second type sepsis appeared to be the cause, and in the third type the cause of the preceding arterio-sclerosis was unknown. Bony changes in chronic interstitial nephritis which had existed for some years appeared to be the result of a metabolic disturbance, but they did not yield to the usual antirachitic remedies. Tetany did occur, but was not common, except in a latent form. The bony changes and the tetany were associated with a disturbance of the calcium-phosphorus ratio, and it was probable that the parathyroids were concerned with this. In all the cases of chronic interstitial nephritis with normal or low blood pressure retinitis was absent, and Dr Spence concluded that when it occurred retinitis was a manifestation of hypertension or vascular disease. There was little to be done in the treatment of chronic interstitial nephritis. Turning next to the chronic parenchymatous form or nephrosis, Dr Spence said that this was the commonest form in children. The terms used to describe the condition really mattered very little; the word "nephrosis" indicated a degeneration rather than an inflammation, and suggested a general disorder in which the kidneys were involved. Clinically, the disease was well recognized, but the only evidence that the condition was due to disorder of the kidneys was the albuminuria and the casts in the urine. With regard to the diagnosis, the problem had to be faced of whether red blood cells must be absent from the urine and the blood urea necessarily normal as was supposed to be essential in the classical uncomplicated case. In treatment the first essential was to find the local infection, said to be nearly always a staphylococcal one, often in the paranasal sinuses, and remove it. Large doses of alkalis should be tried in obstinate cases, but it was difficult to assess the value of any form of treatment owing to the fluctuations of the disease and the fact that spontaneous cure might take place. A high protein diet was useful, and decapsulation of the kidneys useless, the patient must be guarded against intercurrent infections. The prognosis was uncertain, especially in prolonged cases. Dealing lastly with chronic ascending pyelonephritis, Dr Spence referred to those cases of pyelitis which became chronic and in which permanent ill health resulted. The kidneys went into a condition of azotaemic nephritis, ending in uraemia, and in prolonged cases the children became dwarfed. In such cases the possibility of imperfect drainage of the urinary tract due, for example, to a valvular obstruction in the posterior urethra, ought to be borne in mind so that surgical intervention was not delayed.

Dr NORMAN CARON (Liverpool) thanked Dr Spence for his masterly introduction of a very difficult subject. In his own experience most cases of nephritis were not pure examples of any particular variety, they were due, apparently, to diffuse lesions affecting all the component parts of the kidney. He had found the so-called renal efficiency tests of little practical value in "medical" diseases of the kidney in children, and he felt that there was a real danger of allowing these tests to assume too important a place in assessing the pathology and prognosis in any given patient, though it was obviously proper that they should be used whenever possible in order to try to learn more about their significance. Dr Capan thought that in any classification of chronic nephritis a place should be found for chronic haemorrhagic (glomerular) nephritis, which, in his experience, both hospital and private, was more common than chronic parenchymatous nephritis. He did not think that the apical could justifiably exclude this type of case because it happened to be a recurrence of attacks of slight glomerular nephritis. The speaker contended that most of the cases of chronic nephritis showed acute exacerbations from time to time and that one of the most important items of treatment was to prevent in so far as possible, these recurrences. Removal of mastoid, tonsillar, and dental sepsis in cases of chronic glomerular nephritis was a most valuable form of treatment. In regard to renal decapsulation for chronic parenchymatous nephritis, Dr Capon reported a case in which he had been able to

examine the kidney and its surrounding tissues three months after this operation had been performed. There were only very slight traces of a new capsule, and prolonged microscopic search for new blood vessels passing from the perinephric tissues to the kidney was unsuccessful. Finally Dr Capan asked whether any member had seen cases of orthostatic albuminuria which eventually developed rheumatism. This seemed to him to be a definite though uncommon form of onset of rheumatism.

Dr L. G. PARSONS (Birmingham) agreed that the uraemia occurring in the primary renal type of chronic interstitial nephritis was a true uraemia. He could not remember seeing retinitis in this condition, but primary optic atrophy occurred associated with a special type of bone deformity and a skull resembling Paget's disease in appearance. He emphasized that parathyroid should not be given in this condition, and he pointed out that phosphates, so frequently given in an attempt to alkalinize the urine, were very liable to precipitate an attack of tetany. Chvostek's sign could be elicited in so many conditions that he did not find it of much use.

Dr R. HUTCHINSON said that classification presented a real difficulty, and chronic types of nephritis tended to be mixed, with diffuse changes. It was unusual to find pure types at the bedside. He asked whether we were justified in regarding chronic nephritis as the primary renal type as primarily a disease of the kidney at all. In view of the bone changes it might just as well be looked upon as a variety of rickets. The metabolic disorder present made up a syndrome which included nephritis and bone changes. With regard to ascending pyelonephritis cases had been described as due to a valve in the posterior urethra, and he believed that the condition was not necessarily a pyelitis, but more like the "prastatic" kidney of old men. He asked what was the cause of high blood pressure in chronic nephritis. It was found in one case and not in another. He agreed that the renal function tests were of little help clinically as to the state of the kidney or as to prognosis. He emphasized the importance of casts in the urine in such cases. He could not believe that chronic staphylococcal infection was important in the production of chronic parenchymatous nephritis, but in the glomerular type a focus of infection was frequently present. In oedematous cases tapping was of very great value, and spontaneous diuresis often followed.

Dr J. W. SCOTT (Nottingham) spoke of the arterio-sclerotic type of nephritis in children. He described two cases of this variety with marked retinal changes, normal blood urea and a history of haematuria at the onset. He believed that such cases began as an acute haemorrhagic nephritis. He thought that all chronic nephritis had its origin in slight passing attacks of acute disease. In a large ear, nose, and throat department transient haematuria was of frequent occurrence. In parenchymatous nephritis catarrhal infections—bronchitis, for example—were common. He described a case of parenchymatous nephritis with ascites without any albuminuria. He thought that the onset of vomiting was a bad prognostic sign in nephritis.

Dr C. PAGET LARAGE (Manchester) discussed various points. He thought Chvostek's sign did represent a real abnormality. With regard to Edebohl's operation, he knew of one case in which it was very successful. He was impressed with the septic origin of many cases of chronic nephritis, and rheumatic nephritis would quite well fit in with this. As regarded feeding he held that much of the dieting in nephritis was an the wrong lines, and children were kept from recovering because of too low a diet.

Dr D. T. DAVIES (Cardiff) dealt with uraemia as seen in childhood, pointing out that many chronic conditions of the kidney in children only presented themselves clinically when they had arrived at a state of renal failure. Uraemia it was commonly agreed, was accompanied by nitrogen retention, but some observers denied this, largely because, Dr Davies believed, they had studied the syndrome in adults when it was complicated by vascular changes. The uraemia of childhood had much in common with the "mechanical" uraemia of adults. The most obvious and persistent sign in these cases was vomiting, muscular twitchings and coma followed. Even when very ill these children maintained an alert mental condition. The blood pressure was not raised, and absence of eye signs was the

rule. The urine was pale, often for a time free from albumin, and of low specific gravity. The blood contained very remarkably large quantities of urea, as high as 300 mg per cent might be present, and yet the child complained of very little except for attacks of vomiting. The vomiting led to a loss of hydrochloric acid, meaning a retention of alkali, and this might help to buffer the already retained acid in the shape of acid phosphate. The vomiting attained another purpose, for it helped to get rid of waste products, and very large quantities of urea were sometimes contained in the vomit. Dr Davies quoted a case of a girl, aged 13, with a blood urea of 530 mg per cent and whose vomit yielded 700 mg per cent of urea. He agreed that infection did not seem to be common as a factor in producing "chronic interstitial nephritis." Some cases were remarkably free from symptoms until anaemia terminated the picture. One case, a boy of 15, who had been working in a mine, had only one month's history of headache and vomiting. He was admitted to hospital and died after one day, with a blood urea of 890 mg per cent, non-protein nitrogen 650 mg per cent, and chlorides 231 mg per cent. His blood pressure was only 80 mm systolic. At the necropsy the kidneys showed foetal lobulation and were small in size. In conclusion Dr Davies referred to the question of the undetermined nitrogen in the blood.

Dr A. MONCRIEFF said that in the etiology of chronic nephritis two main factors had to be kept in mind. The infective origin of many cases was emphasized, but others had a vascular origin, as, for example, the acute nephritis following a chill, for which Volhard offered an ingenious explanation. It was obvious that cases of chronic nephritis arising from a primary vascular lesion of the kidney were less amenable to treatment than the "infective" cases. Infection appeared to cause kidney damage in two ways: streptococcal emboli might affect the glomeruli, while toxins would damage the tubules, so that while a hard and fast distinction was impossible, yet the different types of chronic nephritis might be explained on these lines. At the present day missed scarlet fever seemed to be becoming a more important factor in otherwise unexplained cases of chronic nephritis. With regard to diet in chronic nephritis Dr Moncrieff emphasized that Epstein's diet was "low fat" as well as "high protein." This was often lost sight of and might explain the failure of such a diet in cases with oedema, if the fat were not kept low.

The President, Dr A. HOWELL (Cardiff), described a case of chronic interstitial nephritis of the primary renal type without any history of nephritis, which he had had recently under his care. The child had been sent to hospital for orthopaedic treatment for "knock-knees." She had not walked until the age of 5, and for a long time had been subject to attacks of vomiting lasting four or five days. On admission there was definite evidence of rickety changes in the bones, the child was below height and weight for her age, and she looked pale and ill. Her blood pressure was 80 mm, and the blood urea 534 mg per cent. She became comatose and died quietly. The kidneys were extremely small at necropsy, without any changes in the renal artery. This child had been ill for thirteen years, and Dr Howell emphasized the need for recognizing such cases. With regard to streptococcal infections and nephritis he thought all such cases should be treated as early as possible, much as rheumatic children were treated, for teeth, tonsils, naso-pharynx, etc., if these were infected.

Dr H. GAINSBOROUGH said that he was very struck with the extreme diversity of renal symptomatology. It was very difficult to correlate renal damage with symptoms or groups of symptoms. He disliked the term "nephrosis," and thought the disease identical with chronic parenchymatous nephritis in adults. It was frequently complicated by glomerular disease producing much difficulty, and Dr Gainsborough believed that it really began as glomerular disease, going on to chronic parenchymatous change. Albuminuria was evidence of glomerular change, and in experimental nephritis large doses of poisons would always produce glomerular changes. He did not agree that there was any more connexion between cholesterol and fat than between cholesterol and the proteins in the plasma, and with regard to diet in cases of parenchymatous nephritis

he had found a fat-free diet useless. He thought decapsulation an unsatisfactory procedure, but in any case the prognosis in the condition was very uncertain.

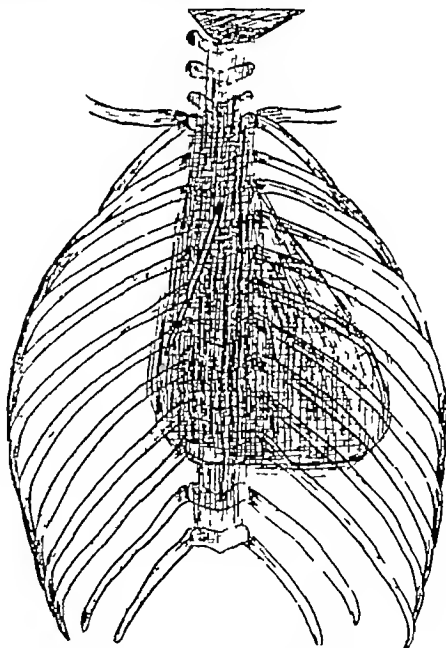
Dr J. C. SREXCE, in reply, said that the scheme of classification he had put forward was only an attempt to help in the understanding of the disease. He thought that everyone would agree that there was a disease in which, without a history of preceding acute nephritis, contracted kidneys occurred associated with bony changes and dwarfism, but the type of kidney found at autopsy was rather a puzzle pathologically. He mentioned a case in which bony changes had occurred after ascending pyelonephritis had damaged the kidney. He agreed that casts should always be looked for, but there was a danger of forgetting the red blood cells. He thought urea had been dismissed too lightly as a cause of true uraemia.

Memoranda: MEDICAL, SURGICAL, OBSTETRICAL.

A HAIR SLIDE IN THE BRONCHUS

THE removal of a foreign body from the lung with the aid of the bronchoscope is not an uncommon occurrence, and there would be no need to report this case if it did not present unusual features of interest both clinical and anatomical. The foreign body was a hair slide 2 inches long and 9/32 inch in width, made of tortoiseshell with a metal clasp.

The patient was a girl 3 years old. On February 13th, at 8.30 a.m. she was sucking the hair slide and suddenly became asphyxiated with stridulous breathing. She was immediately taken to the Birkenhead General Hospital where the house-surgeon thought he felt with the finger something hard in the back of



the throat. The bronchoscope was promptly passed but without discovering the foreign body. I first saw the child in the evening twelve hours after the accident. The breathing had then become easier and the stridor had disappeared but the child was ill, the respirations being 32, the temperature 100° and the pulse 156. Very little air was entering the right lower lobe and there were signs of bronchitis from which the child was said to have been suffering at the time of the accident. The radiograph showed the intruder in the right bronchus. Chloroform preceded by atropine was administered and the bronchoscope again passed. The 7 mm tube was held up at the subglottic region and had to be withdrawn and replaced by the 5 mm bronchoscope. No foreign body could be seen probably owing to the almost incessant coughing and mucopurulent expectoration. After an interval of two days a further effort was made to remove the foreign body through the 5 mm bronchoscope but was again frustrated by the cough and expectoration. Since the child was now very ill and quite unable to stand any further attempt at removal I performed a low tracheotomy and, passing the 7 mm.

tube through the tracheal opening, succeeded in removing the foreign body. It was somewhat fixed *in situ* so that a little traction was necessary to dislodge it which I attribute to the inflammatory swelling of the mucous membrane and the consequent narrowing of the bronchial lumen.

The child continued very ill for another ten days with septile broncho-pneumonia but eventually made a complete recovery. The tracheotomy tube was discontinued to a fortnight.

The principal points of interest in the case are

1 In a child aged 3 the 7 mm bronchoscope will not pass the subglottic region

2 The presence of bronchitis makes bronchoscopy difficult, especially when the 5 mm tube is used

3 The tracheal opening allowed the larger size 7 mm bronchoscope to be used and afforded an easy vent for the large quantity of pus which was subsequently expectorated

4 The foreign body defines the exact position of the main bronchial stem on the right side. It shows that in a child 3 years old the trachea divides at the level of the third dorsal spine, one vertebra higher than in an adult, that the right bronchus is only at a slight angle with the midline, that the bronchus continues outwards, downwards, and backwards in a straight line for at least two inches from the tracheal bifurcation, and without any marked narrowing of its lumen.

The radiograph indicates that a foreign body small enough to enter the right bronchus might easily, by gravity or suction, pass deeply into the substance of the lower lobe.

COURTENAY YORKE, M.D., B.S., F.R.C.S.,
Honorary Aurist and Laryngologist
Stanley Hospital Liverpool.

Reports of Societies.

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION ANNUAL GENERAL MEETING

THE eighty-seventh annual meeting of the Royal Medico-Psychological Association was held on July 11th, 12th, and 13th at the West Riding Mental Hospital, Wakefield, Yorkshire, under the presidency of Professor J SHAW BOLTON, M.D.

The following representatives of foreign psychiatric societies were present: Dr E. N. Brush (U.S.A.), Professor Wimmer (Denmark), and Dr Hans Evensen (Norway). At the business meeting Dr C. Hubert Bond, Dr Eugen Bleuler (Zurich), and the Right Hon. Hugh Macmillan, K.C., were elected honorary members. Dr Malcolm A. Bliss (St. Louis, U.S.A.), Dr C. O. Ariens Kappers (Amsterdam), Dr George H. Kirby (New York), Dr Giacomo Pighioli (Reggio Emilia, Italy), and Professor August Wimmer (University of Copenhagen) were elected corresponding members. The appointment of Professor C. E. Spearman as Maudsley lecturer for 1929 was announced. The Gaskell Gold Medal and Prize for 1927 was presented to Dr Elizabeth Casson, and those for 1928 were awarded to Dr I. R. Martio. It was intimated that H.R.H. Princess Mary (Viscountess Lascelles) had signified her willingness to accept the association's nursing medal in gold and the honorary certificate for mental nursing.

Professor J SHAW BOLTON took for the subject of his presidential address "The evolution of a mental hospital Wakefield, 1818-1928." He said it was nineteen years since the West Riding Mental Hospital provided a president of the association, in the person of Dr Bevan Lewis. Wakefield could claim to be a mother of asylums, and it had reached a distinction accorded to but few. The first Workfield asylum was opened in 1818, the second was added in 1853 and the third added was the modern building known as "The Acute." Sir William Ellis was the first director, and later went to Hanwell. The speaker quoted at length from regulations—some of which showed much foresight, while others would now be regarded as humorous. The director was the supreme officer, and he also acted as apothecary, surgeon, steward, and treasurer. At the opening two visiting surgeons and two visiting physicians were appointed, but in 1821, probably on account of the confusion resulting from dual control, the visiting magistrates much increased the powers of the director and diminished those of the physicians. In the minutes of July, 1857, there appeared a reference to Dr Henry Maudsley, who was then on the Wakefield staff, while one of the earliest workers in the Wakefield laboratory was Sir James Crichton Browne.

That gentleman not only fostered research, but did his best, by lectures, etc., to promote a general medical interest in the work and administration of the hospital. Resident clinical assistants (unpaid) had been appointed from early times. Sir David Ferrier's connexion with Wakefield Mental Hospital was well known.

The president proceeded to sketch the various additions to the buildings, and the improvements in treatment and administration which were effected in the course of the years, discussing at some length the question of punishment of patients for gross misdemeanours. Since he took office mechanical restraint and punishment had ceased, both in fact and in name, and that if he had the authority he would render restraint of all kinds, not only illegal, but criminal, on the part of any one who ordered it without having first experienced its effects on his own person. He drew attention to the close association with the University of Leeds, and the advantages accruing therefrom, making particular reference to the establishment of the pioneer diploma in psychological medicine.

Sir ROBERT ARMSTRONG-JONES proposed, and Dr J BRANDER (Boxley) seconded, a cordial vote of thanks to the president for his address, which was accorded by acclamation.

On July 12th Dr M. J. McGRATH (Wakefield) opened the scientific proceedings by reading a paper entitled "A description of the steps taken in a mental hospital to prevent the spread of dysentery and allied infectious diseases." In connection with this subject, the president read a postponed extract from his presidential address, describing the seriousness of some of the epidemics of dysentery which at various times in the past had afflicted the inmates. The precautions now taken to detect and, when found, isolate and thoroughly treat a case of bad diarrhoea or dysentery were given in detail. Dr McGRATH said it was essential to have isolation wards for new admissions and infected cases. Infection of inmates not only occurred through infected cases transferred from other places, but from new members of the staff. Hence every fresh patient and each new member of the staff was submitted to a thorough routine physical examination for infections. Of 467 probationers, 83 had to be rejected as a result of this examination. The organization of this work had been prolific of good results. It was insisted that an institution entirely free of dysentery was peculiarly liable to infection from without, particularly if a foreign strain were brought in. Investigations led to the conclusion that periodic temporary immunization of institutions in this respect was constantly occurring.

Mr A. L. HOWDEN (Wakefield) read a paper and demonstrated the bacteriological methods employed at the hospital in regard to the detection of dysentery and allied infectious diseases.

Dr J. R. LORD (Horton) spoke in praise of the modern skilled laboratory assistant, and said this was the first occasion he recollected on which one had read a paper before the association. He congratulated Mr Howden.

Dr F. A. PICKWORTH (Birmingham) said that at the Birmingham Mental Hospitals, in addition to isolating those who showed a positive Widal reaction, they treated likewise all who had had contact or relation with typhoid patients, or who showed infective organisms in the faeces.

Dr F. R. P. TAYLOR (Hellingly) said that at Hellingly dysentery cases came among the patients transferred from other hospitals, and it was not until regular bacteriological examinations were made the rule that real good ensued, though isolation had always been carefully enforced.

Professor J. W. McLEOD (Leeds University) expressed his surprise that Shiga infection epidemics did not occur in mental hospitals, and dealt with a number of points in technique. Dr C. HUBERT BOND said these communications must have brought home to everyone the absolute necessity of mental hospitals possessing a laboratory. He praised the work of Mr Howden. Dr J. I. RUSSELL (York) referred to the different types of dysentery and the difficulties of differentiation.

Dr L. WYNN-JONES (lecturer in psychology, Leeds University) read a paper on an investigation into the significance of perseveration, saying that there were five kinds of perseveration: sensory, motor, ideational,

emotional, and conative. He dealt only with the first three. The PRESIDENT and Dr. LORD discussed the paper.

Professor B. A. McSWINEY (Leeds University) contributed a paper on physiology in relation to psychological medicine. He stated that the paucity of information on cerebral function in the textbooks was due to absence of methods available to investigate the normal activity of the higher nerve centres. The explanations advanced often took no account of the function of the lower nervous system in bringing about the requisite co-ordination and relationship between the different organs of the body. If knowledge of the physiological factors controlling mental activity were to advance, the physiologist must continue to make measurements on structures which he was able to control, and carry out investigations in which he was able to isolate the disturbing factors. He illustrated his thesis by a number of examples, many of which were illuminated by the work of Sherrington and others.

Dr. IAN SUTTIE (Fife) read a remarkable paper on neurotic superstructures in certain psychoses, which consisted mainly of an elaborate justification of the early treatment by psycho-analysis, and illustrated well the degree of concentration and patience required successfully to pursue the method.

The PRESIDENT followed with a lantern demonstration of the stages the egg passed through in the germination of the chick, illustrating clearly the final mechanism which resulted in the emergence of the chick into the outer world.

On Friday morning Dr. K. C. PADDLE (Wakefield) gave a review of blood pressure in the insane, based upon the careful examination of 920 male patients, care being taken not to excite them before or at the time of the examination. The cases were divided into seven groups. Summarizing his results, Dr. Paddle said that in melancholia 51 per cent of cases had a subnormal blood pressure, in mania 51 per cent had a subnormal pressure, in epilepsy 70 per cent had a subnormal pressure. The average blood pressure in the insane varied according to the age. The majority of insane epileptics had a constantly low pressure, independently of the frequency of the fits or the kind of epilepsy. The blood pressure of normally minded epileptics might be raised by arterio-sclerosis or chronic Bright's disease.

Dr. F. A. PICKWORTH (Birmingham) contributed a paper entitled "Variation in the agglutinin formation in mental hospital patients and its probable relation to focal sepsis." His main purpose was a consideration of how the system might be invaded by organisms which demanded a considerable production of antibodies to effect their destruction and removal from the system. The organisms normally present in the jejunum evidently migrated to higher levels, as shown by examination of over 200 cases. The interrelation between focal sepsis and the variation in agglutinin formation of the insane probably occurred through the medium of a high intestinal sepsis caused by infection with paratyphoid or food-poisoning organisms.

Dr. J. F. SLYTH (Wakefield) read a paper on the relation of the *Spirochaeta pallida* to the histological changes in dementia paralytica. He said that spirochaetes were found in 75 per cent of the cases, occurring most frequently in cases which ran a stormy course. The speaker gave an exhaustive treatise on the mechanism of the disease, concluding that the most that could be hoped for under treatment was an arrest of the damaging process to the cortex. The number of cases examined was 52.

Dr. JOHN BRANDER (Bexley) discussed in a paper general paralysis of the insane as a clinical and pathological entity.

Professor W. H. MAXWELL TELLING (Leeds University) read an interesting paper on the value of psychical research to the physician, in which he declared that he had received great benefit from a study of psychic phenomena. He proceeded to review the present state of knowledge and the tendency in the profession concerning this subject. His own attitude was very sympathetic towards such subjects as telepathy.

The concluding item was a demonstration by the PRESIDENT of cases of sense deprivation and cases showing the primary importance of the aural centres in the cortex cerebri.

Reviews.

LOUIS BROcq'S LECTURES

It is now forty seven years since Dr. Louis Brocq became physician to the Hôpital St. Louis, the great dermatological centre of Paris, and although it is several years since he ceased to be an active member of the staff his vigour remains unabated and his output undiminished. In 1924 he published a large volume of clinical lectures, and this is now followed by a second of equal size and of equal interest. This volume contains fifty eight lectures, and of these no fewer than thirty seven are here published for the first time. The remainder are reprinted from various sources, but all are arranged so as to constitute a consecutive series, or rather five separate series, for the whole volume is composed of five sections with a single preface. One section, entitled "*Généralités*," like the preface, largely concerns itself with the philosophy of dermatology, laying down the principles which have guided the writer and incidentally pointing out the errors into which others have fallen. There is a section on the general therapeutics of skin diseases which, while dealing largely with questions of principle, is also full of useful practical hints and can be commended to the practitioner. The same can be said of the next section, which, entitled simply "*Panorama*," is so exhaustive that it really constitutes a fairly complete textbook of external dermatological therapeutics. It includes also a chapter on the treatment of skin diseases as carried out at spas. Those who desire to send their patients to drink the waters of health in these resorts will find much useful information here, at all events regarding French watering places. Brocq maintains a very sane and detached attitude towards their merits, and quotes with approval the dictum of some former medical philosopher—"the physician makes the spa." The author does not belong to the hair-splitting school of dermatologists, he preaches a doctrine remarkable for its breadth of vision rather than for anything else. Almost the only definite cutaneous diseases (*entités morbides vraies*) the existence of which he allows are those relatively few conditions whose etiology, whether bacterial, parasitic, or chemical, is clearly established. The remainder he includes under the single heading of cutaneous reactions, and his constant endeavour is not to split them up into smaller and smaller groups, but to recognize the connexions (*faits de passage*) between the various syndromes which we are bound to accept in order to obtain some clarity of description, and to which we commonly affix a label indicating their clinical characteristics. The significance of these labels is generally understood among dermatologists, but Brocq warns us against thinking that the choice of the appropriate label in any particular case is in any way equivalent to making a real diagnosis. Nevertheless, there are certain clinical groupings, now generally recognized among dermatologists, which this author has largely helped to establish, among these are the various forms of parapsoriasis and the doctrine of lichenification (a term invented by himself). In the present volume valuable chapters are to be found dealing with these, both from the historic and clinical aspects, and the author indicates that in certain details his own views have undergone some change in the course of years. Many other topics are touched upon in these pages—including a series of new lectures on various forms of hyperkeratosis, and furrows and fissures in the tongue—and, like most other dermatologists, Brocq has something to say on the absorbing problem of alopecia areata. On all these subjects he is interesting and stimulating, we may not agree with all the doctrines advanced, but at all events thought is provoked. His powers of clinical observation and description are very fine, and, like most French physicians, he has the ability to clothe his ideas in eloquent and forcible language. As might be expected, he is not a strong pathologist, when he was in his prime pathology was in its infancy, but he is quite able to appreciate the great importance of modern pathological advances.

This is a volume of considerable length but all who are interested in diseases of the skin should read it from start to finish. The author is the "grand old man" of dermatology.

CHEMOTHERAPY

In producing *The Chemistry of Chemotherapy* Dr MALCOLM DYSON has accomplished a very heavy task in a very satisfactory manner. The book contains a valuable account of a large number of substances and its arrangement is excellent. Many hundreds of chemical compounds are dealt with, they are classified, as far as may be, on a chemical basis, and the author has adopted the helpful scheme of inserting the structural formula of each substance, as it is mentioned, in the text. By this means the reader can grasp fairly easily the relationship of one compound to the next.

It is, perhaps, legitimate to criticize the author in one respect. He has very properly, omitted all irrelevant details about the biological action of the materials under discussion, but he has perhaps paid rather too little attention to biological considerations in general. For instance, the phrase "the most powerful of metabolic enzymes" (p. 20) seems to suggest a certain confusion of thought. Since no enzyme has yet been isolated in a pure state, we have no absolute measure of potency, but the evidence suggests that enzyme action on a suitable substrate proceeds as rapidly and completely as conditions allow, not that there are, for example, gradations of potency among enzymes as there are among the oxidizing agents of the laboratory. Again, in discussing certain substances, particularly the quaternary ammonium bases, the suggestion is made that the substances act upon, and paralyze, motor nerve endings because only at the nerve ending is the axis cylinder unprotected by myelin sheath. But the substances, after injection, must have ample opportunity of coming into contact with, and acting upon, non-medullated nervous tissue. Yet effects upon unstriated muscle, glands, and the circulatory apparatus are in no way prominent features of their activity.

One cannot help a feeling of depression—for which the author is in no way responsible—after reading the book. Chemotherapy is a subject of the greatest importance to medicine, it has scored several striking successes, and yet there is little to suggest that these successes have been more than lucky shots. Apart from the work of Crum Brown and Fraser in 1868, no general principles seem to have emerged, yet until general principles have been laid down there is no guarantee that any given piece of work is really on the right lines. It seems almost pertinent to inquire whether some of the time and resources spent on chemotherapeutic research might not more profitably be diverted to the study of the chemical and physical mechanisms of the cell, upon which for the most part our drugs must act, and about which we still know so little. In the last few paragraphs of the book the author himself rejects the possibility that physiological activity can ever really be correlated with the "gross details of chemical structure", he believes that ultimately such correlation may be attained with regard to physiological activity and the energy relations of the ultimate parts of the molecule—the electrons and protons. If this be so, obviously the preliminary step must be to gain a knowledge of the intimate mechanisms of the cell.

TESTS OF FUNCTION

A NUMBER of papers on function tests of internal organs, which originally appeared in the *Klinische Wochenschrift* have been collected in a small volume² apparently intended as a summary of tests of practical diagnostic value for the guidance of general practitioners, investigations involving the use of x-rays are omitted. That the writers of the various chapters are not all equally successful in attaining this object is no doubt partly due to the complexity of the subjects and to the fact that numerous function tests

The Chemistry of Chemotherapy. By G. Malcolm Dyson. Ph.D. London: E. Benn Ltd. 1928. (Cr. 4to pp. vii + 272, 6 figures, 32s. 6d. net.)

² *Funktionsprüfung innerer Organe*. By various authors. Second edition. Berlin: J. Springer. 1927. (5½ x 8½ pp. 150 R.M. 60.)

recently advocated are still on trial. One of the best chapters is that on the stomach by Professor Grote. In discussing gastric secretion and "emptying time," he describes certain modifications and rough tests which are likely to be useful to those who have only very limited laboratory facilities at their disposal. The chapter on the electro-cardiogram gives a concise account of this method of diagnosing the origin of the commoner cardiac irregularities. In the chapter on the kidneys the artificiality of many renal function tests—for example, those involving the injection of dye stuffs—is deprecated, and the value of water excretion tests and the simpler concentration tests is once again emphasized though stress is laid on extra-renal factors, such as oedema, which may interfere with so-called renal function tests. The chapter on intestinal function enumerates various methods of examining specimens from the small intestine, but fails to describe how these are to be obtained. Simplifications of various tests in common use are, however, given—for example, for occult blood in the stools by tablets containing benzidine and barium peroxide. Though the time taken by a dose of charcoal to pass through the intestinal tract is generally recognized as a useful measure of possible intestinal stasis when x-rays are not available, this method is not even mentioned, nor is any other means of estimating the motor functions of the intestine given. Other chapters deal with the heart, liver, pancreas, and endocrine organs, and a concluding chapter of much interest is devoted to the pharmacological tests of the vegetative nervous system. The volume suffers from some of the defects, such as overlapping of material, which are common when independent articles are re-published together in one book: thus there are three separate accounts of Loewi's conjunctival adrenaline test in itself of theoretical rather than practical interest. A more serious defect is the omission of an index to the numerous tests described. Considering its size, however, the book contains much of practical value, and should prove useful to those who are too busy to study larger treatises on the subjects under review.

SUICIDE

THE textbooks issued by American universities, whether the series be medical, sociological, or literary, tend to be heavy in both the physical and the intellectual sense. A study on *Suicide*,³ by Dr RUTH SHONLE CAVAN, issued by the University of Chicago Press, is no exception. In this book, as in others of a like nature whatever be the particular subject of study, a great many facts are brought together, a large number of graphs and tables are constructed, and a considerable number of individual cases are recorded and analysed. The results are not always commensurate with the labour involved or with the show of research displayed, nor are they in this instance. The work was perhaps worth doing in so far as it brings within the compass of one volume certain facts and statistics which readers with a particular purpose in view may find it convenient to have so collected. Some conclusions, mainly negative, are arrived at, and these may have some importance but no very valuable conclusions or even suggestions emerge which may not already be regarded as the common-places of sociological or psychological knowledge concerning the relation of the individual to the group and the relative importance of custom and public opinion as compared with individual motives and temperament.

In some societies suicide is or has been, in the nature of a social institution—*sente hana hani* suicide of the sick or aged among the Eskimos are examples. Certain scales of values are held by the entire group as part of the group tradition: they are accepted implicitly by each member, so that individuals willingly give up their lives to maintain these values. The modern custom approved as an act of heroism, whereby a captain goes down with his ship, is of the same nature. On the other hand, in stabilized and relatively small societies, or under the influence of certain philosophies or religions, peculiarly Christianity, group loyalty condemns all suicide as antisocial or sinful. On either of these positions marked social disturbances

Suicide. By Ruth Shonle Cavan, Ph.D. Chicago: University of Chicago Press. 1928. (5½ x 8 pp. xxvii + 359, 6 figures, 15s. net.)

(whether periods of social change, sudden and widespread epidemics of disease, or the contact of different cultural groups) have a disruptive effect. The decline of Greece and of Rome, the Black Death, the Renaissance, may be taken as examples. Habit and custom become inadequate to effect personal adjustment, and the individual is left, with lessened social support, to face those crises which threaten the uncertain equilibrium between his desires and the possibilities of their fulfilment. Social disorganization removes the prop which prevents personal disorganization. The general line of inquiry in Dr Cavan's study is, first, as to evidence of any general characteristics influencing large groups or communities, and second, an attempt at some analysis of the factors which produce personal disorganization.

The most interesting conclusions with regard to the former are that there is no statistical or other support for the idea that climatic conditions have any real influence over the prevalence of suicide, or for the statement that there are any underlying national or even racial differences in this regard, and that the undoubted preponderance of suicide in men as compared with women, in older persons rather than younger, and in widowed or divorced persons as compared with the single or normally married, may best be accounted for by the fact that the former class in each case has to meet the crises of life to a much greater extent than the latter. The factors which produce personal disorganization, to such an extent that the natural attempt at adjustment in some form fails and death is therefore sought, are inquired into by an examination of a number of individual cases of suicide or attempted suicide. No specially noteworthy or valuable conclusion or classification seems to emerge, and the suggestion that all those persons who attempt or achieve suicide and who have not previously shown definite signs of insanity must be regarded as normal is scarcely justified. As Professor Ellsworth Fairs says in his introduction to the book, "The readers will learn many interesting things about suicide, but the book will not answer all the questions that might be asked."

NEW GROWTHS OF THE BLADDER

The Pathology, Diagnosis, and Treatment of Neoplasms originating in the Walls of the Urinary Bladder,¹ by the late Mr L R FIFIELD, is the essay for which the Harveian Society awarded to the author the Buckton Browne prize. The final proofs of the book had just been corrected when a street accident deprived the London Hospital of one of its most promising younger surgeons. In Parts I and II the pathology, diagnosis, and treatment of bladder growths are described. Part III gives an account of experimental work undertaken by Mr Fifield on transplantation of the ureter into the bowel. This work was done primarily with the object of determining whether ascending infections following uretero-intestinal anastomosis travelled by way of the lumen or of the lymphatics. Did it occur independently of stricture formation, and what was the relative value of Stiles's and of Coffey's operations in preventing it? The author found that even with correct and careful technique about 60 per cent of cases of oblique transplantation of the ureter into the bowel developed ascending infections. In about 30 per cent of his cases a stricture was found at the lower end of the ureter. Although the formation of a stricture prepared the way for a renal infection, this could occur quite independently of any obstruction, the path of infection being either by the lumen or by the lymphatics. In cats and dogs, whose ureters are thin-walled, infection by the lymphatics could be prevented by painting the ureter above the suture line with rectified spirit, but in man such a prophylactic measure would probably be inadequate. There appeared to be little difference in the relative value of Coffey's and Stiles's operations. In view of the frequency of infection and stricture formation neither of them could be considered perfect. Infection occurred after these operations, either by lymphatic spread or by way of the lumen, as the result of reversed peristalsis and the forcing upwards of

grossly infected urine lying in the intramural ureter. The third part of the work is by far the most interesting, since it contains original observations and suggestions. It is deeply to be regretted that by his sudden death the author's researches on this important subject have been brought to an end.

NOTES ON BOOKS

THAT Dr T DAWTREY DREWITT'S *Romance of the Apothecary's Garden at Chelsea*,² originally published in 1922 (vide *British Medical Journal*, 1922, ii, 1269, and 1924, i, 787), should have passed into a third edition is no surprise to those familiar with the charm of its contents. In the present edition this is enhanced by the admirable setting of the Cambridge University Press, which now publishes in a more attractive form, and with additions, a book which appeals to all lovers not only of the medical, but of other aspects of life in old London.

We take this opportunity of welcoming the fourth edition of Dr HOWARD HUMPHRIS'S little book on *Artificial Sunlight and its Therapeutic Uses*.³ The author was one of the first in this country to provide the medical public with a practical manual of this subject. It is the early bird which catches the worm, and Dr Humphris has had his reward in four editions in four years. In general, the character of the book has not altered, although it has become a little more bulky. Additions have been made in order to bring it up to date, and the author remains as fully an optimist as ever. It is true that he expressly disclaims the ultra-violet rays as a cure-all, but by the time the reader has gone through the list of conditions for which it is recommended he will probably feel that but little scope remains for other methods of therapy. Dr Humphris has an attractive and breezy literary style, and the volume is well printed and bound.

Dr URBAIN has written a practical study of the Bordet Gengou reaction as applied to the diagnosis of infectious maladies,⁴ more especially those common to man and animals. The earlier chapters deal with alexine, emulsions of red cells, haemolytic serums, antigens, and so on. Subsequent chapters deal with such diseases of mammals as can be diagnosed by means of this technique. The volume is critical, and contains many of the author's own observations as well as an extensive bibliography. It is essentially practical, and should be of considerable value to laboratories as a technical work of reference.

¹ *The Romance of the Apothecary's Garden at Chelsea*. By F DAWTREY DREWITT. M.A. M.D. F.R.C.P. Third edition. London: Cambridge University Press, 1928. (Cr. 8vo pp. xvii + 115. 15 illustrations. 7s. 6d. net.)

² *Artificial Sunlight and its Therapeutic Uses*. By FRANCIS HOWARD HUMPHRIS. M.D. BRUX. F.R.C.P. Ed. etc. Fourth edition. Oxford: Medical Publications, London: Milford, Oxford University Press, 1928. (Demy 8vo pp. xi + 366. 28 figures. 10s. 6d. net.)

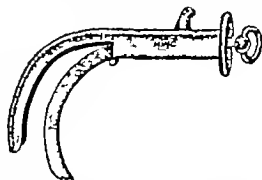
³ *La réaction de fixation*. Par Ach. URBAIN. Paris. *Revue de Pathologie Comparée et d'Hygiène Générale* 1927. (Roy. 8vo pp. 224. 40 fr.)

PREPARATIONS AND APPLIANCES

AN EXPANDING AIRWAY FOR USE IN SURGICAL OPERATIONS. Dr R. G. KARN, assistant anaesthetist to the Central London Throat, Nose and Ear Hospital, writes: Messrs A. Charles King and Co. have made for me the expanding artificial airway shown in the illustration. It is designed to hold forward the base of the tongue and the epiglottis during the prolonged administration of anaesthetics and is placed in position with the posterior ends in apposition forming an ordinary flattened tube. By means of a small screw the posterior portion is then made to open as shown in the diagram, the lower and anterior portion carrying with it the base of the tongue. Counter pressure, to prevent the airway being pushed out of the mouth when it is opened, is secured by the projecting plate on the upper surface which being inserted behind the upper incisors, limits movement in a forward direction. Provision for edentulous patients is made by two holes, one on each side of the forward opening, wherein tapes can be inserted and tied behind the head.

I have found this airway of the utmost value in long operations on the head and neck where it is essential for the anaesthetist to be out of the way of the surgeon and the necessity for the introduction of endotracheal catheters is thereby avoided in a larger number of cases. In addition the clear airway ensured greatly increases the safety of the patient and the comfort of the nursing staff during the transport of an anaesthetized patient from the operating theatre back to bed as the jaw does not have to be held forward constantly.

It is necessary for the patient to be well under and properly relaxed before the airway can be introduced, otherwise some trauma may occur in introducing it and the tongue if rigid is not gripped and pushed forward. Once in place, however, the airway will be found to be tolerated with a much lighter degree of anaesthesia.



⁴ *The Pathology, Diagnosis and Treatment of Neoplasms originating in the Walls of the Urinary Bladder*. By LIONEL R. FIFIELD. F.R.C.S. Eng. London: H. K. Lewis and Co. Ltd. 1928. (Cr. 8vo pp. xi + 34. 6 figures. 6 plates. 7s. 6d. net.)

British Medical Journal.

SATURDAY, AUGUST 11TH, 1928

SLEEP AND ITS DISORDERS

THOUGH there is something so simple and natural about sleep the numerous theories that have been advanced to explain it serve to reveal the obscurity in which our knowledge of the fundamental principles of organic behaviour is enveloped. In common with all vital reactions sleep still remains a mystery, but this does not deter us from seeking to discover the conditions which favour its occurrence and those which lead to its disturbance. In the contrasting states of sleeping and waking we observe one striking instance of the rhythm which characterizes all the unconscious biological processes, and since this sleep-waking cycle, whose integrity is essential to the well-being of the individual, is so liable to disturbance under the conditions of modern life, the study of sleep and its disorders has become one of considerable importance to the medical practitioner.

Insomnia is the most common disorder of sleep, and the question arises whether sleeplessness in itself has or has not baneful effects upon the biopsychic organism. Experiments carried out by persons who have deprived themselves of sleep for as long as possible demonstrate that the physical and mental changes following voluntarily induced insomnia are not of a serious kind. We are inclined to think, however, that such experiments have only a remote bearing upon the problem of insomnia in the nervous subject. Sleeplessness in an individual who wishes to sleep, but cannot do so when he tries, is probably more harmful than sleeplessness in one who is able to sleep, but does not wish to do so. In the latter case the subject is tranquil and interested; in the former he is beset with fears and preoccupied with gloomy thoughts. Dr R. D. Gillespie in an interesting article on sleep which appeared at the close of last year,¹ expressed the opinion that the influence of insomnia in the production of mental disorders has been much exaggerated. He states that he has not seen a case in which it could be regarded as anything but a minor factor, and that the *causa causans* lies always behind the sleeplessness. Insomnia must clearly be instigated by some endogenous disturbance, such as physical pain or a state of biomenal tension, but when once established the secondary effects can scarcely be otherwise than harmful, it can at least, as Dr Gillespie observes, aggravate an existing neurosis. In sleep there is increased activity of the autonomic functions. The pupils are contracted, the digestive organs continue to perform their functions, possibly more effectively than in the waking state, if we judge by the spontaneous behaviour of infants and animals after a meal: the blood pressure is reduced and the secretory activity of the skin is increased. Put briefly, the restorative processes of the organism are in full operation. Finally, the form of our mental activity alters

during sleep. It is not that the environment ceases to influence the psychic life. Experiments have shown that sensory stimuli exert a constant influence upon the dream content, but such impressions are mere stimuli, they have no significance as situations and events, as in waking life. The dissociation of thought from motor activity, together with a change in the form of thought, are the essential characteristics of sleep. Sleep is, above all, the resting time of consciousness, it affords a release of biopsychic tension, and permits effortless dream fantasies, unhampered by the cramping influence of external reality, to replace the vigilant and attentive psychic activity which the waking state demands.

Dr Gollan² has pointed out that the effects of nocuous stimuli on the organism, as revealed by the psychogalvanic reflex, favour the philosophic view that pain rather than pleasure is the fundamental fact of life. The response to a nocuous stimulus, associated with displeasurable feeling, is an increase of organic activity, whereas the reaction to a benign stimulus, associated with pleasurable feeling, is one of diminished activity. Pain is thus the conscious symbol of organic activity, while pleasure is the symbol of organic relief from the activity occasioned by a nocuous stimulus. It is thus permissible to inquire whether benign stimuli, with their pleasurable sensory aspects, should not be considered merely as an interruption of the stream of nocuous impulses which spur the organism to activity. We feel that the view here presented is of fundamental importance. There are in our modern civilization many sensitive, highly organized, and conscientious individuals who seldom obtain relief from pain—using this term, of course, in its psychological sense. Such persons are constantly faced with domestic, professional, or financial difficulties which are too often incapable of permanent solution. Briefly, life in such cases involves a chronic state of inner tension, with but short periods of relief and psychic relaxation. From what has been suggested above it would seem that sleep in persons so constituted is essential for their well-being; for in sleep we have the completest possible form of rest. Relatively speaking, the biomenal organism has nothing to do during the hours of sleep: it merely has to be—to remain passively in a state of pleasurable inactivity. Fortunately, in the majority of such cases no serious disturbance of sleep rhythm occurs, but should insomnia supervene there is some likelihood of a nervous breakdown. It is not as if the sleepless subject is able to be passively and indulge in pleasurable fantasies, more common is a state of tension, feelings of apprehension, and obsessing thoughts of anxieties and bothers to be faced on the ensuing day. Nocturnal ruminations on personal difficulties are especially fatiguing since no effective action is possible. When, during the day, these difficulties have to be met face to face, action is possible which leads at least to their temporary solution and in this way the 'nocuous stimulus' is removed, so that pleasure replaces pain, but at night, if sleep refuses to come, no such replacement is possible. Sleeplessness of this kind involves excessive organic activity, hyperfunction of the sympathetic nervous system, and a

¹ Sleep and the Treatment of its Disorders. *Guy's Hospital Gazette* November 1927.

² Croonian Lectures on the Objective Study of Neurosis. *Lancet* 1921, ii pp 115, 215, 265, 373.

lessened capacity to face the problems of the coming day. It is not surprising if symptoms of fatigue develop, and it may even happen sometimes (as Sir Maurice Craig and French and Italian psychiatrists in particular believe) that toxic exhaustive psychoses can develop as a result of a vicious circle of biological events set up by insomnia in certain subjects. Thus insomnia is a symptom which clearly merits the close and thoughtful attention of the medical practitioner. Its causes are infinite in their variety, and in its treatment no fixed rules can be laid down. It need hardly be said, indeed, that we do not treat insomnia, but an individual who cannot sleep.

For clinical purposes Dr Gillespie finds it convenient to classify sleeplessness according to whether it is due to physical disease, external irritation, or psychic disorder. It is the insomnia associated with the milder forms of mental disturbance which presents the greatest difficulties in treatment. In dealing with such a case the practitioner is faced at the outset with the problem as to the advisability or otherwise of prescribing hypnotics. That there is some divergence of opinion on this matter was shown by the prolonged correspondence in this *Journal* last year¹ arising out of a discussion, led by Sir William Willcox, at the Royal Society of Medicine, on the pathological effects of hypnotic drugs of the barbituric acid and sulphonal groups. As a counsel of perfection it might be urged that treatment should be directed to the removal of the endogenous irritant which keeps the biopsychic organism awake when it ought to be asleep. To adopt such a policy would, however, be to depart from clinical realities, because we cannot ascribe a neurosis to an isolated and independent cause, which is capable of being removed like an aching tooth, rather is it the expression of a number of mutually interrelated external and internal factors, associated not only with immediate life situations, but also with temperamental qualities and faulty habits of reaction dating back for many years. In some cases simple psychotherapeutic procedures combined with physical therapy, will suffice to dissipate an anxiety state and to restore the sleep-waking cycle to the normal. In others prolonged treatment is necessary to bring about a readjustment, and meanwhile the continuation of insomnia will tend to aggravate the symptoms. Thus there are many cases in which hypnotics are indicated, and these drugs, wisely prescribed, may not only be curative in their effects by providing the rest which is sorely needed but they may also be instrumental, according to Sir Maurice Craig, in sometimes averting a serious mental breakdown.

In the correspondence referred to above exception was taken by some of the contributors to the taking of drugs of the barbitone series over a long period. It would certainly seem desirable in such a case that the drugs should only be taken under medical supervision, but since they can be obtained from the chemist with comparative ease by anyone who wishes, there is nothing to prevent their misuse by the psychopathic subject. For this reason some clinicians are strongly of the opinion that it is in the public interest to control the prescription and sale of veronal, medinal, luminal, and the rest of the barbitone series. The problem is by no means simple; however, and impressive arguments are advanced both for and against the inclusion of these hypnotics in the official list of dangerous drugs. It is beyond our present purpose to discuss this highly controversial matter; our object here is to

remind readers of the importance of sleep for the preservation of health, and to emphasize the necessity of treating its disturbances seriously and with all possible medical skill.

THE DOSAGE OF DRUGS

In his preface to the new (nineteenth) edition of *The Extra Pharmacopoeia* (reviewed in our issue of July 28th at page 155) Dr W. Harrison Martindale raises an interesting point about the dosage of new drugs. He remarks that in the case of many of the important and powerful drugs that have been introduced in recent years the dose originally recommended has been found by experience to be dangerously high, and he pleads for more care in the application of results derived from animal experiments to the calculation of doses suitable for therapeutic use. This is a very timely warning, and everyone will agree with the opinion of a scientist whom he quotes as saying, that in the case of a new drug the clinical trial, properly conducted, ought to involve a research as careful and elaborate as the preliminary laboratory demonstration of a promising activity. There are, of course, no grounds for any quarrel in the matter between workers in the laboratory and in the ward. The laboratory worker provides in the first instance certain essential information, but the necessary limitations of this information must be fully realized.

Some of the main sources of error involved in the calculation of the tolerated human dose of a drug from animal experiments are as follows. In the first place, it is well known that animals of different species but of similar weight often show a great variation in their susceptibility to certain drugs. In the second place, there is no evidence to show that the dose of a drug per kilogram of body weight that is required to produce any particular effect is, as a general rule, the same for a small animal as for a large one. Dr Martindale suggests that the dosage is more likely to vary as the body surface of the animals—that is, as the two-thirds power of the body weight—than directly as the body weight. If this be so, then the doses required to produce equal effects in an animal weighing 2 kilograms and in a man weighing 60 kilograms would not be in the ratio of 2 to 60—that is, 1 to 30—but in the ratio of $\sqrt[3]{2^3}$ to $\sqrt[3]{60^3}$ —that is, about 1 to 8. This hypothesis was put forward in 1909 by Professor B. Moore, but subsequent evidence, advanced by various writers, has been conflicting. It must, however, be admitted that the dosage is just as likely to vary with the body surface, and hence with the metabolic exchange, as it is to vary with the body weight. These considerations alone suffice to show how uncertain must be conclusions regarding human dosage derived solely from animal experiments.

Another important point is that all accurate observations on minimal lethal doses of drugs indicate that healthy animals of the same sex, and from the same stock show an extensive individual variation even in the most favourable cases, if a particular dose of a drug kills 50 per cent of animals and is tolerated by 50 per cent, then half of this dose will still kill about 1 per cent of animals. The individual variation in diseased human beings is certain to be much greater than the variation described above, and whereas the tolerated dose in animals is taken as the dose that usually produces no toxic symptoms, yet in human beings the occurrence of severe toxic symptoms even once in a thousand times is a serious matter. Probably

the chief reason why the dose of powerful new drugs is usually reduced as experience in their therapeutic effects accumulates is that the margin of safety needed to cover the extremes of individual variation in large numbers of cases is usually underestimated. It is obvious that extensive clinical experience under carefully controlled conditions is essential for the estimation of the dose of a new and powerful drug, and that tests of this nature ought always to be performed before the drug is put on the market. The point is of practical importance because it is doubtful whether this procedure is always carried out with sufficient thoroughness, and whether there is not a tendency to put new drugs on the market after inadequate clinical trials.

Dr Martindale, in conclusion, makes it plain that he has no wish to belittle the importance of animal experiments. The value of such experiments is, indeed, obvious, for these alone make the trial of new drugs possible, and few would care to undertake such a dangerous proceeding as the trial of a new chemical compound on human beings when nothing was known of its pharmacological action. The necessary limitations of the information derived from animal experiments must, however, be clearly recognized.

THE PARLIAMENTARY SESSION

THE session of 1928, which began in February, has closed with a prorogation in early August, and the Government has arranged for the next session to begin in November. This arrangement, if systematically adopted, will enable Parliament to dispose of the King's Speech and of much general business before Christmas each year, and will prevent the heaviest work of the House of Commons, both in committees and in the chamber, being crowded into the hottest weeks of summer. Next session, however, this plan will probably be modified by the taking of a general election in early summer. Though short, the session which ended last week has produced much of medical interest, most important of all, perhaps, being the disclosure that the Government's scheme for derating industrial property will be followed next winter by a bill for reforming local government. Under this bill the powers of boards of guardians and some of those now possessed by rural district councils would be transferred to county councils and to county borough councils. These latter bodies would become the chief public health authorities. In the debate on the Ministry of Pensions on the last day of the session Dr Fremantle suggested that at a later date the medical services and medical institutions of the Ministry of Pensions might also be administered by county councils and county borough councils. The local government reforms proposed by Mr Churchill will be accompanied by the introduction of block grants for health services. Mr Churchill has refused to extend to hospitals the benefits of his derating scheme. The Government has passed two Acts of special medical importance this session—the National Health Insurance Act and the Reorganization of Offices (Scotland) Act. The latter abolished the Scottish Board of Health, reorganizing Scottish health administration in a Department of Health under the immediate control of the Secretary of State, but assurances were given that the department would not become subordinate to Whitehall. Of the National Health Insurance Act the King's Speech proroguing Parliament said "A bill has been passed, based generally on the recommendations of Mr Commission on National Health Insurance, whereby the existing system will be materially simplified and improved." The Act authorizes the provision of additional benefits, but for financial reasons

the Government had to refuse the proposal of Dr Shiels that maternity benefit should include a duly qualified medical practitioner and a duly qualified midwife. Other suggested additional benefits were refused for the same reason, and the debates in committee revealed a complaint among some Labour members that too much of the funds available were spent on medical service and too little paid out in cash to insured persons. Such protests were made, for instance, when Mr Chamberlain accepted in committee an amendment adding specialist medical attendance as an additional benefit. An interesting medical debate arose in the Lords, and was re-echoed in the Commons, on the use of tetra-ethyl spirit. Regarding this the Government set up a committee, which has since issued an interim report. The most striking speech on a medical topic in the House of Lords this session was that delivered by Lord Dawson of Penn on the Dogs (Amendment) Act. Taking for his text a provision that stray dogs should not be sold for vivisection, Lord Dawson gained the approval of the House by a crushing demonstration of how antivivisectionists sinned against the light when they opposed experiments on dogs. In the House of Commons the briskest medical debate for several years arose over an Edinburgh Corporation Bill, which proposed to give powers for the compulsory treatment of venereal cases which had lapsed from attendance at corporation clinics. Despite evidence that public opinion in Edinburgh supported the bill, the House rejected it emphatically on second reading, an unusual treatment of a bill presented by a great municipality. Medical opinion in the House was divided, Dr Drummond Shiels and Dr Fremantle speaking for the bill, and Dr Graham Little and Dr Salter against it. Dr Vernon Davies has protested manfully against the narrowness with which the Admiralty judges claims that tuberculosis among bluejackets is due to naval service, but no concessions have yet resulted from his arraignment. When the Ministry of Health estimates were discussed the Minister and other speakers emphasized the value of research into rheumatic invalidity and its cause. The Ministry of Agriculture has mentioned from time to time that investigations into the causation of foot-and-mouth disease were in hand, and the prohibition of the importation of fresh meat from the Continent has been maintained. Little has been said about other branches of medical research. Small-pox statistics given by the Minister of Health from time to time have been heard complacently by the House, and the report of the Committee on Vaccination was issued too late for comment, save by Dr Fremantle on the last day of the session. No attempt was made to pass the Factories Bill, nor is it likely to be passed in the next session, though the Home Secretary has admitted that the present factory inspection staff is inadequate. Generally speaking, the session has been profitable but humdrum. It has not been marked by any attacks on the medical profession. An Act has been passed to restrict the practising of solicitors who have been struck off the rolls, but medical analogues were not drawn. Though the Dogs (Amendment) Act passed, a downright antivivisection bill to prohibit experiments on dogs failed to secure the assent of the Commons. Controversy over the medical and administrative problems of the Ministry of Pensions has practically ceased, and the affairs of that department were not discussed till the last day of the session. The Ministry of Health has not been in such smooth water, but its troubles have been lessened by the administrative ability of Mr Chamberlain and the parliamentary adroitness of Sir Kingsley Wood. The Parliamentary Medical Committee has met regularly, and has done solid work, though its members did not always speak with one voice in the House. On the whole the session has shown that the House takes a mild but friendly interest in public health questions, and that the Government is ready to allow the Ministry of Health to secure its fair share of legislation.

THE DILUTION METHOD OF SEWAGE DISPOSAL.

For many years the tendency has been, in civilized countries, to dispose of human excreta by discharge into sewers. The word "sewer" has, as a consequence, acquired in the public mind a significance which refers only to a special use of sewers. Lord Coke described a sewer as a place whence water issues—or, as is vulgarly said, "sues"—hence the word "suer" or sewer. Such were the channels regulated by the Statute of Sewers (23 Henry VIII, c. 5). The great convenience of being able to discharge filthy waste liquids into these drainage channels led in time to the construction of covered-in sewers intended wholly or mainly for the disposal of such liquids, and to the use of the special word "sewage" to denote a foul liquid, mainly of domestic origin. The great advantages, hygienic and aesthetic, to the immediate vicinity of this means of disposal cannot be overestimated. All the consequences of sewage disposal were not, however, foreseen by the pioneers of this system of sanitation, nor could they, in reason, have been, for it was only as towns grew more thickly populated and sewage systems extended that they became apparent. A foul water covered-in sewer is offensive only to the very small part of the population that is obliged to work in it, and when it is discharged into an open watercourse its effects may be confined to a very small area around the point of discharge if the volume of clean water is large relative to that of the sewage. So far as fish are concerned it is an undoubted fact that they will congregate around a small sewage outfall at a point where it discharges into a relatively large river. This may be seen at some places on the Thames. In his work on *The Principles and Practice of the Dilution Method of Sewage Disposal*¹ Professor Walter E. Adeney discusses the effects of sewage on streams. No living man, probably, is better qualified to do this—a fact which the Royal Dublin Society has recently recognized by awarding him its Boyle medal for applied science. In 1894 he began the long series of researches which are ably summarized in this book, and thereby made available for the many workers who cannot conveniently consult the *Proceedings* of the Royal Dublin Society or the voluminous reports of the last Royal Commission on Sewage Disposal. A careful quantitative study of the changes occurring in water polluted with known proportions of sewage, followed by a further study of the decomposition of definite compounds allied to those organic substances present in sewage, showed Adeney that, contrary to the views expressed by the Royal Commissioners of 1868, sewage was oxidized in water at a fairly rapid rate by the action of micro-organisms, the effects of which were not understood by the earlier workers, who had considered the problem rather too much from the point of view of pure chemistry, and had confined their attention to the end, rather than the intermediate, products of the oxidation of carbon and nitrogen. Having found that no oxidation of nitrogen occurred until great simplification of the organic matter had taken place and most of the carbon was oxidized (a result confirming the observations of the early workers on nitrification—Warington in this country, and Schloesing and Winogradsky on the Continent), Adeney turned his attention to the all-important question of the rate at which water will absorb oxygen. The speed at which any action between two or more substances will go on is clearly determined by the rate at which the supply of that body present in least amount can be replenished. Water will, at ordinary temperatures, dissolve from the air about 1/100,000 of its weight of oxygen, whilst an effluent produced by merely sedimenting sewage may take up as much as 15/100,000 of that gas.

It is clear that unless the absorption from air is very rapid oxidation in a sewage-polluted stream will go on at a very low rate. The ingenious means by which Adeney and his co-workers determined what one may believe is the limiting rate of absorption of oxygen from the air, and showed the conformity of the action with the laws of physical chemistry, is described in the book. The great value of this work is that it supplies a sufficient quantitative basis for the determination of the capacity of a stream to receive and purify, without offence, the soluble and finer suspended matters of sewage, thereby rendering the dilution method of sewage disposal no mere haphazard empirical process. This is a notable achievement, in so far as it shows to what, if any, extent more intensive and expensive methods of oxidation or other treatment need be adopted.

NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS

Two topics of considerable interest are dealt with in the report of the National Association for the Prevention of Tuberculosis, which was presented at the annual meeting held recently in London, the first is the development of the association's educational campaign, and the second is the proposed reorganization of the Burrow Hill Colony, Frimley as a centre for the treatment and training of tuberculosis boys. The extension of propaganda work has been made possible largely by the success of the special appeal launched two years ago, and which, up to the end of June last, had brought in over £59,000. Within the past thirteen months three assistant medical commissioners have been appointed—one in July, 1927, and two early this year—to carry on educational work. Meanwhile their efforts are being concentrated on the country places, and no attempt has been made to deal with the larger towns. Some 369 meetings have been held, with an aggregate attendance of 40,000 while over 130,000 visited tuberculosis exhibitions at Shoreditch, West Ham, Whitechapel, Battersea, Ipswich, and Maidstone. Each of the three assistant medical commissioners engaged on lecture tours is accompanied by a caravan equipped with exhibits (models, photographs, and posters), literature, and a projector for lantern slides and films. One of the lecturers has been employed in Scotland, and in the course of a year has traversed the more remote parts of that country, covering the counties of Perth, Argyll, Inverness, Ross, Sutherland, and Caithness, including the Hebridean islands of Lewis, Harris, Skye, and Mull—regions in which the incidence of tuberculosis is relatively very heavy, and which are, by reason of their inaccessibility and scattered population, "backward" in matters of health. In England, during the current year, lecture tours have been carried out in the London area, Sussex, Surrey, Middlesex, Buckinghamshire, Hertfordshire, Cumberland, Westmorland, Northumberland, and the Isle of Man. The report states that the assistance given in this way by the association has been welcomed by medical men engaged in tuberculosis work throughout England and Scotland. Burrow Hill Colony, Frimley, the property of the association, was formed in 1922 to afford treatment and training for tuberculous ex-service men, many were received after the termination of the Government scheme in 1924, the main sources being the county councils of Surrey (which has filled more than half the available beds) and London. In the near future, however, Surrey patients will, it is expected, be accommodated at the new large county sanatorium at Godalming, which was opened on July 20th by the Minister of Health,² and the association has therefore been giving consideration to the future policy of the colony. Dr. F. J. H. Coult of the Ministry of Health was the author of the suggestion that the colony should be

¹ *The Principles and Practice of the Dilution Method of Sewage Disposal* by W. E. Adeney, F.R.C.S.E., D.Sc., M.R.I.A., F.R.San., Inst. Cambridge Public Health Series, London: Cambridge University Press, 1928. (Demy 8vo pp. xii + 161, 21 figures, 4 plates, 12s. 6d. net.)

² See *British Medical Journal* July 28th 1928 p. 174.

utilized to develop a scheme for the treatment and training of tuberculous boys, a class for whom it is at present difficult to secure a suitable institution. It is regarded as undesirable that they should receive treatment with adults, and they are not eligible for children's institutions. Inquiries were made by Dr Coutts to ascertain whether, in the opinion of men engaged in the tuberculosis service, such a scheme would be helpful, and if such patients would be forthcoming in any numbers. The replies have encouraged the council to believe that the scheme would be practicable, and that the experiment should be made. Details are now being worked out in co-operation with the Ministry of Health, but it is not expected that the scheme will take effect until early next year. It is intended primarily for selected cases of pulmonary tuberculosis, but arrested glandular and other surgical cases of a suitable type may be considered as eligible. The duration of stay is not to be less than one year.

SMALL POX IN ROYAL FAMILIES

THE recent outbreak of small-pox in London gives added interest to a paper by the well known American dermatologist Dr Frank J Schamberg,¹ in which he traces the ravages of this disease among European dynasties in the seventeenth and eighteenth centuries. The House of Stuart suffered cruelly. Two of the children of Charles I died of it—the Duke of Gloucester in 1660 and, at a later period, the mother of William III of Orange. In 1677 small-pox broke out in St James's Palace, when the princess who became Queen Anne was the first to be attacked and was permanently disfigured. A newborn infant, the Duke of Cambridge, died of the disease in a few days. All readers of Macaulay's *History of England* will recall the eloquent and touching account of "the young and blooming queen," Mary, the wife of William III, who was successively regarded by the court physicians as having measles, scarlet fever, spotted fever, and erysipelas, until the correct diagnosis was made by "Radelpho, who with coarse manners and little book learning had raised himself to the first practice in London, chiefly by his rare skill in diagnostics." Two other children of James II contracted the disease—namely, James Francis Edward, known as the Chevalier de St George, who recovered, and his sister, the beautiful Princess Louisa, who died. William III only escaped because he had had a previous attack during his campaign in France, when his recovery was attributed to the method known as *per accubitus junioris*. A young and handsome page of the line of Bentinck, who volunteered to risk his life to save his master, caught the disease, and after a severe attack lived to be Prime Minister. The royal families on the Continent also suffered severely. Louis XIV lost his son the Dauphin from a violent attack at the age of 50, as well as his grandson the Duke of Burgundy. His daughter by Madame de la Vallière, Mlle de Blois, and her sister the Princess de Conti, both remarkably beautiful women, were disfigured by the disease. Louis XV, who is supposed to have had an attack of small pox in his youth—though, as Dr J D Rolleston² recently pointed out, this is more likely to have been varicella—fell a victim to confluent small-pox at the age of 64, having contracted the disease from one of the peasant girls whom he had inveigled into the *Parc-aux-Cerfs*. The death of Louis XV induced his brothers to submit to inoculation, as the royal princes in England had done some years before. Like the Stuarts, the House of Orange, and the Bonapartes, the Hapsburgs paid a heavy toll to this scourge. Joseph I of Germany, at the age of 33, fell a victim, and Joseph II, the son of Maria Theresa,

lost two wives within four years from the same cause. His second wife, Josepha of Bavaria, infected her mother in law, who for many days lay between life and death and was so terribly disfigured that her prime minister Prince Kaunitz, ordered that all mirrors should be removed from the royal apartments. It was only after her daughter Josephine and her nephew Albert of Saxony contracted the disease that she allowed van Swieten to inoculate her remaining children and grandchildren, and to introduce the practice generally into Austria. Dr Schamberg mentions many other royal personages who died of small pox, including Henry Prince of Prussia, several Austrian arch-dukes, Queen Ulrica Eleonora of Sweden, and Peter II, grandson of Peter the Great. The antivaccinationists will doubtless read with mixed feelings that since Jenner's discovery no death from small-pox, nor indeed an attack of the disease, has occurred among any of the royal families of Europe.

CONVALESCENCE

THE road to recovery is often difficult. The sick man, freed from his immediate distresses, his mind unfettered and his pains subdued, begins to be conscious of his reviving strength, and chafes at its slow return. He presents a problem which calls for both skill and tact on the part of his medical attendant. Dr John Bryant of Boston, Mass., thinks that the profession in general has shown itself apathetic towards this phase of medical practice. Little, he says, has been published on the subject, and he claims the distinction of having put together the first bound volume in any language which covers both the historical and the practical aspects of convalescence, and is exclusively concerned with the cause of better convalescent care. In this work¹ he gives an account of what has been done for the care of the convalescent in various countries, and indicates lines of development for the future. He describes in detail the convalescent institutions at Vincennes and Vesinet, which have been maintained since 1857 by the city of Paris. Not unnaturally, his interest centres on the Burke Foundation, the chief convalescent establishment in the United States, which caters for the poor of New York City. Containing over 300 beds, it has dealt with 35,000 patients since its opening in 1915. The organization of the Foundation appears to be sound and its results satisfactory. Occupational therapy takes a prominent place in its scheme of treatment. The author refers also to convalescent work in the United States Army, on which he was engaged during the war. The routine which he describes is strenuous but stimulating. In the baseball game between the "Bad Hearts" and the "Rhenmatisms," he says, the former team won after a close fight. In the army hospitals, as in the Burke Foundation, occupational therapy was found to be of great value, and many men who would otherwise have been unprovided for were enabled to leave the army well equipped for civilian life. The author devotes a useful chapter to surgical convalescence, and concludes by making an appeal to the medical profession for the better care of convalescent patients. Boston, he says, has 100 fewer convalescent beds now than it had in 1914. The solution of the problem, in the author's view, is the provision of country homes. Consisting as it does of a collection of articles published separately at different times, Dr Bryant's book is rather redundant and incohesive, but it should serve to direct attention in the United States to a field of work the importance of which is well recognized in Britain, where every important general hospital has its convalescent home.

¹ *The Medical Searchlight* January 1923

² *Proc Roy Soc Med Sect Hist of Med.* 1925 xix 85

¹ *Convalescence Historical and Practical* By John Bryant M.D. New York. The Sturgis Fund of the Burke Foundation. 5 dollars.

THE REPORT OF THE COMMITTEE ON VACCINATION

WE published last week a brief note on the recently issued report of the Committee on Vaccination, appointed in February, 1926, by the Minister of Health in conjunction with the Medical Research Council. The committee consisted of Sir Humphry Rolleston (chairman), Dr I R Blaxall, Dr G F Buchan, Dr A I Cape, Dr Merivyn Gordon, Professor J C G Ledingham, and Dr J R Peard with Dr J R Hutchinson (of the Ministry of Health) as secretary. The reference to the committee was to report on (1) matters relating to the preparation, testing and standardization of vaccine lymph, (2) the practical methods which are available in the light of modern knowledge to diminish or remove any risks which may result from vaccination, and (3) the methods of vaccination which are most appropriate to give protection against risk of small pox infection in epidemic and non-epidemic periods.

Preparation of Lymph

The lymph used at the present time in England and Wales for vaccination at the public expense is prepared at the Government Lymph Establishment a department of the Ministry of Health. The seed lymph used is derived from calf lymph received from Cologne in 1907. Its quality has been maintained by cutaneous passage through the rabbit, repeated transference from calf to calf having been found to lead to deterioration in the lymph and unsatisfactory vesiculation. Arm-to-arm vaccination although not expressly prohibited, can no longer be given at the public expense. Details are given of the technique of lymph production in this and other countries the methods adopted in the latter differing in minor respects only. The discovery of some method of producing lymph free from extraneous organisms would be a great step in advance, and recent investigations point to the possibility of this being ultimately attained. Thus Carr and Rivers have shown that the vaccine virus proliferates when grown *in vitro* in contact with chick embryo cells and that the potency of the virus may be greatly enhanced by this method. Again, it has been found possible to inoculate rabbits intracerebrally, and it is claimed that the product yielded (the neuro-vaccine of Levaditi) is considerable, it is said to be suitable for human vaccination and is used for that purpose in some parts of the Continent. The lymph produced by either of these processes would be entirely free from extraneous organisms.

Testing and Standardization

Regulations have recently been issued under the Therapeutic Substances Act, 1925, which governs the preparation of vaccine lymph, enjoining the employment of certain tests for purity and potency. It is directed that each batch of lymph, after mixture with glycerol or other partial disinfectant, shall be tested for the presence of living anaerobic organisms and streptococci, and if either of these is found to be present the issue of the lymph is prohibited. The question of potency has recently been under the consideration of a commission appointed by the Health Committee of the League of Nations, the reports of which were discussed at a conference held in Berlin in January, 1927. The conference accepted four tests of potency as being satisfactory—namely (1) (in test in which an opacity should be apparent in the guinea-pig's cornea seventy-two hours after scarification with a 1 in 1,000 dilution of the lymph, (2) Sobernheim's test in which a papilliform infiltration of the line of incision should appear three days after inoculation of the skin of a rabbit with a 1 in 1,000 dilution of the lymph, (3) Groth's test in which an area of infiltration and congestion should appear seventy-two hours after an intradermal injection of 0.1 ccm of lymph diluted to 1 in 1,000 into the depilated skin of the back of a rabbit, (4) Calmette-Guérin's test in which an eruption of isolated vesicles

numbering from 3 to 4 per square centimetre should appear after distributing 1 ccm of lymph, diluted in 1 in 1,000, over a prepared area of the skin of a rabbit.

Risks Resulting from Vaccination

A Royal Commission was appointed in 1889 to consider this subject and made certain recommendations, most of which were embodied in the Vaccination Act of 1898. The recommendations included the use of calf lymph, whereby an absolute security against the communication of syphilis would be afforded, the extension of the age period for vaccination to six months from the date of birth, certain technical regulations to secure cleanliness and the avoidance of sepsis and erysipelas, the use of tubes instead of dry points, and an injunction that the vaccinator should render medical attendance in cases of illness supervening if required to do so by the parent.

A comparison of the statistics prior and subsequent to the Act of 1898 shows that after the Act there was a reduction of approximately one-half in the number of deaths coded to vaccination. In the period 1886-1891, in which approximately 4,290,000 infants were vaccinated, there were 279 deaths at all ages, in 1911-1925 5,500,000 infants were vaccinated, with 128 deaths at all ages, the ratio of deaths to vaccinations in the first period (6 years) was nearly three times as large as in the second (15 years). This reduction is doubtless largely due to the recommendations of the Royal Commission towards the prevention of sepsis, but an analysis of the causes of death set out in the present report is considered by the Committee to indicate the need for further efforts in this direction. The Committee suggests that the present system of inspecting the patient on the seventh day, before the reaction has reached its maximum, should be relinquished, that the inspection should take place some time during the second week and that a second should be obligatory in the third week. It further suggests that inspection would be more satisfactory, and the means of avoiding sepsis more adequately secured, if the principle of stationary, as distinguished from the present system of domiciliary, vaccination were adopted. The outstanding differences between the two periods mentioned above are the disappearance of syphilis and the appearance of diseases of the central nervous system other than convulsions, the latter form the subject of a special investigation embodied in Part II of the report.

The Royal Commissioners stated in their final report that they had no means of ascertaining in what number of cases other diseases supervened on vaccination as a consequence of it without producing a fatal result. It appears that the only systematic attempt to ascertain and record the subsequent medical history of vaccinated persons was made by Dr Parlange Kinloch, and had reference only to the incidence of certain infectious diseases in vaccinated and unvaccinated children under 5 years of age as indicated by the admissions to the Glasgow Fever Hospital during 1910-1913. Kinloch obtained no evidence that vaccination had any prejudicial effect on a child's well-being, as judged by its response to subsequent infection. At the Committee's suggestion certain investigations have been carried out in this direction. These were made over a period of three months into the medical histories of a number of recently vaccinated children and adults and of a similar number of controls, also into the medical histories of boys vaccinated at a residential school. So far as the investigations go they do not afford any evidence that vaccine increases the liability to disease either generally or specifically. Nor does vaccine appear to aggravate a disease already established, as was shown by observations made over a period of one month into the medical histories of 206 adults vaccinated at a time when suffering from various injuries and diseases.

Central Nervous Disease following Vaccination

The suggestion that encephalitis constituted a risk of vaccination was first made by Turnbull in 1922, but it was not until 1923 that there appeared, on the death certificates of certain recently vaccinated children, terms suggesting an affection of the central nervous system other than convulsions. Subsequent inquiries led to the appointment of a committee, under the chairmanship of Sir

Frederick Andrewes, to report upon the matter. Their report, presented in May, 1925, is reproduced in full in the present report. The cases investigated by the Andrewes Committee fell into two groups: the first, consisting of 11 cases, occurring in London in the autumn of 1922, the second, consisting of 49 cases, arose in the summer of 1923, and was confined mainly to the provinces, three isolated cases, observed in London and the provinces, brought the number up to 63. That committee made extensive investigations—statistical, clinical, histological, and experimental—with a view to ascertaining whether (1) the encephalitis is due solely to the virus of vaccinia, or (2) to the action of two independent viruses fortuitously associated, or (3) to the influence of vaccination in precipitating an encephalitis in a person harbouring another virus. The main points brought out were that the number of cases of post-vaccinal encephalitis bore no direct relation to the number of persons vaccinated, on the other hand, there appeared to be an undoubted association in time between the post-vaccinal cases and the prevalence of vaccination throughout the country generally, for example, the issue of vaccine tubes in 1923 began to rise in about the middle of June, attaining its height in the last fortnight of July, and the post-vaccinal cases of encephalitis appeared in the middle of June, reaching a maximum in the first half of August. The charts also showed that the period of 1923, during which the majority of the post-vaccinal cases occurred, was immediately antecedent to a rise of poliomyelitis and polioencephalitis throughout the country. No such association in time with the prevalence of encephalitis lethargica was evidenced. With regard to clinical evidence, the incubation period was found to be relatively constant (10–12 days), in most cases the onset was rapid and the course acute, the predominant symptoms were cerebral rather than spinal, and included fever, headache, vomiting, strabismus, and varying degrees of clouding of consciousness. Where paralysis of the limbs occurred it was generally of the upper neurone. The symptoms thus indicated a diffuse inflammation of the brain, without special localization and with little evidence of involvement of the cord. The latter, it was pointed out, may have been masked by the cerebral symptoms, but should have become apparent on recovery, yet nine of the ten cases, the after-histories of which were followed up, recovered completely without the paralyses which follow ordinary poliomyelitis or the mental and other disturbances which form the common sequelae of polioencephalitis and encephalitis lethargica. Thirty-six out of 62 cases died—a fatality of 58 per cent.

The Andrewes Committee expressed the opinion that it was extremely improbable that the cases could have been due solely to the vaccine virus, but that it was conceivable that a virus such as that of poliomyelitis, which could only occasionally set up an encephalitis in a normally resistant person when unaided, might, if another virus such as that of vaccinia was present in the brain, be enabled to do so. Without expressing any confident opinion, it was along such a line that the Committee thought an explanation of post-vaccinal encephalitis might be sought. In a majority report the opinion was expressed that the evidence was not sufficient to exclude the vaccine virus as possibly the sole cause of the disease, and those responsible for the histological examination considered that poliomyelitis and encephalitis lethargica could be definitely ruled out.

The present Committee has investigated a further series of twenty-five cases, which, with one exception, conformed to the Andrewes Committee's description, it has also discussed the considerable number of recorded cases which have occurred on the Continent, and has carried out numerous experiments, the most important result of which has been the demonstration of the presence of the virus of vaccinia in the brains of certain of the fatal cases. The Rolleston Committee has discussed at length the various theories available in explanation of the occurrence of post-vaccinal encephalitis, and while it acquits the vaccine virus of being the sole cause of the disease, it is unable to exonerate vaccination from playing some part in its causation. It considers that the co-operation of vaccinia with the viruses of poliomyelitis, encephalitis, or some

unknown neurotropic virus must for the present be accepted as a working hypothesis.

The histology of the disease has been very fully worked out by Drs McIntosh, Perdrau, and Turnbull. The essential change is a perivascular and marginal demyelination in the form of a wide zone around the veins, along the ventral fissure of the cord, and beneath the pia and ependyma. The adventitial sheaths usually contain coagulated albumin, and the demyelination is accompanied by little or no adventitial infiltration. These observers would therefore refer post-vaccinal encephalitis to a definite type of encephalitis characterized by demyelination, other members of the group being certain cases of disseminated myelitis of Westphal, disseminated encephalo-myelitis of later writers, disseminated sclerosis, and encephalitis periaxialis diffusa of Schilder. Further, they consider that a condition similar to post-vaccinal encephalitis has occurred independently of recent vaccination and observed exanthemata.

Methods of Vaccination

In this country no special method of vaccination is prescribed, except that the public vaccinator must aim at producing four separate, good-sized vesicles or groups of vesicles, no less than half an inch from one another. This direction, which appears in the Vaccination Order of 1888, was based primarily on the results of a large number of observations in the last century, and the matter was further investigated by Dr A. F. Cameron and the late Dr Brownlee, in connection with the outbreaks of small-pox in London and Glasgow at the beginning of the present century. Dr Cameron's conclusions were that protection against death is directly related to the number of scars and to the area of cicatrix, and is greater when there are four divisions in a given area of cicatrix than when there are three or two, that the prognosis at any age up to 50 is more favourable with four scars than with three or two, and that protection against death afforded by primary vaccination dating mainly from infancy is not exhausted at the sixtieth year of life. These conclusions with regard to the number of scars and the cicatricial area have been corroborated by Professor M. Greenwood. With regard to the relation between the number of scars and the fatality rate, the cicatricial area remaining constant, Dr F. M. Turner has found that the correlation coefficient is low, and concludes that probably in cases with equal area of vaccination marks there is no difference in the amount of protection afforded by different numbers of scars.

Reaction of Immunity

The evidence adduced before the Royal Commission on this point was based mainly on the vaccinal condition of persons dying from small-pox. There is now another criterion available in the allergic reaction as studied by von Pirquet and employed by Leake and Thomas. The reaction of immunity was foreshadowed by Robert Cory in 1886, and the essential phenomena were known to Jenner, who, in his "Inquiry," refers to cases in which attempts to vaccinate persons already protected produced an accelerated efflorescence, which did not advance to vesiculation, but aborted. The essential point in the reaction is that the interval elapsing between inoculation and the maximum reaction in a secondary vaccination is a measure of immunity to vaccinia: the shorter the interval the greater the probable immunity. The Committee has made use of this reaction in investigating the degree of residual immunity to vaccination in persons of 18 to 21 years of age previously vaccinated in infancy. It finds that the degree of acceleration of the day of maximum reaction varies with the amount of scar area and also with the number of scars produced by infantile vaccination, further, that the effect of primary vaccination, whether in single or multiple insertion, is to accelerate the average day of maximum reaction to revaccination in men of 18 to 20 years by at least three days, as compared with primary vaccination at the same age, this period representing the average amount of immunity remaining at this age from infantile vaccination. The Committee considers that for all practical purposes the period of effective immunity may be regarded as not less than seven years.

Present State of Vaccination

From 1897 to 1925 infantile vaccination as a whole has shown a pronounced tendency to decrease, this being due to a large extent to the operation of the Vaccination Acts of 1898 and 1907, which enabled exemption to be procured on the grounds of conscientious objection. The number of revaccinations differs widely from year to year, and it is difficult to account for many of the variations. The influence of the outbreaks of small-pox in 1901-5 and in 1918 is reflected in the large number of revaccinations of persons over 1 year of age and of revaccinations at those periods. In the year 1919 a form of small-pox appeared in the provinces, invading in that year twenty-three counties characterized by a mildness so extreme as to cause many to doubt its true nature, and many cases were overlooked. As to the probable relation of the mild to the severe form of small-pox, the Committee states that it is "not in a position to determine whether or not these types constitute separate entities, or are merely variations of one disease, or if mild and severe may become transformed the one into the other. Whether or not these forms of small-pox are simple variants or are separate entities, there is universal agreement that recent successful vaccination protects against both."

The mild type of small-pox is that which has prevailed in this country for the last five years, and it has been benign with an almost negligible mortality. As a result there has arisen a marked disinclination to submit to adult vaccination. It is affirmed that vaccination is worse than the disease, that it is commonly possible to continue at work with little or no discomfort during an attack of mild small-pox, whereas abstention from work for manual workers is commonly necessary after vaccination. Certain local authorities have paid considerable sums in compensation for remuneration lost from this cause. In these circumstances, and in order to render vaccination acceptable without impairing its efficiency, the Committee recommends that an effort should be made to reduce to a minimum the amount of trauma inflicted in vaccination. It considers that it is possible to secure a 100 per cent insertion success by a technique consisting of the infliction of a single linear incision not more than one-fourth of an inch in length and confined to the epidermis, and by the simple application of lymph thereto, further, that if the smallest amount of virus sufficient to produce immunity were ascertained, it might be found possible to produce a vaccine which would cause less local and general reaction than is now met with.

FOOT-AND-MOUTH DISEASE

THE third progress report of the Foot-and-Mouth Disease Research Committee,¹ briefly noticed in our issue of August 4th (p. 218) is a bulky volume of 141 closely printed pages, relieved only by photographs of the new experimental station for work with cattle at Pirbright, and by a series of photomicrographs illustrating the histology of the foot-and-mouth lesion at various stages of its development. It opens with a most illuminating summary, compiled by the committee for the benefit of the Minister of Agriculture, of the new knowledge elicited by experts working at various centres under the direction of individual members of the committee. To the four centres where research continues as formerly—namely, the Ministry's Veterinary Laboratory at New Haw, Weybridge, the Experimental Station at Pirbright, the Lister Institute, and the Notional Institute, Hampstead—a fifth has been added at Manchester, where Professor Maitland and Dr M. Cowan Maitland, both of whom had previous experience of foot-and-mouth research at the Lister Institute, are continuing their work along certain lines on behalf of the committee.

Regret, tempered however with satisfaction, is expressed by the committee that so many members of the research staff have had to relinquish their work for the committee on their appointment to important permanent positions in the pathological world. It is pointed out that the training of competent workers takes time, and that lack of perma-

nency of these research appointments will always seriously handicap continuity of research until the scientific veterinary service of this country acquires some very considerable accession to its permanent staff of workers. Some delay has occurred in connexion with the contemplated experiments on borinos at the Experimental Station, Pirbright owing to the difficulty of securing absolutely efficient isolation of experimental units. It is hoped, however, that the new arrangements with regard to loose boxes and incinerators, the construction of which has involved much thought, will give the assurance of effective isolation, which is imperative if experimental results are to be confidently assessed.

The committee notes that many problems connected with the infectivity of cattle at various stages of the disease still await solution, but with the reconstruction of the experimental station progress in this important direction will, it is hoped, be rapid. Indispensable as the guinea-pig has proved for the elucidation of a host of fundamental questions concerning the nature and properties of the foot-and-mouth virus, it cannot, unfortunately, serve for problems of contagion in view of the inability of this experimentally infected guinea-pig to spread disease to normal contacts. Bovine experiment also must remain the final test when the value of prophylactic measures, worked out probably in the first instance on guinea-pigs, have to be assessed.

The new experimental data now available to the reader cover an extraordinarily wide range of subjects, and this hundred pages or so of small print which embody the carefully compiled protocols and research summaries by the various members of the working staff may well appeal all but the specialist in virus disease. For the others the admirable summary of the present state of knowledge compiled by the committee will afford not only ample food for reflection, but will convey the assurance that the knowledge already gained by sound, patient, and well-directed research has illuminated many dark corners, not only within the narrow bounds of foot-and-mouth research, but also within the vast sphere of virus disease in general. No student of the subject, therefore, can fail to be impressed by the mass of important data which have accumulated since the highly susceptible and inexpensive guinea-pig became available for foot-and-mouth investigation.

It is possible to sketch the new data only in the briefest form. They contain items of interest for all specialists, and there is even a sop for the therapist, who in the matter of foot-and-mouth disease rarely gets an innings. Appendix I, written by F. C. Minett, D.Sc., M.R.C.V.S., contains details of the work carried out at the Ministry's Laboratory, New Haw. These reports deal with various problems of disinfection of virus-containing materials such as filtered vesicle fluid, various substrates of wood and iron with virus dried on their surfaces, hay, hides, and manure artificially impregnated with virus, the idea being to simulate natural conditions as closely as possible. On virus contained in vesicle fluid, substances like chlorine, iodine, potassium permanganate, sodium bisulphate and certain copper salts were active in high dilution, while the phenols had only a very low potency. Alcohol, to which the virus was believed to be highly resistant, apparently owes its inactivity in great measure to the fact that the virus is protected by a film of alcohol coagulated protein, a point to which Olitsky and Boez drew attention in 1927. Why phenol is relatively so inactive is not yet explained. Formalin and mercuric chloride also possess low efficiency in these three-hour exposure tests probably owing to their slower action. In the presence of added organic matter (saliva and faeces added to small pieces of virus-containing epithelium), and with a time limit of twenty-four hours, it was found that the disinfecting value of chlorine, iodine, and potassium permanganate was reduced one-thousand times, while the concentration of phenol, cresol, and formalin required for disinfection was not appreciably different in the two series of tests. Application of these results to the disinfection of artificially contaminated hay and hides showed that spraying of model haystacks with a 1 in 1,000 solution of formalin allowed to evaporate was very effective. The result is important in view of the experimentally ascertained fact that virus allowed to dry

¹ Ministry of Agriculture and Fisheries. Third Progress Report of the Foot-and-Mouth Disease Research Committee. H.M. Stationery Office 1928. Price 5s. net.

on hair has a long life. The soaking of artificially contaminated hides with 1 per cent formalin for forty-eight hours was certainly efficient, but was prejudicial to the leather, and some other method must be sought.

In Appendix 2 the work is detailed of various members of the committee's staff at the Lister Institute—namely, Dr H B Maitland (now of Manchester), Dr T Haro (now of the Veterinary College), Mrs V M Burbury, B A, and Dr M Cowan Maitland (now of Manchester). This appendix is a very lengthy one, and contains new data under ten separate headings: (1) prophylactic vaccine prepared from the virus, (2) immunity to the disease, (3) the question of immunological types of virus which do not cross protect, (4) the duration of infectivity of guinea-pig tissues after a single intradermal inoculation, (5) the passage of virus through different animal species, (6) the treatment of foot and mouth disease in the guinea-pig with iodine, (7) data concerning survival of virus when dried on various materials, (8) the velocity of reaction of heat disinfection of virus, (9) the question of elective affinity and local immunity, and (10) the question of artificial cultivation. With so formidable an array of subjects attention can only be directed to a few of the more outstanding points.

Further work on the important question of immunization by means of formalized virus has been carried out, and it would appear that for the immunization of guinea-pigs no vaccine has proved superior to the formalized virus (contact with 0.1 per cent formalin at 26° C for forty-eight hours at pH 7.6). A single injection of this vaccine is followed by an immunity which can be recognized so soon as forty-eight hours, and it is effective up to two months. By "effective" is understood the inability of the living virus to produce secondary lesions in the body (tongue and feet) after introduction into the immunized animal by the usual intradermal route in the pad of a hind foot. Primary vesicle formation at the site of injection still takes place, and in this respect the artificially protected guinea-pig differs from the naturally recovered animal, in which neither local nor general symptoms appear in response to a fresh dose. There is a further difference in that the blood of vaccinated animals does not contain demonstrable viricidal antibodies, whereas no difficulty is encountered in demonstrating their presence in naturally recovered animals. Experiments in which large quantities of virus were given intravenously to normal, vaccinated, and naturally recovered animals, showed that in the two latter series no virus could be demonstrated in the blood after half an hour, whereas in the normal animal it could be recovered up to two or three days. It would seem, therefore, that in the case of animals vaccinated with modified virus, immunity to subsequent experimental infection is due to some profound alteration in the excitability of cell tracts (most probably of the R-E system) which are capable of responding at once to new infective antigen owing to their previous training or education by the formalized virus. The position is really on all fours with that of experimental pneumococcus or typhoid infection, and, indeed, the more these viruses are studied the more do they seem to come into line with the visible bacteria in matters of pathogenesis. The formalized virus is believed to be dead by all criteria applied, yet it may not be so. Olitsky, working with the virus of vesicular stomatitis of horses (a virus very akin to that of foot-and-mouth), has recently claimed that dermal areas into which formalized virus has been injected without apparent response can be shown by passage experiment to contain living virus. If this is so the position is not very materially altered from the practical point of view, but it would enhance the belief that only the attenuated living virus can afford solid immunity in virus disease. When Olitsky employed formalized virus that was really by all tests dead no immunity resulted.

Some highly interesting results by Dr M C Maitland deserve mention. Why is it impossible to get a lesion after injection of virus into the hairy skin of the guinea-pig? Why does virus introduced into the hairless hind pad generalize to appear again in the tongue? Is it really a question of hair? Mrs Maitland has grafted hairy skin on the hind pad: a normal response to introduced

virus occurs. She has infected a hind pad and then wrapped it up in cotton-wool. No vesicle appears. She has made infected guinea-pigs tread on wire mesh after infection and secondary vesicles have appeared on parts of the feet and toes where they do not usually do so. It would seem that pressure and the resultant irritation largely determine the propagation of virus in skin areas and not peculiarities of anatomical structure. Clinical observations in other exanthemata, such as small pox, and notably the effect of garters, will be recalled by these intriguing experiments.

Appendix 3 contains an analysis of the work carried out at the National Institute, Hampstead, by I A Galloway, B Sc, M R C V S, and S Nicolau of the Pasteur Institute, Paris. The subjects dealt with are five in number: (1) histology of the lesions in tongue of guinea-pig, rabbit, and ferret at various stages of development, (2) the distribution and localization of the virus in these animals, (3) immunity problems, (4) the influence of ultra-violet light, bile, and various aniline dyes on the virus, and (5) the effect of filtration of virus through filters of silicious earth. From their histological study of the lesion from its earliest stage in the tongue, Galloway and Nicolau conclude that the primary attack of the virus is on the epithelium. When a vesicle is about to form a few epithelial cells in the neighbourhood are found to have lost their normal shape, and to have become spherical with some accompanying degeneration of their nuclei. A few leucocytes appear to wander in even at this early stage. The degenerated epithelia and the infiltrating cells break down, and a small amount of liquid collects, which enlarges to form a vesicle. The authors observed no histological changes in the corium in the earlier stages. Inflammatory response in the corium is a later phenomenon, the authors reach the conclusion that foot-and-mouth virus possesses an essential affinity for epithelium. They have also made a further series of observations on the virus content of organs of animals at daily intervals after an intravenous dose, the animals being bled to death before examination. It was found that the blood and organs could harbour the virus on the third but not on the fourth day, whereas at a subsequent date, but not later than the eighth day, it was still recoverable from the pads and tongue. Accordingly, just as in experimental vaccinia in rabbits, although the virus is freely distributed throughout the tissues, it does not appear to be capable of active proliferation elsewhere than in skin areas. The committee points out that though some exceptional instances of long duration of infectivity are reported, the processes of natural disinfection by the physiological defences of the body lead to disappearance in a week's time of all infective virus. The fact is emphasized that where carcasses have been found to contain potentially infective virus the animals must have been killed in the early acute stage of the disease. In Germany, we are told, the carcasses of cattle killed during convalescence from foot-and-mouth disease are regarded as free from infection and distributed for human food.

There remain two important subjects to which renewed study has been given—namely, the plurality of types of foot-and-mouth virus, and the question of susceptibility of wild rodents to the disease. In previous reports attention has been drawn to the fact that two types of virus (A and O of Vallée) exist, which offer no cross protection. From cases of foot-and-mouth disease in this country the O type only has been recovered with one single exception, which proved to be A. Recently Waldmann and Trautwein of the German Commission have claimed that three distinct types occur. Samples of these three types have been compared by Mrs Burbury in cross-immunity experiment with Vallée's A and O, and it would appear that there are in truth three types, Vallée's A being identical with Waldmann's B, and Vallée's O with Waldmann's A, while Waldmann's C is a new type. There can be no question that the existence of distinct types is bound to interfere with prophylactic projects unless due regard is paid to this fact. In connexion with this question, Professor Ciucu of Bucharest working at the Lister Institute, has performed a large series of complement-fixation tests with serums of recovered or immunized guinea-pigs and an antigen prepared by a special method from the vesicles.

He has found it possible to ascertain by his method whether a given guinea-pig has been experimentally infected with foot-and-mouth disease in the past, and what particular type of virus has been used for infection. The method, it is hoped, may prove applicable to cattle. With regard to the susceptibility of wild rodents, previous reports had shown that rodents other than guinea-pigs and rabbits possess considerable natural resistance to experimental infection, and that even when inoculation led to infection they showed no capacity to spread disease to normal contacts. Further attempts to accommodate the virus to such animals by successive passage produced no evidence of raised virulence or of any increased contagiousness, so that the chances of spread of infection in nature through the medium of wild rodents appear to be very remote.

In this review attention has been drawn to only a few of the many topics which recent researches of the working staff have illuminated. The report as a whole is a most valuable document, and the new knowledge which has been gained by well-directed inquiry justifies not only the quite inconsiderable expenditure of public money voted, but a continuance of such financial support.

THE METROPOLITAN ASYLUMS BOARD

REVIEW OF THE YEAR 1927-28

EVERY year the work of that inadequately named organization, the Metropolitan Asylums Board, enlarges and becomes more various. The name which is sixty years old, merely denotes a body charged under the Metropolitan Poor Law Act to provide asylums for the sick, infirm, insane, and casual poor, but in fact a vast medical service is undertaken by the Board, through about 170 medical officers (not including specialists or consultants), with results which are of the greatest value to the whole community.

Infectious Diseases

The largest department of the Board's work is the control and treatment of infectious diseases. In the annual report just issued¹ it is stated that the number of cases of infectious disease admitted to the Board's hospitals during 1927 was 30,404—almost exactly the same figure as for 1926. There was an excessive measles prevalence last winter and the spring of the current year, but only the beginning of this is indicated in the tables, which relate solely to 1927. In a foreword to the report it is stated that London appears to experience a considerable rise in the incidence of measles every two years. The average daily number of admissions for measles to the Board's hospitals, which was 15 in November, 1927, rose to 37 in December, and remained at 45 or 50 until the end of March last. The greatest number of cases admitted on any one day was 89, on March 9th.

The following table shows the admissions for infectious diseases during 1927, for comparison we subjoin the average death rates for the two previous quinquennial periods.

	Admissions 1927	Mortality per cent	Mortality per cent	
			1917-21	1922-25
Cerebro-spinal fever	22	47.5	62.4	66.2
Diphtheria and mem- branous croup	10,320	4.03	7.8	6.3
Enteric fever	109	5.69	13.4	7.6
Measles	2,359	6.72	11.4	8.2
Scarlet fever	11,470	0.56	1.2	1.3
Whooping-cough	1,888	10.9	13.1	11.4
Puerperal fever and puer- peral pyrexia	181	12.43	—	—

An interesting table gives a record of mistaken diagnoses. In 105 cases in which the admission certificate stated diphtheria as the disease, 19 were afterwards diagnosed as measles and 86 as scarlet fever. In 139 cases in which scarlet fever was stated on the admission certificate, some

other condition, most frequently measles, was afterwards found to be the true one. On the research and pathological service side of the Board's activities it is reported that the amount of diphtheria antitoxin supplied to the Board's hospitals in the year was 270 million units. Research work is being carried out with the object of ascertaining the nature of the causal agent in measles. Another investigation is proceeding upon diphtheria carriers. Nasal douching with a mildly alkaline solution, together with vaccine therapy, has been found the best means of shortening the carrier state.

The Small-pox Outbreak

Reference is made to the outbreak of small-pox which occurred in London during the early part of the present year. Between January 17th and June 23rd 172 small-pox cases were admitted, of which, by the latter date, 101 had been discharged, 66 remained under treatment, and 3 under observation. Two of the patients died, the primary causes of death being Bright's disease and cancer respectively. The small-pox was of the mild or sub-toxic type which has been very prevalent in the provinces for nearly ten years, and which may be said to have begun soon after the conclusion of the war when international communications were resumed. Experience in London of the sub-toxic type of the disease down to the end of 1927 was favourable in comparison with the experience in the provinces. The mild form of the disease had appeared on very few occasions, considering how widespread the incidence was in the country. It is considered possible that the presence of the toxic type of the infection in London from time to time during the last eight or nine years may have assisted the work of the public health authorities by the exhibition of the possible consequences of an attack of small-pox, thereby maintaining the amenability of the people to the measure essential for the control of the disease. The 172 cases this year came from seventeen different boroughs, the greatest number from Wandsworth, where many school children were affected, from Marylebone, where all the cases came from institutions under the care of the guardians, and from Poplar.

Puerperal Fever

The Board is concentrating in two hospitals—the North-Western and South-Western—the cases of puerperal fever which it is asked to receive. To facilitate the research which is being conducted into the method of infection, arrangements have been made by the obstetric consultant, Mr. James M. Wyatt, F.R.C.S., whereby a practitioner who telephones regarding the admission of a case of puerperal fever or puerperal pyrexia to one of the Board's hospitals is asked to swab the throat of the nurse or midwife in attendance, and to forward the swab to the director of the Board's research and pathological services. Dr. Leonard Colebrook gives particulars of an investigation into cases of puerperal fever in the Board's hospitals. Some of this experimental work was embodied in the essay by Dr. Ronald Hare which secured the Katherine Bishop Harman Prize given at the recent Annual Meeting of the British Medical Association. Dr. Colebrook states that the view generally held, that haemolytic streptococci are responsible for the greater part of the serious puerperal infection, is abundantly confirmed by this investigation. A quantitative technique was employed for blood cultures, and this showed that in the most serious cases of puerperal fever the number of streptococci in the circulating blood increased in a more or less regular fashion until death. This suggests, in Dr. Colebrook's view, a fundamental difference between the pathology of puerperal fever and that of scarlet fever. In scarlet fever streptococci are rarely found in the blood, and this fact, together with the usual occurrence of a characteristic group of toxic symptoms, points to the probable operation of a specific ergo-toxin. In puerperal fever on the other hand, the frequent invasion of the blood stream by streptococci, and the absence usually of a special group of toxic symptoms, suggest that the specific ergo-toxin plays only a small part, and that proliferation of streptococci in the local lesion and the vascular system is an important and dangerous feature. Therefore the aim of treatment in puerperal fever should be primarily anti-

bacterial (that is, to kill off the streptococci in the patient's blood and tissues) rather than primarily antitoxic, as in diphtheria and scarlet fever.

Other Work of the Board

The Board has four mental hospitals, one training colony for improvable imbeciles and others, and one colony for sane epileptics. The number of patients admitted to these institutions during 1927 was 1,624, of whom 315 were received under the Lunacy Acts (more than half of these were cases of senile dementia), 81 were feeble-minded, 325 were admitted under the Mental Deficiency Acts, 285 were sane epileptics, and 618 were uncertified aged poor patients. In the institutions for pulmonary tuberculosis, 4,362 patients were admitted, 3,954 discharged, and 486 died. In comparison with previous years fewer cases are being treated, and the average duration of stay is longer, but there is no improvement in the quality of the cases coming under treatment. The view is set forth in the report that the turning point has been reached in the effort to provide sufficient residential accommodation for cases of pulmonary tuberculosis. Dr James Watt, chief medical officer of the medical tuberculosis service, declares that tuberculosis is well on its way to becoming an extinct disease in this country, but he points out the great need for protecting children from infection. He says that as it is difficult to diagnose the early stages of tuberculosis in children, the only safe course is to provide adequate treatment for every ailing child where tuberculosis is suspected, and that there is need for more co-ordinated action between the administrative authorities for education and for tuberculosis. At Queen Mary's Hospital, Carshalton, 350 additional beds are being provided for children suffering from rheumatic infections. Dr Gray Hill contributes some observations on 200 cases of rheumatism in children there. One of his points is that the special association of unhealthy tonsils with rheumatism has not been proved, he also states that rheumatic nodules are uncommon among rheumatic children of the London area, organic heart disease was present in more than half of these 200 cases.

Many other points of interest emerge from this report, as, for example, the establishment of a clinic at the North-Western Hospital for the treatment by radium of cancer of the uterus in patients received from boards of guardians. In addition to the tabulated information, a large number of contributions by members of the medical staff of the Board, dealing with specific lines of investigation, or with unusual cases, greatly enhance the value of the report.

Scotland.

Edinburgh College of Physicians Laboratory

THE annual report for 1927 of the Laboratory of the Royal College of Physicians of Edinburgh has recently been submitted by the curator, Sir Robert Philip. The report shows the large amount of work done, both in research and in reporting. Twenty-four workers were engaged in research during the year, nine were Fellows of the College, one a Member of the College, six were Fellows of the Royal College of Surgeons, and the remaining eight were granted places in the laboratory by the committee, their researches related to pathological, bacteriological, chemical, and physiological problems. The investigation into the therapeutic value of taurine in the treatment of tuberculosis, which Takekoshi believed to be considerable, has been continued, but the result of the experiments has shown that taurine, even when given in large doses, can have only a relatively slight influence. A series of experimental observations was also conducted with a view to assisting in the standardization of tuberculin. Further progress has been made in work on the mathematical theory of contagious epidemics, and the results have been published. A statistical examination of antirabic treatment in India has also been published, this work was undertaken as a study of the system of statistical representation which the League of Nations will shortly apply to the statistics of antirabic institutes throughout the world. The importance of the alkaloid harmine, to the chemistry of which much study has been devoted at

the laboratory, is the report states, increasingly recognized while work on the synthesis of benzcarbolines in general has assumed greater importance. The Chemotherapy Committee of the Medical Research Council has asked that further syntheses be carried out, samples of certain preparations have already been submitted to the committee in order that their physiological and, in particular, their antimalarial properties may be tested. Other researches, covering a wide field, have been undertaken, and a considerable amount of work has been done in the laboratory as an aid to Fellows in the prosecution of research on clinical lines by preparing sections of morbid anatomy, microphotography, etc. The amount of medical reporting work, which in the case of Fellows of the College of Physicians or the College of Surgeons is done gratuitously, has increased greatly. It appears that a very large amount of this type of work was done for Fellows on the staff of various hospitals for the benefit of their patients. The committee has therefore considered the desirability of obtaining repayment from the hospitals for work done in this way, and a tentative appeal has been sent out to the managements concerned, showing the amount of expense incurred by the laboratory in work hitherto gratuitously done for each hospital.

Evolution of Medical Practice in Scotland

THE seventieth annual meeting of the Forfarshire Medical Association was held at Arbroath on June 20th, Professor J. A. Kynoch was elected president for the session 1928-29. Dr T. F. Dewar, C.B., the retiring president, in an address entitled "Crumbs of medical biography," remarked that during the forty-two years since his graduation he had played a number of medical roles, he had been for about a decade in private practice, he had held public health appointments in counties and burghs, he had been a civil servant in an administrative department, and had also taken part in two campaigns, as a private in one and as A.D.M.S. in the other. He was therefore able to view the medical profession from many diverse angles and to appreciate the points of view of various sections of medical workers. Dr Dewar indicated the difficulties of the country practitioner, often launched upon an independent course immediately he had finished his academic training, with no intermediate period in which to acquire experience with friendly help at hand. He mentioned the methods of medical teaching in the eighties, and especially the change that had come over the teaching of public health, drains and the paraphernalia of the plumber generally had passed into the background, and the purview as applied to general illness, whether infections or not, had been largely extended. He commented on the old system whereby the doctor dispensed his own medicines, even when excellent druggists were available, and contrasted the trim work of the latter with that of tired, cold, and hungry doctors on their return from a long round. He referred to the need of more training in minor maladies and vague derangements and touched on the disappointment felt by the young practitioner on finding that he had for the most part to deal with conditions very different from those that had been described in lectures or demonstrated in the wards. Referring to the subject of the State medical service, he expressed the confident opinion that a man's diligence depended upon his character and his early training—in short, his ideals—and did not vary much whatever the mode of his remuneration.

Edinburgh Dental College

AT the recent summer meeting and prize-giving of the Edinburgh Dental Hospital and School the prizes were presented by Dr Robert A. Fleming, President of the Royal College of Physicians of Edinburgh. Addressing the students, Dr Fleming said that the dental profession held a high position at the present day compared with that of many years ago. Dentistry was closely linked with medicine and surgery in the treatment of many diseases, such as rheumatoid arthritis, dyspepsia, malnutrition, and septic poisoning. School children required much attention, and at the present day they received this to a considerable extent, but there were still very many persons in the

labouring classes who did not pay enough attention to the hygiene of the mouth, further propaganda was most necessary. The present curriculum and the pre-registration examination in particular were very stiff, but it was a noteworthy fact that the harder the curriculum was made the more it was appreciated, and the more valuable was the diploma which the curriculum brought with it. Dr. William Guy, dean of the school, mentioned that this institution like all the dental schools in these islands, and, he believed, also the medical schools, had shown a considerable falling off in the number of students entering. The reasons in his opinion were in the first place the establishment of the pre-registration examination in chemistry and physics. This operated as a deterrent because there were few schools in which these subjects were taught up to the standard which would enable a boy or girl on leaving school to pass the pre-registration examination. Parents faced with the necessity of six months or a year's delay, associated with the expense of special coaching, now inclined to place their sons or daughters into a more immediately remunerative occupation than dentistry or medicine. Another reason for the decline, he believed, was the heavy weight of taxation which now fell upon the middle class, from which most of the entrants were drawn.

Central Midwives Board for Scotland

At the examination of the Central Midwives Board for Scotland, held simultaneously in Edinburgh, Glasgow, Dundee, and Aberdeen, just concluded, 76 candidates passed out of 86 who presented themselves. Of the successful candidates 26 were trained in the Royal Maternity Hospital, Edinburgh, 24 at the Royal Maternity Hospital, Glasgow, 3 at the Maternity Hospital, Aberdeen, 3 at the Maternity Department, Royal Infirmary, Dundee, 5 at the Fife High Memorial Hospital, 1 at the Deaconess Hospital, Edinburgh, 1 at Stobhill General Hospital, 5 at Bellshill Maternity Hospital, 3 at the Western District Hospital, 1 at the Eastern District Hospital, Glasgow, 3 at the Barrow Hospital, and the remainder at various recognized institutions.

England and Wales.

Mental Disease Research in Birmingham

THE annual report of the Laboratory of the Joint Board of Research for Mental Diseases of the City and University of Birmingham contains among many items of interest a valuable account of the investigation of the bacteriological and histological condition of the post-nasal sinuses. Much time has been spent in elaborating a satisfactory technique for the collection, transmission, and culture of organisms from the post-nasal sinuses. Over 500 specimens were examined, a number of which showed pure uncontaminated cultures of important streptococci and of diphtheroids, and various organisms such as *B. proteus* and *B. pyocyaneus*. About half the number of sphenoidal sinuses examined after death showed evidence of active or previous inflammatory change. One case clearly showed the passage of organisms from the sinus membrane into bone, dura mater, and pituitary. The hypothalamic region is considered to be a likely site of bacterial and toxic invasion of the brain through the pituitary stalk, the latter structure having been shown to be invaded by organisms in one of the cases. Changes in the mucosae of the stomach were very commonly found in cases of mental disorder, and one specimen showed, by means of the special stain for Gram-negative organisms, that the whole of the mucosa was undermined with bacteria. A case of diplococcal infection of the sphenoidal sinus with associated haemorrhages in the stomach is described by the director Dr. F. A. Pickworth. In this connexion it will be recalled that an article entitled "Observations on nasal and oral focal sepsis in the etiology of gastro-intestinal and pulmonary infective diseases," by Drs. Watson-Williams and Pickworth, appeared in our issue of June 2nd (p. 931).

In the annual report of the City of Birmingham Asylums Committee Dr. T. C. Graves, chief medical officer of the City Mental Hospital, describes the steps which have been

taken to investigate the occurrence of diseased conditions of the upper air passages in patients suffering from mental disorder. These were found to be associated with all types of mental disease. In 50 per cent of the cases admitted during 1927 septic conditions were found in the upper air passages, ears, nose, and throat. In 25 per cent of the patients so admitted the conditions found were such that an investigation of the air sinuses was considered necessary, 180 patients were examined and in 151 of these there was clinical evidence of the infection of one or more sinuses. Dr. Graves remarks that in encephalitis lethargica one of the portals of entrance of the virus is considered to be the mucous membrane of the nose and throat and that the question as to the possible direct action of nose-mouth sepsis on the brain requires careful consideration. Dr. Graves discusses also the role of influenza in the production of mental disorder. He divides the cases in the causation of which influenza has played a part into two classes: the immediate class, where the mental disorder was immediately related to the influenzal attack and the delayed class, where a period of months elapsed between the occurrence of the influenzal attack and the onset of acute symptoms of mental disorder. Many of these cases required treatment of old locked-up suppuration before recovery was effected, and he regards the influenzal infection as intensifying the gradual poisoning arising from septic disease of the mouth and nose which had previously been only slowly progressive.

Growth of School Clinics in Manchester

The report for 1927 of the school medical officer, Dr. A. Brown Ritchie, to the Manchester Education Committee contains a wealth of detail illustrating the extent to which the work of his department has developed. Including re-inspections, a total of 182,802 inspections was made in the course of the year. The number of routine inspections made in the "code groups" of children was 32,503, and of this number 9,829, or 30.2 per cent, were found to require treatment, excluding cases of uncleanness and dental diseases. In his conclusion to the report Dr. Ritchie notes that the addition of new schemes of treatment and the provision of specially designed clinic buildings have made possible a great improvement in the scheme of inspection and treatment, but calls attention to the need for the further provision of special facilities—for delicate children, for crippled children, for those affected by tuberculosis, for the partially blind, and for the mentally defective. Certain extensions to existing accommodation which have already been approved will reduce these deficiencies, and it is noted that the programmes of the development undertaken by the Education Committee in other directions are heavy. Dr. Ritchie points out, however, that expenditure on exceptional children is a sound investment, producing a very high return in the form of increased physical efficiency in children who would otherwise be severely handicapped in competition with others. Perhaps the most striking feature of the report is a coloured chart illustrating the development of clinic treatment in connexion with the school medical services in Manchester. In 1915 the total number of children treated was about 2,000, in the following year the total had risen to over 5,000, and in 1917 it was not far short of 15,000. In the next two years the work doubled itself, and in 1920 the number treated was about 45,000. Since then there has been a slower but, in the main, sustained expansion and in 1927 over 63,000 children were treated at the clinics, an increase of about 5,000 on the previous year's total. Dental treatments were most numerous, accounting for about one-third of the total cases of skin diseases treated numbered approximately 11,000, defects of vision dealt with amounted to over 8,000, there were roughly 5,000 cases of eye disease, and over 4,000 cases of ear disease and defective hearing. The remainder, numbering about 13,000 were classified as "miscellaneous." It may be noted that since 1920 (after which there was a slowing down in the growth of the system) the increase in the number of children dealt with has been chiefly in the dental and "miscellaneous" group. The average number of cases of eye disease treated, for example, has been substantially lower in the second half

of this period than in the first in 1920 such cases totalled nearly 7,000, against 5,000 last year. Cases of defective vision increased slightly at the beginning of this period, but the number has been fairly constant since then, as has been the incidence of ear disease and defective hearing. The number of skin cases treated last year was less than in any previous year since 1920, last year's total was about 11,000, while the totals for 1920, 1923, and 1925 were over 14,000, and that for 1921 was over 16,000. The dental scheme as yet covers only about one sixth of the city.

Tuberculosis in Staffordshire

While the number of notified cases of tuberculosis on the registers of the medical officers of health in the area of Staffordshire, Wolverhampton, and Dudley Joint Committee for Tuberculosis at the end of 1927 was substantially the same as in the previous year, there was a slight decrease in the number of pulmonary cases, but an increase in the non-pulmonary forms of the disease. The death rate of 0.67 per 1,000 of the population from pulmonary tuberculosis was the lowest yet recorded in the area. In his annual report for last year the medical officer to the committee, Dr W. D. Carruthers, notes that of the 2,882 persons who attended for examination for the first time at the various dispensaries, more than half were sent by medical practitioners, there has been a notable increase in the number sent by health visitors, whose efforts to secure the examination of contacts have resulted in the detection of a number of cases of tuberculosis in the earliest stages. Most of the children sent for examination by school medical inspectors and found to be suffering from this disease were also in the early stages, but the report shows that adults tend to wait until the trouble has developed before seeking advice. During 1927 only 29 per cent of the pulmonary cases were in the earliest stage, and Dr Carruthers suggests that the only hope of improvement in this respect lies in the slow process of education. Of 632 pulmonary cases in all stages of the disease discharged in the course of the year, 389 had improved, 86 were quiescent, and in 157 cases there was no material improvement.

Correspondence.

THE GUILLOTINE AND ETHYL CHLORIDE

SIR,—In their article on the guillotine and ethyl chloride in your issue of July 28th (p. 149) Mr Sandiford and Dr Clayton advocate such rapid team work for tonsil removal that thirty operations can be performed in an hour. I have no means of judging the completeness of the operation. Probably the tonsils are thoroughly removed, but, in that case, such violent hurry so predisposes to haemorrhage and shock that it is nothing short of cruel to send the children out of hospital the same day. Moreover, the psychological trauma of such efficiency is terrible to imagine. Tonsil work can be leisurely, neat, shockless, and practically bloodless, so it should be, for the sake of the faith which children repose in us—I am, etc.,

July 31st

D. A. CROW, M.B., Ch.B. Ed.,
Laryngologist Royal Sussex County Hospital
Brighton.

SIR,—The well written description of Mr Sandiford's and Dr Clayton's team work in the removal of tonsils and adenoids (*British Medical Journal*, July 28th, p. 149), which varies very little from what is common in many clinics in the country, prompts me to press the merits of nitrous oxide gas anaesthesia in similar circumstances. Some years ago, after 2,000 such operations had been done with ethyl chloride in the department under Dr Ritchie Rodger's direction, a death occurred and it was decided to try gas. Since then gas has been used in some 8,000 cases with great satisfaction and no worry. The time available for the operation is rather less, but is quite adequate for an operator who is well accustomed to the work. The house-surgeons are taught the same way, it being understood that if they bungle the first tonsil they do not object to my taking the guillotine and completing the operation. Even the adult patients on the list are dealt with in the

same way if there is no history of quinsy or previous tonsillectomy, in which case dissection is resorted to almost invariably under local anaesthesia. Of course, as in the case of ethyl chloride, team work is absolutely essential—I am, etc.,

August 7th.

R. R. SIMPSON, M.B., F.R.C.S. Ed.,
Honorary Assistant Surgeon Ear Throat and
Nose Department Hull Royal Infirmary

SIR,—If it is the object of Mr Sandiford and Dr Clayton in their article on this subject to emphasize the value of team work and to extol the virtues of ethyl chloride as an anaesthetic, I agree with them. It is their method, however, that seems to me to be open to the gravest objection, and it is, in fact, no advance on the barbarous practices in vogue twenty and more years ago.

If I understand them rightly their technique, put bluntly, is this. The unfortunate child (whom we will assume is the twentieth on the list) is put in a waiting room with some thirty other victims and a nurse until he is taken to the theatre by a blood bespattered porter (for the porter has already carried nineteen struggling and bleeding children to the recovery room) and is told to lie down on the operating table. The porter holds his wrists—lightly, the authors say—while the anaesthetist, who is probably also somewhat gory, as he has held the heads of all the other victims, puts a gag in the child's mouth and telling him to breathe, claps a bag on his face. The bag is the same that has been used for all the other nineteen children. It has neither been sterilized nor emptied of the exhaled breath of the others since the day's work began.

After a brief struggle the child is ready for the "evulsion" of the tonsils and adenoids, which takes only 20 seconds, and then, struggling, bleeding, and crying (for the article says, "with a well timed anaesthetic the patient should cry, cough, or struggle on the removal of the gag") he is hurried off to the recovery room "with the buttocks tucked well up into the porter's left axilla and the head resting face downwards in the porter's right hand at a much lower level than the hips." There he regains full consciousness and what does he see? Two nurses attempting to minister to the wants of nineteen crying and vomiting children, for most children vomit some time after recovery caused by the blood swallowed.

The authors naively say, "The patient is allowed to take the position of election, some lying down, others sitting up." Who is then to dictate otherwise with a struggling child arriving every two minutes and only two nurses to look after them all? And then, after a few hours, the child is allowed to escape from this awful house of carnage and to go home and, for nights to come, to see the whole scene re-enacted in his dreams. It is no exaggeration to say that the shock to the nervous system of a young and highly strung child must do untold harm.

The system that has been in use at the Jenny Lind Hospital for Children, Norwich, for some years seems to me to avoid most of the worst points of this old and cruel technique. I submit that it is a distinct improvement on the methods employed at the Queen Mary's Hospital, Stratford, as described by Mr Sandiford and Dr Clayton, and that it is worthy of their consideration. It has the following advantages:

1. The patients from first to last never see the operating theatre nor any of those who assist in it. There is therefore no chance of them seeing blood stained hands or gowns, the sight of which must add to their anxiety and fear.
2. The longer anaesthesia obtained by the sequence of ethyl chloride and ether enables the child to be comfortably returned to bed before he regains consciousness.
3. Bleeding and consequent post anaesthetic vomiting are reduced to a minimum.
4. The use of a clean and freshly covered mask for each child is more hygienic than a rubber bag containing a mixture of ethyl chloride and another child's foetal breath.
5. Twenty cases an hour can be dealt with.

The success and smooth running of the technique depends on the anaesthetist and it is entirely due to the skill and the excellent work of Dr Branford Morgan, the honorary anaesthetist at the Jenny Lind Hospital, that it is possible to do twenty cases in an hour with comfort.

The children are marshalled in a side ward at least two hours before operation and are allowed to play and make friends with each other. Half an hour before operation they are undressed and lobed in warm flannel gowns kept for the purpose. They are given liq atropin sulph. mii by the mouth, which avoids the frightening ordeal of a hypodermic needle prick, and seems to act as well. They are then all taken to a room as far as possible removed from the operating theatre, where there will be little chance of them hearing what is going on, and are left in charge of a nurse.

The work then begins. Adjoining the operating theatre but separated from it by a tightly fitting door, and entered by a second door is an anaesthetic room, in which all anaesthetics are administered.

The anaesthetic used is ethyl chloride followed by open ether given on an ordinary mask covered with several layers of gauze. As each child is brought in by a nurse—who remains with him until he is fully anaesthetized—he is put on a trolley and induction is commenced. To make it more pleasant the ethyl chloride used contains a small percentage of eau-de-Cologne. Struggling is the exception. When the child is fully anaesthetized the nurse and anaesthetist take the trolley into the operating theatre and lift the child on to the table which has been already prepared and has a sandbag so placed that it lies beneath the patient's shoulders. This is most important for reasons that will presently be seen. The average time taken to secure complete relaxation is 80 to 120 seconds.

The anaesthetist then stops the administration by removing the mask, and, opening the gag that is already in the child's mouth returns with the nurse to the anaesthetic room leaving the child's head to be held by the theatre sister, and the responsibility for an adequate entry to the surgeon. It will be noted that by this means neither the anaesthetist nor the nurse assists at the operation, and so cannot become blood bespattered.

The tonsils and adenoids are then removed much as described by Mr. Sundford, except that, instead of being evulsed, they are separated from their capsule by a combined movement of the index finger of the free hand and the blade of the guillotine. The method is difficult to describe but easy to carry out. The essence of the manoeuvre is a scissor action, the finger sweeps downwards and the guillotine, by an extension of the wrist, upwards. Shock and haemorrhage are thereby greatly reduced. After the removal of the first tonsil a sterile swab is inserted between the pillars of the fauces, and left there until the second tonsil has been dealt with. The child is then quickly turned on his side, the swab taken out, and the adenoids dealt with while the head is kept in a dependent position over a basin of cold water. The insertion of the swab together with the presence of the sandbag under the shoulders, effectually prevents all blood entering either the gullet or trachea. Post-operative vomiting is therefore rare.

After the bleeding has been arrested by sponging the patient's face with cold water, the gag is loosened by the sister but not removed. Two nurses lift him on to a trolley with the gag still in his mouth and wheel him to the ward where he is received by a sister and put into a warm bed, in which he is pleased to find himself when he regains consciousness some minutes later. The staff of the ward varies with the number of cases dealt with but usually it is a sister and two nurses to every twelve patients.

The moment the adenoids are removed the surgeon starts washing up for the next case. As soon as the patient leaves the table the theatre sister takes the dirty Mackintoshes and used instruments to the sink, and leaves them there to be cleaned and sterilized by one of the theatre nurses on her return from the ward. She then washes her hands, and puts a fresh basin containing the sterile instruments in a stand at the head of the table. By this time the next patient is ready, and all in the theatre are in readiness to receive him. The second theatre nurse, on her return from the ward with the trolley, recovers the anaesthetic mask with sterile gauze and hands it to the anaesthetist as he leaves the theatre to start the next case. The staff required is a theatre sister and two theatre nurses, a ward sister and a variable number of nurses—not less than two for a dozen children, a nurse to be with the waiting children, and a nurse to assist the anaesthetist.

There are two other statements about which I am in variance with the authors. They say that the area of relative baldness frequently seen on the back of the head of a child of 6 months is a sign of adenoids, and is the result of the anaemia produced causing restlessness during sleep. This is an assumption not borne out by fact. I think most ward sisters and others used to babies will agree with me that it is the healthy and contented babe who lying on his back most of the day looking to the right or left at all that goes on around him, wears his hair off, and not the adenoid child.

Again, they dogmatically state that curache occurring after a lapse of twenty-four hours is due to infection. Curache a week or ten days after operation is a common complaint. It is only noticed immediately after eating; it affects both ears, and a careful examination fails to reveal either injected drums or impairment of hearing. Spraying the site of operation with hydrogen peroxide gives immediate relief. Undoubtedly it is a referred pain, and not inflammation.—I am, etc.,

Norwich July 31st.

N. STUART CARRUTHERS

USIS OF SUBCUTANEOUS INJECTIONS OF OXYGEN

SIR,—In your issue of August 4th (p. 195) Dr. T. S. Kirk states that if oxygen—say about 150 c.c.—is injected subcutaneously into a rabbit, it is rapidly absorbed. I have performed very many injections of different gases into various animals, chiefly rabbits, to endeavour to study tissue oxygen tensions, and my results have been published in numerous papers, mostly in recent numbers of the *Journal of Physiology*. I found that after injection of 1,000 c.c. of oxygen under the skin of a rabbit some gas is still present seven days after the injection. The processes following the injection are not simply concerned with the absorption of oxygen, the most rapid change is the passage of carbon dioxide from the tissues into the injected gas until the pressure of carbon dioxide is about 6 per cent of an atmosphere. Also, nitrogen diffuses out slowly from the tissues until eventually it forms about 88 per cent of the gas present. Oxygen is being absorbed, but somewhat slowly, and I am certain that some of the original oxygen will be present in the tissues several days after the injection of 1,000 c.c.

I have also injected 200 c.c. of oxygen under the skin of the back of my own forearm, and also of that of another subject, and some of the gas was still present two days after the injection. The gas spreads out readily under the skin if the limb is moved much, and then the gas is not easily detected. I very much doubt Dr. Kirk's suggestion that the improvement in cases of pneumonia, etc., following the injection of a few hundred cubic centimetres of oxygen under the skin is due to the relief of anoxaemia. An adult man uses 250 c.c. of oxygen a minute, and it seems impossible that a few hundred cubic centimetres injected under the skin would be sufficient to relieve an anoxaemia lasting over twenty-four hours—quite apart from the fact that the oxygen is so slowly absorbed when thus injected. Some other reason for the improvement in his patient's condition must be given.

There is a great deal of research and literature on this question of relief of anoxaemia, and Dr. Kirk has made no reference to it. Recently Dr. Whitridge Davies proved that subcutaneous injection of oxygen into animals does not relieve experimental anoxaemia.—I am, etc.,

Hampstead N.W.3 Aug. 4th.

J. ARGYLL CAMPBELL

SIR,—I note with great interest that Dr. Kirk finds that the incidence of post-operative vomiting and chest complication has diminished since oxygen has been given to his cases as a routine ending in anaesthesia.

When house-surgeon I noticed that the patients to whom I gave oxygen with their ether had a much smoother time both during operation and after leaving the table. So I then made it a custom to "flush them out" further with oxygen at the end of each anaesthetic, and after that never had any difficulty with them between their leaving the table and reaching the ward. Giving it during anaesthesia was a great help, particularly with soldiers.

I continued this on becoming obstetric officer, feeling that it made for smooth sailing and minimized chest trouble after, but did not appreciate the diminution in vomiting until my ward sister asked, "How is it that your cases hardly ever vomit—what do you use?" I assumed then that some of the credit must be due to the oxygen and the rest to the routine pre- and post-operative rectal glucose feeding given.—I am, etc.,

Harrogate Aug. 4th.

MURIEL KIPPES

DIAGNOSTIC METHODS IN RELATION TO
CANCER

SIR,—I see it stated in the *British Medical Journal* for July 28th (p 170), in the sectional proceedings of the International Conference on Cancer, that, according to Professor I C Dodds, in conjunction with Dr W Lawson, on methods for the diagnosis of cancer by a study of the blood, "the Shaw-Mackenzie reaction, as well as the Ringold method, had been investigated, and proved to be non specific." So far as I am concerned, this is only a repetition of statements put forward by others in various quarters last year, to which I replied.

As I have pointed out on various occasions in the *British Medical Journal* and elsewhere the power of the serum to increase fat-splitting when added to pancreatic extracts and to pancreatic juice itself is decreased in cancer compared with the action of normal serum. This I described in 1913 at the International Congress of Medicine in London, and detailed further in the *Journal of Physiology* in 1915. This reaction, as subsequently employed, frequently enabled a positive diagnosis of cancer to be made in obscure cases or the presence of cancer to be excluded. It formed the basis, further, of the turbidity blood tests which I have described also. In neither case have I claimed that the reaction or test is specific. I have repeatedly stated that they are not but of practical utility as an aid in diagnosis, as in the non specific Wassermann test.

In this connexion it seems only right that I should mention that in February, 1927, Professor Dodds, on his own initiative, sent to me at the Ross Institute and Hospital a series of bloods, labelled 1, 2, 3, 4, 5, 6 "some of them said to be from cases of malignant disease, whilst others were from non malignant cases," on which specimens he requested my diagnosis, stating that "the actual key to the results is being held by a third party." I was not at the institute that day and being much occupied otherwise I was compelled to write that I could not undertake the several blood examinations, moreover, that the blood differentiation in labelled specimens from various sources without knowing the nature of the case had already been done in numerous tests of blood specimens from hospital cases and my results published. My laboratory assistant, Mr Press however, proceeded to examine the specimens on his own account, and, as ascertained later, the results proved correct in five out of the six serums—namely, four malignant and one non-malignant. The single error occurred in a non malignant case (hydrocele), which gave a "positive" reaction.

The serum in this case was noted to be initially cloudy, which, as I have pointed out, leads to error in the turbidity test. Had the precautions been adopted which I have detailed in my papers I doubt if the error in this case would have occurred. As to whether similar precautions were pursued in the cases investigated by Professor Dodds I do not know. This factor of error gave me great trouble in the first instance, and though I know it can be eliminated in certain cases, it cannot be eliminated in all cases of non-malignant bloods. It is this which has appeared to me to bring cancer into the group of diseases or conditions associated similarly with defective fat-metabolism.

The importance of a "positive" reaction when present in post-operative cases, which I have particularly noted in breast cases in patients apparently in good health without outward manifestation, is the real concern. It is here not merely a question of diagnosis, and the question of specificity in such cases can hardly count.

The obvious indication is treatment to increase the lipolytic power of the serum or to remove inhibiting factors, and in this direction the employment, for example, of sodium oleate and other activators of lipase with their known effect of increasing the circulating lipase, in the hope of reducing or preventing recurrence. The decreased action of the serum on lipase in cancerous subjects compared with the action of normal serum is no longer in abeyance or doubt. The conclusions I came to originally have been confirmed recently in independent investigation by Professor W C M Lewis and R F Corran (Liver-

pool), for which I am extremely grateful. Though not necessarily diagnostic, this change in the blood from normal in cancerous subjects is thus a fact, and its significance and bearing on treatment independently shown further by them, in similar action by other therapeutic means—I am, etc.,

J A SHAW-MACKENZIE, M.D. (Lond)

London S.W. 15 Aug 1st

GASTRIC SECRETION OF NEUTRAL CHLORIDE

SIR—We are growing rather tired of the various claims with regard to duodenal regurgitation and the gastric secretion of neutral chloride. In the latest communication on this subject in your issue of July 28th (p 177) Dr Hansman appears to be labouring under the false impression that he and his co-workers were the first to state that secretion of neutral chloride by the gastric glands may play a part in gastric secretory activity. This conception, like many others, is an old one.

With regard to Dr Hansman's denial of any knowledge of our work until its publication, we can only say that a full report of our findings was delivered to the Biochemical Society in November 1926, many months before Dr Hansman's paper appeared, and that we have definite proof that he is aware of this. Since that time the subject has been discussed throughout a wide circle in London and elsewhere.

The paper in question is only one of several papers published recently on the subject of duodenal regurgitation, it was not referred to in our publications in the *Journal of Physiology* for the reason that our papers were completed before Dr Hansman's publication appeared. Further, we are not satisfied that Dr Hansman's arguments are quite sound, in our opinion they are open to criticism. It is our intention to discuss, at a later date, Dr Hansman's work along with that of other authors in a more complete review of the subject this will appear towards the end of this year.—We are, etc.

H MACLEAN,
W J GRIFFITHS

St Thomas's Hospital S.E.1 July 31st.

SKIN AND SUN

SIR—There is one organ of the body occupying two to three thousand square inches of space and weighing several pounds that is directly and intimately associated with practically all the great systems such as the circulatory and excretory and that has more functions than most of the other organs put together. It has, however, been neglected for centuries, except by the manicurist, the chiropodist and the dermatologist. However, in these days of actinotherapy this delicate and influential organ is slowly coming into its rightful place. The clinician is awaking to its value in diagnosis and its importance as a medium of treatment but it is the helio-therapist who is realizing, as never before, the surprising direct and indirect effects which the proper contact of sun and air with the whole skin can produce in the body generally.

I have had experience for three years in giving (real) sunlight treatment and taking sun baths under what, I admit are ideal conditions so far as altitude, sunshine, hours and climate generally are concerned. This experience, and my reading on the subject, convince me that we are on the verge of great discoveries in this particular. I have seen and personally experienced some of these effects, such as the increase in basal metabolism, improvement in weight, rise in blood pressure and temperature, change in appearance and texture of the skin itself, toning up of muscles, as well as the actual cure of disease.

I am not a crank or a faddist and am well aware of the danger of overstressing the value of any new method, I am also fully alive to the practical difficulties surrounding the matter especially in England, but I ask the following questions in the hope that they will receive full consideration and due support.

1. Have we not by our towns, smoke, clothes, houses, windows, climate, and civilized conventions starved our skins of sunlight shut them off from healthy contact with moving air, and by

systematic neglect and bad treatment hindered them from playing their important part in the maintenance of normal health?

2 May it not be that this condition of things is directly responsible for many of the diseases from which civilized people suffer?

3 Is it not possible that here lies the way of escape from the ravages of tuberculosis, cancer, and other diseases?

4 Should not the following axiom of Leonard Hill apply to disease of many kinds? 'The properly fed and well sunlit person need never fear the cold' (substitute 'disease').

5 Knowing as we do the great increase brought about in the resisting powers of the tissue by the graduated action of sun and air on the skin does not this open a wide field for active preventive medicine?

If these questions do not provoke both criticism and approval I shall be disappointed—I am, etc.,

LEWIS E. HERTSLET, M.R.C.S.

Florida, Transvaal June 26th.

THE CURSE OF NOISE

SIR,—Many members will rejoice to observe that at the meeting of the British Medical Association at Cardiff the Association has, at long last, taken up the question of unnecessary noise. Some noises are, however, enforced by law, for instance, a man may not beg quietly, he must make a noise on some "musical" instrument, or must "sing" if he is to be permitted by the police to ask largess of His Majesty's lieges. Further, I am told by clergy that the law insists upon the ringing of a bell before service, and this is taken as an excuse for the intolerable nuisance created by the indiscriminate ringing of church bells. Again, the law demands that motor cars "must give audible warning" of their approach, although it is agreed by the vast majority of experienced and skilled drivers that about 99.9 per cent of the present horn blowing is unnecessary. An Act of Parliament therefore appears to be necessary before anything can be done to stop unnecessary noise, which the Association has pointed out is most prejudicial to health, to well-being, and to the proper functioning of the brain. I therefore venture to suggest that the Council of the Association promote a bill in Parliament with the help of the medical members of Parliament, not only to repeal past enactments which permit or enforce noise, but also to make unnecessary noise of all kinds punishable by law. If the Association succeeded in this public work it would enhance its own prestige and its influence with the public, would set a good example to the world, and would win the acclamation of city-dwelling mankind—I am, etc.

London SW1 Aug 2nd.

HARVEY HILLIARD

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

On August 3rd Parliament was prorogued till November 6th, when a new session will begin. Before prorogation the Royal Assent was given to the Finance Act, Dogs (Amendment) Act, Petroleum (Amendment) Act, University of Reading Act, Slaughter of Animals (Scotland) Act, Shops (Hours of Closing) Act, Rag Flock Act Amendment Act, Merchant Shipping (Lane Throwing Appliances) Act, and many other statutes. In the King's Speech proroguing Parliament, which was read by the Lord Chancellor, reference was made to the passage of the National Health Insurance Act, to the steady progress in housing, and to the stabilization of pensions.

Appropriation Bill

Ministry of Pensions Administration

During the third reading of the Appropriation Bill on August 3rd the House of Commons discussed Ministry of Pensions administration. Mr F. O. ROBERTS gave details of cases which he argued should have been accepted by the Ministry as due to war service.

Dr FREMANTLE remarked that the Ministry of Pensions was an influence on the health of the nation but was divorced from the general health services of the nation. The Ministry must some day come to an end as a separate entity. The House should consider to what extent the Ministry should be changed. After most pensions had been stabilized this largely became a medical question. Sooner or later the responsibility for institutions and for personnel would be transferred. The natural body to complete and wind up the service would be the Ministry of Health but there had been a reluctance to imagine the fusing of the pensions service with the service of the Poor Law guardians. The Government however proposed next session to transfer the whole Poor Law system to larger authorities and that would give a new

envisagement of institutional treatment and of the public health. There was a *prima facie* case for halving these large authorities would be the bodies fitted to take over or to operate the services of the Ministry of Pensions. The Minister of Pensions would have to consider the future of his gradually diminishing personnel. Eminent medical men had given themselves up to the pensions service, and it would be difficult to turn them out and give them no future at all. Similarly, it would be bad to see Ministry of Pensions institutions contracting and becoming less efficient and for the Minister to have to prepare big schemes for their fusion. Therefore the Ministry of Pensions should envisage the possibility of gradually co-operating with the Ministry of Health and with the counties and county borough councils for a gradual fusion of the two services. In so far as pensions were concerned the Ministry of Pensions would naturally retain its liability. The Minister of Pensions should consider how he could co-operate with the Minister of Health and the civil authorities by taking analogous cases from the civil population into his institutions.

Dr DAVIDSON SMITH said the Minister of Pensions had that week announced a decision to stabilize pensions but in any event pensions could not have been reduced till 1931, probably not until 1932. Ever since 1920 reinterpretations of the original warrants and new regulations had diminished the privileges of ex-service men and had excluded many who were obviously entitled to compensation. Any number of cases had gone through his hands where men who had undoubtedly suffered seriously in health because of the war received no pension, or a miserable pension. The pensioner was left to fight for his rights. The Ministry of Pensions turned down not only the opinions of panel doctors, many of whom were extremely indignant but also the opinions of well-known specialists. He was not sure this was done by the medical men at the Ministry of Pensions, medical men were not supreme there. The Ministry should give more heed to the opinions of conscientious medical men who knew the patients and, in many cases, knew them before the war.

Mr MONTAGUE said Dr Fremantle's suggestion of the use of the Ministry of Pensions to provide an efficient medical service for the civil population was a big advance towards the Labour party's view in regard to medicine and the nation.

Major TAYLOR said the stabilizing of the disability pension was the most vexing problem with which the medical profession had to deal. It was almost impossible even for the most expert medical man to determine in many instances whether the disability was due to the war or not. Disabilities if there were a doubt should be attributed to war service.

Major TRYON said the Ministry had now given final awards to over 300,000 men, but in certain cases of disablement final awards were not given in the interests of the men. The problem of artificial limbs for ex-service men had been satisfactorily settled. The State was expending £3,000,000 a year on ex-service mental cases. He agreed with Dr Fremantle's praise of the staff of the Ministry. The country did not realize the wonderful work done for the sick and disabled by the medical staff of the Ministry. Medical science had been advanced by them. Major Tryon was glad to say that in a hospital which had hitherto done much work for ex-service men the great experience gained about the loss of limbs had been used to help railwaymen who in civil life lost their limbs. In that way the Ministry hoped to carry on the medical experience gained so that it might be of assistance in civil life to other sufferers. The proposal to throw on the Ministry the onus of proof that disability was not due to the war was a dangerous proposal from the point of view of the ex-service men and would provoke a reaction against the present rates of pension.

Mr BROAD said that where a panel doctor had been given charge of a man for his war disability he should have as much respect and recognition from the Ministry as its own doctors had. It was an insult to the panel doctors that their word was not taken when the responsibility was thrown on them.

The Appropriation Bill was read a third time and the prorogation of Parliament followed.

Ministry of Health Vote.

In the House of Commons, on August 1st, debate arose on the Estimates for the Ministry of Health. Mr LAWSON protested that the Minister of Health had reduced the grants for milk to nursing mothers. In Poplar this grant had been cut down from £6,033 to £3,233. These grants had halved the death rate among babies in that district and had considerably reduced the deaths among mothers. Discussion followed on the treatment of casuals.

Dr FREMANTLE said there was a general support of the Ministry of Health and cordial approval of its record. The report from the Departmental Committee on Vaccination had been presented and it would be wrong to let the session close without emphasizing the importance of that report. That Committee had been appointed because a state of affairs was coming about which the medical profession pointed out as a great danger. The number of unvaccinated people was large and was increasing each year in proportion to the population. Among the school population less than half were now vaccinated and the number who sought vaccination and were therefore protected in later years was still smaller. Vaccination was a small price to pay for protection from an alarming disease which might be a scourge to this country as it had been in the past. Other countries were infinitely keener in seeing that no contamination from small pox reached their shores and the fact that there was small pox in this country was a constant menace to our relations with other countries. The report raised the problem of the occurrence in the period after vaccination of certain unfortunate cases of nervous disorder which some had stated to be possibly due to the operation of vaccination.

The report dealt thoroughly with these cases and showed they were a small number compared with the total number of vaccinations. The number of cases investigated by the Committee was 62, of which a considerable number were fatal. Among 314,000 primary vaccinations in one year 62 was a small number. The deaths from vaccinia over a period of fifteen years had only been 0.001 per 100 vaccinations. The Committee could trace no cases of this kind in the year 1924 though the records of the results of vaccination were complete. The Committee found some of these cases in 1922 and 1923 and it found a close association between these cases and the epidemics of encephalitis lethargica and poliomyelitis. The Committee came to the conclusion that just as children suffering from scarlet fever measles and other ordinary complaints were more susceptible to poliomyelitis, so those who had been vaccinated were more liable to be attacked by these two diseases in a time of epidemic. The Committee hoped that further research would find out exactly what caused this complication and the House might hope that the country would not see again symptoms which were accidental both geographically and in years. The Committee further suggested that vaccination should be by a puncture instead of by scarifying, that one puncture might suffice, and that a milder vaccine might be used. When the House discussed the future of vaccination it must recognize that smallpox was considered apart from other diseases and apart from the rest of public health. Why should the measures dealing with smallpox be in the hands of the guardians while all other public health measures were in the hands of the public health authorities? Medical officers of health had often suggested that the administration should be transferred to the sanitary authority or to the county councils. In the proposed reorganization of local government next session and the abolition of the guardians these powers of vaccination and the responsibility for vaccination would go to the authorities of the counties and of the county boroughs. They looked forward hopefully to seeing the protection of the community from smallpox by a larger authority with officers of a wider experience to administer the law. Turning to the Ministry of Health Estimates as a whole Dr. Fremantle said they amounted to £20,000,000 of which over half was due for housing. Less than £10,000,000 was provided for the treatment or prevention of disease though the prevention of disease had resulted in an enormous improvement in the health and efficiency of the people. When a clear case was made out for extra expenditure by the Ministry of Health the money should be granted. In reference to Mr. Lansbury's complaint about the reduction in the grants for milk Dr. Fremantle said that in certain definite areas the milk had come to be taken by ordinary healthy people to relieve them of an item in their domestic budget. They must focus attention on the provision of houses for the very poor and on the clearing of slums.

Mr. HARRIS said the money spent on health insurance had resulted in wonderful improvement in the health of the country. The work on maternity and child welfare was not less important. In Bethnal Green, the poorest and most overcrowded borough in London the infantile mortality had been reduced to 57.7 per 1,000 from 129 per 1,000 in 1918. That reflected great credit on the medical officer and his loyal servants. The expenditure on milk had been well justified in Bethnal Green and was not on an extravagant scale. He regretted that Mr. Chamberlain now said that milk should not be given to mothers who were in receipt of Poor Law relief. The declining infantile mortality in Bethnal Green was largely due to the free distribution of milk.

Captain BOURNE said the total cost of sanatorium treatment for tuberculosis in this country was between £4,000,000 and £5,000,000 per annum yet the Minister of Health had admitted that his department had no statistics showing how many people who passed through sanatorium treatment were cured. In Oxford recently an effort had been made to deal with some tuberculous cases by tuberculin treatment. The Ministry should see whether it could be combined with other treatments to help the 300,000 people who were suffering from tuberculosis yet could not obtain sanatorium treatment.

Mr. BRIANT condemned the housing and sanitary conditions provided for pickers in the hop fields. The regulation for the separation of the sexes by screening was almost invariably neglected, and the absence of proper latrine accommodation was described as discreditable. So long as this matter was placed entirely within the power of the local authorities nothing would be done, however strong the medical officers might be.

Mr. SHEPHERD speaking on the treatment of casuals said half the men on the road were suffering from disease caused by undernourishment. Men detained in casual wards should get the same meals as ordinary inmates of the workhouses.

Mr. JOHN said the action of the Minister of Health in reorganizing the Welsh Board of Health had given the impression in Wales that the Board had been deprived of its former status. Instead of the Board three officers in Cardiff were carrying out the work as civil servants under the direct control of Whitehall with no provision for a duly appointed chairman. Mr. LEON CROSSER supported the protest.

Replying to the debate Mr. CHAMBERLAIN said the Welsh Board of Health had never been an executive body. On the average it had only met three times a year during the last nine years. He regretted that it was necessary to reduce the grant for milk. In some areas the expenditure on it had been £20 per 1,000 of the population. Other authorities gave none at all. The Ministry had not forbidden any local authority to give as much milk as it chose. It had to limit the amount of the Exchequer grant but he did not admit this economy would undo what had been done for the preservation of infant life. The Ministry of Health had little power with regard to hop-picking. What was needed was the education of public opinion. He had done what he could to induce local authorities to adopt model by-laws. In answer to

Captain BOURNE, Mr. Chamberlain said the Ministry had not figures from sanatoriums all over the country to show what happened in people after they were discharged but the Brompton Hospital Sanatorium had supplied particulars of between 3,000 and 4,000 patients who had been discharged. These showed that, of the moderately advanced cases, after five years 67 per cent of the males and 67 per cent of the females were alive and apparently in good health. After ten years 38 per cent of the males and nearly 50 per cent of the females were alive and in good health. This indicated that money spent on sanatoriums was well spent. It prolonged the lives of many people saved those of many others, and diminished the infection among the healthy.

The House then carried the vote for the Ministry of Health by 255 to 132.

Scottish Board of Health

On July 31st the House of Commons considered in Committee of Supply a vote for the salaries and expenses of the Scottish Board of Health. Mr. W. ADAMSON said that he wished to discuss the critical condition and physical deterioration of the people in certain areas of Scotland, due to the inadequate provision made for them by the Scottish Board of Health. The main cause of this distress was unemployment which was even worse in Scotland than in England. Dr. DRUMMOND SMITH wished to know what was the position with regard to the vacancy in the medical membership of the Board. It had been known for a long while in advance that Sir Leslie Mackenzie was going to resign. Could the Secretary for Health intimate when his successor would be? He sincerely hoped that when the appointment was made it would be found that a member of the present staff had been promoted to the position. The questions of milk supply and tuberculosis were dealt with in the report. Undoubtedly a very great improvement had taken place in the quantity of licensed graded milk, but it still amounted to little more than 1 per cent of the whole milk supply in Scotland. The nomenclature of the grades was very misleading. There was no doubt that Grade A, which was only the third of the qualities was considered by many people to be the first quality while the tuberculin tested milk had not got the position in the public mind which it ought to have because of the confusion of Grade A milk with that of the highest quality. Was the position satisfactory with regard to pasteurized milk? If pasteurization was carried out effectively this milk was safe, but there was a great liability for pasteurization to be done ineffectively and so to become a danger rather than a help by misleading people as to its goodness. The report did not deal with that point. The report stated that last year 2,240 animals mostly cows were condemned as tuberculous compared with 1,852 in 1926. The Board of Health considered that the increased number was a sign of increased efficiency in the inspectorate, and if that was so he was glad. It also showed that there was still a substantial amount of tuberculosis among the cattle of Scotland and in view of the danger to young children it was well that effective steps were being taken to deal with the matter. The Empire Marketing Board was now publishing placards inviting people to use more milk but he would hesitate to recommend anyone with young children to use ordinary milk unless he was satisfied that that percentage had been reduced almost to vanishing point.

The report contained a chapter on venereal disease. It was very cautiously written but it showed that the technical heads of the department were not at all satisfied with the position. Some £60,000 or £70,000 was being spent in Scotland alone on this matter and something like £600,000 throughout the kingdom. Yet in Scotland the proportion of defaulters was 51 per cent. That showed an appalling waste of public money. The local authorities in Scotland were of opinion that the present arrangements were not satisfactory or efficient. The question of the co-operation between hospitals was being very carefully considered by many bodies in England and Scotland. The old voluntary hospital managers were very much concerned with the present position and the question of co-operation between the voluntary and municipal hospitals was bound to arise in connexion with the various Government schemes. In Aberdeen there was an arrangement that seemed to be very desirable. The parish councils there had handed the hospitals over to the public health committee of the town council and the whole of the public health accommodation there was being administered by one authority. In Glasgow also there was a similar working arrangement. Many of the Poor Law hospitals in Scotland were not well equipped or adequately staffed and the association with the municipal departments and with the staffs of the various voluntary hospitals was bound to increase their efficiency. The report of the Mackenzie Committee stated that there was a shortage of 3,600 beds in Scotland two years ago and the position was not any better to-day. Did the Minister consider that final arrangements had now been made, or were likely to be made to provide a proper number of beds? The Scottish Committee of the British Hospitals Association had set up five local committees for co-ordinating the various hospital activities and there was also a liaison committee between that body and the department. There was a danger of magnifying to a great extent the voluntary principle and of saying that it must be preserved at all costs. The first consideration must be the efficiency of the hospital services and the supply of an adequate number of beds. While they acknowledged the good work which the voluntary hospitals had done they regarded the voluntary agent as being the pioneer. When the necessity for the work was evident it should be done by the public authority so that the necessary medical attention was given to all classes of the community.

What had happened to the report of the Departmental Committee on Maternal Mortality and how many of its recommendations had been put into operation? There was no doubt

that this subject must ultimately be dealt with by municipal maternity services, and by ensuring co-operation between doctors and midwives, and between the ante-natal services and the other public health services. Was the Board of Health urging local authorities to put into operation the whole of their powers for feeding necessitous school children? With all the poverty and misfortune in Scotland there was money enough to feed the children. The same considerations applied to the questions of the dental treatment of school children, of treatment for adenoids, tonsils, and so on.

Dr. ELLIOT replying to the debate said that the Scottish Board of Health was not flinching from drastic legislative action to make sure that the milk supplies were as pure as could reasonably be managed. In reply to Dr. Shiels a question as to the medical member of the Board of Health he said that everyone knew that Sir Leslie Mackenzie had now retired. It was right that Parliament should take note of that fact and remember the great work that he had done for the health of the people of Scotland—(general cheers)—during the many years that he had been entrusted with the control of their health. The reason that a new medical member had not yet been appointed was simply that the bill for the reorganization of offices in Scotland had not yet received the Royal Assent. As soon as that bill became law the Secretary for Scotland would proceed with the utmost expedition to make the new appointment. He had nothing further to report for the moment in regard to hospitals but the proposals that had been put forward would be considered. He was not able to say that the shortage of hospital beds had been remedied but an improvement was being effected almost constantly, with resulting increased hospital accommodation for the sick people of Scotland. Only a few weeks ago he had inaugurated a new Northern Infirmary at Inverness, where considerably increased medical facilities had been made available for the people in the northern districts. With regard to the report of the Departmental Committee on Maternal Mortality the Board had done its utmost to bring up to date the service in Scotland for pregnant women. The Maternity Homes Bill ensured that there was a service available for 100 per cent of the mothers of Scotland, a thing that could be said of very few other countries. The Board had not succeeded in reducing the very high percentage of deaths from puerperal fever, but it was considering other steps to deal with the matter. The service had been made available, however, and it would do its utmost by administrative action, to secure that further institutional accommodation was made available for women undergoing childbirth.

The vote was agreed to.

National Health Insurance

From the passing of the National Health Insurance Act in 1911 to December 31st 1927 £102,018,000 has been paid in sickness benefit in England and Wales.

On August 2nd Mr. CHAMBERLAIN informed Dr. Salter that the system adopted by the Government actuary to determine the Central Practitioners' Fund was based upon principles which were deemed to be permanent although a report made upon it by an independent actuary to a body representing the insurance practitioners had said that in certain respects the method could not at the moment attain its ultimate form.

On August 3rd Mr. CHAMBERLAIN told Mr. Rhys Davies that he had received representations suggesting that every panel doctor should be compelled to install a telephone to facilitate calls made in urgency by health insurance patients. Mr. Chamberlain added that he had no power to require insurance practitioners to do this.

Small pox

Mr. Broomfield asked Mr. Chamberlain on August 1st whether he knew that a boy aged 11 years, of Chipstead Valley Road, Coulsdon, was vaccinated by the public vaccinator for Coulsdon on June 11th, 1928 and died on June 26th and whether Mr. Chamberlain would cause an investigation to be made into the possible connexion between the vaccination and the inflammation of the brain which caused the boy's death. Mr. CHAMBERLAIN said he was aware of the case. The coroner after inquest and post mortem examination, certified the death to be due to sun stroke.

Medical officers of the Ministry of Health are inquiring into the circumstances associated with the illness of a girl of Werekham, Norfolk who fell ill on the eleventh day after vaccination and died of "sleepy sickness" at Addenbrooke's Hospital, Cambridge, on July 6th. They are also inquiring into the illness of another child in the same district who, in a question put by Mr. Groves on August 3rd was alleged to be a victim of "sleepy sickness" following vaccination. When stating this Mr. CHAMBERLAIN added that two similar cases had occurred at Werekham, but he had no information of any such case at East Werekham.

On August 3rd Mr. CHAMBERLAIN told Mr. Groves that eleven death certificates on which the words "vaccination or vaccine" appeared had been received for the period January 1st to June 30th 1928. On six of these certificates some form of nervous disease was entered. In ten instances death followed closely after vaccination.

An writing Sir Robert Thomas on August 3rd Mr. CHAMBERLAIN said he had received resolutions representing that Poor Law guardians felt apprehension at the increasing tendency among the poorer members of the community to obtain exemption from vaccination. The desirability of withdrawing the present facilities for exemption and of insisting upon the vaccination of infants unless there was some special reason for exemption would be considered in connexion with the report of the Committee on Vaccination.

Medical Inspection of Vagrants—Mr. CHAMBERLAIN replying on July 31st to Dr. Vernon Davies, said that if a vagrant who on entering a casual ward expressed the desire to leave at 6.30 the next morning was not medically inspected on the evening of his arrival he would be examined on the following day and would not be allowed to leave until the examination. He had no precise information on the question whether vagrants who entered the casual ward of an institution which had a resident medical officer attached were medically inspected on the evening of their arrival or on the following morning. He would inquire into any case in which Dr. Davies had reason to believe that the examination was not carried out on the evening of arrival. There were 482 casual wards in England and Wales in regular use. Every ward was inspected at least once a year and more frequently where circumstances required it.

Trypanosomiasis in the British Army—On July 31st Sir L. WORTHINGTON EVANS informed Colonel Hcaage that there had been one case of sleeping sickness (trypanosomiasis) in the British Army between 1923 and 1927. Statistics for the war period were not available. The disease was not notifiable in England and Wales and there were therefore no figures to show the incidence among the civilian population.

Maternal Mortality Rates—On July 30th Mr. CHAMBERLAIN informed Mr. Scurr that full particulars on births and maternal deaths from which maternal mortality rates could be derived together with infantile mortality rates were published in respect of each metropolitan borough in the Registrar General's statistical review. The Minister added a long statistical table showing the expenditure in each of the last five years by each metropolitan borough council on maternity and child welfare services and the Exchequer contribution in each case.

Stabilization of War Pensions—Major TRYON on July 31st told Colonel Clifton Brown that the Government had decided to stabilize war pensions on the cost of living for the standard year 1919. The present rates would not be reduced however much the cost of living might fall. It was the intention of the Government to stabilize the other provisions of the present warrants and in particular those relating to medical treatment and the existing lines of their working for the cases to which they were applicable. He pointed out that those provisions were drawn in 1918 and 1919, during the war and demobilization periods with a particular class of case in view—namely the case for which a special course of treatment of a remedial nature was essential in order to effect a cure or permanent improvement. Provision might become necessary in the future for a different class of case—namely, the case which had reached the stage of needing institutional care and attention rather than a course of remedial treatment. The former class of case would, of course, continue to be provided for on existing lines but other provision would probably have to be made for the latter class of case. Dr. DAWKINS SMITH asked if it was not the case that this concession, however desirable would cost nothing unless the cost of living figure fell below 60. Major TRYON replied that the difference between the new system and the old system was £5,500,000 a year. Mr. F. O. ROBERTS asked the Minister to give a further explanation of what he meant by stabilization of treatment. Major TRYON said that he meant stabilization of the treatment allowances now payable. Mr. ROBERTS asked if that would limit the opportunities for further application to be made for treatment allowances. Major TRYON No, not in any way.

Treatment of Neurasthenic War Pensioners—Major TRYON, in a reply on August 2nd to Mr. Hore Belisha said medical officers of local branches of the Ministry of Pensions were not precluded from giving treatment or making treatment allowances to neurasthenic cases without first referring the matter to headquarters. The exception was in cases recommended for inpatient treatment. In these reference to headquarters was necessary to assure a satisfactory allocation of beds in the special hospitals provided for the various types of neurasthenic cases.

Tuberculosis—There are no funds at the disposal of the Ministry of Health from which financial aid could be given to the Eford colony for tuberculosis cases, Plymouth. A grant has been given to the Preston Hall colony, but that was an exception. Mr. Chamberlain will arrange for one of the medical inspectors of the Ministry of Health to inquire into the increase of tuberculosis among young children in Middlesbrough. He is not aware that the woman assistant medical officer of health in Middlesbrough has stated that the prevalence of tuberculosis among young children in that town is approaching the condition of Vienna after the war.

The Professor of Sanitation and Hygiene, Trinidad—Mr. AMERY, answering Commander Bellairs on August 3rd said the professor of sanitation and hygiene at the Imperial College of Tropical Agriculture, Trinidad maintained close touch with the London School of Hygiene and Tropical Medicine. It was proposed that a close liaison should be established with the Colonial Medical Research Committee and that the duties of the professor should be extended in the light of experience gained in recent years.

Ethyl Petrol—Asked on August 2nd whether he proposed legislation which would prohibit the use of ethyl petrol for cooking and cleaning Mr. CHAMBERLAIN said the terms of contract between the proprietors of the fuel and the retailers were designed to prevent such use. He accepted the opinion of the Government Committee on ethyl petrol that the terms of contract in force safeguarded the interests of the public.

Medical Examination of Employees in Metal Grinding Industries—Sir W. JOYNSON HICKS, in an answer on August 3rd to Mr. W. Thorne stated that no medical test for employment was imposed by the Metal Grinding Industries (Silicosis) Scheme. Workmen

employed by some firms in these industries had been required by their employers to pass a special medical examination some others who failed to pass had been discharged. From July 1st to December 31st there were seven cases under the scheme.

Western Ophthalmic Hospital—Mr CHAMBERLAIN stated on August 3rd that he had no funds at his disposal for making grants in aid of expenditure on building of voluntary hospitals. He had seen reports that a dangerous structure notice had been served in respect of the Western Ophthalmic Hospital Marylebone Road, London.

Notes in Brief

The Ministry of Health's proposals to local authorities to cut down their grants for the supply of milk and nourishment in connexion with maternity and child welfare work will result in a reduction in Exchequer grants this year of about £12,000.

Regulations for the stamping of milk bottles used as measures are under consideration.

Orders have been issued that in future British troops in training are not to place within reach of any road or house smoke generators which have a lacrymatory effect. Complaint was made in the House of Commons about recent use of such apparatus in the Bagshot area.

The Home Secretary is causing inquiries to be made into the ventilation of beet sugar factories. He has no power to control the hours worked by men in these factories.

Mr Chamberlain has no evidence to show that the inhalation of dust from cement works is injurious to health.

In 1927 the ratio of cases of ophthalmia lachrymen per 10,000 troops at home was 2.06 and abroad 0.63 among the civil population in England and Wales in the same year it was 0.41 the total cases at home being 19 military and 1,615 civilian.

Mr Chamberlain stated on August 1st that during the past twelve months the Ministry of Health had not taken nor advised any other department to take any action to prevent the nuisance caused by noisy traffic.

Universities and Colleges

UNIVERSITY OF OXFORD

At a congregation held on August 4th the following medical degrees were conferred:

B.M.—T. L. Davies, A. J. Leslie-Spinks.

UNIVERSITY OF LONDON

The following have been recognized as teachers of the University in the subjects and at the institutions indicated:

St Bartholomew's Hospital Medical College—Mr Geoffrey L. Keynes (surgery), Dr A. G. Roxburgh (dermatology), Mr Wilfred Shaw (obstetrics and gynaecology).

St Thomas's Hospital Medical School—Mr John Lowndes (chemistry).

London Hospital Medical College—Dr W. Russell Brain (medicine), **Charity Cross Hospital Medical School**—Dr J. B. Danister (obstetrics and gynaecology).

London School of Medicine for Women—Dr Gertrude Dearnley (gynaecology), Dr Hazel H. O. Gregory (diseases of children), Mrs Barbara Spott (anaesthetics).

University College Hospital Medical School—Dr J. W. McVee (medicine), Dr Wilfred J. Pearson (diseases of children), Mr Bertram Samuel (orthodontics), Mr Julian Taylor (surgery), Dr A. F. Tredgold (psychological medicine).

Kings College Hospital Medical School—Mr Harold O. Edwards and Mr J. B. Hunter (surgery), Dr Wilfrid P. H. Sheldon (diseases of children).

St Mary's Hospital Medical School—Mr R. M. Handfield-Jones (surgery).

London School of Hygiene and Tropical Medicine—Mr V. B. Wigglesworth (medical entomology).

It was reported that Dr H. G. Reeves had, as a matter of urgency, been appointed a member of the Board of Examiners in Physiology at the second examination for medical degree, in place of Professor H. Hartridge, who was unable to do owing to illness.

A grant of £20 from the Thomas Smythe Hughes Medical Research Fund has been made to Ruth Deaneley B.A. B.Sc. to expend on the buying of animals and histological expenses for the purpose of investigations on the experimental histology of the adrenal cortex.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

An ordinary Council meeting was held on July 31st when the President Sir Berkeley Almonhan Bt., was in the chair.

Diplomas and Licences

The diploma of Fellowship was granted to Mr Herbert John Seidon who had now complied with the regulations.

Diplomas of Membership were granted to 158 candidates. (The names with the exception of Thelma Shepherd were included in the list published in the report of the Council of the Royal College of Physicians of London printed in our issue of August 4th (p. 225) as were also the names of those receiving the diplomas in Public Health and in Ophthalmic Medicine and Surgery.)

Diplomas in Tropical Medicine and Hygiene were granted jointly with the Royal College of Physicians to the following:

T. D. Amad, Maud O. Cairney, K. Cathiravelu, G. L. Chadha, S. S. Crooke, C. H. Doyereux, J. P. M. Donnelly, N. M. Dostvalin, Alice M. A. Downing, A. W. Duncan, H. A. Glikes, M. A. El-H Gohar, I. S. Gupta, N. Gupta, M. Jaffer, H. O. Johnson, H. Kalfz, Mary Keith Thompson, J. N. Leitch, R. B. Landeherg, L. J.

McGregor, C. D. Newman, Annie B. Price, E. L. Robert, A. N. Sharma, G. Singh, J. D. S. Thomas, R. F. Tredro, M. K. Tucker, K. H. Utley, Kathleen A. Vernon, P. L. Whig, E. R. Wide.

Licences in dental surgery were granted to A. M. Bennett and H. A. Lewis, who had now complied with the regulations.

Appointments

Mr T. P. Legg was re-elected a member of the Court of Examiners at the expiration of his period of office.

Mr A. B. G. Underwood was re-elected a member of the Board of Examiners at the expiration of his period of office.

Mr N. E. Kelly was elected a member of the Court of the University of Liverpool, in the vacancy occasioned by the death of Mr W. Thelwall Thomas.

Annual Dinner of Fellows and Members

The first annual dinner for Fellows and Members under the trust established by Mr G. Buckton Browne, will take place on Thursday, November 1st, at 7.30 p.m.

ROYAL COLLEGE OF SURGEONS IN IRELAND

The following candidates have been approved at the examination indicated:

Primary Fellowship Examination—H. T. Fleming, S. V. Furong.

R. Grainger, T. J. A. McHugh, N. Narasimhan, A. H. Thompson.

Final Fellowship—W. G. Lyons, T. J. Millin.

SCHOOLS OF SURGERY

The following prizes have been awarded for 1927-28—

Junior Anatomy (1) Miss B. M. Dunne, (2) M. King. **Systematic Anatomy** (1) T. Conlon, (2) J. Hampson. **Miss A. J. Dunlevy**. **Surface and Topographical Anatomy** (1) T. F. Quigley, (2) T. Conlon. **Practical Anatomy** (1) T. Conlon, (2) J. Hampson. **Stoney Memorial Gold Medal** T. Conlon. **Physiology** (1) P. D. O'Rourke. **Histology** (1) E. A. Joyce, (2) R. A. M. Montgomerie. **Biologs** (1) G. P. Yenser. (2) P. J. Shields. **J. O'Hanrahan**. **Medica Medica** (1) J. Hampson. (2) M. J. O'Callaghan. **Forensic Medicine** (1) Miss A. J. Dunlevy. (2) I. McLachlan. **Medicine** (1) P. Daly. **Operative Surgery** Gold Medal 1. Daly. **Midwifery** (1) J. E. Lewis.

CONJOINT BOARD IN IRELAND

The following candidates have been approved at the examination indicated:

Final Professional—T. B. Creamer, Eileen Cusson, N. Dinnphy.

R. A. Forde, J. Gangan, W. G. Greene, A. E. Lee, J. L. Maslin.

N. G. Mattock, F. J. A. Murra, H. Rubinstein.

D. P. H.—V. F. M. Lee.

Medical News.

The Royal College of Physicians of London will be closed for the summer vacation from Monday, August 13th, to Saturday, September 15th, both days inclusive.

The annual dinner of past and present students of St Mary's Hospital will be held on Friday, October 5th, at 7.30 o'clock at the Trocadero Restaurant, with Dr E. G. Moon in the chair. The honorary secretary is Dr A. Hope Gosse.

A course of lectures and demonstrations on clinical practice and hospital administration for the diploma in public health will be given at the North Eastern Hospital, St Ann's Road, Tottenham, N.15, by Dr F. H. Thomson, medical superintendent on Mondays and Wednesdays at 4.45 p.m., and alternate Saturdays at 11 a.m., beginning Monday, October 1st. The fees for the course, which comply with the requirements under the revised regulations of the General Medical Council, is £4 4s., and for a course under the old regulations £3 3s. The fee should be paid in advance to the Clerk to the Metropolitan Asylums Board, Victoria Embankment, E.C.4.

The Fellowship of Medicine and Post Graduate Medical Association announces that a fortnight's afternoon course at the Infants Hospital starts on Monday, August 13th, while on August 27th at Queen Mary's Hospital will begin a two weeks course in medicine, surgery, and the specialties. The mornings will be given to special lectures and demonstrations, and in the afternoons there will be a choice of operations or of medical, surgical or special clinics, followed after tea by a lecture. Special courses arranged for September comprise the following: psychological medicine at Bethlem Royal Hospital, medicine, surgery, and specialties at the Westminster Hospital, diseases of children at the Queen's Hospital, electrotherapy at the Royal Free Hospital, ophthalmology at the Royal Eye Hospital, and orthopaedics at the Royal National Orthopaedic Hospital. In October weekly clinical demonstrations will be resumed. There will also be a special course at the Wellcome Museum of Medical Science and a series of lectures on gynaecology, children's diseases, and minor surgery. Detailed syllabuses and other information may be obtained from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

ARRANGEMENTS have been made for the exhibition at post offices of lists of the names and addresses of infant welfare centres and ante-natal clinics. Postmasters at Crown post offices have been instructed to do so and sub-postmasters at offices where postal work is performed under contract have been requested to co-operate. The Ministry of Health therefore suggests (in Circular 911) the local authorities should prepare such lists and arrange for their exhibition. Nothing beyond the names and addresses of centres and clinics should be given in the list which should be printed on cardboard not exceeding foolscap size.

In the recent special distribution of the Wells legacies, King Edward's Hospital Fund for London set aside a grant of £10,000 towards the building fund of the King George Hospital, subject to certain conditions, and the King's Fund has been informed that an appeal will shortly be made for public support for the establishment of the hospital. The scheme submitted to the King's Fund contemplates the provision of additional hospital accommodation for the parts of Essex immediately to the east of London, including the area in which this is particularly needed owing to housing development since the war. The King's Fund proposes to summon a conference with a view to facilitating the execution of the scheme.

A COMBINED medical, electrical, and pharmaceutical congress and exhibition will be held in October in Mexico City, under the auspices of the President of the Republic, the Mexico Medical Association, National University, Health Department, and the Mexican Society of Electro-Radiology. Further information may be obtained from the managing director of the exhibition, Apartado 982, Mexico, D.F.

THE late Inspector General Henry Hadlow, R.N., who died in November last, aged 92, has bequeathed £10,000 stock to Epsom College for the creation of a pension fund for medical men and their widows, £8,560 to the Royal Portsmouth Hospital, and £100 to the Portsmouth Eye and Ear Hospital.

THE eighth Congress of the German Pharmacological Society will be held at Hamburg, under the presidency of Professor E. P. Plotz of Vienna, from September 12th to 15th. September 13th will be devoted to discussions on the work of the heart and vessels in honour of William Harvey, when papers will be read by Liljestrand of Stockholm, Jarisch of Innsbruck, Straub of Göttingen, Anrop of Cambridge, and Mansfeld of Pécs. On the 14th papers will be read on modern industrial intoxications by Flury of Würzburg and Zangger of Zürich, and on the 15th Bürger of Edinburgh will read a paper on ergot bases. Further information can be obtained from Professor H. Wieland, Pharmakologisches Institut, Heidelberg.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1**.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the British Medical Journal alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the British Medical Journal must communicate with the Editorial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS as well as orders for copies of the Journal, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBERS of the British Medical Association and the British Medical Journal are MUSFUL 9561, 9562, 9563, and 9564 (informal exchange four lines).

THE TELEGRAPHIC ADDRESSES are EDITOR of the British Medical Journal, Antology Westcott London.

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The address of the Irish Office of the British Medical Association is 16 South Frederick Street, Dublin (telegrams *Basillus Dublin* telephone 62550 Dublin) and of the Scottish Office, 7 Drumhaugh Gardens, Edinburgh (telegrams *Associate, Edinburgh* telephone 24361 Edinburgh).

QUERIES AND ANSWERS

DRESSING FOR FISTULA

DR A. V. RUSSELL (Innisfree) writes: Has "R.T." who asked for suggestions for a suitable dressing for a patient with a small intestine fistula tried iodine? Colloidal kaolin worked into a stiff paste with the addition of glycerin and applied to the inflamed skin round such a fistula has, to my knowledge, acted like a charm. This dressing acts by adsorption of the digestive enzymes.

THYROID EXTRACT FOR ANEURYSM

"M.D." would be glad to hear of any experience of thyroid gland extract in the treatment of thoracic aneurysm—used with the object of lowering blood pressure and assisting blood coagulation.

CORNS

"J. J. K." writes in reply to "H. A. A." (July 14th p. 85) to suggest the following method of relief for corns on the soles of the feet: Wear an inner cork sole in the shoes and cut out from this a shallow excavation with shelving edges immediately below the corn. The writer says that he has found this device combined with the application of a saturated solution of salicylic acid in collodion, most successful.

INCOME TAX

Falling Income

"R. E. L." states that his income for the year 1928 will certainly be less than the amount estimated on which he paid the tax in 1927. Can he claim any refund?

. The inquiry is not entirely clear. The tax recently paid is presumably the second instalment of the tax assessed for the year to April 5th, 1928, the correct basis for which in normal circumstances would be the amount of the income of the year 1926—that is, the previous year to the year 1927–28. If the tax has been assessed on that basis and not on any 'estimated' amount then no revision of that assessment can be claimed. Similarly, as regards the year ending April 5th, 1929, the assessment should be made on the amount of the income of 1927 and remains unaffected by any increase or decrease in 1928. It should be borne in mind that income tax is paid for any particular financial year on an artificial statutory basis, but it is paid for that year and the tax is not strictly a deferred tax on the income of the basis year. The above observations do not necessarily apply to the first or final years of the taxpayer's possession of the partnership share or practice.

Depreciation of Car Private Use

"H. C. P." explains that his car is to some extent used for pleasure, and the authorities have claimed to restrict the depreciation allowance accordingly.

. The claim cannot be refuted. If say 10 per cent of the car's mileage is for private purposes then 10 per cent of the whole cost including depreciation, cannot properly be claimed against the professional earnings. We are hardly in a position to say whether it is now the general practice to knock off this depreciation, but it seems at least to be not uncommon.

LETTERS, NOTES, ETC.

FRACTURE OF CERVICAL VERTEBRÆ

DR K. T. RAMOJIANPANI (Hyderabad India) writes: Sir William Wheeler's case of fracture of the cervical vertebrae reported in the *Journal* of March 31st p. 553 prompts me to record a similar case in which a necropsy was performed at the Civil Hospital, Hyderabad, on May 19th. A dead body was sent with the history that death had occurred in the course of a struggle in which the man had been forcibly thrown against the ground in such a way that the head was bent forwards causing hyperflexion of the neck. No information is available as to what happened to the man before death beyond a verbal statement that he had asked for drinking water and that he could not move his arms indicating that he was conscious and had brachial palsy (presumably also paraplegia) after the injury—a feature reported also in Sir William Wheeler's case. On opening up the vertebral column a spiral fracture of the fifth and sixth cervical vertebrae similar to that found in Sir William Wheeler's case was seen. The disc between the two vertebrae having been torn open. Some small fragments of bone were detached and were found in the soft structures close to the site of injury, but none was pressing upon the cord which appeared intact. On making a transverse section of the cord and displacing it upwards no projection was felt underneath it indicating any dislocation of the vertebrae. This case seems to support the reasonable theory of Sir William Wheeler—that the trauma to the cord on such occasions is analogous to that produced by overstretching of the brachial plexus or of the muscular spinal nerve innervation as in both cases the lesion was situated below the site of emergence of the phrenic nerve (third vertebra) and there was no apparent compression of the cord though death ensued in both cases. My thanks are due to Major M. J. Holgate, I.M.S., for permission to publish this note.

VACANCIES

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 38, 39, 42, 43, and 44 of our advertisement columns and advertisements as to partnerships, assistantships, and locum tenencies at pages 40 and 41. A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 102.

Observations ON CHRONIC SPLENOMEGALY IN CHILDHOOD DIAGNOSIS AND TREATMENT*

BY

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Physician to the London Hospital and to the Hospital for Sick Children, Great Ormond Street

BEFORE proceeding to the differential diagnosis of the various splenomegalies of childhood, it is advisable to make sure that the abdominal tumour in question really is an enlarged spleen. Usually this is easy enough, but sometimes one is in doubt, especially as to the possibility that the tumour may be an enlarged left kidney or suprarenal. Sometimes the ordinary diagnostic criteria—that a large spleen does not extend back into the loin, that it has a sharp edge with a notch, that it crosses the middle line below the umbilicus, that the fingers cannot be passed between the tumour and the ribs, that the descending colon does not lie in front of it—all fail, and in that case it is important to remember that dullness extending above the level of the ninth rib in the mid axillary line is in favour of the tumour being splenic. An x-ray examination, with pycnography if necessary, may help in the differentiation. I would only repeat that the difficulty of telling a splenic from a renal tumour is sometimes a real one, and that the methods of distinguishing them are worth discussion.

Having settled that the tumour is an enlarged spleen, it is necessary, before proceeding farther, to have some sort of classification of the different varieties of splenomegaly met with in childhood. The only satisfactory classification would be an etiological one, but of that our present knowledge does not allow, and I therefore propose, for purposes of discussion, to consider the subject under certain broad groups.

1 Tumours (Cysts, Ater Cysts, Abscesses, etc.)

These are very rare, and for practical purposes undiagnosable. If diagnosed, the proper treatment, of course, would be surgical.

2 Chronic Infections

Of these we have to consider tuberculosis, syphilis, lymphadenoma, and chronic sepsis.

In chronic tuberculosis splenomegaly is not likely to be the "presenting" sign, although in the acuter forms of tuberculosis in young infants enlargement of the spleen is very common. Cases are described, however, though I do not remember to have seen one myself, in which massive caseating tuberculosis leads to considerable splenomegaly. The spleen in such cases may be tender, and polycythaemia and some degree of cyanosis are said sometimes to be present. There will often, of course, be less conspicuous tuberculous lesions elsewhere. The proper treatment is splenectomy.

The relation of congenital syphilis to splenomegaly in childhood is very important, but I would suggest, for purposes of discussion, that its frequency as a factor in causing the condition tends to be exaggerated. After all, inherited syphilis is a comparatively rare disease, and so we may say that, although syphilis certainly very often leads to splenomegaly, yet not many cases of splenomegaly are due to syphilis. It is in infancy that a syphilitic enlargement of the spleen is most likely to be met with, but there is reason to believe that in later childhood—say, between the ages of 5 and 7—splenomegaly may be the only sign of a syphilitic taint, and it appears again about the age of puberty in association with syphilitic cirrhosis of the liver. In the pre-Wassermann days the tendency was to ascribe every splenomegaly of doubtful origin to syphilis, but since the introduction of that test I have been impressed by the frequency with which it is found to be negative in these circumstances. I am aware that in some undoubtedly syphilitic cases—in syphilitic cirrhosis, for instance—the

Wassermann reaction may be negative, and we might well discuss what degree of confidence we can place in it as a criterion of the presence or absence of a syphilitic taint. I would only point out that it is, after all, the only positive test we have in a case in which unmistakable objective signs of the disease are wanting, and if we are not to be able to trust it the whole question of the relation of syphilis to splenomegalies of obscure origin in childhood goes back into the melting-pot. It is all the more important that we should have some trustworthy test for the presence of syphilis, inasmuch as it has been suggested by Dr. Parkes Weber and others that an inherited taint may form a basis on which enlargement of the spleen—though not primarily due to syphilis—may develop more easily, or in a more exaggerated degree than it does in a child whose heredity is not thus burdened. Although this view seems to me rather speculative, it would be of interest to have opinions upon it.

Where syphilis is believed to be the cause of a splenomegaly, vigorous antisyphilitic treatment must, of course, be adopted. In some cases, however, the changes in the spleen may have proceeded so far that they are unaffected by any form of drug treatment, and in that case splenectomy may be justifiable.

Lymphadenoma as a cause of enlargement of the spleen, without there being evidence of the disease in the glands, must be very rare. For my own part, I have never met with an instance of it, though cases have been described by others,¹ and I do not see how it can be diagnosed with certainty. If diagnosed, the appropriate treatment would be the application of x-rays to the tumour.

Chronic sepsis has been put forward as a cause of splenomegaly, as of most other things. Dr. Gordon Ward,² for instance, regards it as of considerable importance, though I think on rather insufficient grounds. That splenomegaly may be the presenting sign in cases of very chronic infective endocarditis (endocarditis lenta) is certain, but I doubt if cases of this very chronic type are ever met with in childhood, and of "intestinal sepsis" as a cause of enlarged spleen we know nothing.

3 Tropical Splenomegalies

Chronic protozoal infections, as in malaria and kala-azar, may cause great enlargement of the spleen in children, but as the diagnosis and treatment of these diseases is the same as in adults we need not discuss them.

4 Splenomegaly in Metabolic Diseases

We have here chiefly to discuss the part played by rickets. This has been almost as much disputed as the role of syphilis in producing splenomegaly, and I believe fully as much exaggerated. That severe rickets tends to be accompanied by some degree of enlargement of the spleen is undeniable, though in some cases the organ is not so much enlarged as pushed down by deformity of the ribs; but I would suggest, for purposes of discussion, that rickets alone is not an important factor in the production of splenomegaly, especially nowadays. The same may be said, with even greater truth, of wax disease, which we need rarely think of when the nature of an enlarged spleen is under discussion.

5 Gaucher's Disease

Gaucher's disease should, I suppose, now be included under the metabolic disorders associated with splenomegaly. It is rare, though probably not so rare as is believed, and is to be diagnosed by its familial, though not hereditary, incidence, and, above all, by the demonstration of the characteristic endothelial cells in the product of a splenic puncture.³ Opinions as to the value of splenectomy in the Gaucher cases are divergent. The operation cannot certainly be regarded as a cure, seeing that the disease is one which is not confined to the spleen, but affects the whole reticulo-endothelial system throughout the body. If the splenic tumour is causing local discomfort, however, its removal would appear to be justified.

6 Splenomegaly in Diseases of the Blood

We have here to consider the leukaemias, splenic anaemia of infancy (anaemia pseudo-leukaemia infantum of von Jaksch), acholuric jaundice, purpura, and erythraemia.

Made in opening a discussion in the Section of Diseases of Children at the Annual Meeting of the British Medical Association, Cardiff, 1928.

The *leukaemia* we may dismiss in a word. In childhood they are almost always acute, and therefore not a cause of chronic splenomegaly. I have only once seen a case of chronic myeloid leukaemia in a child—a boy of 12—and for practical purposes leukaemia as the cause of a chronically enlarged spleen in childhood need not be considered. If suspected, a blood count would at once establish the diagnosis.

The *splenic anaemia of infancy* is in an altogether different category. It used to be relatively common, and when I was giving the Goulstonian Lectures twenty-five years ago I had no difficulty in collecting notes of a large number of cases, all of which had been under my own observation. In recent years, however, it has become rare, and I have not seen a typical case now for a long time. I do not propose to discuss the nature of this disease, and whether it is merely the result of a haemopoietic reaction to various debilitating influences in childhood, or whether it is—as I at least hold—a disease *sui generis*. For our present purpose it is sufficient to point out that it should not be diagnosed after the age of 3, although it is true that the enlarged spleen may persist beyond that age, when the anaemia has passed off, before gradually disappearing. In that case, however, there should be a clear history of the disease in the earlier years. The blood picture in the acute phase is characteristic.

In considering the treatment of this form it is to be remembered that the disease tends to spontaneous recovery in the great majority of cases, given suitable hygienic measures. I do not myself consider that splenectomy is ever called for in it, as the operation must be highly dangerous in the severe forms and is unnecessary in the milder. Some successful cases have, however, been reported by Ashby and Southam,⁴ but I think it probable that these would have recovered without operation. Whether x-ray treatment is of any use I am not sure. In the few cases in which I have tried it the results have been disappointing, but others⁵ have been more fortunate. At least, it cannot do any harm.

I need not say much about the splenomegaly of *acholuric jaundice*, it is now well recognized as a not uncommon occurrence, and the diagnosis can be established with certainty from the characteristic increased fragility of the red cells. There is also no doubt that splenectomy is the only effective form of treatment.

In *purpura*—even in the chronic forms—splenomegaly is not likely to be the presenting sign, and I only mention it here because in that variety of the disease in which the platelets are greatly diminished removal of the spleen is now generally agreed to be very beneficial.

I doubt whether true *erythraemia* (Osler-Vaquez disease) is ever a cause of chronic splenomegaly in childhood, but it is interesting to note that polycythaemia is sometimes a feature in cases of syphilitic splenomegaly.⁶

7 Splenomegaly Associated with Cirrhosis of the Liver

We now come to that interesting group of cases in which an enlarged spleen is associated with cirrhosis of the liver. Three forms of cirrhosis with splenomegaly—excluding for the moment Banti's disease—may be distinguished.

(a) *Idiopathic Non-alcoholic Progressive Cirrhosis* (Parkes Weber)⁷—This is a cirrhosis of unknown cause, which resembles the ordinary portal cirrhosis of adults, runs a fairly rapid course, and often terminates in haematemesis. The spleen is always enlarged to some degree, but in certain of the cases is so conspicuous and early a feature as to be the "presenting" sign, and these have been spoken of as cases of "splenomegalic cirrhosis," or cirrhosis with "splenic predominance." Their diagnosis from Banti's disease is not easy, and will be considered later, and whether or not they are suitable cases for splenectomy demands discussion. Some writers—Thursfield⁸ for example—maintain that the operation in these cases is almost invariably fatal, but I am not at all sure that this is true. In the following case, for instance, if as I believe it must be included in this group, splenectomy appeared to effect a cure.

The patient was a boy aged 12 who was admitted for bleeding from the gums with a history of always having bruised easily. His spleen was enlarged down to the umbilicus and the liver

was easily palpable. The red cells numbered $4\frac{1}{2}$ million with 70 per cent of haemoglobin, and the white cells 1,600. The Wassermann reaction was negative, both in the patient and in his mother. Four months later he was readmitted with ascites. The spleen was removed and at the operation the liver was found to be cirrhotic. Twelve years later he was in excellent health.

The question of splenectomy in these cases is, I repeat, one for discussion.

(b) *Syphilitic Cirrhosis with Splenomegaly*—These cases are met with in later childhood about the time when interstitial keratitis and the other signs of "late syphilis" manifest themselves, and I have already said that there is reason to believe that they do not always give a positive Wassermann reaction, and that, if antisyphilitic treatment fails, removal of the spleen may be justified.

(c) *Splenomegaly with Biliary Cirrhosis*—These are the cases described by Gilbert and Fournier,⁹ and are believed to be the form which Hanot's cirrhosis takes in the child. They are said to be characterized by the presence of a much enlarged spleen, recurring jaundice, finger-clubbing, and impairment of growth, but without ascites. Now I am very sceptical as to the existence of Hanot's cirrhosis at all, and still more sceptical as to the occurrence of such cases in the child. I once thought I had such a case—I have described it elsewhere¹⁰—but it proved *post mortem* to be a case of partial obliteration of the bile ducts, presumably of congenital origin. I shall, however, be interested to hear the opinions of others on the subject.

8 Splenomegaly the Result of Splenic Thrombosis

That thrombosis of the splenic vein could cause enlargement of the spleen was denied by Osler,¹¹ yet there seems to be no doubt that it does happen. I have myself seen two cases in the adult in which this was proved at the necropsy to be the cause, and a case of it has been published by Parkes Weber.¹² Wallgren,¹³ in an important paper, has drawn attention to it as a cause of splenomegaly in children, and believes that it is commoner than is supposed, but that it has hitherto been confused with Banti's disease. He describes the leading features of the syndrome as splenomegaly, anaemia with leucopenia, and slight ascites. Sooner or later haematemesis sets in, and after a bleeding the volume of the spleen *shrinks*—thus, he believes, does not happen after haematemesis in Banti's disease or in cirrhosis—and at the same time a temporary leucocytosis appears. The liver in all of his cases coming to necropsy was found to be normal.

He is of opinion that the thrombosis of the splenic vein is the result of trauma or of an "infection," and that it leads to engorgement of the spleen and dilatation of the veins at the lower end of the oesophagus, rupture of one of which causes the haematemesis, with temporary subsidence of the splenic tumour. Wallgren believes that the prognosis in these cases is bad unless splenectomy is performed.

I believe that the following case may be regarded as one of splenic thrombosis.

The patient was a boy aged 5. Two years before admission he vomited a teacupful of blood, and this was repeated one year later, and again one week before his admission to hospital. He had had no other illness except whooping-cough when he was 4. He was a pallid weakly but not ill-nourished child, with a "buscuit" tinge of skin. The spleen was palpable and the liver extended one inch below the costal margin. There were a few small palpable glands in the axillae. A blood count showed red cells 1,160,000, white cells 5,620, haemoglobin below 30 per cent. A few normoblasts were present. The differential count was normal. The Wassermann reaction was negative. Ten days after admission he vomited an ounce of bright red blood, and at the same time his temperature rose to 103° F. The white cells were at this time 12,000. There is no note as to the effect of the haemorrhage on the size of the spleen. He was transfused but with only temporary benefit and died two weeks after his admission.

At necropsy the spleen was four times the normal size, firm and tough. There was *ante mortem* thrombosis of the splenic vein and also recent clotting in some of the mesenteric veins. The liver was large pale not cirrhotic. There were a few small varices at the lower end of the oesophagus.

9 Splenic Anaemia of Adult Type and Banti's Disease

It will be generally agreed, I think, that "splenic anaemia" and "Banti's disease" are to some extent diagnostic "rag bags" into which are thrown all the cases of enlarged spleen that cannot be placed in any other category. None the less it will be admitted that cases to

which these terms are applicable have a real existence in the adult, and the question for us to-day is whether they are also met with in childhood. Now, seeing that the splenic anaemia of adults is of its essence a very prolonged disease, the final stage of which, when cirrhosis of the liver has supervened (so-called Banti's disease) is only reached after some years, it follows that Banti's disease at least is not likely to be met with whilst the patient is still in childhood. In spite of this I think the diagnosis "Banti's disease" is sometimes justified in childhood, as in the following case:

A boy of 12 was known to have had an enlarged spleen for five years. The liver was not enlarged. The blood count showed 2,750,000 red cells, 45.1 per cent of haemoglobin, and 3,400 white cells. Wassermann test negative. Haematemesis supervened after which the spleen was decidedly smaller for some days. There was no leucocytosis during or after the haemorrhage. Splenectomy was performed and at the operation the liver seemed to be the seat of early cirrhosis. His subsequent history is unknown.

The difficulty, of course, is to distinguish such cases from those of idiopathic cirrhosis "with splenic predominance," already referred to. It can only be done if the history shows that the spleen was enlarged for some years (as in the above case) before signs of cirrhosis supervened, for the cases of idiopathic cirrhosis seem to run their whole course in a comparatively short space of time. There is little doubt, too, that cases of splenomegaly due to splenic thrombosis must often have been included under the term "splenic anaemia or Banti's disease," and so, probably, have some syphilitic cases and some of acholuric jaundice.

It is sometimes asserted that the presence of leucopenia puts a case in the category of splenic anaemia rather than of idiopathic cirrhosis, but to this I cannot agree. In the case of idiopathic cirrhosis with splenic predominance which was described earlier in this paper, for instance, leucopenia was present, and my own view is that leucopenia tends to be a feature of most chronic splenomegalies, no matter of what origin, and that little diagnostic value can be assigned to it.

The treatment for splenic anaemia of the adult type, we should all agree, is splenectomy, but whether the operation is worth doing after cirrhosis has supervened—that is, in Banti's disease—is a matter for consideration.

In conclusion, I would suggest as the most important points for us to discuss: (1) the part played by syphilis and rickets in the production of chronic splenomegaly, (2) the nature of idiopathic cirrhosis with "splenic predominance" and its differentiation from Banti's disease, (3) the existence or otherwise of biliary cirrhosis with splenomegaly, (4) the frequency of splenic thrombosis as a cause of enlarged spleen and its diagnosis from other forms of splenomegaly, (5) the occurrence of cases of splenic anaemia of the adult type and its sequel, Banti's disease, in childhood.

As regards treatment, debate must chiefly centre round the question of splenectomy. As to this, I would agree with Dr. Leonard Parsons¹⁴ that the cases suitable for this operation are those which show a negative Wassermann reaction, no enlargement of lymphatic glands, and no characteristic leucocytic picture, but in which there is some degree of anaemia, associated with (1) leucopenia, or (2) increased fragility of the red cells, or (3) haematemesis. There may be difference of opinion, however, as to the advisability of removing the spleen in Gaucher's disease and in cases with cirrhosis of the liver, whether of the idiopathic or Banti variety, even although these fall within the limits of the above criteria.

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A full bibliography will be found in a paper by Sir Humphry Rolleston entitled "Diagnosis and Treatment of Splenic Enlargement in Children" (British Medical Journal 1925 ii 1099) which was the opening paper of a discussion on this subject in the Section for the Study of Disease in Children of the Royal Society of Medicine on November 27th 1925.

AUTOTOXAEMIA AS A FACTOR IN THE CAUSATION OF PSYCHOSES*

BY

PROFESSOR W. WEYGANDT, M.D.,
Hamburg

In psychiatry, as in other spheres of medical science, the history of medicine unveils precursors of many a modern theory. The modern fever therapeutics of psychoses recall memories as far back as Hippocrates and Galenus.

In the course of the past century a great change has taken place in the doctrine of the cause of psychoses. Formerly the psychic cause was represented as the only, or at least the most important, one. As late as 1827 Henroth disputed the fact that fever might be a cause of mental derangement, he emphasized that even in the case of alcoholism the moral origin of all mental disorders could be recognized, and that even in the case of injuries to the head the spiritual life must not be forgotten as a cause.

With the advances of normal and pathological anatomy of the central nervous system, however, the doctrine became more and more firmly settled that mental derangements were cerebral diseases, and that a morbid influence of the brain represents the cause of mental disorders. But the external causes were frequently overestimated. Forty years ago the cause of paralysis was regarded as lying in sexual excesses, overexertion, congestion, injuries to the skull, overheating of the skull, long-enduring shocks, alcoholism, becoming prematurely aged, the climacterics, interruptions or derangements in menstruation, together with certain psychical influences, such as excitement or grief.

Very gradually the doctrine of syphilis being the cause of paralysis opened up new paths of research, and its correctness was finally proved in 1911 by Noguchi tracing the *Spirochaete pallida* in the brain.

As early as 1889 Kraepelin taught in connexion with paralysis that numerous symptoms must be regarded as a direct consequence of the degeneration of certain trophic nerve tracts. In 1896 he described dementia praecox and general paralysis as metabolic diseases.

The later doctrine was accepted, but for all that derangement of the digestive processes is of material importance among the symptoms of paralysis. In this connexion syphilis of the organs must also be mentioned, as well as an increased tendency of the bones to fracture. As to the pathogeny, it is assumed by numerous authors that not only are the symptoms caused directly by the spirochaete, but that a number of them may also be caused by toxic agents produced by the spirochaetes. I regard the lipomatosis that frequently occurs in advanced stages of paralysis as a secondary metabolic derangement, the region of the hypophysis being disturbed by hydrocephalus internus, and abnormal adiposity being thus induced.

The doctrine that dementia praecox is a metabolic disease or auto-intoxication was based on corporeal symptoms and relations—for example, on changes in the reflexes, mechanical excitability of the facial nerve, mechanical excitability of the muscles, dermatography, a peculiar change in the skin, and possibly, too, on disorders in the thyroid glands, and the relations as regards puberty, menstruation, pregnancy, etc. Kraepelin also called attention to an hereditary disposition in 70 per cent of the cases, and also to inherent symptoms of degeneration.

The realization by a large number of alienists that an endogenous cause of the disease must be assumed, above all the study of nerve disorders based upon disease in the blood glands or the glands of internal secretion, has induced an intensive investigation of these factors for decades past. This biological observation and investigation of mental derangements is the more important because cerebral anatomy has not fulfilled the great hopes that were entertained in regard to it. Psychology, too, has not led to very satisfying results, either as regards experimental study or psycho-analysis.

* A paper read in opening a discussion in the Section of Mental Diseases and Neurology of the Annual Meeting of the British Medical Association, Cardiff, 1928.

If the clinician wishes to investigate the nature of character of a mentally changed patient he must undertake not only the usual clinical psychological investigation, but also a detailed neurological examination, he must determine all the hereditary factors, and, as far as possible, carry out a microscopical test of the blood, liquid components, and other materials, and even of an extirpated particle of the brain cortex.

A series of biochemical tests are also necessary in order that the effect of external deleterious principles, and also the endogenous deviations in the digestive processes, may be determined. An endless number of investigations have been carried out, the results of which are but to a small extent of lasting value.

Among the clinical autotoxaemic groups I will first discuss the forms of retarded evolution on the basis of endocrine metabolism. In these groups are comprised several forms of unglandular disorder, the pluriglandular disorders, and, as a group by itself, Mongoloid degeneration. The blood glands are well known to be vegetative organs which are governed by vegetative nerves and influence the excitability of the vegetative system by their hormones. They have mutual relations of co-ordination, promotion, and retardation.

The function of the thyroid gland may be disturbed in early youth, or by a local disease such as inflammation, tumour, tuberculosis, etc., or by operative intervention. The consequences are always the same: retardation of bone growth and of sexual evolution, degeneration of skin such as myxoedema and loss of hair, as well as mental retardation and stupefaction. Complete loss of the thyroid gland results in disturbed function of several organs, such as the sexual glands, the kidneys, the liver, and the adrenal system: the fermenting processes are enfeebled, and also the capacity to produce immune bodies. Albumin metabolism is gravely disturbed, and finally death ensues. These consequences can always be confirmed by experiments on animals. Thyroidectomized animals grow very slowly and their skin degenerates. Without a doubt their intelligence and vivacity are also enfeebled, as I have proved by experiments on goats and pigs. An abnormal function of the thyroid gland can also be proved by Abderhalden's decomposition reaction. That psychical alteration exists was proved by the English Myxoedema Committee—apathy, stupor, and insomnia in 87 per cent, illusions in 18 per cent, hallucinations in 16 per cent, and psychoses in 16 per cent. By removal of the thyroid gland the basal and albumin metabolism are lowered and the tendency to sugar rises.

The possibility of treatment is, theoretically and practically, very important in hypothyroidism. Freshly made preparations of the thyroid gland, liquid or dry, and administered by the mouth or by injection, cause the symptoms to disappear. Good results are obtained in sporadic myxoedema, in cachexia thyreopriva, and in endemic cretinism. A little iodide salt—a few milligrams every week—is also effective in endemic cretinism. Purification of the drinking water is an aid in eradicating this condition, which is on the decline in many countries. Very few cases now occur in southern Germany, and instances continue to grow less frequent in Switzerland, Austria, and in northern Italy.

The case is very different in hyperthyroidism or Graves's disease, with its symptoms of irritability, restlessness, excitement, tachycardia, sweating, tremor, and also exophthalmos. According to Abderhalden the decomposition reaction in Graves's disease can also be shown. In treatment surgical removal of part of the gland is very important but also thymus and ovarian preparations can be employed as well as small quantities of iodides.

The parathyroids or epithelial bodies form ferments which influence the calcium metabolism. According to Loeb the quotient $\frac{ClNa}{ClCa}$ is of importance in the function of the nervous system. After surgical removal of the parathyroid glands there follows an increase in nervous excitability. Certainly diminished function of the parathyroids and probably an effusion of blood into the parathyroid bodies sometimes due to asphyxia at birth, is the cause of tetany and also of spasmiophilia.

The pituitary gland has its interest for neurologists and

also for psychiatrists. There is no doubt that the anterior or glandular part of the pituitary body, either as the result of disease or diminished function, causes a retardation of the skeletal growth, while its over activity results in the production of excessive growth in youth as the result of augmentation of the acidophil cells, and in later life acromegaly develops. The action of the pars intermedia and the pars posterior (or pars nervosa) is more difficult to define. A ferment derived from this part influences the blood pressure and unstriated muscles, and its action is also discernible in cases of polyuria and glycosuria.

With regard to the localization of dystrophia adiposogenitalis opinions differ. Some authors consider that this depends on the pars anterior or, as Biedl thinks, on the pars intermedia. According to B. Fischer and to Cushing this condition is caused by disorder of the pars posterior. Other authorities assume morbid processes in the region of the hypophysis, in the infundibulum cerebri, or in the regio subthalamica. As the basis of such degeneration one may consider a birth deformity or the pressure of a tumour or hydrocephalus.

A more recently recognized condition is cachexia hypophyseopriva, or Simmond's disease, which causes bodily decay and death through non-function of this gland, probably of the pars anterior. Sometimes a hypodystrophia can lead to cachexia through progressive pressure.

It is important to realize that gigantism in youth and acromegaly can be associated with idiocy and a primary disorder of the cortex cerebri be assumed.

Further, dystrophia adiposogenitalis is often associated with idiocy and imbecility. This form of feeble-mindedness, as I have shown, is often connected with a cheerful mood and motor unrest, which is in odd contrast with the plump and corpulent figure. In rarer cases, also, abstraction, hallucinations, loquacity, depression, and sleeplessness are described.

I shall shortly touch upon the rare cases of premature puberty in disorders of the epiphysis cerebri, mostly caused by tumours (principally teratomata), whereby the physiological retardation caused by this gland disappears. According to A. Frölich "apinealism" leads to cachexia, hypopinealism to sexual hypertrophy and premature puberty, but hyperpinealism to general obesity.

Hypofunction of the sexual glands is of importance in relation to physical constitution and neurology, but less so to psychiatry. I have mentioned the retardation of sexual glands in myxoedema and cretinism, and the relations of these to dementia praecox I shall consider later.

The thymus has a relation also to psychical evolution. In the condition of status thymico-lymphaticus in its different forms there is psychically some infantilism—a dependent, anxious, feeble, and dreamy character. Also to be remembered is the persistence of the thymus in megalencephalia with feeble-mindedness.

Klose has recovered thymus in young dogs by operation, the animals became fat, ceased to grow, showed clumsy movements, and were easily fatigued. The reflexes were first increased, then decreased, and the electrical excitability of the muscles was augmented, as in tetany. The animals appeared stupid, tried to eat wood and stones, became dirty in their habits, and finally died. Whereas the functioning thymus gland lessens the phosphoric acid and nucleic acid, this is not so after thymectomy, the organism is overburdened with acid, the brain containing much colloid and becoming swollen.

Heinrich Vogt described a case of thymic idiocy: a 17-year-old dwarf, stupid, with feeble, pulpy muscles and weak, elastic bones, the hands trebled, the reflexes were exaggerated, growth of the sexual organs was retarded, and the skin flabby. Later the bones became fragile. Occasionally fits of tremulousness appeared.

The suprarenal cortex and medulla are very important in relation to the nervous system, but less so to psychiatry. In fish of lower species (sharks and rays) the cortex and medulla are separate glands.

The cortex is the more important structure constituting an autonomic central organ for certain parts of the sympathetic nervous system. It absorbs lipoids and provides material which is converted into adrenalin in the medulla.

The medulla, consisting of nerve-endings, nerve cells, and

chromaffin cells, forms adrenaline. The medulla also influences the breaking up of carbohydrates in the liver.

Adenoma of the cortex causes hyperfunction and pre-natal puberty, while hypofunction causes retardation of growth. In Addison's disease, dependent upon disorder of the suprarenal gland, headache, depression, fatigue, excitability, sleeplessness, and feeble memory appear. No doubt both portions of the suprarenal gland are concerned, but it is principally the chromaffin tissue which is affected.

Dysgenitalism can be congenital or caused by illness or operation, as in the popular custom of the Scops in Russia. Prolongation of the long bones is present in young castrated peoples and also in some cases of juvenile syphilis. Castrated subjects show psychical infantilism, but not actual feeble-mindedness.

Disorders of the pancreas can retard growth in youth. Byrom Bramwell described a case of infantilism of this nature in a lad aged 18, who was no more developed than a boy of 11 years. Fat digestion was disturbed, phosphoric acid in the urine became less on milk diet, and the iodide reaction was absent, when iodine salt in gelatin capsules was taken, since the capsules were not dissolved in pancreas juice. These symptoms disappeared after treatment with pancreatic extract, and physical development was speedily resumed. Mental development was in no way affected.

Often differences are made between uniglandular and pluriglandular and also multiglandular disorders. Strictly speaking, no glandular disorder affects one gland alone, for after the loss of one gland it follows that changes in the other glands will occur. In loss of thyroid gland the gonads are also disturbed, in pregnancy the anterior part of the pituitary gland is augmented. One can, however, distinguish between a disease caused by a single gland and a disease of pluriglandular nature caused by simultaneous disorder of several glands.

In the case of Mongolism, described for the first time by Langdon-Down in England in 1867, there is much to be said for the theory of autotoxaemia. The face formation with epicanthic folds, the microcephaly, hyperbrachycephaly, and the arrest of growth indicate a retardation of development. It is scarcely necessary to mention the weak joints and the indented tongue. It is a well known fact that cases are often combined with other degeneration of thyrogonic and hypophyseogenic type. The simple type of convulsion in the brain signifies also a retardation in development. I could show in the formation of the cortical cells embryonic characteristics, but recently a degeneration of the third cortical stratum and also a species of malformation in the cerebellum has been described. I cannot endorse van der Scheer's theory that the cause of Mongolism is a hard constriction by the amnion. The exhaustion theory is deduced principally from the fact that usually the last child of a large family, and especially the children of an elderly mother, become Mongoloid.

But apart from histology the serology can also contribute to elucidation of the matter. In our laboratory Kafka firmly established the fact that the serum in most cases shows a weak but distinct "decomposition" reaction of the hypophysis. The white blood corpuscles are increased, especially the neutrophils and also the eosinophils, the rate of sedimentation is augmented, and the viscosity of plasma is decreased. Distinct syphilis reactions are absent, and a syphilitic origin, so often expressed, cannot be upheld.

The most important of all problems, however, in psychiatry is the pathogenesis of dementia praecox or schizophrenia, and the greatest problem in the treatment would be its cure or amelioration.

Doubtless there is a recessive heredity, certainly in 70 per cent of cases. There is also anatomical alteration in the brain, as manifested by Alzheimer, Rosenthal, Josephy, Klarfeld, and Fünfgeld. A transformation in the nervous cells is found in the third stratum, which is very liable to degenerate. The fifth stratum is also changed. Principally an atrophy of nervous cells can be demonstrated, the chromatin disappears, the cell is cloudy, the basic substance shows a wavy design, the nucleus is changed, and its membrane becomes thinner. The sixth stratum shows some swelling in the nervous cells. Von

Monakow claimed to have found changes in the choroid plexus.

The disease is independent of exterior influences, such as psychical and physical, also of exhaustion and head injury.

Several details indicate a relation to auto-toxaemia through internal glands. It is important that doubtlessly some women become ill first or after a remission during pregnancy or childbirth or in lactation.

The contention of Mott and Prudon Such is not generally admitted, that spermatogenesis ceases and that the Leydig cells degenerate with pigment formation, while the sexual organs in females are small and infantile.

Rudolf Allers emphasizes the initial fall and later increase of the bodily weight. Corpulence in the chronic stage is often a sign of ill omen. Secretion of saliva and perspiration fluctuate. The temperature is sometimes subnormal, especially in stupor.

The establishment of the internal secretory degeneration according to Abderhalden is held in doubt, but in my opinion is extremely important. One must consider the somewhat difficult method of dialysation, the refractometric research according to Pregl, the interferometric research according to Hirschl, and the basal metabolism.

The method of Abderhalden, first recommended by Fauser, and very much employed in our clinic by Kafka, shows in the actual dementia praecox degeneration of the cerebral cortex, of the sexual glands, and often of the thyroid and pituitary. The blood shows normal coagulation. Antitrypsin is somewhat augmented, cholesterol is fairly high (0.3 to 0.5 per cent, as compared with 0.13 to 0.2 per cent in normal cases).

According to W. Schmidt the physiological augmentation of blood pressure through adrenaline is absent in catatonnia and hebephrenia. In many cases no dilatation of the pupil occurs on instillation of adrenaline.

As S. Fischer proved, the specific dynamic albumin effect falls in initial dementia praecox, and later the basal metabolic rate. It is also probable that during convalescence, so long as there are psychical symptoms or disorders of metabolism, especially obesity, first the specific dynamic albumin effect becomes normal and afterwards the basal metabolic rate. In cases of complete recovery both are normal.

The secretion of organic matter in the urine is often diminished. According to Rosenfeld there is a retention of nitrogen to as much as 2 grams a day. Strübing found the secretion of nitrogen less in cases of stupor. Pighini contends that a decomposition of albumin and negative balance of metabolism occurs in the acute stage, but retention of nitrogen in the chronic stage, also he described an increased excretion of sulphur in acute stages, the synthesis of urea is apparently diminished.

According to Strübing the secretion of phosphoric acid is lessened in stupor. Corvict found considerable indican in the urine in cases of stupor.

Some authors describe glycosuria. Riveno found acetone in 3 of 10 paranoids. Albumin in the urine is found principally in stupor. The function of the kidneys appears slower in the secretion of methylene blue.

According to Pighini the metabolism of salts in the urine is lower, while Lowy describes an increase in the colloids.

Recently Kafka succeeded in demonstrating that a pathological albumin can be found in the cerebro-spinal fluid of dementia praecox less than in general paralysis, but distinctly more than in normal cases. It is an increase of the total albumin of the globulin and the albumin. The albumin quotient is similar to the normal.

Many details, however, are not yet sufficiently confirmed. Some of these refer to changes of secondary importance. It is, however, certain that auto-toxaemia and auto-intoxication are very important in schizophrenia, but do not form the only basis.

Doubtless we are ignorant regarding the relation of cerebral co-operation with the total organism, more especially the disorders of isotonnia, isothermia, and isotonnia too little known. We are, therefore, only able to form a very incomplete idea of the nature of schizophrenia.

The first condition is the inherited quality of the brain. We must certainly reckon also with an hereditary quality of the glands of internal secretion.

If a disorder of metabolism, principally of the internal secretions, affects an abnormally inclined brain, the condition which we term schizophrenia is present. This can be relieved or may become chronic, according to the lesion of the brain.

Of quite a different character are the basic conditions of cyclothymia or manic depressive psychoses. This disease occurs in persons liable to attacks of opposing symptoms—now of exaltation, now of depression, then of excitement or of retardation, then in flight of ideas or in mental slowness. It is much rarer than schizophrenia. Perhaps the most interesting cases are those which pass off in a slighter degree, do not require treatment in institutions, and sometimes reveal themselves temperamentally.

The hereditary factor is here very important, and can be traced in 90 per cent of the cases.

There is no question in this condition of an anatomical basis either macroscopical or microscopical, although occasionally small foci are found in the brain.

There are some interesting physical symptoms. In the mania the bodily state appears excellent, the patients look much younger, and show a "turgor vitalis."

Williams declared that the temperature in mania is increased, and in depression decreased. Toulouse and Marchand reported in mania 0.6 degree increase at night and 0.2 degree in the morning. Other authorities deny this, including Piltz. The pulse in mania is more rapid, in depression slower. The sphygmogram shows in mania steep curves in depression a slow ascent and flat curves. The blood pressure in mania is low, 110 to 120 mm Hg, sometimes even less, to 60, in depression it is somewhat higher, 130 up to 170 mm.

The blood contains in mania less haemoglobin and fewer red blood corpuscles. Macphail states that the haemoglobin content runs parallel with the weight of the body. Antitrypsin and cholesterol are normal. Any "decomposition" of internal secretion, according to Abderhalden, is not traceable. The respiration rate is quicker in mania, but slower in depression.

According to Pini the amylolytic effect of the saliva is augmented in mental excitement. In depression the flow of saliva is reduced, sometimes an offensive odour from the mouth is noticeable. In mania the appetite and thirst are active, sometimes even to voracity; in depression there is loss of appetite to refusal of food. In grave depression the free hydrochloric acid in the stomach is reduced. The basal metabolism appears normal (according to Bornstein). The urine may be augmented in mania up to six times, of a low specific gravity (1001). More uric acid and xanthin is secreted, less phosphoric acid. In depression uric acid and phosphates are less. In mania glycosuria has been found sometimes. Acetonuria in depression is caused by disordered digestion.

Metabolic disorders are generally very slight, and can only be explained as secondary symptoms, digestive troubles especially are caused by depression. It is possible in cyclothymia to find some relation to endocrine processes, but much more seldom than in schizophrenia. There are relations to Graves's disease, in myxoedema states of retardation with depression exist. Vagotomy is not distinct.

In rare cases I have met with a combination of cyclothymia and acromegaly. One can observe the pyknic habitus in real manic patients: the broad face, short neck, deeply vaulted chest, fat abdomen, and somewhat short extremities.

Sometimes manic-depressive disorders appear only as a symptom of illness from other cause, in syphilis of nervous system in old age, in brain alteration, but in my opinion we cannot attribute great importance to auto-toxaemia in cyclothymia. Generally speaking, it is an instability of affective mind caused by heredity, and connected with vasomotor fluctuations.

Auto-toxaemia is of the greatest importance in epilepsy, although this is not a disease in a strict sense, but actually a disposition to reactions which show the different limitations of the consciousness, and, as the most conspicuous syndrome, the classical fit. The difference between true and symptomatic epilepsy is absolute. True epilepsy is applicable to those cases which cannot be otherwise

explained. It would be better to term it cryptogenetic epilepsy.

Very different are the forms in symptomatic epilepsy, as, for example, innate brain disorder with microcephaly, quite peculiar is tuberose sclerosis and the heredito-degenerative processes—pseudo-sclerosis, myoclonus, etc. Further lesions are due to trauma, parasites, and abscesses, syphilis is important, as also are tuberculous acid and encephalitis. Important, too, is the group of infantile paralysis. There also occur pre-senile gliosis and multiple sclerosis, and troubles of disarticulation by embolus, thrombosis, end arteritis, and aneurysm, finally, through poisons such as alcohol, absinthe, lead, cocaine, and camphor.

So-called secondary epileptic fits occur in uraemia, eclampsia in childhood, etc. We must not forget that in cases of true epilepsy it is possible to find certain alterations of brain through careful research. Alzheimer found gliosis of the cerebral cortex in some cases, and, according to Chassin, alterations in the cornu ammonis occurred in 60 per cent of cases. Spielmeyer found a condition approaching leptomeningitis and arachnitis, and also alterations in the circulation and pressure of the cerebro-spinal fluid, sometimes also heterotopias and horizontal cells, according to Cajal.

Certainly heredity is an effective factor—often alcoholism in the father—whereby cerebral resistance is weakened. Before the actual fit the blood vessels are contracted, as Olfried Forster maintains, the brain is anaemic and smaller in volume. The cerebro-spinal fluid pressure is low, according to Cobb and Macdonald in experiments on animals.

Then a very strong stasis of the veins follows the fit, the surface of the brain becomes blue-violet, and the volume of the brain and the cerebro-spinal fluid pressure are both increased.

According to de Cimus the quantity of the urine declines before the fit. Retention of nitrogen in the form of circulating albumin follows, and also increase of the acid elements soluble in ether, sometimes also of the uric acid, and increase of the antitryptic qualities. The basal metabolism points to oxidation processes.

After the fit the quantity of urine is increased, as also are the acidity, the uric acid, the ammonia, and the total nitrogen, also creatinine, amino nitrogen, phosphoric acid, and organically fixed phosphorus.

Noticeable, too, is the appearance of lactic acid, acetone, albumin, urine casts, and diazo reaction. In the blood there is an increase in the residual nitrogen and in antitrypsin, and there is a trace of lactic acid. These alterations appear in consequence of a lack of oxygen and superfluity of carbonic acid in consequence of increased muscular effort. The antitryptic qualities of the blood are enhanced. The secretion of gastric hydrochloric acid is diminished. The most important is retention of the nitrogen, which does not build up the body albumin, but represents albumin in circulation.

The epileptic shows a decreased production of carbonic acid between the fits. Before a fit the oxidation is completely retarded, and after a succession of fits the production of carbonic acid is again somewhat increased.

In the importation of albumin the metabolism of gas is reduced in consequence of retarded oxidation before a fit. The production of carbonic acid is reduced, as the combustion is not extended to the final products. The metabolism of fat shows only slight deflection.

The specific dynamic albumin effect is slighter than with healthy persons. According to Allers the most important fact is that the retention of nitrogen is caused by the augmented circulation of albumin. The ability to form carbonic acid is diminished in epilepsy. Before a fit the albumin is incompletely oxidized, afterwards it is replaced in higher degree. Toxic products of metabolism in consequence of incomplete oxidation before the fit are secreted through the kidney. Normally the central nervous system maintains the equilibrium between acids and bases, this regulation is disturbed in epilepsy. The fit seeks to establish a balance. It alters the metabolism, the exchange of albumin is increased, the white blood corpuscles are diminished, and the toxicity of the urine is intensified.

The irritants by which an attack is induced are different in nature. By far the strongest is faradization of cortex

cerebri, further mechanical, chemical, or toxic irritants can net in the same manner

Some factors precipitate convulsions—as, for instance, pressure on the carotids, blows on the skull, lumbar infiltration of air, and sometimes lumbar puncture, also sensory irritants, such as pressure on peripheral scars, operative irritants, worms, and affects, especially shock with angiospastic effects

The liability of the brain to convulsions is augmented by certain secretions. Of these the secretions of the suprarenal gland, of persistent thymus, of the corpus luteum, perhaps even the epiphysis cerebri, increase excitability, on the other hand, the parathyroid glands, the sexual glands, the pituitary, and perhaps the pancreas decrease the tendency to convulsion. The thyroid gland is ambivalent. It is probable that the glands influence the proportion of potassium ions and calcium ions

It is important that in epilepsy we can also show in the blood serum the "decomposition" of internal secreting glands, especially the thyroid gland, also to some extent the sexual gland and also the suprarenal gland. These reactions are generally less intensive than in schizophrenia, but they are often important in the differential diagnosis from hysteria

I would mention that the removal of a suprarenal gland by operation has absolutely no effect on recovery. However, many factors can predispose the brain to convulsions, different irritants, among these also auto-toxaemia, can prepare the latent convulsion until finally the convulsion appears by summation or by the addition of a new irritant

The influence of the liver in mental disorder is still somewhat uncertain. Most probably it is a factor in Wilson's disease—progressive lenticular degeneration. The tissue of these centres in the brain is disintegrated with formation of granular cells, but the process also occurs in the cortex cerebri. According to Alzheimer the giant glial cells may sometimes be found, further, a nodular cirrhosis of the liver is present. According to Hall there is an innate inferiority of the liver and the brain. The differential diagnosis as compared with other diseases of the extra pyramidal system is not exact

Kirschbaum examined the central nervous system in three cases of acute yellow atrophy of the liver, and found degeneration in the corpus striatum and in the pallidum, and also in the cortex cerebri. In experiments on animals in our clinic he also found that with elimination of the liver no serious damage in the corpus striatum and in the pallidum occurred

Formerly great importance was attached to bodily exhaustion as an initial cause of mental disease. A number of disorders were classified as exhaustion psychoses, such as amnesia and mania delirium. Cases of shipwrecked persons, exposed for a long period to hunger, were described as being delirious. But here probably also psychical causes were at work, principally fear and desperation. Sometimes a mental disorder could be observed as early as the second day

In speaking of exhaustion we must distinguish between bodily exhaustion (fatigue) and lack of sleep and lack of nourishment. Bodily strain has a more harmful effect on the heart than on the nervous system. Lack of sleep can, of course, cause disorders in a normal mind. Proportionally small is the influence of hunger. I have made experiments myself and established that three days without nourishment caused only a very slight lapse of memory and of the association of ideas, whereas perception is well preserved. On the other hand the mental qualities declined very quickly during a sleepless night

Also the brain of animals killed by hunger experiments is much less affected than the brain of those dying from lack of sleep. The war furnished a gigantic experiment in respect of exhaustion, also of opportunities of observing the influence of hunger on insane persons, but the result was negative. A paranoid woman, five and a half feet in height, decreased in weight by as much as 24 kg. or 53 lb., without any alteration in the mental condition. Thus exhaustion only has a very slight influence in causation of insanity, and least of all lack of food

Our summary shows that in psychoses an extraordinary

quantity of biological and chemical changes occur which can be explained by auto-toxaemia. In part these are secondary symptoms of illness due to other causes, as in the case of general paralysis

In part, however, these disorders must be attributed to causal factors. The cause of a psychosis is not so simple as a chemical reaction. In general, it is a question of a collection of factors. Primarily an innate disposition, especially both in the central nervous system as well as in the vegetative nervous system and in the system of endocrine glands. This is so in cases of idiosyncrasy and feeble-mindedness with disorder of the glands, as well as largely in dementia praecox, but if these conditions are present they are often succeeded by external and internal irritants as in epilepsy

An important question is: Can the treatment utilize this point of view? In some ways this has already been done. Most successful are cases of myxoedema and cretinism. These diseases will soon disappear altogether but in this the prophylaxis of endemic cretinism will contribute by the purification of water and the application of small quantities of iodine

Results are possible in pituitary disorder by treatment with x rays, and more by radium and by operation, but sometimes also in diminished function of the glandular part by the administration of organic substances, such as fresh animal glands, prepared glands, or glandular extracts. A number of other "organic" treatments are more important in neurological cases than in psychiatry. Also opportunity of treatment is offered in cases of epilepsy

Unfortunately the fever treatment with malaria and relapsing fever, which we also employed in our clinic in cases of dementia praecox, epilepsy, multiple sclerosis, etc. has not as yet had positive successes. Also other treatments of dementia praecox with organic substances and blood transfusion yielded no result

To be sure Wolfgang and von Wieser of Vienna report successes in disorders of the internal secretion by x ray treatment. First, the ferment reactions of Abderhalden and the basal metabolism must be specified, whereupon irradiation of the endocrine glands with x rays follows. Wieser has already treated 98 cases of idiosyncrasy, including Mongolism, and in 94 cases the clinical condition and the quality of serum were improved. Besides these numerous other disorders of psychical, neurological, and endocrine character were treated. The reports thereon are certainly worth following up

Both diagnosis as well as therapeutics demand that the research of the auto-toxaemic influences in psychoses is to be regarded as one of the most important tasks in psychiatry

VISUAL EFFICIENCY AND WORKING ABILITY

BY

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It would perhaps have been more in consonance with the subject and with the contents of the following contribution had the title of the discussion been "Visual inefficiency and working ability," for the burden of my story is that much work can be done by persons who suffer from very defective eyesight

Advancing years, if they have not brought wisdom, have perhaps brought a certain amount of caution. At any rate, I had much rather sit and listen to people nowadays than air my own opinions, still, I think I am not wrong in saying that the origin of this discussion was a communication which I read to the Royal Philosophical Society of Glasgow on October 19th, 1927. In that communication I advanced my reasons for holding that for most forms of manual work visual acuteness, in the strict sense of the term, is scarcely required at all. That paper, by the courtesy of the late Sir Dawson Williams, whose death I much deplore, for I knew him intimately for forty years,

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Our textbooks have a good deal to say about foveal, or perhaps I should say macular, vision, that form of vision which I shall hereafter call visual acuteness, and by which ordinary types used in printing are recognized, and reading and writing made possible. This function of visual acuteness is specially prominent in one part of the field of vision, and I incline to restrict the term visual acuteness—Dor's diagram notwithstanding—to macular vision. The field of visual acuteness has not yet been accurately measured. I have made some attempts to measure it by two different methods, but there are many sources of fallacy, and results can only be taken as approximately correct. It may, with tolerable certainty, be said that the field of visual acuteness, or if you like the phrase better, macular vision, does not exceed two degrees in the total field of vision. So far as my observations go it is not circular or oval, but rather larger from side to side, than from above downwards. A recent experiment may here be noted. I found that at a distance of 120 inches from a set of Snellen's ordinary test types I could not distinguish even the large π at the top of the scale at a greater angular aperture than eight or ten degrees. By that I mean that the line between the π and the nodal point of my eye made with the line between the point of fixation and the nodal point an angle of eight or ten degrees. With a greater angular aperture I could see the black and white, but could not have told that it was the letter π . People, if they like, are entitled to call that visual acuteness, but it is widely different from the special function of macular vision. With enormously greater angular aperture I could still see objects in the room quite distinctly, and could have avoided them had I been in motion. The binocular field of vision in the horizontal meridian extends to about 184 degrees, to use nautical language, it extends from about 2 degrees abaft the starboard beam right round to about 2 degrees abaft the port beam, and in the whole of that excursion the macular vision, if any point in the arc be made a point of fixation, is not greater than two degrees in eumetropia.

In myopia, say of four dioptres, the far point of macular vision is approximately at ten inches, or twenty-five centimetres. Beyond that there is practically no field of visual acuteness for such an eye, in the strict sense of the term. Now I have again and again recorded cases of persons with very high myopia who suffered no inconvenience therefore in their work. Thus I have on several occasions given accurate details of colliers with high amounts of myopia, who had no difficulty in making as much money as the best sighted collier could, and what is true of coal-mining is true of almost every other form of manual work. To return once more, and briefly, to the field of vision, outside of the macular field objects can be seen almost to the extreme of the peripheral field. The details, no doubt, cannot be made out, but if the eye be healthy, objects are not only distinguished, but it is possible to estimate their positions relatively to each other. One essential in the peripheral location of objects is the sense of projection, and another very important feature is the subconscious estimation of distance. The first no doubt depends upon such factors as the light sense and the colour sense. Objects in nature stimulate the parts of the retina on which their images are formed differently, according to their luminosity and their inherent colour, or lack of colour, and their shape. I have always felt that the light sense is not nearly so much studied as it should be, and in modern times that neglect is all the more unjustifiable, for we have now many good photometers which are of easy application. In macular vision the intuitive estimation of distance, or what I may, without raising an argument, call the subconscious estimation of distance, is a very important factor, to a considerable extent it supplies the place of stereoscopic vision. One of the best artists that we had in Glasgow during the last half century was a gentleman who all his life enjoyed the use of only one eye, the other from his early childhood being quite blind, and yet so far as perspective was concerned his pictures did not show any defects. He was a draughtsman of the first order, and his drawing was always correct. The

factors that determine the subconscious estimation of distance are very numerous. Here I can only mention a few. In binocular vision the most important is the function of convergence—the nearer the object is the greater the amount of convergence required. That important factor, however, is not available to persons who have only one eye, like my artist friend. There are at least three factors which in these circumstances come to be of service—namely, the size of the retinal image, the amount of accommodation used for fixation, and the parallax. A very important factor is the subconscious mental checking of the physical data. Where a person is seen at a great distance along a high way the retinal image is much smaller than if the same man were seen near at hand. The observer knows quite well that the height is the same and that the man, as he approaches, has not for some obscure reason become larger. On somewhat similar lines the distance of objects is to a considerable extent determined by the comparison of the object under observation with other objects in the same neighbourhood whose sizes are approximately known to the observer, that is a matter of education, or at any rate of experience in life.

Another very important feature in the estimation of distances, and in determining the relative position of objects, is parallax. If there are two objects and one is seen to move in front of the other, then it is obvious that the object which so moves is nearer than the other. Similarly, when an observer changes his position he may see an apparent movement in the objects surrounding him.

When binocular vision is absent, and when there is no impulse of convergence, then to a very considerable extent its place is supplied by the following factors: differences in light and shade and probably in colour tone; apparent size of objects and the intuitive comparison with objects the sizes of which are approximately known.

To my way of thinking—I speak with deference to the presence of so many colleagues whom I regard as more authoritative than myself—the macula has both visual acuteness in the restricted sense in which I use that term, and field vision. The special function of macular vision seems never to be called in except as a volitional act. As a man walks along a street the images of various objects, such as signboards and posters and other things, are formed on the macula, yet he never appears to see them except volitionally. A person may stand before a large bookcase filled with books, the images of some of the titles must be formed on his macula, and yet that fact does not give rise to consciousness, it is only when he begins by a volitional act to examine the labels that he becomes acquainted with the contents of the case.

The sense of projection, or, in other words, the power of locating various objects in their proper positions, is alike common to binocular and to monocular vision. To illustrate that point, I put two coins on a table, one immediately in front of me and the other considerably to the side, and with both eyes open I look steadily at the one immediately before me while doing so I have no difficulty whatever in striking the other one with my hand, or, if the distance be too great for my arm to reach, with a stick held in the hand. If the experiment be repeated with one eye shut it is not found more difficult to strike the coin which is peripherally situated.

Now to give a few practical examples in confirmation of the preceding remarks. The first condition to which I shall call attention is the one already mentioned—namely, myopia. A man with ten dioptres of myopia does not require to bring his eyes to four inches from a tramcar before he sees it, nor does he require to put his eyes to four inches from the step of the vehicle before he mounts into it. His peripheral vision enables him to distinguish the car and to get into it, if he so desire, like any ordinary mortal. His peripheral vision enables him to walk along a street without jostling his fellow men. He can tell the colour of a car at a considerable distance, and for the most part can also tell the colour of a light. It is only when he comes to read such things as the names of streets or the direction boards on cars that he fails. I have elsewhere mentioned the case of a man who is blind of one eye and who has several dioptres of myopia in the remaining eye, and who yet has driven his own motor car

for many years without coming into collision with any object so also a person with a moderate amount of myopia can make out land or other ships nearly as well as an emmetrope. In the communication which I made to the Royal Philosophical Society in Glasgow I narrated that when I made my eyes artificially myopic by putting a spherical +3 in front of my correction I could, on a night when there was no moon but starlight, quite well make out islands eight miles away from the place where I was standing. On the other hand, in daylight, in the same circumstances, that is, with an artificial myopia of approximately three dioptres, I could not see a rowing-boat at a distance of a mile. There is, however, an important factor to be taken into consideration and it is that the interpretation of retinal images probably differs very much in those who have made themselves artificially myopic from what it does in the case of persons who, having been myopic from their earliest days, have been interpreting defective images formed on the retina all their lives. Interpretation is not a physical process, it is mental. It is the mental process by which the individual interprets the effects of physical stimuli. No mechanistic theory is at all adequate to explain the facts of vision sufficiently. The mind determines the function rather than the function the mind.

Here I may mention another very important group of cases well typified by one of my friends who is very amblyopic in one eye, for in early life he suffered from concomitant convergent squint. He is a medical practitioner and is a great deal in his motor car. He drives about his district without any trouble, notwithstanding his amblyopia and the high degree of refraction error which he has in each eye. No railway company would for a moment employ this man yet he has no difficulty in driving his motor car and none so far as sight is concerned, in his work as a general practitioner. One question has often occurred to me in connexion with squint amblyopia—namely, is the periphery of the squinting eye available for stereoscopic vision? If the angle of squint is a constant and the image of a distant object is focused on the macula of the non squinting eye, then the image of the object will always be focused on the same point of the squinting eye and so for every other point of space. Does this, then, supply the convergence factor in the subconscious estimation of distance? I hardly think that it does, for about 1906 I called attention to the value of plastograms in the detection of amblyopia of one eye. When the coloured objects are viewed through the coloured glasses and the observer's head is moved slowly from side to side, the objects in view are seen also to move if neither eye suffers from amblyopia, but there is no movement if one is amblyopic. Now I have found that a squinter with any considerable amount of amblyopia never sees any movement. In such cases the convergence element apparently must be eliminated, and yet there are many persons with only one good eye engaged in all the ordinary occupations of life, much to the benefit of themselves and of the country. For some years back I have been noting cases of defective sight and the work which some defective sighted men can accomplish.

Another matter has claimed my attention—namely, the fact that many men who have sufficient sight for their work are thrown out of employment because someone has discovered a trivial defect which has not interfered with the person's working power, but which has caused the insurance companies to refuse to accept any risk no matter how slight. Many persons are said to be on the dole because of laziness, and that seems to be perfectly true but a number of people, by no means loafers, are on the dole because they have some trifling defect, very often of little moment, which the insurance companies regard as a risk that they will not accept. To a considerable extent the dole is the necessary corollary of the Workmen's Compensation Act. A man may be quite able to work, and may be more than willing to work, and yet for some trivial condition be prevented from doing so by this Act. The time is not far distant when, before an employer allows a man to enter his service, he will require to be thoroughly examined and if any defect is found he will be rejected. It is difficult, but probably not impossible, to devise some scheme

by which a man, if found defective, might be employed without the employer running any risk, at any rate on account of accident due to that defect. The more obstacles that are placed between an employer and a workman, the greater will be the number of men kept out of work, eked out in dire poverty what might have been a useful and comfortable life.

Under the auspices of the Corporation of Glasgow, some years ago I inspected a large number of blind persons as to the causation of their blindness and in addition to that I took careful note of the occupations of each person seen. A good number of them, although defective in sight, were able for a fair amount of work. I came across two cases of persons who were almost blind, and still able to get about the streets of Glasgow and do their work as street lamp lighters. Nobody at present would think of starting a man with defective sight in any such employment. One of the two told me that he was giving up his work because the motor traffic in Glasgow made the streets very dangerous for him. He had less difficulty at night than in broad daylight, because he could distinguish lights much more easily than he could distinguish objects.

Perhaps I cannot conclude this somewhat discursive paper better than by giving a few more instances of persons afflicted with defective sight and still doing a great amount of work.

J A., aged 27 seen at the Blind Clinic. This patient has full, 20 dioptres of myopia yet he has enlisted for the war and actually served abroad. He was after his discharge from the army engaged as a coal trimmer in a steamer and worked as such for some years. Now with 20 dioptres of myopia the far point is about two inches from his eyes notwithstanding that fact he found no difficulty in shovelling coal.

J B. Lost the left eye during the war when seen his right eye was found to be highly myopic and yet for years he was engaged as a railway hauler in a shipyard.

P D. aged 51. In this case the left eye was enucleated when the patient was a few months old. In the right eye the vision is 1/36 this is one of the cases to which I already referred. He has been working as a street lamp lighter for a considerable number of years and is still constantly engaged in that occupation.

J C. aged 36. When she was a young girl I operated on both eyes of this patient for congenital cataract. She has first rate field vision but although each pupil is thoroughly clear and good and the fundus of each eye is healthy, she does not possess that function to which I gave the name of visual netlessness.

J P. aged 25. Employed by Glasgow and West of Scotland Mission to Outdoor Blind. The left eye has been enucleated. In the right eye he has a certain degree of microphthalmia with nystagmus almost certainly congenital. At the time of the examination he was wearing sph. -13 D. but with that lens he did not admit 5/60. Without any glass he is able to read J 6 at about one inch from his eye. On dilating the pupil of the remaining eye the lens is found to be slightly dislocated yet he says that he is able to walk about quite freely and is even able to cycle. He does not in moving about require the assistance of a guide.

H O R. aged 43. Has worked as a miner since he was 12 years of age and has had no difficulty in making good pay. There are about 15 dioptres of myopia in each eye complicated with three dioptres of astigmatism. Each eye showed pathological changes yet this man was able to work quite successfully till he was attacked by miners' nystagmus.

E S. aged 60. Left eye is as a result of injury received twenty years ago completely blind. Notwithstanding his monocular condition he has worked with a circular saw for twenty years.

W S. age not noted. Left eye is divergent and is nearly blind. This condition has been present for many years but he was able to earn his living by pumping air into a diving bell for several years. In coming from Greenock to Glasgow he did not require the services of a guide. He was put out of work because his employers or their insurance company were afraid of accident on account of defective vision.

G F. Age not noted, but an elderly man. Incipient cataract in each eye vision 3/9 in each. This man is able to continue his work as a blacksmith.

G W. aged 18. Has 50 dioptres of hypermetropia in each eye. He was not allowed to wear his correction in the shipyard in which he was employed and was dismissed on account of defective eyesight and now in spite of efforts made to get into some form of work he is on the unemployed list.

The cases which I have mentioned could be added to indefinitely from the large amount of clinical material which I have collected in past years. One conclusion seems to me legitimate—namely, that while Snellius's letters enable us to form an estimate he it said only a very rough estimate of what a man may do with visual acuteness, there is no method of estimating, even in the roughest manner, the value of field vision. Macular vision seems to me to differ so widely from field vision that I cannot regard

them as forming a continuous function. Correction of errors of refraction is essential for macular vision, within wide limits such correction is not necessary for field vision.

The questions which have been raised seem to me to be of great importance, not merely from the ophthalmic, but also from the economic point of view. The whole subject requires a much more extensive investigation than it has yet received, and I am specially glad that the gentlemen who are to follow me are very authoritative in such matters.

It may interest the meeting to know that in the eighties of last century I wrote a note to the vice-chairman of the Glasgow School Board to urge that the eyes of all the children under the care of the board should be carefully tested. He replied that neither he nor his colleagues saw any necessity for any such step being taken. Now for centuries before eye-testing became an accurate process many people did a great deal of fine work, and no doubt in these days there was the usual proportion of emmetropic, hypermetropic, myopic, and astigmatic people.

Refractive errors must be carefully corrected for work requiring visual acuteness, but to a great extent such correction is not necessary for field vision. I had no correction till I was five-and-twenty and had possessed myself of a medical degree. I well remember the intense misery of all efforts of reading and writing, for such efforts always brought on frontal headache, and that severely. Field vision, however, caused me no trouble, even although my errors were considerable—namely, in each eye a hypermetropic astigmatism of 1.5 dioptres against the rule and a hypermetropic spherical element as well.

We owe the tests for visual acuteness now in use to Professor Snellen of Utrecht. His tests are all but universally used in all countries, and thus a standard has been fixed which is both convenient and reliable, although, of course, not absolute. Snellen's types, as we all know, consist of ordinary alphabetical letters varying in size with the distance at which they should be read by the normal healthy eye, each letter subtending for the distance at which it should be read an angle of five minutes.

A considerable number of years ago Landolt substituted his broken ring test for letters. It is perhaps a more severe test than that devised by Snellen, and is one on which those who use it place great reliance. The circles in Landolt's rings are also based on the five-minute calculation, but unfortunately, as originally published by Landolt, there is only one ring for each size. That this is not altogether suitable is obvious. It may happen that the opening in the ring corresponds with a meridian that is approximately emmetropic and thus indicate a better visual acuteness than the eye really has. It is quite possible to have the break in the ring clearly seen although there is a good deal of astigmatism. Within recent years a set of types consisting of broken rings has been prepared for the Egyptian Government. For the most part there are several circles for each size, but the break in the ring as printed is either straight up or straight down, or directly to the right or directly to the left. In the official set of types which I possess the circles show defects if these defects involve the vertical or horizontal meridians of the cornea, but may not do so if the meridians of greatest and of least refraction are oblique and not vertical and horizontal. For these reasons I have prepared a series of rings, one of each size, but each ring is capable of being turned by a screw at the back of the apparatus round its own centre.

In testing, supposing the patient at six metres sees the break in the ring corresponding to 6/18, he is asked to look at it as it is turned and to say if the break disappears or if it is quite distinct all the way round. If its distinctness remains then the patient should be put through the same test with the ring corresponding to 6/12. If the break is not seen at all with the circle corresponding to 6/18 then the circle corresponding to 6/24 should be used, and so on.

The head of the patient who is being examined should be held in the same position all through, for an oblique position of the head may easily give an oblique refraction, and that to the extent of masking an astigmatism.

As a means of detecting the presence or absence of an astigmatism, the rotating discs seem to me to be of considerable service, and they are also a help in detecting roughly the meridians of maximum and minimum refraction. They may even be of some use, if carefully handled in the measurement of astigmatism, but for that purpose they are not equal to the fan which we also owe to Snellen, and which is, so far as I can form an opinion, simply invaluable in the correction of an astigmatism.

A British Medical Association Lecture

ON

THE MEDICAL TREATMENT OF GASTRIC AND DUODENAL ULCERATION

DELIVERED TO THE SOUTH-EASTERN OF IRELAND BRANCH OF THE ASSOCIATION AT KILKENNY*

BY

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BEFORE considering the medical treatment of gastric and duodenal ulceration as it is practised to-day it may be well to refer, first, to some of the essentials of the physiology of the stomach, and, secondly, to the little that is known of the causation of ulcer.

The mucous membrane of the stomach secretes a juice which contains two substances of importance—pepsin and hydrochloric acid. Pepsin is an enzyme which, acting only in an acid medium, digests proteins. In this respect it is important, but its action is not essential to adequate digestion of food, as digestion of proteins is effected in the intestine by the action of trypsin. The main action of hydrochloric acid is bactericidal, but it also activates the pepsin, and is necessary for the production of secretin. It is present ordinarily in strength of from 0.1 to 0.2 per cent. of the secretion, rarely exceeding the latter figure. In normal circumstances gastric juice is secreted when the appetite for food is roused, during the act of eating, and for a little time afterwards. During fasting, however, secretion is almost at a standstill, and the juice becomes nearly neutral in reaction. During digestion, according to MacLean, as the production of hydrochloric acid diminishes there is more and more secretion of neutral chlorides. It cannot be too strongly impressed on the mind that in no concentration of hydrochloric acid which has ever been observed in the stomach has it any digestive action. This is not to say that it may not have an irritative action on an unprotected surface. In health a small meal is completely out of the stomach in two hours, a large one in five or six.

CAUSATION OF ULCERS

When we come to consider what is known or thought of the origin of ulcer we find little certainty. It is not my intention to recount the various theories that have been put forward from time to time, but there is no doubt that if a portion of the mucous membrane of the stomach or of the duodenum close to the stomach, loses its self-protective power against the gastric juice it will be digested. All of us who have made *post mortem* examinations some hours after death are familiar with the considerable degree of digestion which has taken place. Not only is the mucous membrane digested, but not infrequently the muscle is also attacked, so that the contents of the stomach may be set free into the abdomen. In this case, soon after death the epithelium has lost its self-protective power, while the juice lying in the stomach has still peptic action, adequate to produce digestion of some of the tissues of the stomach. If we assume that, from some unknown cause during life—and the cause is unknown—a limited area of epithelium loses its protective power against pepsin, then ulceration of that area is likely to occur. It is noteworthy

* A few introductory paragraphs sketching the development of the treatment of gastric and duodenal ulceration during the past forty years have been omitted.

that the appearance of a gastric or duodenal ulcer is quite unlike that of an ulcer of the ileum or colon. In the latter situation severe inflammation and necrosis precede ulceration, in the former there is no evidence to suggest that there is any inflammation precedent to ulceration, and one never finds any necrotic material. It is noticeable that ulceration of this digestive type—now generally known as peptic—is never found in an area bathed in alkaline fluid. It only occurs in the stomach, in the duodenum (usually close to the pylorus), and occasionally in the jejunum when a gastro-enterostomy has been done and a part of the mucous membrane of the jejunum is exposed to the acid gastric juice. It is a striking fact that trypsin, an enzyme of much greater proteolytic power than pepsin, does not appear to have any capacity to produce ulceration in the intestine. Acidity is found, therefore, to be essential to the occurrence of peptic ulceration, although hydrochloric acid of itself, in any concentration that may be present, has certainly no digestive power.

There are few words in medicine which have been so over-worked as the term "hyperchlorhydria", and few hypothetical conditions which have been credited with so much active mischief. We know nothing of the relation of acid to the formation of ulcers. We can hardly say that we know anything of its power of preventing the healing of ulcers. But as a practical fact of observation we know that a persistent acidity of the gastric juice is a frequent accompaniment of ulceration, and that it is a frequent source of pain when ulcers are present. We want to note that it is the persistence of acidity of the juice, rather than excess of acidity, which is the important abnormality.

MODERN TREATMENT

Professor Faber of Copenhagen, in a recent paper, has put forward the view that acid dyspepsia, gastritis, and gastric ulcer are three closely allied conditions, if not indeed, different phases of the same condition. Whether this be true or not, the practical fact emerges in treatment that if we succeed in keeping the acidity of the gastric juice at a persistently low level or are able to keep the juice alkaline, gastric ulcer does not occur, and if it has already occurred healing takes place. The clearest proof of this has recently been given by Professor MacLean and his colleagues at University College, London. They have shown, with the help of x-rays, that complete healing of ulcers some of them of many years' standing, can be brought about by what they call the intensive alkaline treatment. This recovery takes place not only in acute cases but also in chronic.

Let us now face the actual problem of treating a case of gastric and duodenal ulcer on medical lines. It goes without saying that the details of the treatment will depend largely on the special features of the individual case. If there has been severe hæmorrhage one proceeds with great caution and very slowly. Of the treatment of hæmorrhage itself I will only say that morphine hypodermically and the administration of normal serum appear to furnish us with our best defence. After hæmorrhage one would hesitate for a couple of days to give anything but ice or cold water by the mouth. Thirst may be relieved by saline enemata, and, if necessary—though this is rarely requisite—nutritive enemata may be given. The old custom of treating severe cases by rectal feeding for a week or more has properly been abandoned. And, indeed, most of the substances formerly given in this way were not absorbed at all. It may be said in brief that salt, sugar, and alcohol are the only substances absorbable by the rectum which tend to maintain strength.

DIET IN THE ACUTE STAGE

Except in cases of hæmorrhage feeding by the mouth may begin from the first. Our guiding principle in regard to everything to be given by the mouth is simple—give food which does not stimulate the secretion of gastric juice or the movements of the stomach. The old methods of feeding still hold the field—we rely on milk and eggs. At first I am in the habit of giving milk or milk and cream and albumin water in alternate feeds at two hourly intervals. The quantity of either given at a time varies from two to four or five ounces, according to what the patient can comfortably take, and to the stage of the

disease. With fluid food of this simple kind, associated with the drug treatment presently to be described, and, of course, rest in bed, pain usually disappears in a few days.

As soon as the pain has disappeared, beaten-up eggs can be added to the diet—at first one, and soon two or three in the day. Food should still be given in small bulk and at intervals of not more than three hours (Lenhartz's treatment in its full rigour means over-feeding, as regards patients in this country at least, who are easily nauseated by a large number of eggs or by raw food). In the second week bread and butter and biscuits, such as crackers (which cannot be swallowed unless well chewed) may be added gradually. Also soft milk foods, such as blancmange and well boiled tapioca, and later, rice may be added. Acids, jellies, soups, and meat extracts are better avoided, as they tend to excite gastric secretion. In the third week light steamed fish and boiled chicken come into the diet. In the fourth week mutton and light meats generally can be taken, and thereafter the diet becomes very liberal.

GENERAL TREATMENT

In cases that have been severe the patient is kept in bed until the end of the fourth week, and return to normal activity is gradual. In duodenal ulcer one can usually proceed more rapidly as regards food than in gastric ulcer. During the whole course of treatment close attention to the condition of the bowels is required. Phenolphthalein is convenient and pleasant in the early stages and, in the later, olive oil, liquid paraffin, and agar jelly—that is to say, the lubricant aperients are better than the irritating. The mouth wants careful attention. In all cases where a patient is receiving only liquid or soft food careful toilet of the mouth by the nurse is required. A mild stimulant antiseptic mouth wash should be ordered and the nurse should cleanse the whole of the mouth with this several times a day. Over and above this, however, the condition of the teeth—or rather of the gums—is all-important. Caries has little effect on these conditions except in so far as it interferes with adequate mastication but pyorrhoea in any of its stages—and only its more severe stages show pus—probably has a direct action on the production and maintenance of ulceration. Whether this is produced by a direct carriage of septic material to the stomach in swallowing, or in some other way, we cannot say. Dental help must be obtained to have the teeth thoroughly cleaned, and further improvement will be obtained by regular massage of the gums and by the use of an autogenous streptococcal vaccine. When the patient is strong enough to stand the operation it may be necessary to have some of the more seriously affected teeth extracted.

DRUG TREATMENT

It remains to speak of the drugs that will help in treatment, and in regard to this the same principles apply both in the active stage and subsequently. For generations we have relied on what were vaguely called gastric sedatives—bismuth, soda hydrocyanic acid, and morphine in the early stages to relieve pain. These have been given on empirical grounds and there is every reason to believe that they were useful. It is, however, necessary for us to inquire in what way they are effective. Two conditions above all others tend to prevent healing of ulcers—active movements of the stomach and the presence of acid gastric juice. Whether the acidity itself is merely irritating, and likely therefore to cause active movement, or whether it is that the pepsin is kept active by a constant acidity we do not know, but we do know as a clinical fact that every measure which diminishes movements and acidity helps towards the healing of ulceration.

It will be seen that the whole of the treatment which I have been so far describing is based on these general principles. We have kept the patient in bed and we have been careful so far as we were able to give only such food as would excite neither movement nor secretion. In the matter of drugs we must proceed more actively. It is true that it is not always necessary to give anything intended to allay the movements of the stomach, for we refrain from giving anything exciting, and if we give food only in small quantities, then the gastric movements will be reduced to a minimum. As regards secretion the

matter is different. Remembering that pepsin can only act in an acid medium, and that hydrochloric acid may itself be directly irritating to an ulcer, we must endeavour to inhibit the activities of both these substances at one stroke—by rendering and maintaining the gastric juice alkaline.

Bread soda has been for generations a traditional remedy for all kinds of dyspepsia, including, no doubt, many cases of unrecognized ulceration. Sippy gave it a more definite position in the treatment of ulcerative conditions. But the mistake up till recently has been in giving alkali in such small doses as to be comparatively inefficient. MacLean states that small doses of alkali may only increase the acidity of the stomach by exerting an acid secretion. He holds that the alkali must be given in such quantities as to maintain a perpetually alkaline reaction in the gastric contents. In this attempt we have a choice of various substances. I have already mentioned bread soda. It has the advantage of being easily soluble and diffusible, but the corresponding disadvantage of being readily absorbable and therefore temporary in its action. More stable, and therefore more persistent in its action, is bismuth carbonate, which, however, has the drawback of being rather constipating. Intermediate between the two, and definitely laxative in action, is heavy magnesium carbonate. Sodium citrate is another convenient and pleasant form of administering alkali. There is no need to enumerate other alkalis. By a combination of two or three of these salts, varied according to the needs of the case, we can generally keep the gastric juice under control. I have been in the habit for some time of giving doses of 20 grains of sodium bicarbonate with 10 grains of heavy magnesium carbonate, and I have rarely found it too laxative. It is a definite advantage that it is laxative, as thereby the necessity of giving other aperients is avoided. MacLean recommends a combination of one part of sodium bicarbonate and two parts each of magnesium carbonate and bismuth oxy carbonate. In any case one may vary the combination of the drugs used according to the results they produce—(1) in the relief of symptoms, and (2) in their effect on the bowels.

Apart from the alkalis there are one or two other drugs which have a definite effect of diminishing the secretion of the stomach and its movements, belladonna being the most important. We can often do without it, but I have met cases in which alkalis did not give the desired relief from symptoms, and in which belladonna has been rapidly effective. It is only rarely that doses greater than 5 minims of the tincture three or four times a day have to be given, but 10 minims may be given for a brief period if thought necessary. A patient taking belladonna, however, should be kept under frequent observation, and should be warned of the first symptoms of poisoning, and ordered to stop it if they appear.

Oils and fat have a definite inhibitory effect on gastric secretion, but this effect is almost negligible unless they are taken on an empty stomach. A tablespoonful of olive oil, with or without 20 grains of heavy magnesium mixed up in it, taken midway between meals, will keep many people comfortable. In cases where olive oil cannot be taken, cream may be given, as it is almost as useful. The time at which medicine is administered is important, it is governed by the time of occurrence of pain and discomfort in relation to food. Some patients with gastric ulcer suffer from pain which comes on twenty minutes or half an hour after taking food, in such cases the medicine should be given within a few minutes of taking food. In other cases of gastric ulcer, and in nearly all cases of duodenal ulcer, the pain comes on later, often only when the stomach should be empty and when hunger should be reappearing. In these the medicine should be administered one to two hours after food—that is to say, a quarter of an hour or so before the period at which discomfort usually appears. Many people suffer from discomfort at night, and special precautions must be taken to prevent this. A fairly big dose of alkali should be taken as the last thing when going to bed. One or two more powders, with a convenient supply of water, should be within reach of the patient. If he awakens at all in the middle of the night then he should take one of the powders. On waking in the morning it is often necessary to take another.

WHAT TO AVOID

The negative treatment is as important as the positive. The patient must avoid all substances, whether as food or otherwise, which excite gastric secretion or gastric movement. We are now discussing not only his conduct during convalescence, but his rule of life for some time after the ulcer has been cured. While there is any discomfort at all alcohol must be strictly forbidden. Subsequently, only the lightest wines are to be taken, and in strict moderation. I have known several relapses following on the ingestion of little more than a liqueur glass of whisky taken neat. Spirits of all sorts must be abandoned. Wines with low acidity are less exciting than the more acid wines. Some people can take beer or stout without discomfort, but others cannot, and in any case the quantity taken should be of the smallest. Just as injurious as alcohol is tobacco. It has been for many years a clinical observation that tobacco smoking causes acid dyspepsia, and some writers hold that it is an important factor in the production of duodenal ulcer. Nicotine, although it ordinarily diminishes the appetite, increases not only salivary, but gastric secretion. No doubt this is followed by subsequent inhibition. As Dixon puts it, there is salivation during smoking and a dry mouth the following day, what holds of the saliva holds also of the gastric juice. But nicotine has a further action in that it increases the muscular movements of the stomach and bowel after a brief inhibition. People vary greatly in their reaction to tobacco. Some acquire a strong immunity to it, and show no digestive disturbances as the result of its use. Others are more sensitive and easily suffer from acidity, and from a return of the symptoms associated with ulceration. In such cases we must study the reaction of the patient to tobacco, but in all cases we must warn against immoderate smoking. Since nicotine is the only active principle of any importance in tobacco, it is curious that cigarette smoking appears to be more injurious to the stomach than pipe or cigar smoking. This is often explained as being due to the fact that inhalation is more frequently practised by cigarette smokers. But I have frequently seen severe discomfort induced by cigarettes in those who do not inhale. It is quite likely that the heavy cigarette smoker really absorbs more nicotine in a day than the pipe smoker, and, moreover, he is likely to smoke at more irregular and unsuitable times. Smoking does less harm if done immediately after a meal, and it should be altogether avoided when the stomach is empty.

DIET AFTER THE ACTIVE STAGE

Finally, we have to consider the diet to be observed for at least a year after symptoms have disappeared. In the first place we must continue our practice of giving food at frequent intervals, and the patient should never be allowed to remain with an empty stomach or to feel hungry. If it is difficult to arrange meals frequently enough he may carry a few biscuits in his pocket and break his fast therewith. As regards food, it is easier to enumerate the prohibitions than the permissions, for the diet allowed may be thoroughly liberal. The following classes of food should be definitely excluded:

- 1 All highly spiced foods, also condiments such as mustard and pepper in any quantity.
- 2 Acid foods, such as pickles or other food in vinegar, and acid fruits.
- 3 All foods which are likely to leave a solid residue persisting in the stomach. The worst of this class are raisins and currants, the skins of which lie long in the stomach, also such vegetables as lettuce, and green vegetables generally.
- 4 Very hard foods such as nuts.
- 5 Meat extracts and soups, which stimulate the secretion of gastric juice.
- 6 Very sweet food.

On the other hand, meat, both fat and lean, may be given in moderate quantity, cream and butter freely, bread and butter, toast, and biscuits in ordinary quantities. In most cases brown bread, rough biscuits, and porridge can be taken without harm, but the effects must be watched in each case. After gastric ulcer more caution is needed than after duodenal ulcer, and it may be necessary to give

softer food for some time. In every case individual care must be given and each food treated as an experiment. It is clear that the intelligent co-operation of the patient is of the utmost help, and he should be taught to observe with care the foods which cause him any inconvenience. At the end of two years from the cessation of symptoms treatment by medicines may cease and a greater freedom in diet be permitted.

Treatment along these lines gives satisfactory results in the great majority of cases. It is sometimes objected that the time of treatment is long. This is true, but, except for a period of from one to three months at the beginning, the patient is going about freely and is enjoying a liberal diet.

SURGERY

It may be asked whether surgery is no longer to play any part in the treatment of peptic ulceration. I do not think that we have yet arrived at so desirable a position. Apart from such acute emergencies as perforation, in which almost the whole chance of survival depends on speedy operation, such conditions as pyloric stenosis are only amenable to surgical aid (one must be careful, however, to be sure that there is pyloric stenosis, for many cases that appear to be such clear up admirably under medical treatment). Again, where there are adhesions causing pain and discomfort it may be necessary to operate, but, for uncomplicated ulcer, is operation necessary? I think the indications for operation will in future be social rather than clinico-pathological. An uneducated or unintelligent patient will neglect to follow the careful regime that is necessary for the success of medical treatment. A patient in poor circumstances will find himself unable to provide himself with what is required. In these cases I think surgery offers a better prospect. It is necessary, however, to say that if surgery is to get its best results operation must be followed by care nearly as meticulous as that required for purely medical treatment. It is not my object to put medicine and surgery in competition but rather to try to place before you a statement of what a patient may nowadays expect from medical treatment.

A STATISTICAL REVIEW OF GASTRIC AND DUODENAL ULCER

BY

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The purpose of this paper is to give the results of a statistical inquiry into cases of gastric and duodenal ulcers treated in Professor Walter K. Hunter's wards in the Royal Infirmary, Glasgow. The records of patients admitted to hospital in the decade 1913-22 have been examined and their after-histories followed up. This was done in 1927, so that the follow-up comprises histories of five to fifteen years' duration. The total number of cases considered is 214—96 male and 118 female. In a survey of this kind the difficulty which arises is one of diagnosis: the undoubted correctness of which is almost impossible to establish. The surgeon and pathologist alone can give us absolute confirmation. The physician deals with the clinical aspect, supplemented by x-ray examination and chemical analysis of the stomach contents after a test meal.

The cases taken in this review are those which have been considered clinically, radiologically, and chemically to be cases of chronic ulceration. The period of survey did not allow of fractional analysis being considered, as the older "wald test meal" method was then in use.

I have, on the whole, not attempted to differentiate duodenal and gastric ulcers, for I am of opinion that while this is possible in extreme cases, it is almost if not absolutely impossible in others. This view of the difficulty of differentiation is upheld when one studies the widely divergent statistics of the incidence of duodenal and gastric

ulcers as compiled by different clinicians and pathologists. Even the surgeon at times finds difficulty in deciding whether an ulcer is duodenal or gastric. His landmark is the pyloric vein, and, like all veins, this is not infrequently aberrant.

HOSPITAL INCIDENCE

The term "hospital incidence" has been used because in arriving at a percentage we have to bear in mind that we are dealing with patients from a very selected portion of the population, who are more or less considered to be seriously ill and are admitted to hospital wards. The incidence from such a source is necessarily high. In the following table of in-patients and out-patients this is made clear, although we must still remember that the incidence, as shown both by in-patients and out-patients, is that of a selected proportion of the population—namely, the working and poorer classes.

Table I gives the incidence with regard to patients admitted to the wards and that of patients attending my own out-patient department at the Royal Infirmary, Glasgow, during a period of five years—1919-24. The out-patients are included for comparison only, and none of these cases comes within the scope of this review. In all percentages estimated in this paper the figure is taken to the nearest whole number in order to simplify comparison.

TABLE I

Sex.	Total Patients	Gastro-duodenal Illnesses		Duodenal Ulcers		Gastric Ulcers		Gastro-duodenal Case other than Ulcer	
		No	Per cent	No	Per cent	No	Per cent	No	Per cent
IN-PATIENTS									
Male	2,507	235	9	65	3	31	1	139	5
Female	2,374	330	14	56	2	62	3	212	9
OUT-PATIENTS									
Male	3,270	312	10	33	1	16	0.5	263	8
Female	5,759	625	11	21	0.4	98	2	503	9

If we analyse the above table it is seen that there is very little percentage difference in ward and out-patient department cases showing gastro-duodenal illnesses, but there is a marked difference in the percentage of duodenal and gastric ulcers in both sexes. In taking a rough estimate of a five years' period (1919-24) in an upper middle-class general practice I find that the clinical incidence of duodenal and gastric ulcer falls below 1 per cent in both classes and in both sexes. It seems, therefore, that if we judge by hospital ward records alone our estimate of the incidence is much too high. If hospital necropsy records are examined the same high incidence prevails, because the necropsies are undertaken where there is a preceding high incidence of serious illness. The relative frequency of duodenal to gastric ulcers as found at necropsy has been fully worked out by Stewart¹ on 602 necropsies, where he gives the percentages as duodenal 6.8, gastric 5.15 and also by Hart² whose figures are duodenal 4.6, gastric 7.13. I think clinically, we must accept figures which are much lower if we are to arrive at an estimate of the incidence in the general population.

SOME ETIOLOGICAL FACTORS

I do not intend going minutely into the etiology of duodenal and gastric ulceration but will give some of the data which have been obtained from the survey of the 214 hospital ward cases.

Age.—It is obviously difficult to assess this etiological factor with any degree of accuracy. The age of the patient when admitted to hospital must not be taken because there is generally a comparatively long history to be considered. Even in carefully recorded clinical histories it is impossible to say that we have elicited the very first symptoms of onset, and, even if we have, the ulcer may

have been there without symptoms For statistical purposes I have taken the age at the onset of symptoms

TABLE II—Age at Onset of Symptoms

Decade.	Males	Females	Total
0-10	None	None	None
10-20	3	9	12
20-30	32	35	67
30-40	20	31	51
40-50	25	29	54
50-60	7	10	17
60-70	8	4	12
Over 70	1	None	1

These figures agree more or less with those of other observers—for example, Fenwick,³ C F Martin,⁴ and Wilhkg and Mignel.⁵

Occupation—I can find no statistical evidence to support the general view that cooks, domestic servants, and glass and porcelain workers show a proclivity to chronic ulcer. The occupations in this series of cases were extremely varied, the incidence being highest amongst miners, but this is explained by the fact that the patients in the Glasgow Royal Infirmary are largely drawn from a mining area.

Alcohol—In 28 male and 6 female cases there was a history of alcoholism (16 per cent), but such a percentage is no higher than obtains in other diseases. Other observers have found much higher percentages, particularly Tourette,⁶ who puts the figure at 55.5 per cent. Alcoholism is certainly a factor in preventing the healing of an ulcer once formed, but whether it is more than a predisposing cause in its production is doubtful.

Trauma—It may be accepted that internal injuries to the stomach mucosa predispose to the formation of an ulcer, and in such a category I include injuries inflicted by chemical poisons and irritating articles of diet, but the statistical information given here more concerns external trauma. In this series there was a history of definite epigastric injury in 10 males (10.4 per cent) and 9 females (7.6 per cent), and the onset of symptoms developed immediately after the injury. Bolton⁷ considers the condition rare, but a percentage of 7-10 can hardly be considered rare. It can be argued certainly that the ulcer was there previously, but clinically we must accept clinical facts. The view that trauma has a place in etiology is upheld by Fenwick.⁸

Heredity—Unlike most other writers I am inclined to believe that heredity plays a part in the production of ulcer, but suggest that it is hereditary habits rather than hereditary tendencies which determine the ulcer. There were 8 male patients (8.4 per cent) and 15 female patients (12.7 per cent) who gave a history of ulcer in one or both parents, and in all these cases one or more brothers or sisters were similarly affected.

Diet—That certain types of diet may cause or predispose to the production of a chronic ulcer is indisputable, but more important than the type of diet is, I think, the regularity with which meals are taken. One generally finds that patients with a chronic ulcer give histories of irregularity of meals, which as a rule are hurriedly taken under bad conditions and in uncongenial surroundings. 75 male patients (78 per cent) gave histories of hurried meals at irregular hours, and 35 of them (36 per cent) had to carry meals to their work, 70 female patients (59 per cent) gave similar histories, and 30 of them (25 per cent) had to partake of carried meals.

Teeth—The condition of the teeth influences many diseases, but in the production of chronic ulcer decayed teeth are a potent factor, and statistical evidence upholds this view. Whether it is the septic condition of the mouth or the consequent lack of mastication it is difficult, or impossible, to state. The condition of the teeth in this series was as shown in Table III.

TABLE III

Condition	Male		Female	
	Number	Percentage	Number	Percentage
Bad	73	76	92	78
Fair	3	3	6	5
Good	29	21	23	17

Syphilis—Many French authors hold that practically all ulcers are syphilitic, but, in this country at any rate, this statement cannot be accepted. In this present series a positive Wassermann reaction was obtained in 8 males (8.4 per cent) and 2 females (1.7 per cent). That syphilis undermines the health and, like other lowering diseases, renders the patient more vulnerable to illnesses of all kinds can hardly be gainsaid, but it cannot be considered a cause of chronic ulcer, and even a positive Wassermann reaction does not necessarily mean that the ulcer is syphilitic. That syphilis of the stomach does exist is undoubted, as McNee⁹ has shown pathologically, and as I¹⁰ have recorded clinically.

Infections—There is no evidence that any one infectious or septic disease more than another causes chronic ulcer. In this series nearly all these diseases were present in one patient or another, the greatest percentage (7.8 per cent) recording a serious influenza. One noteworthy point is that most of the patients (74 per cent) had suffered from a severe infectious or septic disease a short time before the onset of gastric or duodenal symptoms. I refer to such diseases as small-pox, enteric fever, typhus, influenza, malaria, appendicitis, parotitis, and pericostitis. From this it is quite a plausible inference that the local infection of the gastric or duodenal mucosa was the result of one of these diseases.

Other Diseases—Many other diseases are recorded in the histories—as, for example, nephritis, bronchitis, and asthma—but they are, I am sure, of little or no etiological significance. The consideration of anaemia has been left out purposely, because it is impossible to decide whether the anaemia is cause or effect. The same is true of constipation. There is no doubt, however, that anaemia and constipation influence the course of the disease.

SOME OBSERVATIONS ON SYMPTOMATOLOGY

This is not intended to be an exhaustive communication regarding the symptoms of gastric and duodenal ulceration, but merely the percentage incidence of the more cardinal symptoms.

Pain—Of all the symptoms of chronic ulcer of the stomach and duodenum this is the most important. The degree of pain matters little, and the description of it still less. Mild pain creating little general disturbance is as common as agonizing pain which renders the patient unfit. The sensation of pain is variously described as stabbing, gnawing, stinging, aching, sharp, burning, tearing, cramp-like, dull, heavy, grinding, screwing. The all important point with regard to pain is its periodicity, and this was noted in 93 per cent of the total male cases, and in 92 per cent of the total female cases. Sometimes complaint of constant pain is made, and it is in such cases that a careful scrutiny of the whole clinical history must be made to elicit whether or not constant pain was preceded by periodic pain. Equal care must be taken in investigating pain in the back. In such cases the pain has altered in character by reason of adhesions to surrounding structures at the site of the ulcer. These facts are elaborated by Moynihan,¹¹ who describes the sequence of pain in gastric ulcer as food, relief, pain, relief, and in duodenal ulcer as food, relief, pain. This is probably not true in every case, because the duodenal type is simulated by ulcers of the lesser curvature and sometimes of the pyloric antrum. Rosenthal¹² holds that hunger pain is present in about 50 per cent of lesser curvature ulcers.

Vomiting—Next to pain this is, according to percentage incidence, the most important symptom in gastric ulcer, but not of so great importance in duodenal ulcer. Here also the history has to be carefully examined, and to be of diagnostic value the vomiting must bear relationship to the pain, if present, or to the taking of food. The typical history is that vomiting takes place at the crisis of pain, which is thereby relieved. Vomiting was complained of in 81 per cent of male cases and in 85 per cent of female cases diagnosed as gastric ulcer. This is only slightly less than Broster¹³ records—namely, 88 per cent. In duodenal ulcer a very different state of affairs obtains, and vomiting was present in only 16 per cent of male cases and 29 per cent of female cases. Broster¹³ does not give the incidence in duodenal ulcer, but states the incidence collectively with non-ulcer cases as 50 per cent, and remarks that Walton's

observations record only 8 per cent of duodenal ulcer cases which show vomiting.

Haemorrhage.—The vomitus may contain blood admixed with the gastric contents, either in small quantities or as frank haematemesis. In this series blood in the vomitus was found in 35 per cent of male cases and 66 per cent of female cases, and was confined to gastric ulceration only. This is higher than the observations of Crohn¹¹ who states that roughly one-third of the patients vomit blood. The percentage of cases showing haematemesis varies greatly in the records of different observers, and I think this is due to a differing interpretation of the word. If we accept haematemesis as meaning the vomiting of blood, then the percentage given above is what is required, but if we interpret haematemesis as the presence of frank bleeding from the stomach with vomiting then the figures have to be revised to 29 per cent of male cases and 52 per cent of female cases. As already stated, this symptom was present in gastric ulceration only. This is somewhat higher than the figure recorded by Broster¹²—namely 30 per cent. A point worthy of note is that in the male cases haematemesis occurred irrespective of age, while in the female group there was a marked proclivity to it at or about the menopause.

Melaena.—Melaena is not a common symptom of gastric ulcer, as it only occurred in 10 per cent of male and 13 per cent of female cases. In duodenal ulcer the percentages were found to be 55 in males and 57 in females. This is higher than Broster's¹² figures which work out at a percentage of 9.8 in gastric ulcer and 21.2 in duodenal ulcer. These figures would be somewhat higher if cases of doubtful melaena were included. Relfish¹³ considers that the number of haemorrhages from duodenal ulcers is comparatively small and in his opinion Movshian's¹⁴ percentage of 70.6 is very much too high. The diversity of views as to what constitutes melaena may be responsible for the widely differing percentages recorded.

Periodicity.—The periodicity of pain with regard to meals has already been mentioned, but equally important is the periodicity of attacks of gastric and duodenal disturbance. This is common to almost all the histories and need not be given in percentages. Short attacks of ill health separated by long periods of well-being gradually give place to long spells of ill health and shorter periods of well-being until the patient becomes more or less always ill.

Many other important symptoms and signs come into the diagnosis of gastric and duodenal ulceration, but it is of little importance to classify them statistically, so they have been purposely excluded from this review which is primarily a statistical one.

AFTER-HISTORY OF ALL CASES

Considerable time has been spent in getting in touch with the patients who were treated in the wards but by writing personal visitation to their homes, and communications with their doctors, I have succeeded in following up all the female cases and 80 of the 86 male cases. In most of the tables which follow the word "cure" is used. I am fully aware of the criticism which may be levelled at this choice of a word, so I will define my meaning. "Cure" means the disappearance of gastric or duodenal symptoms, and the return of the patient to a state of well-being, maintained in this series over a period of five to fifteen years. If one takes the hospital ward records immediately after treatment a very erroneous conclusion is arrived at

I even realize that a period of five to fifteen years is inadequate in some cases to record a cure, as recurrences not infrequently take place after intervals of well-being extending over such a period. As long as the patient lives one must realize the possibility of recurrence. In compiling statistics of cure the shorter the period after treatment the better the results will appear.

The following table gives the immediate results of treatment and the state of health of the patients when they left hospital, and includes both gastric and duodenal ulceration.

TABLE IV

State of Health	Males		Females	
	Number	Percentage	Number	Percentage
Cured	64	67	89	76
Improved	21	22	17	14
Failures	3	3	3	2.5
Irregular dismissals	6	6	3	2.5
Deaths	2	2	6	5

From this table it is seen that the majority of patients left hospital cured or improved. The average period of treatment extended to forty-three days. These results correspond more or less with the figures given by Lenbe¹⁵ in a series of 424 cases. In later statistics¹⁶ of 627 cases he shows a higher percentage of cures—namely, 90 per cent.

If the foregoing table is more critically dealt with in respect of the duration of symptoms prior to the patients coming under medical treatment, we get a better idea of cure in relation to chronicity of symptoms.

It is clear from the figures given in Table V that the immediate result of medical treatment is extremely good, especially if the symptoms have not been present for more than one year (Group I). It is however, into Group II that most of this series fall, and there is a distinctly smaller percentage of "cured" cases. In Group III the total number of cases is small, but it has to be noted that the percentage of cases "cured" has fallen to a very low level indeed. It is to be noted that the "improved" percentage rises as the "cured" percentage falls, except in the case of the males in Group III. I attribute this to the fact that more male patients seek operation than female patients, and consequently in the column of "failures" in Group III there is a high percentage of male "failures". This is due to the larger number of male cases going to the surgeon, and I have considered them as "failures" because, strictly speaking, a case which is operated on is a medical failure. I have considered irregular dismissals and have not eliminated them when calculating percentages because I think a more accurate figure is thus arrived at. One of the most striking observations is the "deaths" column, which shows that the shorter the history the greater the percentage of deaths. This is explained by the fact that profound haematemesis is liable to occur in the more acute cases and so cause a higher death rate, but I am also of opinion that cases which show active haemorrhage have a distinct tendency to heal quickly and thus to some extent explains the high percentage of "cured" cases in Group I.

TABLE V

Duration of Symptoms	Cured				Improved				Failures				Irregular Dismissals				Deaths			
	Number		Percentage		Number		Percentage		Number		Percentage		Number		Percentage		Number		Percentage	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
I. Less than one year male 43 female 5	25	36	83	84	1	2	3	5	0	0	0	0	2	0	7	0	2	5	7	11
II. One to ten years 63 female	37	50	64	79	18	10	31	16	1	1	2	2	2	1	3	2	0	1	0	2
III. Over ten years 12 female	2	3	25	25	2	5	25	42	2	2	25	17	2	2	25	17	0	0	0	0

Nielsen¹⁹ has made observations on the result of treatment in relation to duration of symptoms, and compiles them as follows

TABLE VI

Duration of Symptoms	Cured	Improved	Unimproved or Operated upon
I Less than one year	93	7	—
II One to ten years	63	17	20
III Over ten years	40	25	35

Although he has not differentiated the sexes, or included deaths, the figures in the main agree with this series

It is of interest to review at this stage the condition of patients at the end of a 5-15 year period, and for that purpose I have compiled the results in much the same manner as in Table IV. All cases which have been treated surgically after discharge from hospital are included in "failures," and some of the deaths have followed surgical intervention. The percentages are calculated on the original number of cases

TABLE VII

State of Health	Males		Females	
	Number	Percentage	Number	Percentage
Cured	28	29	47	40
Improved ..	14	15	24	20
Failures ..	30	31	29	25
Lost trace of ..	6	6	0	0
Deaths	18	19	18	15

If Tables IV and VII are compared it will be observed that the immediate results are much more encouraging than the late results, and that many of the "cured" and "improved" patients in the former table find themselves among the "failures" in the latter. This conclusion has been arrived at by other observers. Russell⁹ reports on a series of cases two to three years after treatment, and records 27.7 per cent cured and 14.9 per cent improved. In France Delmasure²¹ finds the percentage even lower—namely, 14 per cent well, 23 per cent improved, 29 per cent recurrences, 25 per cent operated upon. Forman,²² in a gastric ulcer series, five to thirteen years after, records 22 per cent cured, 20 per cent improved.

I have not compiled any table to compare with Table V because it is evident that the greatest number of patients who remain cured come from Group I—that is, where symptoms have been present for less than one year.

Although this paper is primarily intended to show the after-results of medical treatment, it is interesting to dissociate cases treated surgically from those treated medically. In this series the number of cases treated by the surgeon is much too small to allow of any definite conclusion being drawn. It has also to be remembered that the cases which have gone to the surgeon are medical failures.

TABLE VIII

Sex	Lost trace of		Treated Surgically		Treated Medically	
	Number	Percentage	Number	Percentage	Number	Percentage
Males	6	6	23	24	67	70
Females	—	—	9	8	109	92

The following table indicates the after-results of surgical and medical cases, and the percentages are based on

23 male and 9 female surgical cases, and 67 male and 109 female medical cases respectively

TABLE IX

State of Health	Surgical				Medical			
	Male		Female		Male		Female	
	No	Per cent	No	Per cent	No	Per cent	No	Per cent
Cured ..	10	44	4	45	28	42	47	43
Improved ..	2	9	1	11	14	21	24	22
Failures ..	4	17	2	22	14	21	22	20
Deaths	7	20	2	22	11	16	16	15

These figures show very little percentage difference except that in the medical group there are more cases improved and fewer deaths. The majority of surgeons show a much better percentage of cures, but they deal with series of cases not confined to medical failures, and in most instances a more immediate survey of post-operative results. Paterson² shows excellent post-operative results over a 1-10 year period, but in the lifetime of a gastric patient a decade is a short space of time.

Condition of the Patients with regard to Work

I have here calculated the percentage on the original number of patients treated surgically and medically

TABLE X

	Surgical				Medical			
	Males		Females		Males		Females	
	No	Per cent	No	Per cent	No	Per cent	No	Per cent
Unable to return to any work	4	17	2	22	14	21	21	19
Returned to work but gave up or changed to lighter occupation	3	13	1	11	11	16	13	12
Returned to original occupation	9	39	4	44	31	46	59	54

The capability of returning to work in the case of women was in many cases estimated by their ability to return to their ordinary household duties, such as washing, scrubbing, etc. Where they found it necessary to get outside help for rough work they were considered to have changed to a lighter occupation, and when they could not do light household dusting, washing dishes, etc., they were considered as unfit for any work.

It will be seen that the percentage of cases able to return to their original occupation is more or less comparable with the percentage of patients remaining "cured," and the percentage of patients unable to return to any work is very similar to the percentage of patients whose symptoms are progressive.

Readmission to Hospital

Many patients gave a history of having had to seek further medical advice for their gastric condition, but the following percentages were readmitted to hospital (any hospital) for further medical treatment. No patient was readmitted to hospital for further surgical treatment, but cases previously treated surgically were readmitted for medical treatment.

TABLE XI

	Surgical				Medical			
	Male		Female		Male		Female	
	No	Per cent	No	Per cent	No	Per cent	No	Per cent
Readmitted to any hospital	2	9	3	33	14	21	26	24

From the above table it will be seen that if we take the readmissions of both sexes the percentage of surgical cases readmitted is about equal to that of the medical cases.

The two male patients who had been surgically treated were readmitted for medical treatment on account of the recurrence of symptoms one and four years respectively after operation. One female patient who had been treated surgically was readmitted three times for recurrence of symptoms which developed one and a half years after operation. The remaining two female patients who had been surgically treated were readmitted owing to haematemesis two and five years afterwards respectively. Both of these patients were readmitted on several occasions. Of the 14 male patients who had been treated medically, 9 were readmitted for recurrence of symptoms one to five years afterwards, and 5 for haematemesis two to twelve years afterwards. Of the 26 female patients who had been treated medically, 16 were readmitted for recurrence of symptoms one to four years afterwards, and 10 were readmitted for haematemesis one and a half to ten years afterwards. Almost all the cases were readmitted on more than one occasion. All patients who were readmitted for treatment gave previous histories of many years' standing.

Deaths

In this series there were 36 deaths distributed as shown in the following table. The percentage is calculated on the total number of cases treated.

TABLE VII

Cause of Death.	Surgical		Medical		Percentage
	Male	Female	Male	Female	Male and Female
Haematemesis	—	—	5	7	5.6
Post-operative collapse	4	2	—	—	2.8
Perforation ..	3	—	—	3	2.8
Carcinoma ..	—	—	1	4	2.3
Cardiac failure	—	—	3	—	1.4
Pulmonary tuberculosis	—	—	2	—	0.9
Cerebral haemorrhage..	—	—	—	1	0.5
Accident ..	—	—	—	1	0.5

The percentage of deaths from haematemesis above recorded is high when compared with that obtained by other observers. Nielsen¹⁹ reports one death in 182 ulcer cases observed for two and a half to nineteen years, and Hurst¹ places the mortality rate at 2.5 per cent in a series of 600 cases from Guy's Hospital.

It will be noticed that post-operative collapse was responsible for death in 2.8 per cent of the total number of cases treated. If the percentage is calculated on the number of cases treated surgically the mortality is 19 per cent. Gastro-jejunostomy was the operation performed in all cases in this series, and for such operative procedure Pannett²³ assesses the mortality at 4.5 per cent. The high percentage recorded above may be due to the fact that the cases treated surgically were medical failures.

Perforation was responsible for 2.8 per cent of deaths amongst the total number treated, and was equally distributed between surgical and medical cases. In the surgical cases it is impossible to state whether the perforation was at the site of the original ulcer or was due to gastro-jejunal ulceration, as no further surgical treatment was carried out.

The percentage of deaths from carcinoma following on chronic ulcer is discussed by Paterson,²³ and coincides with the figure of 2.3 per cent above recorded. In this series the deaths all occur in the medical group, and the estimate may therefore be too high owing to inaccurate diagnosis.

The remaining causes of death are unimportant, as they may be incidental to any chronic illness.

TREATMENT

The treatment of gastro-duodenal ulceration is not intended to form part of this paper, but it may be stated that a more or less intensive alkali treatment with appropriate dietary was practised in these cases, and the remote results are not by any means so encouraging as the immediate results, so that I am not so optimistic about cure as MacLenn⁶ in his recent publication. It will be interesting to see his results in a five to fifteen years' survey.

CONCLUSIONS

1 The incidence of gastro-duodenal ulceration as compiled from hospital ward records is much too high an estimate for the general population.

2 The age at which gastro-duodenal ulceration commences is difficult to determine with accuracy.

3 Biological factors are influenced to a great degree by local conditions.

4 Alcohol, trauma, and heredity are not unimportant factors in the production of gastro-duodenal ulceration.

5 The "carried" meal is responsible for the onset of ulceration in many cases.

6 Infection from bad teeth, and infectious and septic diseases are important factors.

7 Syphilis may cause gastric disease, but not necessarily chronic ulceration.

8 Due regard should be given to the early history of pain.

9 A better understanding should be arrived at with regard to what constitutes haematemesis and melaena, as opposed to the vomiting of blood as coffee-grounds and the presence of blood in the faeces.

10 Haematemesis is a common symptom at or about the menopause.

11 Immediate results are much more encouraging than late results.

12 The cure and mortality rates are markedly influenced by the length of time symptoms have been present.

13 Surgical treatment in medical failures adds to the "cured" list but shows a heavy mortality rate.

14 Capability of returning to work bears a close relationship to the physical state as expressed in gastric well-being.

15 The number of deaths from haematemesis is higher than is usually recorded.

16 The number of deaths from carcinoma following chronic ulceration is about the figure which is generally accepted in Great Britain, but much lower than that accepted in America.

17 Our present methods of treatment are too much centred round healing of the ulcer, and too little attention is paid to investigating the real cause of ulceration.

I desire to thank Professor Walter K. Hunter for allowing me the privilege of making use of his ward records for the purpose of investigating this series of cases.

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The Sections

SUMMARY OF PROCEEDINGS.

(Concluded from page 256)

SECTION OF MEDICINE.

Friday, July 27th

ACUTE NEPHRITIS

DR CYRIL LEWIS (Cardiff) was in the chair for the third session of this Section, and called upon Professor T G Moorhead (Dublin) to open a discussion on acute nephritis.

Professor MOORHEAD dealt first with prophylaxis, and said that since septic tonsils and nasal sinuses might originate a toxin capable of damaging the kidney, surgical attention to these areas might be a preventive measure. Osman's claim that the administration of alkalis in scarlatina diminished the incidence of nephritis was hopeful, though other workers had been less successful. Under the heading "acute nephritis" Professor Moorhead included not only non-suppurative inflammations of the kidney, but also the non-suppurative degenerations which sometimes went by the name "nephroses." After a reference to the symptomatology the speaker discussed the chemistry of acute nephritis, and said that the albumin was generally considered to be blood protein filtered through the glomeruli, but a recent study by Kellaway, Davies, and Williams suggested that with severely damaged kidneys much of the protein came from the kidney cells. In addition to the chloride retention there was frequently a slight acidosis due to a diminution in the sodium carbonate blood content. The changes noted in the cerebro-spinal fluid were a definite increase in the pressure of the fluid, an increase in the urea content, and a considerable increase in the chloride, especially in cases where uraemia threatened. Functional kidney tests in the recovery stage might give valuable help in estimating residual kidney damage. As regards treatment, Professor Moorhead said that he was in general opposed to too long a period of rest in bed. The hot pack and radiant heat were for the moment in disfavour, but, when uraemia threatened, a good radiant bent bath was undoubtedly beneficial. He discussed the value of decapsulation, but did not recommend it. If uraemia supervened venesection was valuable, and great benefit sometimes ensued from lumbar puncture. Morphine was now recognized as safe and satisfactory in checking repeated uraemic convulsions.

Dr H L TIPP described the condition of acute haemorrhagic nephritis, a disease occurring at any age but usually in the young, and in the majority of cases associated with definite disease of the throat, such as tonsillitis and cervical adenitis. In the majority of cases there was no history of previous scarlatina. The characteristic feature was the haematuria, the quantity of albumin corresponding with that of the blood. There was no excess of leucocytes, though a few cellular and granular casts might be found in the early stages. The urine was usually sterile. The classical symptoms of acute parenchymatous nephritis were usually entirely absent. The profuse haematuria subsided in a few days, and in 75 per cent of cases there was a rapid return to normal health with normal urine. As regards the remaining 25 per cent, in 20 per cent the clinical condition was good, but there was a trace of albumin and a few blood cells, further investigation showed that these usually cleared up without serious effects, but a small residuum remained that continued to show red blood cells in the urine and which eventually might pass on to a typical nephritis. In a few cases which had been submitted to operation on a mistaken diagnosis a portion of the kidney removed had shown only the presence of haemorrhages in some of the glomeruli. Although the condition undoubtedly occurred as the result of an infection, he was inclined to look upon it not as a true nephritis, but as due to an increased permeability of the kidneys. In the acute stages simple lines of treatment were quite sufficient, and it was advisable to keep patients under observation until the red cells had disappeared from the urine.

Dr HUGH GAINSBOROUGH drew attention to the importance of acute focal infections in the etiology of acute

nephritis. Gray had recently stressed the importance of streptococci as the commonest causal agent, but other organisms might also play a part. Gray had suggested that the greater sensitiveness of the kidney to circulating toxins might be due to concentration of the toxins in the plasma by the glomeruli. It was possible that even if the original focus of infection cleared up the kidney infection might remain and the nephritis slowly progress. In addition to this infective etiology it must be borne in mind that nephritis could be produced by metabolic disturbances such as the alkalosis of high intestinal obstruction. Although the metabolic disturbances had been chiefly studied in chronic nephritis, they could all be paralleled in acute nephritis. Dr Gainsborough concluded with some observations on the hypercholesterolaemia of nephritis.

Mr R H PARAMORE (Rugby) thought that acute nephritis seemed rather a degeneration than an acute inflammation of the kidney. It usually appeared insidiously, and often was only recognized by the occurrence of oedema, malaise, or cardiac symptoms, which led to an examination of the urine. The degeneration could only be due to a toxin or to an interference with the blood flow through the renal capillaries. Acute nephritis was almost certainly the result of a toxin, and nearly everybody believed that the "neuro-nephritis" of eclampsia was caused in the same way, but there was considerable evidence that the visceral state in eclampsia was produced by mechanical forces incidental to pregnancy, which interfered with the blood flow through the visceral capillaries. The question arose whether mechanical forces played any part in the rise of the acute nephritis in the non-pregnant. In this respect the speaker referred to the occurrence of adolescent albuminuria, and of the albuminuria produced by strenuous exercise in athletes, which was comparable with that produced by labour. Was it possible that an aberrant renal state, determined by such means, was the earliest stage of acute nephritis? Was the epidemic of acute nephritis which occurred during the war determined by the prevalence of micro-organisms or by the arduous physical conditions to which the patients had been subjected? The speaker discussed the causation of anuria, and suggested that the anuria after labour, or after suddenly emptying the bladder in a case of enlarged prostate, could be explained on the assumption that with the sudden fall of urinary pressure felt in the tubules traversing the renal medulla before it could reach those in the cortex a concomitant engorgement of medullary capillaries occurred, blocking or clamping the uriniferous tubules as they emerged from the cortex. The assumption was supported by the effect of decapsulation of the kidney in anuria. The speaker had tried lumbar puncture in a case of eclampsia, and followed it by inducing spinal anaesthesia. The chloroform which was given to stop the fits and allow the lumbar puncture was stopped after the tropacocaine had been injected, no further fits occurred, and the woman recovered. The idea of the procedure was to reduce the tension of the abdominal walls, and thus the compression of the abdominal viscera.

Dr A E GOW pointed out that in considering the possible value of antitoxin on the nephritis of scarlet fever it was necessary to bear in mind that scarlet fever was becoming a much less serious disease, and that comparisons with an earlier form might be fallacious. Scarlet antitoxin was prepared from a horse immunized with streptococci, but the scarlatinal nephritis was generally believed to be due to a virus that accompanied the streptococcus. He thought it was necessary to distinguish between two types of acute nephritis—namely, a diffuse glomerulo-tubular nephritis, and toxic degeneration affecting the convoluted tubules. In the first the urine was always diminished, the specific gravity in the acute stages was normal, haematuria was apt to persist, and casts were always present, particularly of the epithelial variety. In the second type the quantity of the urine was little altered, the specific gravity was often low, and casts were less numerous, the blood and leucocyte casts predominating, in this type also organisms were frequently to be found in stained films, although they did not grow in cultures. In the absence of facilities for more complicated investigation much information could be gained from examination of the urine alone, if it was of normal quantity and good colour,

and the specific gravity of a twenty four hour specimen was not below 1015, the kidneys could not be seriously damaged.

Dr R I MACKENZIE WALLIS defined two distinct types of renal disease associated with scarlatina (1) the toxic type, and (2) the true acute glomerulo-tubular nephritis. The first type was met with in the first few weeks, and might show no clinical evidence of disease during life, although the necropsy revealed all the characters of an acute nephritis. In the early stages of the second type the urine contained albumin in quantity and often red blood cells, hyaline casts, and leucocytes, which were a constant feature, the urine in this type was always sterile. For diagnosis he relied on the estimation of the blood urea content and the diastase content of the urine, examination of the urinary protein also served to differentiate the types. Their value was well seen in eclampsia, with its low blood urea, raised urinary diastase, and relative excess of globulin. Dr A F S SLADEN (Swansea) agreed with the views expressed by Professor Moorhead on the status and value of chemical analysis in nephritis, that these were inevitably auxiliary only to the clinical investigation of the case. The importance of excretion of fixed ammonia in the urine was emphasized for its value in prognosis and for its possible value in elucidating the finer differentiation of disturbances of function in the kidney.

The CHAIRMAN, closing the discussion, spoke of cases of idiopathic haemorrhage which had come under his notice on the operating table in his capacity as anaesthetist, and alluded to two cases of haemorrhagic nephritis associated with sepsis as the probable etiological factor.

SECTION OF SURGERY

Friday, July 27th

PANCREATITIS

PROFESSOR A W SHEEN, President of the Section, took the chair and called upon Mr Geary Grant to open a discussion on pancreatitis.

Mr GEARY GRANT (Cardiff) dealing with acute necrosis of the pancreas, commented on the part played by the presence of powerful ferments and anatomical variations of the ducts. There were three main etiological theories (1) that acute necrosis was due to embolism of the pancreatic arteries or thrombosis of the pancreatic veins, (2) that the infection came by way of the lymphatics from the gall bladder, (3) that the condition was set up by the regurgitation of bile into the pancreatic ducts. The experiments in support of the last theory were discussed. Acute necrosis of the pancreas had occurred from the passage of an ascaris up the duct of Wirsung carrying with it duodenal contents; it had also followed certain abdominal operations when the pancreas was injured. Failure to make a pre operative diagnosis was often due to forgetting the pancreas similar symptoms and signs were present in other acute abdominal diseases. The speaker maintained that cases of acute cholecystitis and empyema of the gall bladder should be regarded as surgical emergencies. He thought that drainage of the affected portion of the pancreas, gauze tamponade to wall off the peritoneum, and drainage of a distended gall bladder were the best lines of treatment. The gland should not be incised.

Mr DIOSY CHAMBERLAIN (Leeds) thought acute pancreatitis was possibly more common than was realized, since probably some cases were of a subacute type and the patient recovered without operation. He had performed bacteriological examinations of bile from the gall bladder in four cases and recovered a haemolytic streptococcus though the gall bladder appeared normal. The cyanosis associated with the disease was probably attributable to respiratory causes and not to septicaemia, since it occurred in some cases of perforated gastric ulcer. He thought that the diastatic index afforded the only reliable test, and that on opening the abdomen the discovery of blood stained fluid was diagnostic. Mr Chamberlain thought that lymphatic infection, usually from the gall bladder, was the cause of the disease. The pancreatic duct opened into the common bile duct obliquely, and the valvular septum between them prevented regurgitation up the pancreatic duct when there was an increased

tension in the common bile duct. The treatment was to drain the gall bladder, posterior drainage of the pancreas (the natural method), and drainage of the pelvis, if necessary. Drainage of the lesser sac could be effected by removal of the eleventh rib in the left mid axillary line, but the state of the patient would seldom permit this. Painting the abdominal skin with an ethereal rubber solution protected it.

Dr R L MACKENZIE WALLIS discussed methods of diagnosis. In 1920 he had concluded that there was no test pathognomonic of pancreatic insufficiency, that the association of increased diastase content of the urine with the Loewi adrenaline hydriasis test, and the presence of glycosuria, afforded strong evidence that the pancreas was at fault, and that if there was in addition creatorrhoea and stentorrhoea the suspicion of pancreatic insufficiency was confirmed. The results of further investigations had tended to confirm these conclusions. In acute pancreatitis the association of glycosuria with cyanosis was important since it denoted fat necrosis, which, in his opinion, was the cause of the cyanosis. The "fleeting" character of these tests must not be overlooked, especially as regards the urinary diastase content and the glycosuria. Variations in the urinary diastase were ascribed to attacks of subacute pancreatitis, and the same applied to the presence of glycosuria. In inflammatory conditions of the pancreas of a more chronic type these tests had proved of value. The diastase content was not usually so high as in the acute form, but in some cases of catarrhal pancreatitis it might be raised. Catarrhal pancreatitis, in his experience, was common, and due to infection of the pancreas. In chronic pancreatitis there was usually considerable interference with the external secretion of the pancreas, and creatorrhoea and stentorrhoea were of common occurrence. A complete chemical examination of the urine and stools would provide important data, and duodenal intubation was a valuable aid in diagnosis. Failure to obtain results might be due to the tests being applied when the disease had so far progressed that the pancreas was functionally inactive. Tests for occult blood were particularly valuable in cases of chronic pancreatitis; they were consistently negative, whereas in carcinoma of the pancreas positive results were found in every case. Chronic pancreatitis was a common disorder of digestion, not only was it found in diseases of the gall bladder, duodenum, and stomach, but also in infections of the alimentary tract. About 80 per cent of the sprue cases showed evidence of an associated chronic pancreatitis, and the same was true of coeliac disease. Another point was the frequent occurrence of this condition in mental patients; this observation was of particular interest, since a Greek physician, Endermus, in 25 B.C., described the pancreas as supplying a digestive secretion and also playing a part in the control of mental disorders. Digestion necrosis following the drainage of the pancreas could be combated successfully by repeated application of horse serum to the abdominal wound. This adsorbed the ferments and removed them from the sphere of action.

Professor A W SHEEN (Cardiff) asked whether there was any relation between pancreatitis and parturition as he had had a case following childbirth. A rapid pulse was a very noticeable feature of the acute disease.

Mr F C PRYDS (Newcastle-on-Tyne) mentioned the wide range of inflammation between mild cases which recovered naturally and the acute haemorrhagic type. Recovery was possible even after sloughing and discharge of most of the gland. He stated that pancreatitis had a sufficiently definite symptomatology to make it fairly easily diagnosable. The important symptoms were severe epigastric pain, pain referred to the back and to either scapula, cyanosis, and a rapid pulse. He advised drainage of the gall bladder and also of the pancreas at the site of greatest damage. It was worth while remembering the possibility of acute pancreatitis in cases presenting symptoms much more severe than the signs and in cases with anomalous gall bladder symptoms.

Professor BROSS (Manchester) said that the mortality rate of acute pancreatitis in Manchester during the four years 1924-27 was 28.5 per cent. The disease was commoner in the female than in the male, but the mortality in the latter was much higher. Pancreatitis of a mild degree was much more common than was realized. Continued

severe pain and a sustained rapid pulse were important points in diagnosis. The cyanosis present was due to impaired action of the diaphragm. In desperate cases the overlying peritoneum was incised and drainage of the pancreas alone was effected. Any definite area of softening present was incised. When the patient's condition permitted, drainage of the gall-bladder or common bile duct should be arranged. The regenerative power of the pancreas was often surprisingly good.

Professor FULLERTON (Belfast) agreed that the pain was severe, but usually generalized, pain in the back was not always present. The pulse was generally very rapid, but cyanosis had not been a marked feature in his cases. He drained the gall-bladder and pancreas, but did not incise the latter. He did not place a drainage tube near the duodenum owing to the risk of ulceration into this portion of gut. He had a case in which a very large portion of the pancreas was extruded, but there was no evidence of pancreatic insufficiency. He had performed partial cholecystectomy and then performed an anastomosis with the stomach or duodenum. Mr BROCKMAN (Sheffield) thought that probably the explanation of the cyanosis was a chemical one, and that suprapubic drainage alone was less likely to be followed by fistula. The gall-bladder should also be drained. Mr A WILFRED ADAMS (Bristol) reported a case of this disease following parturition. In another case acute pancreatitis had followed an injury, and the speaker suggested that some cases might be of traumatic origin.

Mr GEARY GRANT, replying, said that he had seen three cases following parturition. Severe pain was absent in one case and the abdomen was not rigid. Rapid pulse was the rule, but cyanosis was not common. He did not agree with Mr Chamberlain that the presence of blood-stained fluid was diagnostic, since it occurred in other abdominal diseases, such as torsion of the omentum. The patient with acute pancreatitis would rarely stand posterior drainage.

DIAGNOSIS OF URETERIC CALCULI

Professor ANDREW FULLERTON (Belfast), in opening the discussion on the diagnosis of ureteric calculi, said that in 80 per cent of his cases the chief constituent had been calcium oxalate. These calculi were irregular and presented sharp projections which produced slight haemorrhage and arrested the passage of the stone. The pain was caused by irritation of the mucous membrane, increased peristalsis of the ureter, and increased tension in the renal pelvis. Reflex polyuria occurred with diminished specific gravity of the urine in 70 per cent of his cases. This unilateral diuresis could be observed through the cystoscope, and the specific gravity tested on fairly small quantities by means of glass beads. This diuresis and also calculous anuria could be explained by reflex stimulation of the vaso-constrictor or vaso-dilator fibres to the blood vessels of the kidney, a strong stimulus set up vaso-constriction and anuria, and a milder stimulus caused vasodilatation and diuresis. The site and character of the pain gave no clue as to the size and position of the calculus. Pain, fixed or radiating, in the right iliac fossa was often mistaken for appendicitis, and the speaker emphasized the point that there should be a careful examination of the urine, especially for microscopic blood, before chronic appendicitis was diagnosed and treated. The ureter should be examined retroperitoneally if the appendix and other abdominal organs were found to be normal at operation. Frequency of micturition and dysuria might be absent, and rectal tenesmus might be present when the stone was in the lower ureter. The presence of a small quantity of blood in the urine was of more importance than the discovery of a few pus cells. Radiography was a very valuable aid to diagnosis. Stereoscopic photographs were often useful. Professor Fullerton showed some excellent x-ray photographs of specimens of stones, and he also described the cystoscopic appearances in cases of ureteric calculi.

Professor E. B. C. MAYNDS (Belfast) said that chemical analysis of the urine seldom failed to distinguish the affected from the normal side. The urine from the affected side was usually less concentrated, but chemical methods were more sensitive in detecting this change, and were

valuable in estimating the degree of damage to the kidney cells. The biochemical problem was to distinguish between reflex diuresis and the loss of power of concentration due to damage of the renal epithelium. In the reflex diuresis the ratio of chloride concentration between the affected and unaffected kidneys should be greater than the corresponding ratios of urea, phosphate, and creatinine, the degree of chloride concentration depended upon the relation between the chloride concentration on the normal side and the concentration in the blood plasma. The ratio of urea concentration between the affected and normal side should be somewhat higher than the corresponding creatinine ratio. In renal failure there was loss of power of chloride concentration. It might be possible to develop a renal efficiency test on these lines.

Dr HUGH YOUNG (Baltimore) agreed that calcium oxalate was the commonest constituent. Inflammation of the seminal vesicles and prostate sometimes gave rise to pain referred to the back, just as with ureteric calculus. Rectal tenesmus, sexual pain, and pain on micturition occurred when the stone was in the lower end of the ureter. Stereoscopic photographs were very valuable for the exact orientation of a shadow. A ureterogram, by the presence of a negative shadow, would show the presence of a ureteric calculus when this was invisible on the x-ray plate.

Mr KENNETH WALKER said that the pain was very similar in ureteric and renal calculi, and probably distension of the renal pelvis caused it in each case. When x-rays were negative the wax-tipped bougie could be used to prove the presence of a stone. Diagnosis of a ureteric stone must always include investigation of the condition of the ureter and kidney. He had met with several cases of ureteric calculi which had previously undergone an operation for appendicitis. Mr SWIFT JOLY said that an increased flow from the affected side could often be seen on cystoscopy. Symptomless pyuria was more often due to a silent stone than to any other cause. Ureterograms obviated the use of stereoscopic radiograms in the diagnosis of ureteric stone. Mr J. B. MACALPINE (Manchester) exhibited some photographs, including a ureterogram demonstrating the presence of a stone which was not shown on x-ray examination. He pointed out that the normal ureter could be easily displaced by the catheter, but peritonitis at the site of a calculus fixed the ureter.

SECTION OF OBSTETRICS AND GYNAECOLOGY

Friday, July 27th

ACUTE CONDITIONS IN THE LOWER ABDOMEN

The final session of the Section of Obstetrics and Gynaecology was given up to the reading and discussion of short papers.

Professor W. W. CHIPMAN (Montreal), dealing with acute conditions in the lower abdomen, emphasized that in the female genital tract there was direct communication between the contaminated skin surface and the peritoal cavity. This explained the frequency of pelvic infections. To open or not to open the abdomen was a question of the gravest importance. He strongly objected to the term "giving the patient the benefit of an exploration", it was not a benefit to the patient. A vaginal examination and a rectal examination must be an invariable preliminary. Emergencies consisted of haemorrhages, acute infections, obstructions, strangulations, and thromboses. The history of the onset often accorded the clue to the diagnosis. A catheter should always be passed. Pain was always the outstanding symptom, but the abdomen should never be opened for pain only without other symptoms. Much information was obtained from the face, and in acute cases movement was a torture. Haemorrhage was commonest from a ruptured tube, but might be very severe from other sites—for example, rupture of a Graafian follicle. He described the common symptoms of tubal rupture. In the chronic cases diagnosis might not be so easy. The degree of anaemia and high leucocyte count might point the way. He practised a preliminary exploratory colpotomy if blood were found, he then opened the abdomen. The differential diagnosis between acute appendicitis and acute salpingitis was difficult and of the greatest importance from the point of view of

surgical intervention. In salpingitis the temperature might be higher but the pulse rate not correspondingly raised, the patient did not appear so ill, and intestinal disturbance was not so great. Signs of a gonorrhoeal infection should be sought for, a fixed painful uterus pointed to tubal trouble. He was strongly against operating on the tubes in the acute stage. A history of previous attacks, the onset with unilateral pain, pointed to the appendix as the seat of the trouble. The common seats of strangulation were ovarian cysts and fibromyomata. He uttered the warning that if the onset was accompanied by a chill or a rigor the probable cause was pneumonia with infection spreading below the diaphragm. A ureteric stone might be mistaken for an acute abdominal condition.

ACUTE PELVIC CONDITIONS

Mr FREDERICK WILLIAMS followed with a communication on the acute pelvis. He grouped cases into those presenting symptoms of fever and those with symptoms of shock. Prosalpinx and salpingitis would appear to be a protective mechanism against widespread peritonitis. Acute primary pneumococcal peritonitis might simulate in the early stages acute salpingitis. Focusing the attention upon the whole genital tract would generally disclose some lesion or lesions which should differentiate salpingitis from appendicitis. The new tests adopted to aid in the diagnosis of tubal rupture had proved disappointing in practice. The treatment of ectopic pregnancies by salpingectomy or salpingostomy was still an open question. His experience suggested that the importance of the urgent symptoms accompanying torsion of an ovarian pedicle had been exaggerated. The need for a thorough examination of the whole abdomen and the necessity for an adequate abdominal incision when an operation was performed were the two points he wished particularly to stress.

Mr RIVETT referred to the rarity of bowel infections in the genital tract. He was an advocate of early operation in acute tubal inflammations. It had not been demonstrated why, if delay was justifiable in salpingitis, it should not be equally justifiable in torsion of an ovarian cyst.

Professor HENDRY (Glasgow) deprecated operating upon acute salpingitis. Conservative treatment was frequently followed by complete functional recovery. He had found the blood sedimentation test of value in deciding when to operate in active inflammatory conditions of the pelvis. Delay of some hours' duration was permissible if there was much shock in torsion of an ovarian cyst.

Dr GRAY WARD (New York) said that in America it was felt very strongly that operation was not justified in the acute tube. Very many were restored to complete functional activity by expectant treatment. The appendix could easily be dispensed with, the tubes could not.

Mr ANTHONY GILES was impressed with the realization that gynaecology was the interpretation of physical signs in the light of the case history. An accurate diagnosis could not be made on the one without the other. He condemned buttonhole incisions in the abdominal wall; the pelvis should always be examined in operating on the appendix. The risk of operating on the acute tube was much greater than when inflammation had settled down. They could not regard appendicitis and salpingitis as analogous cases. He thought that the earlier operation was performed on cases of torsion of an ovarian pedicle the better.

RADIUM THERAPY IN CERVICAL CARCINOMA

Dr GRAY WARD (New York) read a paper on radium therapy in carcinoma of the cervix uteri, based upon an analysis of the results obtained at the Women's Hospital in New York. The question was whether the results of radium therapy could be compared with those of Wertheim's operation without the primary mortality of the operation. He referred to the Ministry of Health report compiled by Dr Janet Lane-Claydon. They had not a large quantity of radium available at the Women's Hospital. The employment of massive doses had no better results than frequent dosage with small amounts. Constant personal contact between patient and surgeon was of the utmost importance. Fifty per cent of their cases had more than one irradiation. They attributed whatever success they had to the strict follow up of all their patients. They

employed a simple technique, which he described and illustrated. Blood transfusion was an important adjunct in combating anaemia and septic absorption. They had not employed high voltage x-ray therapy as a routine in addition to radium as they had not yet installed the apparatus. They had found the insertion of a self-retaining catheter a great addition to the patient's comfort. He showed some very striking colour drawings illustrating the actual changes undergone by the growth as the result of radiation. They had not found that the presence of any particular type of cancer cell was of any value from the point of view of prognosis. Of all cases treated 23.1 per cent were living at the end of five years. Of cases limited to the cervix—that is, operable cases—53.1 per cent were alive after five years. The lack of standardization in the classification of cases had caused a great deal of confusion hitherto, only five-year results should be considered. Cases not traced should be regarded as dead. He pleaded for the immediate repair of cervical lacerations. Their results showed that radium was preferable to operation in all cases of cervical cancer.

Dr E. FARQUHAR MURRAY (Newcastle), discussing the radium treatment of carcinoma cervicis and intractable menorrhagia, quoted statistics from his own practice. In carcinoma he thought that radium was most valuable, and that in certain cases it could produce results little short of miraculous. He thought it was certainly the only treatment of proved value which could be used in the majority of cases met with. Whether it had superseded the radical operation when such was possible he was still somewhat doubtful. In the treatment of menorrhagia radium gave the most encouraging results. All cases where a satisfactory technique had been employed gave excellent results. Its use in cases complicated by small fibroids was only justified when intercurrent disease contraindicated hysterectomy. He suggested that radium might be of use in producing an artificial menopause in cases suffering from blood diseases, in order to conserve their blood supply.

Dr MAEVL RAMSAY (Plymouth) agreed with the attack on Wertheim's operation. The technique of radium therapy could be acquired by anyone of ordinary skill. The disadvantage of a Wertheim operation, even when done by the greatest expert, was the subsequent contraction of the scar in the pelvis, which caused much discomfort to the patient. Dr BADEN had not yet brought herself to use radium in operable cases on account of the inaccessibility of the glands to its effects. The advisability of using radium in menorrhagia was not obvious to her on account of the risk of creating an artificial menopause in young women. Major GOSFRET (Calcutta) was impressed by the perfect follow-up system in Dr Gray Ward's hospital in New York. He contrasted methods followed in New York, Vienna, and in this country. He spoke of the application of iodine in the detection of very early cases of cancer. Following Wertheim's operation there was frequently cystitis due to injury to the bladder. Dr HALL (Newcastle), speaking as a general practitioner, asked what was to be done for people who could not have radium or an operation. In his experience opium was far and away the best drug. He did not think it advisable to keep patients long in bed, they should be encouraged to go about their ordinary work. Professor HENDRY (Glasgow) had only very limited access to radium. Enlargement of glands was often due to simple septic absorption. Infiltration of glands often cleared up after the application of radium. Mr GILES had long been convinced that the importance of the glands was exaggerated. Recurrence did not appear in those glands, but low down in the pelvis about the site of the operation scar. Speaking of the relief of patients for whom operation and radium were not available, he favoured scraping away as much growth as possible applying chloride of zinc and filling up the vagina with a solution of sodium bicarbonate. This greatly diminished the irritating discharge. Dr FLETCHER SHAW (Manchester) found that his operation figures were practically the same as those of Mr Bonney. No one would operate if he could get as good results from radium but no one in England could produce figures to compare with Dr Gray Ward's with radium. Had they done right to leave radium in the hands of the radiologists? He thought

they ought to have kept the treatment in their own hands. He felt certain that they were going to get results in England, though they had not done so yet. He had been told by radiologists that radium was no good in cases of recurrence; they could see from Dr Gray Ward's results that this was quite wrong.

Dr GRAY WARD, replying, said that to-day he would not remove the uterus if the case was perfectly well after radiation. As to the glands, it had been demonstrated that the majority of enlarged glands were inflammatory, not carcinomatous. Theoretically high voltage x rays should block off lymphatic channels. Radium therapy in menorrhagia was the standard treatment in New York, the technique should ensure that the radium was in contact with the fundus uteri. Cuéttago should always be a preliminary. They used blood transfusion very frequently in cachectic patients. He urged systematic regular overhaul of every woman over 40.

Dr FARQUHAR MURRAY said that in regard to the standardization of case classification they were still in a state of chaos. Education of the public was necessary to establish an efficient follow up system. They must have more radium. He was profoundly dissatisfied with the results of operative treatment of cancer. Whether the place of surgery would be taken by radium it was yet too early to say. In regard to glandular involvement, he could not believe that, whoever operated, every gland could be removed. He thought that possibly minute deposits left behind might undergo spontaneous cure.

SECTION OF MENTAL DISEASES AND NEUROLOGY

Thursday, July 26th

CEREBRAL STATES AND HEAD INJURIES

A discussion on the differential diagnosis and treatment of cerebral states consequent upon head injuries was opened by Dr C P SYMONDS, who said that, apart from the immediate surgical risks of compound fracture, the rupture of a meningeal artery, and subdural haematoma, the severity of an injury to the head varied with the nature and amount of damage suffered by the brain at the time of injury. Concussion was defined as a condition of subtotal cessation of cerebral function following immediately upon the injury, with subsequent complete recovery within twenty-four hours, at the end of which, in an uncomplicated case of concussion, recovery should be complete and permanent. The whole syndrome was probably due to temporary vascular embarrassment. Distinct from concussion, though often associated with it, was the condition of cerebral contusion. The symptoms of cerebral contusion depended upon two factors: (1) the effect upon intracranial pressure, and (2) the precise situation of the lesion. The focal signs of the latter were those of cerebral disease generally. For the purposes of clinical description, Dr Symonds distinguished between a major and a minor degree of contusion. The major form was almost always associated with concussion. After a few hours the patient partially regained his senses, but instead of making rapid progress towards a normal state he remained stuporose, restless, and irritable, and at night might be noisy, ballustrated, and violent. In minor contusion the injury might or might not have been such as to have caused concussion. It was possible for a glancing blow to bruise the brain without loss of consciousness at the moment of injury. The three most common symptoms were headache, giddiness, and mental disability. One of the most characteristic features of the headache was its relation to alterations of posture. The mental symptoms consisted of inability to concentrate, defective memory, loss of emotional control, and rapid fatigue of the mental processes. Apart from focal physical signs, which were rarely encountered, there were other symptoms, such as epilepsy and permanent mental change which must be related to focal damage. Lesser degrees of mental impairment, such as memory defects, were by no means uncommon, but permanent mental deterioration necessitating institutional care appeared to be rare. Epileptic attacks might occur even in the early stages of a major contusion and were probably due to subarachnoid haemorrhage. Of more serious significance were the attacks

which developed after a latent interval of months or years. Cerebral abscess following a compound fracture, and chronic subdural haematoma, although both rare, were two sequels of head injury which were likely to come within the view of the neurologist. Finally, there was a large group of cases in which the disability which followed head injury was wholly or partly neurotic, usually based upon the problem of compensation. It was important to remember that the brain might be scarcely damaged without fracture of the skull or objective physical signs, and that conversely, fracture of the skull was not in itself proof of cerebral damage. The signs of subdural haematoma were often those of cerebral tumour—papilloedema and hemiplegia. The cerebro-spinal fluid might exhibit xanthochromia and fibrin flakes. As regards treatment, complete rest was indicated in major contusion, and relief of intracranial pressure might be obtained during this stage either by lumbar puncture, if necessary, repeated at intervals of two days, or by an intravenous injection of 50 to 100 c.c. of 15 per cent hypertonic saline. An alternative method was to give a saturated solution of magnesium sulphate (3 oz. in 6 oz. of water) by the rectum, to be effective, this solution should be retained for half an hour. In a series of eighty patients with symptoms of cerebral contusion Dr Symonds found that eighteen, or 22.5 per cent, stated that they had made a complete recovery. In cases of major contusion the chances of the patient being able to return to full work were less than one in three, and there was the same chance of total incapacity. In cases of lesser injury there was an even chance of the patient being able to return to full work, and a very small risk of total incapacity.

Dr C WORSTER-DROUGHT emphatically agreed that the brain might be very seriously damaged without any fracture of the skull, or indeed evidence of bone injury. In assessing the effects and possible consequences of head injury far too much stress was laid upon the radiographic appearance of the skull, and, if negative, the cerebral injury was often assumed—not only in legal, but also in medical circles—to have been slight. In his experience the after-effects of what had been described as major contusion were more often severe than not, and personally he would not have placed the ratio of complete recovery in these cases so high as 22.5 per cent. One important point was that cerebral contusion might lead to localized adhesions between the dura, arachnoid, and cerebral cortex, and so give rise to epilepsy—all without x-ray evidence of bone damage. This was strikingly illustrated in one case that came under his observation—a case also noteworthy on account of the excellent result of surgical treatment. A man, aged 28, fell, striking his head on the junction of two tram lines. Three years after the accident his first epileptic fit occurred, there being no previous history of epilepsy. X-ray examination of the skull revealed no abnormality. When the region of the scar was trephined the dura was seen to be under tension, and on incision was found to be adherent to the underlying cortex. Dr Worster-Drought had had this patient under observation since the operation—six and a half years—and no fit whatever had occurred. The man had returned to work and was in excellent health. Equally successful was another case of traumatic epilepsy, due to a lesion that might be described as an unusual form of subdural haematoma in the posterior parietal region.

A prisoner of war aged 25 was struck on the head with the butt end of a rifle in February 1917. About a week later he had a fit there being no previous history of epilepsy. The fits occurred at intervals varying from one to eight weeks. A typical epileptic seizure was personally observed. Physical examination revealed no abnormality beyond a small scar in the right posterior parietal region. In March 1919 the region of the scar was trephined. Immediately on incising the dura there escaped about two drachms of yellow serous fluid and a saucer-like depression (which had apparently contained the fluid) was seen in the cerebral cortex. Dr Worster-Drought had had this case under observation since the operation—over nine years—and no further fits had occurred.

An interesting point, possibly, for discussion was, How long after a head injury could epilepsy appear? In his experience it had been common for epilepsy to appear three or four years after the accident, and he had met with cases in which the first epileptic attacks had occurred ten and

even twelve years after the head injury. As regards treatment of traumatic epilepsy, the conclusion was that in the presence of definite evidence of the site of injury, such as a scar, etc., even if radiographic appearances were negative and in the absence of other localizing physical signs, operation was worth while. He would not advise operation in the absence of physical signs or of some evidence indicating the site of injury. The mental sequelae of cerebral contusion were often peculiar. One somewhat unusual effect was complete and apparently permanent inability to perform mental work.

An undergraduate—head boy at his school and who obtained the senior classical scholarship at his university—had, following a head injury, become utterly unable to concentrate or settle down to serious study, and he retained nothing he read. Entering on his university career with all promise of a brilliant future, he was compelled to come down without a degree, having entirely failed in his final examinations. It was now five years since the accident and he showed no signs of improving in respect of his particular disability.

Dr Worster-Drought considered that head injuries in the alto frontal region were the most serious as regards prognosis in respect of mental changes. A condition of dementia might result from damage in this situation. In view of the fact that W. E. Dandy in America had recently excised the right cerebral hemisphere without (it was reported) the patient showing evidence of mental change, such injuries to the left frontal region were of interest in localizing the main seat of intellectual activity. Another point for discussion was how far a severe head injury might light up a latent psychosis. As regards treatment, Dr Worster-Drought was not convinced of the practical value of intravenous injection of hypertonic saline, the relief of symptoms afforded was somewhat uncertain and transient. He mentioned experiments supporting this contention. He was inclined to regard lumbar puncture, repeated if necessary, as the best means of relieving intracranial pressure. The continued administration of saline substances, either by the mouth or rectum, might, however, also be of value. For chronic and persistent headache following head injury, when repeated lumbar puncture failed to give permanent relief, Dr Worster-Drought was in favour of subtemporal decompression. He had seen several cases in which this operation had given excellent results.

Dr I. S. WILE (New York) remarked that in children cerebral contusion might lead to changes in personality, accompanied by delinquency and epileptic equivalents, resembling the sequelae of epidemic encephalitis. It was necessary carefully to distinguish the headache, giddiness, and various mental disabilities following minor contusion from psychoneurotic symptoms. Also, all the mental disabilities of attention and memory might be purely affective symptoms. It was important to employ psychological tests in determining defects of memory, whether visual or auditory, for recent or remote events. The relation of cerebral injuries to later educational disabilities could only be determined by more thorough psychological investigation. In his opinion caution should be exercised in prognosis regarding epileptic seizures after head injury. At least three years should pass before reasonable certainty that seizures would not occur, such seizures did occur even at longer intervals. Traumatic neuroses might be exaggerated in frequency, but it was wise to be certain that minor mental symptoms were not functional before suggesting that they were the residua of organic disease or cerebral injury. He agreed that emphasis was necessary upon the statement that fracture of the skull was not proof of cerebral damage, and that, conversely, damage of the brain might exist without a fracture of the skull. In order to interpret the actual state of a patient following cerebral injury it was necessary to know if he returned to his earlier occupation, or was subject to further re-education, or was obliged to change by reason of changing industrial conditions.

Dr R. D. GILLESPIE said that the classical psychotic syndromes had no specific etiological relationship to trauma. Certifiable insanity was very rarely the result of head injury. Of 71,000 admissions quoted by May, only 0.3 per cent could be called traumatic psychoses. In some cases that had been recorded other factors had been prominent,

such as intemperance, alcoholism, etc. Several groups of late after-effects could be distinguished, including traumatic defect states—general or local, temporary or permanent, including traumatic, mental enfeeblement, behaviour disorders, psychoneurotic states, and malingering. The chief difficulty arose in the diagnosis of these defect states from those of psychoneurosis, nevertheless, definite criteria existed, such as slowing of thought, attention defect, and mood disorders, also the patient should invariably be considered as a whole, especially his previous personality.

Mr WILFRED TROTTER said that until recent years a whole train of symptoms following head injury had been regarded as vaguely due to hysteria, malingering, etc., but that such symptoms had been brought into the realm of scientific observation, and were no longer vague and indefinable. It was possible to distinguish as precisely as anything in medicine a form of amnesia that was characteristic of true concussion. This was retrograde amnesia—a loss of memory for events preceding the accident, the patient having no recollection for anything that occurred during the fifteen to twenty minutes that preceded his head injury. A further point of diagnostic importance was that in the headache following minor contusion the patient, when free from headache, felt perfectly well. This was not the case with the psychoneurotic. As regards surgical treatment, this was called for in the conditions already mentioned—namely, compound fracture and meningeal haemorrhage. For intractable headache following minor contusion a decompression operation was indicated. In major contusion Mr Trotter doubted if it was justifiable to leave the brain in a seriously congested condition for a long period. He advocated the special operation of making a small opening in the skull to interrupt the vicious circle of compression.

Dr D. McALPINE confined his remarks to the question of treatment. Only of late years had increased intracranial tension been recognized as the important factor in cases of head injury. This rise of pressure was brought about by traumatic oedema or haemorrhage, or by a combination of both. Oedema resulted in a general enlargement in the size of the brain, which tended to bring its surface close up against the dura. The effect of this was to hinder in varying degrees the absorption of the cerebro-spinal fluid into the venous sinuses. But as the fluid continued to flow from the choroid plexuses and accumulated in the ventricles and basal cisternae, more and more pressure was brought to bear on the medulla until it became paralysed. In some cases, therefore, traumatic oedema resulted in death from medullary compression, and this was a fact that could not be overlooked from the point of view of treatment. Lumbar puncture afforded an easy means of reducing the tension, and was practically free from danger in cases of head injury, except in the stage of shock. As long ago as 1905 Quincke pointed out that in brain injuries the estimation of the cerebro-spinal fluid pressure was of importance, and that the best results were obtained by drainage. Little importance had been paid until recently to the principles underlying this observation. A rise in the blood pressure accompanying intracranial tensions was true only of the late stages of medullary compression, and it should not be relied upon as an early sign. The only sure guide to the tension of the cerebro-spinal fluid was the manometer. The normal reading of the spinal fluid pressure in millimetres of mercury lay between 6 and 8. The patient should be in the prone position with the head, spinal canal, and upper level of the meningeal columns in approximately the same horizontal line. When the stage of shock following a head injury has passed and no immediate surgical interference was called for, lumbar puncture should be performed and the tension of the fluid measured. If this was raised sufficient fluid should be allowed to drain away to reduce the tension to just below normal. Lumbar puncture should be repeated at the end of twelve hours in a case of any severity and so on daily until the tension returned to normal. If after two or three punctures it was found that the tension was increasing, then the advisability of cerebral decompression should be considered.

Dr G. RIDDIOCH said that it was important to separate anxiety states from those of post-traumatic defect. The

latter were of the order of a mild dementia—deterioration of general mental capacity. The patient's symptoms tended to become worse towards the end of the day, whereas in anxiety states the symptoms were usually most pronounced in the morning. The symptoms were mainly those of lack in mental and physical efficiency, and were an indication of the effect on the brain as a whole rather than a sign of local contusion. Mr Trotter had suggested the term "post-contusional submentation" to indicate this condition. Dr Riddoch considered that hypertonic saline, given preferably by the rectum, was of value in relieving intracranial tension, but that the method should be used with discrimination. Dr E MAPOTHER expressed surprise that various speakers whose experience of head injury must be larger than his own should have found acute and severe psychoses so rare as a sequel of head injury. He referred to three such cases directly following severe motor car accidents. In all of these cases the salient feature was a manic state, a joyous satisfaction with self and circumstances, and disjointed hyperactivity. This was associated in a manner that was not seen in an ordinary mania with confusion. Disorientation and amnesia for current events was also present, in fact, all three cases resembled a combination of mania with Korsakoff's syndrome. All three cases had followed prolonged unconsciousness after the accident, and in one cerebro-spinal fluid escaped from the ear for a week. The patients all recovered within a few months. The condition observed was certainly not of purely emotional origin, and the patients had never shown previously a neurotic or psychopathic disposition. Dr PICKWORTH (Birmingham) said that the connecting link between head injury and mental disease was vascular, and was found in local or general cerebral anoxaemia or the results consequent upon inadequate removal of metabolic waste products. There was a remarkable similarity in some of the mental symptoms, which might occur in chronic subdural haemorrhage, simple anoxaemia, and anoxaemia produced by carbon monoxide poisoning. Almost any symptoms of mental disorder might be reproduced by this condition. Chronic subdural haemorrhage or history of head injury was not rare in mental hospitals.

Mr GEOFFREY JEFFERSON (Manchester) added his testimony to the importance of the condition of retrograde amnesia which Mr Wilfred Trotter had mentioned. This observation was of the utmost importance, for one had to correlate the patient's present complaint and condition with the amount of injury which he had received. Another point was the anatomical basis of these contusional states, be they recent or remote. Histological study on fatal cases showed a widespread minute change. He believed that changes of a similar or lesser degree existed in those patients who finally recovered. The outstanding feature of the finer changes in the brain tissue was cerebral oedema, so that the perivascular sheaths were distended or ruptured. The question of treatment must be based largely on pathological anatomy and its physiological results. If gross haemorrhage was present the treatment was obvious. It was the oedematous cases which presented the difficulty. Mr Trotter had performed a service in voicing his doubts as to whether they were right in allowing patients to be for long in a condition of restless unconsciousness, and there could be no question that judicious surgery held a place in treatment. If it was certain that the brain was oedematous hypertonic solutions (and 50 per cent glucose rather than saline was preferable) should succeed, but if a temporary improvement was followed by relapse decompression was necessary. Dr R EAGER (Exeter) had had the opportunity of studying during the war a series of 100 cases of head injury in which the patients had developed more or less mental symptoms. Headache, usually severe, was constant, and often varied with the position of the head. In some cases the patients sought refuge from the headache in alcohol, or even attempted suicide. This alcoholic refuge had not been sufficiently realized, and had in some measure been misinterpreted. Other symptoms included restlessness, lack of self-confidence, irritability, lack of concentration, and in some cases hallucinations. Epilepsy occurred four times more frequently in severe injuries than in milder cases. The injuries in those cases in which memory defect was a conspicuous feature were mainly in the frontal region.

Dr Eager had found a relatively small proportion of cases in which mental symptoms were the direct result of head injury.

Friday, July 27th

THE EARLY TREATMENT OF THE PSYCHOSES AND PSYCHONEUROSES

Dr HELEN BOYLE (Hove), opening a discussion on this subject, divided it into the early treatment of the individual, and how this could best be obtained. Insanity, she said, began before a person was insane. Although the early detection and treatment of mental defectives would not lead to cure, it would in many cases protect the community by helping to make the patients partly self-supporting and less dependent, segregation would avoid the possibility of mentally defective children being born. Many, if not most, of the difficulties found in education, criminology, religion, industry, and general medicine could only be solved with the aid of mental medicine and an understanding of the mind of man in health and disease. No doctor would admit that an understanding of the body in health was foreign to his purpose of grappling with disease. No doctor should any longer admit that an understanding of the mind in health was redundant, and still less of the mind diseased. The intricacies of its connexion with the body still needed further elucidation. The early treatment of recent cases in mental hospitals had improved immensely in recent years. The hospitalization of asylums was progressing, but Dr Boyle wished to dwell, not on the certifiably insane treated in mental hospitals, but on the patients whom it was harmful to certify or who were uncertifiable, the large number of the maladjusted, and those labouring under obsessions, phobias, and inhibitions. For these cases early treatment was necessary to prevent faulty adjustments. Dr Carswell started wards for borderland patients in connexion with the Poor Law, and the Lady Chichester Hospital, Hove, the first hospital for these cases, was started in 1905. Dr Rayner, about 1889, induced the governors of St Thomas's Hospital to open an outpatient department for early mental cases, since then many others had followed suit, notably Cardiff, under the President of the Section. The Maudsley Hospital was started in 1923 after previous use as a war hospital, it was carried on under special conditions, and was a centre for training and research of immense value, supported by the London County Council. The Cassel Hospital was providing for those who could afford moderate fees. For children who showed maladjustments in school life or before, the child guidance clinics offered useful help. Two were already in existence in England, and an elaborate one in London was being planned with American help. Dr Boyle suggested that it was desirable (1) that every general hospital should have facilities for treating early nervous and borderland patients, (2) that child guidance clinics should be available for the young maladjusted children and be under the charge of doctors, (3) that delinquents should have expert examination with regard to their mental adjustment—on the first offence—repeated if necessary, (4) that voluntary boarders be allowed in county mental hospitals, (5) that early insane patients should be able to be treated on two doctors' certificates, (6) that vocational guidance should be available for all who wish it—as at the National Institute for Industrial Psychology—as a preventive measure against maladjustments and unrest, (7) that every medical student should be obliged to devote some time to the study of all forms of mental disorder, (8) that examining boards should require evidence of knowledge of all forms of mental disorder.

Professor W WYGANDT (Hamburg) said that one of the chief difficulties was the recognition of pre-symptomatic cases, such as in Huntington's chorea, which was hereditary, but only in the fortieth year or later did symptoms appear. In the commoner types of mental disorders there was an inherited predisposition—for example, schizophrenia, cyclothymia—and even in early youth latent symptoms might exist. These it might become possible to discover by biological and psychological methods. There had already been several attempts to investigate children liable to mental disorder, such as those of Bechterew at Leningrad and Rossolimo at Moscow. At Hamburg there was a clinic for the observation and treatment of psychopathological boys by specially trained medical men and teachers.

Dr I S WILF (New York) said that the prevention of psychoses and psychoneuroses to be adequate should be undertaken in childhood. From the experience at his own clinic at the Sinai Hospital, New York, he considered that a large part of the work could be carried on in the out-patient department. The type of problem met with could be classified under three headings: (1) social mal-adjustments, (2) inadequate and undesirable habit formations, such as insomnia, night terrors, difficulties with food (fads), and speaking, (3) personality trends—as, for example, timidity, selfishness, unpopularity, and seclusiveness. The precocious child was often a more difficult problem than the defective. The mode of treatment depended upon interpretation of possible factors at work: this involved a diversification of procedures, dependent upon whether the dominant element lay in the physical, intellectual, emotional, or social realm. Life was manipulated as a whole rather than as a part because, by the very nature of man, to affect one part was to affect all. The time had passed for differentiating physical and mental factors as mutually exclusive.

Dr L MIRONEN agreed that in smaller country towns an out-patient department or a couple of wards might be all that was attainable, but not that such arrangements were the ideal at which to aim. He made no pretence of freedom from bias in advocating the psychiatric clinic, wherever possible, as against Dr Boyle's policy of a ward or department in a general hospital. He insisted that (1) it was wise not to rationalize into laws of nature restrictions and separations and vested interests which had really grown up from the absurdities of the Lunacy Act of 1880 and from the popular phrase, "It is not mental, doctor, it is only his nerves"; (2) the whole trend of every progressive country in Europe after twenty years' experience was towards establishment of special clinics; (3) detailed knowledge of attempts in Great Britain to establish psychiatric treatment in general hospital wards was the best evidence of their inadequacy. The usual general hospital scheme—visiting honorary physician, juvenile and inexperienced house-physicians, and nurses working in wards of a special kind just for a few months during training—was quite inapplicable except to a most limited class of neurotic patients. The proper ideal was a special building designed for the reception of patients with every degree of mental disorder and for their proper classification, with a highly trained semi-permanent staff and full provision not only for all forms of treatment, but also for occupation, exercise, and amusement during months of stay.

Dr MARI BARKAS said that it was too often assumed that early and recoverable cases were necessarily mild ones not needing the resources of a mental hospital for their treatment: this was far from being the case for it was just those eminently recoverable acute patients who broke down rather suddenly without such prodromal signs as were likely to be noticed, and who formed the group in which prognosis was best, while those of more insidious onset were, unfortunately, quite often the most intractable. Thus there was a danger in stressing too much the hope that by providing facilities for early treatment a rapid decrease would be ensured in the burden laid by insanity on the community. In certain American States it was averred that the opening of clinics and psychopathic hospitals had materially reduced the numbers requiring asylum care, but to make the proof of such a reduction within a short period a criterion for the value of the provisions for early treatment might well result in a feeling of disappointment that no such effects were demonstrable. An extension to all patients of the provisions now available for private patients with adequate supervision by the Board of Control—a thing no general hospital was likely to welcome—would do much to supply all that was needed for the present. In this connexion the present voluntary boarder system would probably before long be made to apply to all patients, but unless this was altered to conform more to the lines of provision now made for alcoholics, Dr Barkas did not think that it would do much to solve the problem. Child guidance clinics had shown how greatly the problem of the psychopathic child was bound up with social considerations, and

how all-important was the social worker and the re-education of the family. With the adult neurotic the same held good, and the speaker believed that no clinic for either in- or out-patient treatment would be able to do satisfactory work unless it included a well-trained staff of social workers who could deal with the environment of the patient.

Dr R G GORDON (Bath) considered that there was a good deal of confusion of thought on such questions as the following: Was there any fundamental difference between the neurotic and the psychotic patient? Did the neurotic patient ever become insane? Did the neurotic or normal person ever commit suicide? What was the real meaning of the borderline case? To answer these questions there must be an intensive study of the personalities of individuals, whether sound or sick, and particular attention to the capacity and success enjoyed by these persons in their adjustments to their environment. If this was done Dr Gordon suggested that it would be found that the person who under certain conditions—whether of toxæmia, endocrine disturbance, mental conflict, or emotional shock—broke down into a psychosis, differed in his "personality make-up" from another patient who under similar conditions broke down into a neurosis. Moreover, one of the chief differences seemed to be that in the first case the personality had no real tendency to adjust to the environment, and that in the present state of knowledge the efforts made did not at all, or only to a slight extent, increase this adjustment to the environment. With gently increased knowledge it might be possible to foresee that in certain circumstances which might be avoided "A" would break down into a psychosis of a particular kind, say manic-depressive insanity, "B" into a psychosis such as dementia præcox, while "X" would break down into a neurosis of a certain kind, say an anxiety state, while "Y" would develop hysteria. This was an ideal situation, and at present probably no one pretended to be able to carry out such subtleties in diagnosis, yet increasing experience seemed to be pointing that way.

Dr J R REES said that comparatively few realized that the moral disorders, the character and personality defects of childhood, were the forerunners of much of the mental disorder of later life. The statistics of the Tavistock Square Clinic bore out Dr Boyle's figures in showing that medical practitioners were gradually waking up. An increasing number of children and adults were coming on the recommendation of their doctors but there was still a great deal to be done. In medical as in lay minds there was still a gulf fixed between physical disorders and mental trouble. There was "real" disease and "imaginary" disease, and hence arose so much hopelessness, visionless, and empirical treatment of the mental disorders. Psychology was the nursery or the infant school, and the general practitioner was the ideal person to tackle this early period. He had the entrée to homes and the confidence of patients. The people and also the profession must be educated. He suggested that the British Medical Association might initiate a campaign of education. The mental hygiene movement in America did a vast and admirable work which was practically left untouched in this country. Was it not possible that there should be short courses of lectures for practitioners in every Division? The general practitioner, with his experience and balance, was well able to grasp the essential facts that were known, and he would in consequence be better equipped to deal with the earliest manifestations of mental trouble and to perform preventive work of inestimable value. Clinics, early treatment centres, and child guidance centres must come, and it seemed to him essential that the profession should have adequate knowledge if it were to co-operate effectively with these specialized institutions.

The President, Dr L GOOBYLL, said the delay in dealing with the recommendations of the Royal Commission on Mental Disorders in respect of facilities for early treatment was deplorable. He detailed the arrangements at Cardiff for dealing with early cases in an out-patient department of the Cardiff Royal Infirmary during the past seven or eight years. In his opinion 60 to 70 per cent of the out-patients required indoor treatment. In

the plans of a large new hospital, now being erected by the Poor Law authority at Cardiff, was included a wing for neurological cases and a pavilion for psychiatric cases, but this was a development for the future. Dr Goodall stated that the 30 to 40 per cent of patients among the direct admissions to the Cardiff Mental Hospital who were annually discharged within six months of admission could be treated at a psychiatric clinic, quite apart from the lunacy laws as at present constituted, and all the drawbacks which those laws implied. His constant advice to the Cardiff local authority was to abstain rigidly from any addition to their mental hospital, and to concentrate upon provision, in conjunction with the Cardiff Infirmary, of a fully equipped clinic in psychiatry.

Dr DONIS OULUX (Bournemouth) said that the discussion had shown a few points of difference of opinion, but more of agreement. All agreed as to the need for early treatment, all appeared to agree as to the value of establishing out-patient departments in association with general hospitals. She emphasized this not only in the interests of the patients, but also as a means of educating the public, the nurses, and the doctors in other departments of the hospital. The association with the general hospital gave status to the whole subject. All agreed that in-patient accommodation was essential. Everyone was strongly in favour of adequate social service in association with the out- or in-patient clinic, specially trained welfare workers were essential. The suggestion for the establishment of small hostels for patients who came from a distance for out-patient treatment in a centre was quite uncontroversial, and also the idea of starting special convalescent homes for recovering cases. Dr W. A. POTTS (Birmingham) said that no one yet had mentioned the two most important places for early treatment to be carried out. Those centres were the infant welfare clinic, which provided the earliest opportunity for the examination and training of the child, and the ante-natal clinic, where the attitude of the mother, and also of the father, to life and also to the child might be investigated and corrected. It was necessary to correct any misunderstanding that might arise from what was said about the damage of a sentimental attitude towards delinquents by saying that those who were engaged in work with delinquents were out for justice and for an opportunity for developing and drawing out the diminished sense of responsibility many delinquents had. The time would come, if early treatment was adopted, when very few wards would be wanted. Among the patients who came to Dr Potts for treatment the most hopeful were those who came saying they could not leave their work, such patients nearly always did well. Dr R. S. ALLISON (Ruthin) referred to some physical aspects of the treatment of the psychoneuroses. The first essential after obtaining a careful history was to make a thorough physical examination, following this, investigations would suggest themselves along bacteriological, biochemical, and radiological lines. The object in making these investigations was twofold: (1) the search for toxic foci, (2) to ascertain the physical peculiarities of the patient. The teeth, the throat, the accessory sinuses of the nose, the appendix, the gall-bladder, the colon, and the urine and faeces were commonly the sites of a latent infection. In some cases this might be detected only after a full investigation. Dr C. FORBES (Aberdeen), speaking as a general practitioner, supported strongly Dr Rees's suggestion regarding the education of the medical profession. The proposition should be urged by all who were interested in the general practitioner and in the early treatment of mental and nervous illness. There was a definite need for the institution of clinics as a medium not only of research and treatment, but also for the education of family doctors in the particular area served. The great majority of general practitioners were interested and acutely concerned in the problem under discussion. Dr CONSTANCE MORTLOCK-BROWN (Braunton, Devon) said that her objections to the Provisional Treatment Order were that it increased the number of orders instead of reducing them, it did not protect the patient and relatives from stigma, since sojourn in an asylum was a greater stigma than certification, she objected to two doctors interviewing the patient together, the Provisional Order did not secure for the patient and his relatives the rights and privileges, such as they were,

which were now accorded them under the 1890 Lunacy Act and attendant rules, under the Provisional Order a patient would be condemned to asylum life definitely for six months or a year—a most depressing outlook—whereas he might recover in three months or less. There was no necessity for a visit from a magistrate to be made obligatory, but it was advisable for him to have the power to visit. Dr Mottlock-Brown further urged that the terms "lunacy" and "lunatic" should be expunged from the statutes and from medical writings and conversation, and that medical women should be appointed to the Board of Control. She wished particularly to thank the British Medical Association that it had supported the rights of medical women in this matter. The Royal Commission, however, had suggested their appointment to a subsidiary position under a laywoman.

SECTION OF DERMATOLOGY

Friday, July 27th

URTICARIA

SIR ROBERT BOLAM, President of the Section, took the chair, and called upon Dr A. R. HALLAM to open the discussion on urticaria.

Dr HALLAM (Sheffield) said that urticaria, more than any other disease, exemplified the close connexion between cutaneous and general medicine. He defined four groups: (1) factitious urticaria, (2) acute urticaria, (3) chronic urticaria, and (4) the papular urticaria of childhood. According to Lewis, in all cases the wheals were due to the liberation of a histamine-like substance in the skin. The papular urticaria of childhood, although closely related to the urticaria of adults, differed in that the characteristic papule, instead of disappearing within a few hours, persisted for about a week. A remarkable fact, first noted by the speaker, was that all patients admitted to hospital immediately got well without the aid of any active treatment, but relapsed on discharge. According to Lewis wheal formation could be accurately imitated by an injection of histamine. The phenomenon of undue sensibility or allergy in urticarial subjects had been established, but the nature of this condition had not been discovered. The resemblance, however, between urticaria and anaphylaxis, first advanced by Wolff-Eisner, had been thought to show a close connexion between the two conditions, in both of which there was a fall of blood pressure, leucopenia, moderate eosinophilia, and sometimes albuminuria. The causes of urticaria were most varied, among them there had been recorded the passage of a uterine sound and a ring at the front door, it might be one of the earliest signs of grave disease or might be associated with focal sepsis. Since the chance of successful treatment largely depended on the detection of the cause, each case must be considered minutely from all aspects. Should the offending antigen be detected desensitization might be attempted, but empirical remedies often had to be employed. Calcium salts had long been used, but had not often been successful in the speaker's practice. Thyroid extract was sometimes beneficial.

Dr H. W. BARBER read a paper by himself and Dr Oriel on the biochemistry of the allergic state, of which urticaria was one of the commonest manifestations. Allergic conditions, he said, included (1) cutaneous reactions, such as in urticaria, various forms of eczema, and other dermatoses, and angioneurotic oedema, (2) respiratory reactions—as, for example, hay fever and asthma, (3) gastro-intestinal, and (4) nervous reactions, including migraine and possibly other conditions. Dr Oriel had discovered a phenomenon in the urine, termed the "other" reaction, this was always strongly positive during an acute manifestation, but might disappear during the period of quiescence. The two authors had found that in normal subjects the amino-acid content of the blood varied between 4 and 6.5 mg per 100 c.c.m., but in many allergic cases—as, for example, the asthma-prurigo group—very high quantities were found during the acute stages. Raised amino-acid content had also been found in light sensitization, in dermatitis herpetiformis and other cutaneous conditions, and in some cases of cirrhosis of the liver. They had found that chlorides tended to be retained in the blood during the paroxysm,

but excreted in unusually large quantities subsequently, urates were commonly deposited in the urine during the pre-oxysmal phase. It appeared that this precipitation depended on the urinary colloids, not, as previously thought, on the concentration and acidity of the urine. A urine with low acidity and a specific gravity of only 1012 might give a copious precipitation of urates. The ammonia excretion was very high during acute attacks, and was out of all proportion to the acidity of the urine. During the post-oxysmal stage there was diminished acidity, and sometimes actual alkalinity with diuresis. The speaker thought that the deposition of urates and the ether reaction in the urine indicated an alteration in its colloidal state, and that the increased ammonia excretion with the retention of chlorides in the blood were protective mechanisms. In general, they had formed the conclusion that the allergic state was associated with hepatic insufficiency.

Dr H G SEMON inquired (1) If hepatic insufficiency was the cause of allergy why did not urticarial symptoms occur in examples of gross liver disease such as arsenical poisoning? (2) In what other diseases were amino-acids increased in the blood? He had found ephedrine useful sometimes, and the intravenous injection of calcium effective in other cases, especially in angioneurotic oedema. Dr W J O'DONOVAN said that allergy as defined by Dr Bailey was too comprehensive, in ascribing it to liver torpor he was going back to Sidenham. He agreed that there was a neurotic factor. Dr J BEATTY (Cardiff) said that hepatic insufficiency was too extensive a cause for so narrow a group of diseases as urticaria and its allied conditions. He doubted whether the nervous system could excite urticaria. He himself regarded urticaria as a reaction of the skin to general protoplasmic poisoning. Dr HILL (Leicester) suggested that chronic infection with *Bacillus coli* was a common cause of urticaria.

Dr BARNES, in reply, said that he and Dr Oriel did not claim to have discovered the cause of urticaria, they had merely described the biochemistry of the allergic state. In answer to Dr Semon he said that allergic symptoms, such as itching were present in liver disease. He had found that calcium was useful when there was calcium deficiency affecting the vegetative nervous system, which varied in irritability according to the calcium content of the blood. He was aware of the utility of ephedrine and adrenaline. Dr HALLAM, in reply, said that as yet there was no specific for urticaria, the only thing to do was to try to find the actual cause. Otherwise empirical remedies, countless in number, were the sole hope.

SOUTAR'S STEAM CAUTERY IN DERMATOLOGY

Dr H G SEMON read a paper on the dermatological indications for Soutar's steam cautery which he had used for over two years, and much preferred to diathermy. Its advantages were freedom from breakdown, slow penetration of the tissues, it was easily regulated, and the production of a coagulum which although firm, could be easily removed with a sharp spoon. The source of heat was a solid fuel, the apparatus was therefore portable and quite independent of a lighting circuit, but owing to the presence of a naked flame proximity to ether must be avoided. Mechanical trouble was extremely rare with this instrument. The most important precaution was to keep the applicators free from crusts, which reduced the efficiency. Another advantage was the ease with which haemorrhage was arrested, even if large arteries were opened again, there was a striking and complete absence of post-operative pain. He had found the cautery particularly useful in epitheliomata invading cartilage or bone—cases in which x rays or radium were well known to be almost futile. He had also used it with great success in three cases of lupus verrucosus, but the horny tissues must previously be macerated with strong salicylic plasters for a few days, because the applicators had no effect whatever if this were not done, such was the heat-resisting power of keratin. He also used it in treating soft sores and chancrelets, for the bacillus of Dnerev was notoriously susceptible to the effects of heat. The type of case in which his experience led him to expect the best results was one in which the pathological tissue to be destroyed was soft in character and free from keratin, warts, fibro-

mata, and moles should be avoided. The after-treatment consisted in keeping the part as dry as possible until the slough separated, when ambrino was the best dressing.

Dr WIGLEY, in the discussion, suggested that it would be convenient to employ an electrical method of heating the water. Dr SEMON, in reply, said that there was a difficulty in obtaining an electric heater appropriate for the many different electrical circuits in operation.

THALLIUM EPILATION IN RINGWORM

Dr J E M WIGLEY read a paper on the treatment of ringworm of the scalp by thallium acetate. He said that he had treated fifty cases in children varying in age from 18 months to 9 years. The dose had been 85 mg. per kilo of body weight, dissolved in an ounce of sweetened water. He had found the average time of epilation to be twenty-four to twenty-six days, and recommencement of growth much more rapid than with x rays. He had checked all his cases by examination with ultra-violet light under Wood's glass. He had found that many unbroken hairs apparently normal in appearance were merminated by the ultra-violet method, and these were always found microscopically to be full of mycelium. Thallium often gave a deceptive appearance of cure, but failed to pass the Wood's glass test. The local treatment so strongly insisted upon by several writers during the period of hair falling was very difficult for out-patients. Toxic symptoms were noticed with the greater frequency the older the patient, pain in the legs was the commonest. He had tried thallium in chronic seborrhoeic dermatitis of the scalp without success. He concluded that thallium was distinctly inferior to x rays in the hands of a skilled operator.

Dr HALDIN-DAVIS thought that the scope for thallium was limited to children who were too young for x ray treatment, but with the aid of a narcotic it was possible to x ray quite young infants. He, too, had noticed the occurrence of hairs heavily infected with ringworm but appearing quite normal to the naked eye. Dr SEMON said that he had used thallium in over forty cases with only one failure. It entailed much more work by the dermatologist and his assistants than did x rays but was much safer unless the x rays were given by a skilled and experienced person. Dr O'DONOVAN had given up thallium and thought it should be limited to Poor Law institutions where x rays were not available. Dr HALLAM reported that he had treated eighty-two cases with thallium, and considered it safer than x rays, forty of these patients were kept in bed during the period of epilation. He had had only one failure. Among out-patients his results were not so good. Both x rays and thallium were bad methods. Dr INGRAM (Leeds) said he had treated forty-eight cases successfully, he had also found it useful in chronic seborrhoeic dermatitis of the scalp. The PRESIDENT reminded the Section that Sir Norman Walker had recommended them to experiment with these methods on favus in which one was justified in taking more risks than in ringworm. He had done so, and he agreed with Dr Hallam that both methods were bad, he still kept an open mind as to their relative merits. Dr WIGLEY in reply, said that he was more against thallium than against x rays on account of its uncertainty.

SALVARSAN ILL EFFECTS AND FATALITIES

Dr W J O'DONOVAN, in a paper on uncommon ill effects of salvarsan therapy, said that it was impossible to predict what patient would prove unsuitable for salvarsan treatment. Ill effects might occur at any time during the course, with any brand of drug, and with any sized dose. He mentioned certain cases which were interesting because of their gravity and comparative rarity. They included post-salvarsan melanoderma, one case being associated with follicular hyperkeratosis, multiple cutaneous abscesses with exfoliative dermatitis, cutaneous and subcutaneous necroses and pulmonary embolism. He had shown two cases of melanoderma at the Royal Society of Medicine, and although doubt had at one time been thrown on their etiology, his conclusions had since been accepted. The patient, who had suffered from cutaneous necrosis, also had necrosis of the bone of

the os calcis, this had never before been described as a result of salvarsan. This patient recovered, but the patient who had pulmonary embolism succumbed. The PRESIDENT said that he thought cutaneous accidents were more likely to occur when too frequent doses were given, and that hepatic troubles were due to excessive quantities administered.

SECTION OF LARYNGOLOGY AND OTOTOLOGY

Thursday, July 26th

DRAINAGE OF BRAIN ABSCESS

SIR PERCY SARGENT, who read the opening paper of a discussion on the drainage of brain abscess, remarked that it was essential to remember that some cerebral tissue required most careful surgical handling on account of its functional importance, though it had been demonstrated that practically complete destruction of one-half of the cerebellum had resulted in no apparent loss of function one year later. There were four types of brain suppuration with abscess formation: (1) diffuse suppurative softening; (2) formation of a septic cavity containing pus, with softened wall, but with no capsule; (3) a cavity lined with a thin capsule of young fibrous granulation tissue; (4) a small abscess cavity, surrounded by dense fibrous tissue of varying thickness. He discussed the nature and treatment of these types. He then showed a very interesting picture demonstrating the susceptibility of the lateral ventricle to involvement in cases of cerebral abscess, and emphasized the difference between a hernia cerebri and a fungus cerebri. Embolic brain abscesses were quite a favourable type for treatment. In these the transarachnoid route must be undertaken as near the abscess as possible, while in otitic abscesses the stalk should be followed.

Mr SYDNEY SCOTT concentrated on the treatment of brain abscess of otitic origin. Cerebral abscesses could be reached (1) through the roof of the antrum by the tegmen route, (2) by the labyrinthine route, if clinical signs of a dead labyrinth were present or there was evidence that the labyrinth had been dead for some years, or (3) by following the infection along the sinus route in the case of temporo-occipital or even occipital abscesses. Cerebellar abscesses might be opened (1) through the posterior wall of the antrum mesial or lateral to the sigmoid sinuses, (2) through the sinus, or (3) through the labyrinth (again if dead). For opening the skull he always used a gouge and hammer, he mentioned several cases in which he had proved to his own satisfaction that the blows of the hammer did not induce any headache or concussion, but he admitted that the circular trephine was the more popular instrument. He gave the warning that abscesses might be much deeper than was expected from their external appearance. He raised the question whether it was advisable to evacuate the pus rapidly or by suction and thought that perhaps slow drainage was more satisfactory. As regards the frequency of brain abscesses, it was found that only 85 cases had been admitted to St Bartholomew's Hospital in the last twenty-four years, and about the same number had been admitted to the Edinburgh Royal Infirmary in the last twenty years. In St Bartholomew's Hospital there had been 17 recoveries out of the 85 cases, and this proportion was found to more or less agree with the results at other centres in America and Vienna. In Neuman's clinic there had been 82 cases of temporo-sphenoidal abscess, with 20 recoveries, in eighteen years. He mentioned a record of 41 consecutive cases of cerebellar abscess, all of which were fatal. He commented on the curious fact that often the patients with the most severe symptoms were the ones who recovered following drainage.

Mr E D D DAVIS did not believe much in the efficacy of drainage tubes in dealing with brain abscess, and showed two drawings illustrating their failure to enter or remain in the cavity. Drainage tubes might give rise to secondary infection. Mr WAGGETT emphasized that the most important point was the detection of the abscess, and said that he considered the finger was the most useful in this. Sir Victor Horsley had been a convert to this method of exploration which he latterly made use of. Dr WILLIAM

HILL asked why frontal lobe abscesses were so much more serious than others. Dr HUGH JONES thought that the great obstacle to drainage was oedema of the brain tissue and distension of the ventricles, and suggested that possibly drainage of the ventricle through uninfected brain tissue might be of service. He thought that a double rubber tube afforded the best drainage, and also that the suction method might cause breaking of the wall of the ventricle. Mr RIDOUT (Portsmouth) said that experience tended to show that the more rapid and earlier treatment of infective otitic conditions had brought about a reduction in the number of cases of intracranial complications. He had treated 15 cases in about the same number of years, and in his personal experience cerebellar abscesses had done better than cerebral abscesses. Mr RITCHIE RODGER raised the question whether it might not be better to wait for brain abscesses to become encapsulated before operating, but did not offer it as a line of treatment to be adopted. He was inclined to this idea by the success attending operations on well-developed and encapsulated abscesses. Dr COATES (Philadelphia) said that the ideas, results, and frequency of this condition as detailed coincided pretty closely with those in the United States. Dr SYME (Glasgow) was interested in what Sir Percy Sargent had said about lumbar puncture. He was opposed to this procedure, but now that he had been told that the pressure was from the ventricle to the abscess, and not vice versa, he thought that it was justified. He doubted the value of packing gauze round the bone margin before opening and draining the abscess. Dr LOGAN TURNER (Edinburgh) asked Sir Percy Sargent if he had any experience of the gauze method of drainage as practised by Professor Fraser of Edinburgh, instead of drainage by tubes.

SIR PERCY SARGENT, replying, stated that intracranial pressure could be reduced in any given case temporarily by the intravenous administration of a 30 per cent solution of sodium chloride or by the introduction into the rectum of a saturated solution of magnesium sulphate. The danger was that the brain might fall away too rapidly and open up paths of infection. Mr Waggett's suggestion as to finger exploration was rational. In reply to Dr William Hill, he said that he had not found that frontal lobe abscesses did any worse than those in other situations, but rather the contrary, they probably took longer to diagnose. In reply to a question by Dr Coates, he said that he had very rarely seen multiple brain abscesses except in museums. He did not agree with dispensing with the use of drainage tubes, but he had no experience of the gauze method, the frequent pulling away of the gauze would be liable to damage the wall of the cavity, it had been tried many years ago in the peritoneal cavity and abandoned.

EAR INJURIES FOLLOWING SKULL FRACTURES

Mr E D D DAVIS described the various lines of fracture in the base of the skull, the majority of which involved the middle cranial fossa. It was nearly always the middle ear which was involved, and very rarely the internal ear. The external auditory meatus was, however, quite frequently injured, especially in fractures through the Glaserian fissure. In some cases middle-ear deafness resulted merely from the extravasation of blood into the middle-ear cavity, and the blood could sometimes be seen at the Eustachian orifice in the nasopharynx. Taking a series of skull fractures, he found that haemorrhage from both ears showed a mortality of 66 per cent, whereas in cases of haemorrhage from one ear the mortality was only 39 per cent. The average mortality in all cases of fracture of the base of the skull was about 40 per cent. When the facial nerve was paralysed the injury usually occurred in the neighbourhood of the geniculate ganglion, and these patients eventually recovered. Any improvement in the hearing function followed in about eight weeks, after that time not much improvement could be expected. Injury to the internal ear was very rarely seen clinically, probably because all such patients died owing to the severity of the concussion. Treatment consisted in rest and cleansing the meatus. Any discharge from the ear should be mopped up and skin irritation carefully guarded against. No ear drops or mops should on any account be introduced into the meatus owing to the danger of secondary infection.

accurring. If suppuration supervened vigorous methods of treatment, including early drainage of the antrum if involved, must be at once instigated.

RADIUM TREATMENT OF MIDDLE-EAR DEAFNESS

Dr WILLIAM HILL read a short paper on the question of treatment of middle-ear deafness and lachrymian catarrh resulting in deafness, by means of the application of radium. In his cases he irradiated only one ear, using the other ear as a control. He had treated 47 cases, all of which had reached a stationary condition so far as other more recognized methods of treatment were concerned, 9 cases had shown substantial improvement and 7 slight improvement. He gave two to four applications of 50 to 60 millicurie hours. After careful examination and treatment he was quite satisfied that in certain cases he obtained substantial improvement.

SECTION OF TUBERCULOSIS

Thursday, July 26th

SURGICAL PROCEDURES IN PULMONARY CASES

THE chief impressions left by the discussion on the after-effects of surgical procedures in cases of pulmonary tuberculosis, which took place in the Section of Tuberculosis at Cardiff on July 26th, were that the physician was being ousted from his last stronghold, the chest, and that the success recorded by the surgeon in this region might justify his admission at an earlier stage of the disease. The former of these impressions was emphasized by Dr CECIL WALL, who thought that in the future the distinction would not be between physician and surgeon, but between practitioner and chest specialist.

Mr TUDOR EDWARDS, in opening the discussion, dealt first with the choice of cases, which should be those of chronic third stage type, with little or no activity in the "better" lung. Old cases of artificial pneumothorax, in which refill was no longer possible, were suitable for thoracoplasty, as also were those cases in which fluid developed and became purulent. Infected tuberculous empyemata, in which delay might lead to lardaceous disease, should be treated by thoracoplasty as soon as possible. Although early cases should be given extended trial of other medical measures before operation was considered, Mr Tudor Edwards thought that there was a tendency to wait too long. He endeavoured, in his operations, to obtain adequate collapse of the whole lung, proceeding first by phrenic evulsion, and then, a week or two later, by thoracoplasty, from the first to the tenth rib posteriorly, in two stages. Localized collapse could be obtained by phrenic evulsion or by pneumolysis. The chief value of the latter operation was, he thought, for a residual cavity left at the apex after thoracoplasty. Mr Tudor Edwards then gave figures of the results of his operations, for which it appeared that over 50 per cent of the patients treated by thoracoplasty were cured or much improved, while less than 7 per cent died within three weeks of the operation.

Dr F G CHANDLER called attention to the natural instinct of the physician to consider the operative risk to his patient and the possibility of after-pain and discomfort. In some cases it was necessary that the patient should decide the question of operation for himself, since, if he knew the risk, he might prefer to die. Dr Chandler regarded intrapleural pneumolysis as unsatisfactory. Phrenic evulsion involved little risk, and in basal tuberculosis, and as an accessory to incomplete artificial pneumothorax, was very useful. Apicolysis and pneumolysis had great possibilities, while thoracoplasty had brilliant and lasting results in the hands of a properly trained surgeon. It demanded perfect technique. In a series of patients operated on it had been found that over 42 per cent were fit for work two years after the operation, while of a similar series not operated upon only 11 per cent were fit for work. Dr Chandler concluded by deploring the apathy towards modern advances in the treatment of pulmonary tuberculosis which he believed to exist.

Subsequent speakers described thoracoplasty as a serious or desperate operation, but Mr WILLIAM ANDERSON

suggested that it gave a chance to cases otherwise hopeless, while Dr FENWICK JONES thought that suitable cases should be tackled much earlier than was done at present. He gave statistics of twenty-five operations performed at the North Wales Sanatorium. Dr D A POWELL believed that ultimately the results of thoracoplasty would surpass those of artificial pneumothorax. Dr H MORRISTON DAVIES showed photographs of patients who had undergone the operation, which made it clear that the patients had not been crippled, that when dressed they showed no deformity, and that there was no dropping of the shoulder and no scoliosis. He pleaded for the introduction of surgical facilities into sanatoriums, and said that while the Welsh National Memorial had set the example in the Principality the only sanatorium he knew of in England which had an operating theatre was the Cheshire Joint Sanatorium.

Mr TUDOR EDWARDS, in his reply, stated that after-pain from the operation was due purely to bad technique. He felt there was no justification for describing the operation of thoracoplasty as desperate, and he mentioned that at the Ventnor Sanatorium a theatre had already been built. Dr CHANDLER expressed the hope that surgeons who meditated taking up the operation would serve an apprenticeship under those who had developed it.

THE GENERAL PRACTITIONER AND TUBERCULOSIS

THE discussion on tuberculosis as seen by the general practitioner was enlivened by an opening paper read by Dr ANGUS KENNEDY, which was described by Dr POWELL as a salutary cold douche. His thesis was that the claim that the lower mortality from tuberculosis was the result of preventive measures, mostly undertaken during the past twenty-five years, would not bear scrutiny. The present expenditure of labour and money was not justified by the results. An examination of the mortality from the disease during the last two hundred years showed that it was 14 per cent in 1721, 25 per cent in 1821, 12 per cent in 1871, and that since then there had only been a reduction of a further 3 per cent. The great reduction was in the time of our grandfathers, before preventive measures were thought of. Dr Kennedy considered the fall in the mortality since 1821 to be due to lessened virulence of the bacillus and increasing resistance of the race, and illustrated his point by referring to the intense susceptibility to the disease shown by negroes in the East End of London. He thought that the disease could only be eliminated by cultivating the eugenic conscience.

Dr R CAMERON (Cardiff) read a paper on the problem of early recognition of tuberculosis. He had investigated the existence of the disease in Cardiff, and found that phthisis alone accounted for roughly 20 per cent of all the deaths between 15 and 65 years of age. Over 50 per cent of the patients slept in contact with other persons. He enumerated the symptoms to be looked for in early cases under Pottenger's three headings—pulmonary, reflex, and toxic— and said that he regarded the finding of the bacillus as the only real proof of tuberculosis. Diagnosis by tuberculin did not give reliable results. In his opinion Dr J R GILLESPIE did not support him, as he had found the subcutaneous test very valuable, though the skin test was useless. He began with 0.0002 c.c.m., and gave six doses, doubling the dose each time before pronouncing the case non-tuberculous. Dr AMBROSE OWEN gave some interesting statistics of cases which had occurred in his practice, and Dr W T HALL asserted that among his patients the best results were obtained in those who had been through a sanatorium course. He did not believe that tuberculin could be used safely by the general practitioner in the patient's home, and reliance had to be placed on treatment by drugs. Dr HOPKINS ASHMORE thought that dust caused the spread of the disease, and suggested enumeration of all dust collected, but Dr MATTHEWS said that analysis of the dust from the waiting room of a tuberculosis institute had not shown the presence of living bacilli. Infection was probably from droplets of sputum. He had found that the reaction to tuberculin used for diagnosis, differed in urban districts from rural. Urban children of 10 to 15 years reacted very much more

frequently than rural children, while a higher rate of incidence of the disease in children giving a positive reaction was seen in the country.

Dr CAMFRON, in his reply, deplored the lack of hospital accommodation for advanced cases of tuberculosis.

SECTION OF MEDICAL SOCIOLOGY

Friday, July 27th

THE FALLING BIRTH RATE

THIS year's discussion, on the falling birth rate, in the Section of Medical Sociology raised many interesting questions. What are the causes of the fall? The openers of the discussion were hardly agreed. Professor W. J. ROBERTS (Cardiff), on the economic side, had no belief in Malthus's laws of population. He thought the importance of the economic motive should always be borne in mind. Inquiry should be made more closely into the lives and economic conditions of various classes, and he suggested that the medical practitioner might render important help by inquiring of his patients what they thought and what were the motives for their conduct. People conducted themselves under the limitations of their social position and of their knowledge. Some were more inclined or better able to follow medical advice on the matter. In his opinion overcrowding was an argument which might be used to prove too much. There was no evidence of real overcrowding in this country, and on halving the population of Cardiff it might be found that the apparent overcrowding was not relieved. Similarly the old solution of the problem by emigration was not valid, and economic dogmatism on the matter was not possible.

Dr F. A. F. CREW (Edinburgh) elaborated opinions which he had formed from his biological investigations of mice, drosophila, and other organisms. In drosophila there was an optimum density of population, above and below which there was a lower reproductive rate. The harmony between a limited area and its supplies was maintained by restricting fecundity. The human being, he thought, was now approaching the end of a birth rate cycle, but the distinction of the factors in producing it was difficult. A rising birth rate heralded an extension of the conquest by man over his environment; a falling rate indicated that in a particular area he was permanently or temporarily imprisoned. The birth rate would not rise again until the factors overriding the inherent tendency to increase were recognized and removed. Among factors making for increase, Dr CREW mentioned the presence in a community of "multiple birth" stocks, the possibility that *mittelschmerz* in females might indicate more intense sexual life, and length of life, which was an inherited character. A fall occurred in discontented and discouraged populations, in whom it was interesting to note a degeneration of the maternal instinct. Immigration among drosophila led to a fall of population. The root of the matter in the human being was probably to be found in social conditions. Among the socially unsuccessful the only outlets of nervous release were excessive drinking and sexual over-indulgence. In such classes the reproductive rate would be high, social advancement implied other outlets and a lower reproductive rate. But birth control, while preventing the birth of individual babies, did not have much effect on the gross birth rate.

SIR THOMAS HORDER doubted whether the falling birth rate came within the province of the medical practitioner, though greatly concerning the biologist and the economist. These two, together with the physiologist, the biochemist, and the eugenicist, must solve many problems before the doctor could prescribe appropriately in the matter for his patients. He should not lend himself as an ally to the eugenicist until many of these problems had been solved. The doctor had a sanction for individual therapeutics but hitherto he had not sought to influence men and women on matters of principle. He had kept clear of propaganda. Lady BARNETT was of opinion that the falling birth rate was a matter which should concern general practitioners. It was important that they should take a wider view of matters which affected the health of their patients, and be in a position to tell them the real facts about birth control,

the average frequency of births to married couples, and other similar matters. In some cases it was their duty to teach the advantages of normal marital relationships, in others to do all in their power to help patients to avoid pregnancy. If it was thought that medical practitioners were unfit to deal with the question, arrangements should be made for teaching medical students the subject and their responsibility therein. Dr WILLIAM COLLIER (Oxford) suggested that the medical profession had helped to maintain the population by saving much infant mortality, but he was chiefly concerned that the profession should give advice in birth control for which purpose he advocated the establishment of birth control clinics. Dr LETITIA FAIRFIELD thought that the falling birth rate was due to wide causes, and not to individual action. These causes might be classified as voluntary and involuntary. She objected to the eugenicist putting upon the doctor his so-called laws. She emphasized the importance of motivation, and the human being's view of life. Jews and Roman Catholics were fertile because of their outlook on life. Dr BINNIE DUNLOP expressed the opinion that couples in the poorest classes should be encouraged to have not more than two children. In these hard times, with many adults out of work or on insufficient wages, a very low birth rate was especially desirable. Mrs NEVILLE ROLFE regarded emigration as a cure for many social difficulties, but protested against the failure of local authorities to train and equip an equal number of girls with the boys. Dr N. E. WATERFIELD pointed out that the medical man had some responsibility in the matter, and some influence in individual cases in which he was consulted. Absolute sterility was, in his opinion, always involuntary, but small families were usually the result of contraceptive methods.

Professor ROBERTS, Dr CREW, and Lady BARNETT replied to some of the criticisms which had been made.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

DIATHERMY FOR CANCRUM ORIS

CANCER ORIS is fortunately now a rare condition at least in this part of England. Nevertheless examples turn up from time to time renewing interest and arousing responsibility. A close association with a considerable number of cases during the last thirty years has taught me how very serious the prognosis usually is, and how inefficient most of the methods of treatment. On March 30th of this year, a child suffering from this condition was admitted to the Royal Victoria Infirmary under my care, she was a light-haired little kiddie, 4 years of age, and looking as though of very poor resisting powers. There was a large black patch of gangrenous tissue about the size of half a crown over the horizontal ramus of the lower jaw on the right side, and this was surrounded by a zone of acute inflammation, with swelling of the side of the face and neck. At one point the edge of the gangrenous area had separated, and there was a small amount of very offensive discharge. The buccal cavity was not infected. The temperature was 102.8° and the child was toxic and profoundly ill. While pondering over the best method of treatment, it suddenly occurred to me that complete excision by the method of diathermy might cut short the infective gangrenous process, and I determined to try it. Under a general anaesthetic the diathermy knife was applied about half an inch from the edge of the black mass to include the spreading edge, and a free circular excision was carried out. To remove all the dead tissue it was necessary to go right down to the bone and when the mass was separated from the latter the horrible sickening odour of the roasted gangrenous tissue almost overcame me. After this complete excision about 1½ in. of the body of the jaw lay exposed at the bottom of the wound and subsequently necrosed. The area was packed with gauze and external dressings applied. The condition of the patient under the anaesthetic gave much cause for anxiety, but she soon picked up, and almost from that moment commenced to make a satisfactory recovery. The temperature fell at once and remained at

normal, with the exception of one or two days at the end of a fortnight when there was a mild outburst of surrounding inflammation, but without any of the characteristics associated with infective gangrene. During the sixth week the patient was able to leave hospital, and progress continued uninterruptedly afterwards. On July 18th the sequestrum was obviously loose, and was lifted out by the family doctor. Afterwards the area soon healed, leaving a surprisingly small scar. This is the first occasion on which I have used diathermy for acute gangrenous necrosis of this kind, but the result has been so satisfactory as to encourage me to employ it in future. It is because I think that this method is well worthy of extended trial that I send you this brief record of a single case, and in the hope that others may have a similar fortunate experience, but whatever the results, it is well that they should be known to the profession.

G. GREY TUNNFR, M.S., F.R.C.S.,
Newcastle-on-Tyne, Professor of Surgery, University of Durham

DRY CUPPING IN CHRONIC EMPYEMA

The following is, I believe, an original method of dealing with relapses from which most chronic empyema cases suffer from time to time.

A man aged 32 with a sinus of the chest wall following three operations for empyema, consulted me because the discharge had ceased for some days and he had symptoms of toxæmia. X-ray examination revealed an encysted collection of pus, with marked pleural fibrosis. I introduced sinus forceps and a probe into the sinus to a depth of 5 inches, but pus could not be found as the sinus was tortuous. I then inserted a fine rubber tube into the sinus to the same depth and having vaselined the skin I applied a dry cup in the usual way. About five seconds later the patient felt something give in his chest, his dull pain there immediately departed and the cup was filled with pus.

In this manner about 200 c.cm. of pus was evacuated and in a few hours the patient felt better in every way. Subsequent cuppings for the next two days exhausted the supply of pus, the symptoms of toxæmia rapidly abated. Direct suction on the tube with a syringe was useless, as, being of necessity a fine one, the tube would have collapsed.

The treatment is simplicity itself, notably dramatic, and efficacious, and the patient was discharged from hospital after six days, quite fit, and intensely grateful for having been saved the ordeal of a further operation.

I am indebted to Dr. Lind Walker for permission to publish this case.

ROBERT A. CAMERON, M.B., Ch.B.
Senior House-Surgeon, Royal Infirmary, Doncaster

AN UNUSUAL CASE OF A RUPTURED ECTOPIC GESTATION

The following case is of unusual interest, since it illustrates that rupture of the tube in an ectopic gestation may occur (1) as late as the fourth month of pregnancy (2) without the slightest evidence of external (vaginal) hæmorrhage, (3) without the characteristic features of internal hæmorrhage save a slightly raised pulse rate (84) and (4) with the gradual development of peritonitis with equivocal physical signs.

A primipara aged 20 had had amenorrhœa for four months and at 6 o'clock on the evening of June 20th was seized with sudden pain in the back and right lower abdomen. She managed to carry on for about an hour but was ultimately compelled to take to bed. I was called to see her about 10 p.m. The patient was pale, her pulse was 84, she had not vomited, there was no respiratory distress and no sweating, but the patient bore an anxious expression which did not seem to fit in with the clinical findings. There was abdominal tenderness distributed all over the abdomen but particularly in the right flank. The patient was mentally alert and capable of answering any questions asked.

A somewhat tentative diagnosis of ectopic gestation was made on the grounds of amenorrhœa, the pallor, the slightly raised pulse rate and the abdominal tenderness.

On opening the abdomen at the Merthyr General Hospital the peritoneal cavity was filled with blood and blood clot, the left tube was ruptured about midway between the uterus and the infundibular extremity and a foetus about 8½ c.cm. was lying freely in the abdominal cavity.

The case illustrates certain points which are against the recognized textbook descriptions of this not uncommon catastrophe, and should be kept in mind by practitioners when dealing with an 'acute abdomen'.

I wish to thank Mr. S. C. Cresswell for permission to report this case.

HENRY A. SEIDENBERG, M.R.C.S.,
Dowlais, Glamorgan, L.R.C.P.

British Medical Association

CLINICAL AND SCIENTIFIC PROCEEDINGS

STAFFORDSHIRE BRANCH

The Fallacies of Negative Findings

At the annual general meeting of the Staffordshire Branch, held on July 19th, the President, Dr. G. H. SOWRY, read a paper on "The fallacies of negative findings."

Dr. Sowry showed the pitfalls into which one might fall by arriving at a purely negative diagnosis, and emphasized the importance of assessing, as accurately as possible, the pathological condition actually present. In this connexion he mentioned a consultation which he had recently attended regarding a case of suspected small pox in which the consultant had stated his belief that the case was not small-pox, but, having gone thus far, said that as well as arriving at a negative diagnosis they must also make up their minds as to the disease from which the patient was in fact suffering. Only thus, by arriving at a positive diagnosis, were they justified in being sure that the case was not small-pox. Dr. Sowry instanced cases of tonsillitis in which the negative diagnosis of "not diphtheria" was reached, but which investigations pushed to the length of arriving at a positive finding would have revealed as cases of scarlet fever much sooner than the true diagnosis was, in fact, made.

In the case of sputums yielding negative results with regard to tubercle bacilli, Dr. Sowry pointed out that one negative examination, or, indeed, five or six such examinations, did not entitle one to say that the case was not one of pulmonary tuberculosis. In instances of suspected pleural effusion the failure to find fluid on one puncture might be due to the smallness of the amount of fluid, or to the needle being introduced into the lung or even into the liver, so that a negative result of a pleural puncture did not exclude pleural fluid. With regard to the Wassermann reaction, Dr. Sowry mentioned several cases in which this reaction had been negative, but the clinical picture being that of specific disease, and the cases reacting dramatically to antisyphilitic treatment, they were almost certainly instances of syphilitic disease. Many diabetics might at particular times of the day pass urine in which there was no sugar, one could place reliance upon the negative results of an examination for sugar only if the sample examined had been taken from a mixed specimen of a twenty-four-hour output. Dr. Sowry reiterated the well-known fallacy attaching to negative results in the examination of throat swabs taken from suspected cases of diphtheria, and he also indicated the fallacies attaching to negative results (achlorhydria) obtained in the examination of fractional test meals.

The lecturer next discussed examinations by x-rays, and, while he paid a tribute to the extreme utility of such examinations, he emphasized the pitfalls which had become apparent to him personally. Thus a gastric or duodenal ulcer, though present, might not show up on an x-ray photograph representing an antero-posterior view, particularly if the ulcer were situated, in the case of gastric ulcers, at some distance from the anterior or posterior curvatures. In order to show gastric ulcers situated at places other than in the neighbourhood of the curvatures it was necessary to take a lateral view. In cholecystography, after the exhibition of an opaque dye, a negative result might be due to faulty absorption of the drug, and need not necessarily be associated with the gall bladder conditions which, if present, would give a similar result. Dr. Sowry instanced the accidents which might arise in cases of suspected malignant disease of the lower alimentary canal in which the negative result of a digital examination had led to a reassuring diagnosis, and he emphasized that the disease could not be excluded in the absence of a sigmoidoscopic examination, and, if that should prove negative, of an x-ray investigation of a barium enema.

Dr. KING ALCOCK moved, and Dr. MENZIES seconded, a vote of thanks to Dr. Sowry for his excellent paper.

Reviews.

ADDRESSES IN SURGERY

THE President of the Royal College of Surgeons of England has collected a number of his orations, lectures, and addresses and published them in a volume entitled *Addresses on Surgical Subjects*.¹ Sir BERKELEY MOYNIHAN is well known as a brilliant orator who does not suffer by comparison with Sir James Paget. A number of these addresses are reprinted from our pages, and several have furnished us with themes for leading articles. Highly as we have valued them, we were better able to appreciate the wide range of knowledge and the versatility of their author when we re-read them now in the volume which has just appeared. For the audiences to whom they were addressed were as various as the subjects of the orations and their treatment, and whether it was a popular lecture on cancer delivered in the Hastings Hall of the British Medical Association, or a Mitchell Banks Lecture packed with statements of physiological and pathological fact and with closely reasoned arguments based upon them, each is in its way a model for imitation, and must have been a delight to those who had the good fortune to hear it. Sir Berkeley Moynihan is a surgeon who sets very high ideals before himself and lays claim—and, as we think, makes good his claim—to a high place for surgery among the sciences, a place which, as he remarks, the Royal Society is not disposed to give it, seeing that at the present time no practising surgeon as such may write the much prized letters "F.R.S." after his name, although we are proud to reckon Sir Arthur Keith among the Fellows of the Royal College of Surgeons. But Sir Arthur Keith earned his fellowship of the Royal Society, not as surgeon, but as an anatomist, pathologist, and palaeontologist. In the first address in this book the Hunterian Oration of 1927, on Hunter's ideals and Lister's practice, Sir Berkeley Moynihan playfully prophesies that hereafter the spirit of our present beloved conservator will conduct the ghost of John Hunter round his own museum and introduce it to the wonders of the microscope. In the Harveian Oration to the Medical Society of London a very important matter is duly insisted upon—namely, that a surgical operation should be only one incident in a long series of events stretching between illness and recovery, and that the cure and science of the surgeon must be exercised long before and perhaps also long after the actual operation.

To the American College of Surgeons in 1920 Sir Berkeley Moynihan addressed a glowing eulogy of John B. Murphy of Chicago, whose memory he held up to his audience as one that would endure among those of the supremely great men in medicine through all generations. This occasion was also seized upon to deliver a brilliant sketch of the history of medicine, a subject which also occupied a prominent place in the presidential address to the Science Masters' Association in 1925. In the "role of a physician doomed to the practice of surgery," to use his own words, our author recapitulated the enormous benefits which surgery and the patient had received from the discovery of x rays and the elaboration of technique and apparatus in their use, not only as an aid to diagnosis, but as a therapeutic agent, in which latter capacity he urges its employment immediately after the excision of certain cancers, such as those of the breast. "The Contributions of Leeds to Surgery" was a pious offering to his Alma Mater by one of the brilliant company of Leeds surgeons whom the speaker recalled to notice in the coming of age address in 1924. Leeds Infirmary, which is, of course, many times as old as the University, has been fortunate in its medical staff, beginning with the Heys and continuing to the present day. The addresses delivered during the Lister centenary celebrations in 1927 were noticed in our columns at that time, except one which is unusual in its occasion, for it was spoken into a wireless receiver and transmitted to the world by the British Broadcasting Corporation. The address on perforation of gastric and

duodenal ulcers, which was delivered in honour of Professor Raffaele Bastianelli, covers in a condensed form much of the results of an almost unique experience of such accidents, considered with ripe and acute judgement. All abdominal surgeons may profit by it. In a short address to the Mental Diseases Section at the Edinburgh Meeting of the British Medical Association, on the relation of abhorrent mental states to organic disease, Sir Berkeley Moynihan once more recalled the debt due to Dr. William Hunter for his long-unrecognized work on focal sepsis, especially of the teeth and gums and of its great pathological and surgical importance. In the two last articles in the volume, on acute pancreatitis and on the gall bladder and its infections, the author is at home in a realm which he has largely made his own. These will both repay study, and the last one will require careful perusal if the reader is to profit by its rather intricate pathology and the closely reasoned arguments based upon it. This article is illustrated with reproductions of radiographs and of microscopic sections, which are very instructive.

We hope that we may be permitted to make one reflection on this collection of addresses on surgery by an admitted master of his art. Omitting the more general topics of discourse, the surgical conditions dealt with are almost all to be found in the abdomen, into which cavity surgery some time ago plunged and from which it nowadays but rarely emerges, to judge only by publications and the programmes of surgical meetings. We infer from these facts that indeed the subject of abdominal surgery is so vast and so intricate, becoming more and not less complex as time passes and experience accumulates, that even the most comprehensive intellects have little time to spare for the consideration of other regions of the body.

BEDSIDE AND LABORATORY

THE laboratory methods of the Vienna clinics,² by Professors BARRENSCHEN and WILLHEIM, in collaboration with nineteen other teachers, is written, as the title evidently implies, partly with a special object—namely, to exhibit the relation obtaining between the clinician and the laboratory worker in the Vienna school. It is well known that in some schools the laboratory worker was at first regarded with a certain degree of indifference and even coldness by the clinician, the prejudice often extended beyond the walls of the hospitals, and those medical men who happened signally to favour laboratory methods were apt to be caricatured as "test-tube doctors." Opinion has altered, at least within the profession: the value of laboratory work in diagnosis and prognosis is now fully recognized, and although intuition and the clinical instinct are still felt to be of supreme importance there is a desire to base every diagnosis on objective findings as far as possible. Although, owing to the special and complicated technique of the work involved, the laboratory must necessarily remain as a separate department from the clinic, there can be no cogent reason why the two should not work hand in hand—that is to say, the clinic should make every possible use of the laboratory for the furtherance of medical science, consistent with the interests of the individual patient. It is the boast of the authors that the Vienna school has always made it a fundamental principle to refuse strictly scientific methods into clinical work—to combine clinical intuition with scientific penetration such as the tradition of the school. The present volume exhibits the methods actually in use in the Vienna school, the work is therefore incomplete in the sense of not mentioning all possible methods—selection was inevitable. On the other hand, the scope of the work is wide, including not only the usual methods of blood examination, bacteriology, serological diagnosis, and the analysis of secretions, exudates, and excreta, but many special procedures, such as the meostagmine reaction for carcinoma. If the book may be taken as a measure of the encouragement given by the clinician to the laboratory worker, the Vienna school is to be congratulated on the happy relations existing between the two departments.

¹ *Addresses on Surgical Subjects*. By Sir Berkeley Moynihan. Bart., President of the Royal College of Surgeons of England. Philadelphia and London, W. B. Saunders Company, 1928. (Med. 8vo pp. 348. 8 figures. 22s. net.)

² *Die Laboratoriumsmethoden der Wiener Kliniken*. Herausgegeben von H. K. Barrenschén und R. Willheim. Leipzig und Wien, F. Deuticke, 1928. (Sup. roy. 8vo pp. xxv + 800. 104 figures. 19 plates. 34s.)

BRUMPT'S PARASITOLOGY

PROFESSOR BRUMPT'S well known *Precis de Parasitologie*,³ of which a fourth edition now appears, really needs no introduction. It is one of the excellent series published by Masson et Cie, but in its remodelled form, with 236 more pages of text and 89 new figures, this volume must be considered as a very complete textbook of parasitology rather than a précis. It will find a place, as did the preceding edition (1922), in the library of everyone interested in the subject. It is practically double the size (and double the weight) of the other members of the series and its 1,452 closely printed pages of small type make a volume which, we may be allowed to suggest, would in future editions be better if divided into two. The book is so arranged that each parasite is studied as it falls into its natural order, with preliminary notes on its classification and relationship to others. A description is given of each species, its life-history, and the part played by it in human disease, with a short account of disease distribution, symptomatology, diagnosis, and treatment. The work thus constitutes a complete textbook covering a very wide ground, and will undoubtedly continue to prove of great value to the student of parasitology. Recent additions to knowledge have largely been incorporated in the text, and where this has not been possible the book has been brought quite up to date by a system of copious footnotes with references to authors, among whose names English workers bulk very largely. It is manifestly impossible, and, moreover, unnecessary, to give more than this brief general notice to a book of such large dimensions.

IONIZATION FOR NON-SUPPURATIVE OTITIS

A REVIEW of the physical laws concerned in the study of ionization, illustrated by a series of experiments, introduces a small book,⁴ by Dr LANDRY and Dr FRANQUET of Rheims, on a method of treating non suppurative otitis. Some of these experiments, designed to demonstrate the passage of ions, are at once simple and ingenious. From these the authors conclude that the medicament chosen can be introduced into the tissues in a nascent and perfectly pure condition. The choice of medication is based partly on an experiment of Gouget, who showed that it is impossible to produce atheroma experimentally in rabbits by the injection of adrenaline after a preliminary treatment with silicates. The action of silicon in the tissues is a perpetual struggle with the carbonates, and prevents their fixation. The authors claim that the introduction of the ion represented by SiO_2 into the tympanum relieves the tinnitus associated with sclerotic changes in the middle ear. They have also experimented with sodium chloride, potassium iodide, and calcium salts, the last especially in cases of otosclerosis. They are careful not to claim too much for the method and to limit themselves to experimental and clinical observations. They have, however, clearly established a case for further study of this form of treatment in a class of patients whose symptoms are usually refractory and distressing.

FORENSIC MEDICINE

THE second edition of Professor SYDNEY SMITH'S *Forensic Medicine*⁵ will be especially welcome to the students of Edinburgh University, where he now holds the chair of forensic medicine. Since the first edition of his book Professor Smith has undertaken the revision of Taylor's *Principles of Medical Jurisprudence*, in which task he has had the able assistance of Mr Cook of the Middle Temple as co-editor, and the success which has attended his efforts in that direction has been reflected in the second edition of his own book. This book is already so well known that

it requires no recommendation. Based on the Edinburgh teaching, where Professor Smith received his early training, it has been elaborated in the light of the wide practical experience acquired by the author whilst in Egypt. The text of the new edition is naturally to a large extent unaltered, but several changes in the law have called for attention, and the few errors which are apt to creep into a first edition have now been eliminated. There is a slight increase in the amount of subject matter, and we are pleased to see that the illustrations, which are excellent, have been considerably increased in number. The student will find this excellent book a most interesting and comprehensive work, easily read, full of detail, yet at the same time not too expanded for his purpose. It is a book on which thorough reliance can be placed, and one which the student will retain and consult when in practice.

BREND'S *Handbook of Medical Jurisprudence and Toxicology*⁶ is already well known and widely used. This new (sixth) edition has been brought fully up to date, and includes references to the latest Acts, regulations, and decisions. The text is easily read, and the descriptions of all branches of medical jurisprudence are full and adequate, except in regard to the procedure in criminal cases and the investigation of sudden deaths. This differs in England and Scotland, and it would have been an advantage to students in Scotland, where the handbook is widely read, if the account had included a description of the procedure in that country. Dr Brend's little volume can be strongly recommended to the student, who will find no better book for his purpose.

POTTED PHYSIOLOGY

THE publishers of a popular series of synopses of various branches of medical science have now added physiology⁷ to their list. The joint authors are Dr A. RENDLE SHORT and Mr C. I. HAM. Educationists may be tempted to deprecate the circulation amongst medical students of such "crum books", but the condemnation is probably unsound. Such books as these have a very obvious purpose. They comprise a series of headings, subtitles, and terse notes, which, at the worst, may be accepted as more judicious, better balanced, more consecutive, and freer from misinterpretation than are the notes which the average student can hope to assemble from the lecture courses he is expected to attend. If he will take this skeleton of physiology, as he would take his own notes, and clothe its dead bones with living description and argument, he will have gone some way towards an understanding of his subject. He will have had to read deeply in the excellent textbooks of physiology which are available, and he will (if blessed in his teachers) have been able to take full profit from his lectures.

The authors, in a preface, express the hope that their book may be of value also to "practitioners who wish to keep abreast of modern physiology" and, as an aide-memoire, to our brethren who lecture to classes. The library of physiology is not so bare that we can be content to offer to these the dry bones of knowledge.

ANNALS OF MEDICAL HISTORY

THE first of the eleven main articles in the summer number of the *Annals of Medical History*⁸ is on "The Beginnings of American Physiology," by Dr Walter J. Meek, and is illustrated by seven portraits, two of which—those of the well-known William Beaumont and the prolific Rohley Dunglison (1792-1869) who analysed the gastric juice of Alexis St. Martin and whose medical dictionary ran through twenty-three editions—also do duty on the cover.

³ *Precis de Parasitologie*. Par E. Brumpt. Quatrième édition entièrement remaniée. Collection de Précis Médicaux. Paris: Masson et Cie (5 x 7 1/2 pp. xiii + 1452. 785 figures. 6 plates. Paper cover. 80 fr. bound. 100 fr.)

⁴ *Ionisation dans les Otites moyennes non suppurées. Méthode et Résultats*. Par le Dr M. Landry et le Dr René Franquet. Paris: Vigot Frères (44 x 7 pp. 110. 8 figures. 8 fr.)

⁵ *Forensic Medicine*. By Sydney Smith M.D. Ed. DPH. With an Introduction by Professor Harvey Littlejohn. F.R.C.S. Ed. F.R.S.E. Second edition. London: J. and A. Churchill. 1928. (Demy. 8vo. xv + 662. 166 figures. 24s. net.)

⁶ *Handbook of Medical Jurisprudence and Toxicology*. By William A. Brend M.D. B.Sc. London: Sixth edition revised. London: C. Griffin and Co. Ltd. 1928. (Fcap. 8vo. pp. xiii + 327. 10s. 6d. net.)

⁷ *Synopsis of Physiology*. By A. Rendle Short M.D. B.Sc., F.R.C.S. and C. I. Ham M.D., B.Ch., M.R.C.S., L.R.C.P. Bristol: J. Wright and Sons Ltd. London: Simpkin Marshall Ltd. 1927. (Cr. 8vo. pp. 253. 10s. 6d. net.)

⁸ *Annals of Medical History* (Summer Number 1928), vol. x. No. 2. Edited by Francis R. Packard M.D. New York: Paul B. Hoeber, Inc. London: Baillière Tindall and Cox. 1928. (8 1/2 x 12 1/2. pp. 111-212. illustrated. Subscription in Great Britain £2 2s. a volume of four numbers.)

and as frontispiece There are two rather remarkable portraits of J. Call Dalton (1825-1889), who studied the biliary secretion by means of a biliary fistula and was the first in America to illustrate his lectures by experiments on living animals. Dr B. Barker Beeson contributes an intimate account of Jean Martin Charcot (1825-1893) whose rise from the son of a coachbuilder to his eventual pre-eminence was the outcome of a great ability. His profile has been compared to that of Dante, Napoleon, and a Roman senator. The pediatric activities of the three generations of the Meigs (1792-1912) are recounted by Dr A. Levinson of Chicago. In his essay on the episode of St. Thomas Browne and the witches Dr J. H. Lloyd concludes by expressing a regret that belief in witchcraft did not find a place in the famous "Vulgar Errors." There are two articles dealing with Samuel Pepys, Dr R. L. Pittfield gives a short account of his oculist D'Aubegney D'Urberville and his family, and Dr Jean Broadhurst contributes "Pepys with Pepys at Hygiene and Medicine." The life of Alexander Garden, M.D., F.R.S., a colonial physician and naturalist of Charleston, who was a correspondent of Linnaeus, is supplied by Dr P. C. Jenkins, and Dr A. J. Buchanan writes on the solution and works of J. G. A. Lugol (1788-1851). Shakespeare's knowledge as a neuropsychiatrist is analysed by Dr G. E. Price in an article brimming over with quotations. Medical terminology is discussed in a specially interesting manner by Dr Edmund Andrews, who traces the origin of medical words and incidentally gives much curious information. Ptolemy in a Pleistocene wolf is the subject-matter of Dr Roy L. Moodie's twenty-second study in Palaeopathology. There are two attractively written editorials of a centenary character by Dr FRANCIS PICKARD on Marcello Malpighi (1628-94) and by Dr F. H. Garrison on Emil Neugebner (1827-1895).

NOTES ON BOOKS

THE volume of short essays entitled *Coloured Thinking*, the subject of the first essay by Dr FRANK HARRIS contains a number of reflections on scientific subjects somewhat in the nature of asides from the main path of science. Gleanings from the lives of scientists showing their delight in discovery—science and character—the beautiful in science—such are some of the subjects dealt with in this interesting little volume. Other articles have a historical or antiquarian leaning, such as those on the origin of certain scientific terms on the influence of Italy and on biology in Shakespeare. 'Coloured thinking' strictly speaking is that peculiar tendency exhibited by some individuals of colouring all their thoughts—Monday will be blue Tuesday yellow for example. But the author evidently implies a wider meaning to the term, and would have all scientific thinking coloured with an appreciation and reverence for the beautiful all scientific achievement coloured with modesty and all thought and action coloured with a tone of refinement.

Those who wish to study the eugenic views on medical examination before marriage will find them set forth in *L'Examen médical en vue du mariage*.¹⁰ The book is mainly a collection of addresses delivered before various eugenic conferences by doctors from several countries with a summary of the general conclusions by M. L. March, a vice-president of the French Eugenics Society. In several countries there has been legislation on the health of those about to marry, and in several States in the U.S.A. attempts have been made to demand pre-nuptial certificates. It appears, however, that it has been found impossible to enforce such decrees and the writers in the book before us seem to agree generally that milder methods must be used. Thus in Holland the registrars deliver warning literature to the betrothed. In Scandinavian countries marriage of the mentally affected and of those suffering from epilepsy or contagious venereal disease, is strictly forbidden. But in these and most other countries it has been decided that obligatory certificates before marriage are inadvisable. The majority of the authors agree that medical examination should be promoted by propaganda through the press by means of handbills and by meetings, that free matrimonial clinics should be organized, and that laws against the communication of infectious disease should be rigorously enforced. In fact, the

book impresses us by the modernization of its proposals, as compared with the claims for the studious production of ideal citizens which so often seem to be made by individual eugenicists.

Crawford W. Long and the Discovery of Ether Anesthesia,¹¹ by Mrs. FRANCIS LONG TAYLOR, the daughter of the young medical man who, when only 26 years of age first employed ether as an anesthetic on March 30th 1842, is an expansion of an article in the *Annals of Medical History* three years ago, and is brought out in the attractive style characteristic of the works published by Paul B. Hoeber. Crawford Williamson Long (1815-1878) was a country practitioner and did not publish his discovery until 1853, and in the meanwhile W. T. G. Morton, Horace Wells and C. T. Jackson brought their claims before the world. Thus arose a not very edifying dispute about priority. The matter, as Dr Puckard says in a brief foreword, may be summed up in the conclusion that Crawford Long first used ether to induce surgical anaesthesia and Morton first demonstrated this before a professional audience at the Massachusetts General Hospital, Boston, in October, 1846, when Warren Hayward and H. J. Bigelow operated upon a young man.

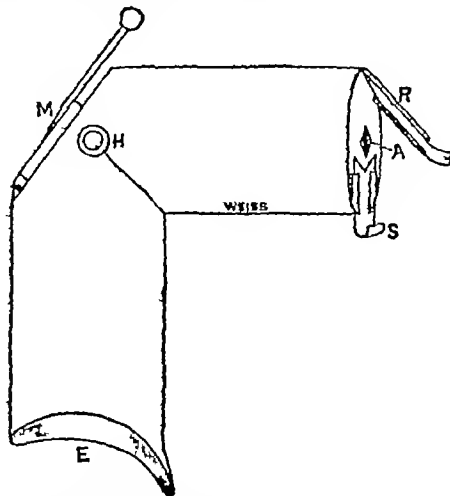
In a volume entitled the *Index Psychoanalyticus, 1890-1926*¹² Dr JOHN RICKMAN has collected other references to the subject of psychoanalysis since it was first originated. Such a compilation must be of the greatest service to all those who are interested in the study of modern psychology.

¹¹ *Crawford W. Long and the Discovery of Ether Anesthesia*. By Frances Long Taylor. New York: Paul B. Hoeber, Inc. London: H. Milford, Oxford University Press, 1928. (8½ x 5½), pp. viii + 237. 8 plates. 18s.
¹² *Index Psychoanalyticus*. Edited by John Rickman, M.A., M.D. The International Psychoanalytic Association, London. L. and V. Woolf, the Hogarth Press, 1928. 8vo. pp. 275. 18s.

PREPARATIONS AND APPLIANCES

THE SCOTOPHOTOGRAPH

Mr. N. BISHOP HARMAN, F.R.C.S., recently showed to the Ophthalmological Society of the United Kingdom and to the Ophthalmological Section at the Cardiff Meeting of the British Medical Association an instrument designed by him to facilitate measuring the fields of vision where there is a central scotoma. The following is an abstract of his description of this instrument and its manner of use. I find taking is difficult where the macula of one eye is out of action. The device shown gets over most of these difficulties. A tube is bent at a right angle midway in its length and the two arms are so arranged as to give the seeing eye a false fixation spot which will correspond in position to the real one marked on the perimeter or scotometer. The figure shows the plan of the



instrument in reduced scale. E is the eyepiece. At the knuckle there is a double circle marked π for the reception of the handle. At the extreme right hand end of the tube is a plate in the centre of which is cut a diamond shaped aperture. At the knuckle of the bend of the tube is a large hole covered with a hinged lid α , fitted inside with a plane mirror. The patient holds the instrument before the eye which has fixation power. He sees the patch of light reflected from the mirror lid at the knuckle. The field of vision of the other eye and the scotoma are thereon mapped out. The instrument can be used for either eye. The scotograph (Mr Bishop Harman adds) is made by Messrs Weiss. It has been shown with the handle for holding in the hand of the patient, and this is the form I prefer, but the makers are prepared to fit it with a clasp arm to clip on to the upright of the perimeter.

¹⁰ *Coloured Thinking*. By Dr F. Harris, M.D., D.Sc., F.R.S.E. London: G. Routledge and Sons, Ltd. 1928. (Cr. 8vo. 1p. vii + 259. 3s. net.)
¹¹ *L'Examen médical en vue du mariage*. By Dr René Sand et al. Bibliothèque des connaissances médicales. Paris: E. Flammarion (Cr. 8vo. pp. 283. 12 fr.)

British Medical Journal.

SATURDAY, AUGUST 18TH, 1928

THE ORIGIN OF ENCEPHALITIS LETHARGICA

HISTORICAL speculations regarding encephalitis lethargica have, in recent years, given place to more practical considerations concerning the victims of this disease, but they have lately been revived by Dr A J Watson in an interesting paper on 'The origin of encephalitis lethargica,' contributed by him to the *China Medical Journal* for June, 1928. Dr Watson begins by asking what explanation can be given to the sudden appearance of this disease in the twentieth century. He is not disposed to accept the idea that we have been witnesses of the arrival of a new phase in the evolution of micro-organisms. On the other hand, he does not consider that medical researches have hitherto been able to trace any trustworthy historical antecedents of this epidemic infectious disease, and he doubts whether the disease—as we know it—could have existed in Europe and not have been recorded by some one among the many keen observers of the past two hundred years. But, as Dr Watson points out, Europe contains but a fraction of the world's inhabitants, and he suggests that the 'new' disease may have existed, and may still exist, as an endemic infection among the millions of the East, concerning whose ailments we are still largely in ignorance, and of which there are very few reliable historical records. Next, Dr Watson notes the significant fact that encephalitis lethargica appeared during the world war, when large numbers of Indians and Chinese served on various fronts, and where there was an unprecedented mingling of peoples from all five continents. Then, if ever, was the opportunity for the transference of disease from one country to another.

On the supposition that an endemic area or areas must exist somewhere, Dr Watson thinks that he has discovered such a focus in the Chinese province of Yunnanfu, to which, as a medical missionary, he, with his wife Dr Mary Watson, was posted for duty early in 1926. At the C.M.S. hospital in the town of Yunnanfu Dr Watson and his colleagues saw nineteen cases of post-encephalitis between February 28th and December, 1927, during this period 10,000 patients in all attended the hospital for various complaints. There are several interesting points about the series of encephalitis cases. All the patients except one seen in the acute stage, were suffering from characteristic Parkinsonism, and most of the patients gave a history of previous diplopia. All except two were males, and the majority were between the ages of 13 and 36 years, two were described as tribespeople, the others were Chinese. But there were other and more interesting circumstances of these cases, and some of these 'compelled' Dr Watson and his colleagues to consider the disease as endemic in the district. In the first place, the province of Yunnanfu, from which all the patients came, is a comparatively isolated part of China, where travelling is not easy,

and where, in normal times, the inhabitants do not mix with people outside their own district. All except three of the patients, who lived in the city of Yunnanfu, came from country districts and from separate isolated villages, while the majority asserted that they had never previously left their own neighbourhood. Next, Dr Watson lays stress on the length of time the symptoms had persisted in most of his patients, and particularly in the case of two, whose original attacks are stated to have occurred one in 1915 and the other in 1919, of the remainder, one had a history of seven years, one of six, one of five two of four, and the others three years or less. The evidence as to the dates of primary attacks rests on the testimony of the patients or their friends but Dr Watson thinks this is trustworthy, the first two patients, who were examined also by other medical men, never varied their answers on this point. Dr Watson makes the further observation that if, contrary to his belief, the disease originated in Europe and spread thence to China it would have behaved as it did on the Continent, in England, and in America, and shown itself in epidemic form on such virgin soil. But, so far as he knows, no case has occurred among the colony of 3,000 Cantonese in Yunnanfu, who are the travellers of the district, and Dr Watson himself met with no cases during the period January, 1924, to August, 1926, when he was stationed at Pakhoi, a treaty port in trade communication with Hong Kong. Moreover, foreign trained Chinese doctors long resident in the district have no knowledge of any epidemics of encephalitis having occurred in Yunnanfu.

Dr Watson's paper is extremely interesting. To have met for the first time in an isolated province of a country with which he was familiar no fewer than nineteen cases of chronic encephalitis within a period of eleven months is an event which in itself may well have set the observer thinking hard. The fact that it was during the world war that cases, or at any rate groups of cases, of the disease first came to light in Europe has, of course, long been appreciated, and it may be recalled also that it was among the subjects of the chief belligerent nations that cases of the disease first appeared. Dr Watson evidently considers it significant that in one of his patients the primary attack occurred at an early stage of the war—namely, in 1915—and apparently the inference is that there may have been other undiscovered cases occurring in China about or before that time. Among Western races it is true that the disease first attracted notice towards the end of the war, from 1917 onwards, but it may be noted that some reliable authorities in this country consider that before the war they were treating isolated cases of an obscure nature which in the light of subsequent experience, they now think may have been cases of encephalitis lethargica.

The great war certainly provided a unique opportunity for the escape and reactivation so to speak of an infection which up to the outbreak of hostilities may have been lying latent and comparatively harmless in some isolated community and there is nothing fantastic in Dr Watson's general hypothesis that it was from the East and from such a district as that of Yunnanfu, that the infection was carried by Asiatics, and by them distributed among the subjects of other races with whom they fought and mingled. There are, indeed, instances quoted by Hall¹ of isolated cases occurring among French and British troops in 1916. Speaking generally, however, there were no serious outbreaks of the disease among the European

¹ *Epidemic Encephalitis, 1924* p 7

armies while in the field, nor, later, was there any special incidence of the disease either among ex-service men or among their families. The sparse but widespread distribution of sporadic cases of encephalitis lethargica in this country did at one time suggest that infection was dotted about the country by returning soldiers, as was the case with malaria for a few years after the war, but the facts are against this explanation. It is not easy to explain, therefore, how exactly the sudden appearance of the disease can be correlated with the events of the war possibly, as with cerebro spinal fever, it was the military massing of individuals that raised the carrier rate to such a point that clinical cases began to appear and constitute epidemic outbreaks. But to appraise properly the merits of Dr Watson's hypothesis it would be necessary to investigate the facts concerning the movements and distribution of Indians and Chinese in the war areas, and to probe carefully the records concerning the occurrence of cases on those fronts where Asiatics and Europeans were in close contact. It is to be hoped, however that Dr Watson and his colleagues will continue their local researches with the view of learning as much as possible about the historical traditions and present day distribution of the disease in China. The lack of documentary evidence and the fact that in this disease the Western doctor can achieve no spectacular cures which will attract more cases to his clinic, undoubtedly make such researches particularly difficult. But this stimulating paper has certainly provided another instance of the good work done by medical missionaries, who, with the scantiest facilities, have yet not missed their peculiar opportunities for throwing light upon epidemiological matters in many obscure corners of the world.

PARATYPHOID FEVER IN THE LONDON AREA

TOWARDS the close of last month what is known technically as a 'burst' of paratyphoid fever occurred in London and several of the Home Counties, and cases continue to come to knowledge. Up to the end of last week about 160 cases had been reported as having occurred in London while others had also been reported at Epsom Sutton Carshalton Beddington, Wellington New Malden and Dorking in Surrey, at Northwood in Middlesex and at St Albans in Hertfordshire. The onset of illness appears in the bulk of the cases to have taken place round about the end of the third week in July and, allowing for the incubation period, the facts suggested that towards the end of the first week in July something had happened which led to a rather widespread diffusion of *Bacillus paratyphosus* B about that time.

Medical officers of the Ministry of Health, of the London County Council and of the local sanitary authorities in whose areas the cases occurred have been busily investigating the facts of the outbreak and these inquiries appear to have narrowed the channel of convection to the consumption of cream supplied by a large distributing firm to all the affected districts. Bursts of epidemic disease of this kind are usually associated with the consumption of some common article of food or drink which has become contaminated with the specific virus causing the disease. Water and milk perhaps the most common vehicles of diffusion in such cases appear to be ruled out in the present outbreak of paratyphoid fever in the London

area, but the evidence incriminating cream distributed about the end of the first week of July is, we understand, cumulative and convincing.

Necessarily, as in every epidemiological investigation conducted while the facts are still unfolding themselves, conclusions are tentative and subject to revision in the light of all the facts which later experience may disclose. But assuming it to be finally established that the present outbreak is due to contamination of cream distributed on a certain day or days early in July, what ground is this for the campaign upon which certain daily newspapers have embarked for revoking the Regulations of the Ministry of Health prohibiting the sophistication of food by so called preservatives? If cream is the medium of diffusion of the infective agent responsible for this outbreak it is because it has become grossly contaminated with the paratyphoid organisms. Would any sensible person, knowing this to have occurred, risk consuming such cream because it had had a 'harmless' modicum of boric acid added to it? The question need only be asked to show how misdirected is the exploitation of this outbreak in the interests of a reactionary pseudo hygienic propaganda. Already trade interests have secured the fortification of cream against such untoward infections by the employment of means far more efficacious than admixture with chemical reagents of the antiseptic order—namely, by pasteurization. But even efficient agents such as pasteurization fail upon occasion, as in the case of the present outbreak. Pasteurization may not be hygienically ideal, but properly controlled it is at least more efficient and less harmful than the process of further contaminating the foodstuff with injurious chemical substances which, under the conditions necessarily imposed, are germicidally inadequate to render innocuous foodstuffs contaminated by the organisms of infectious disease.

When we read in one of the newspapers that the absence of preservatives in perishable foods does tend to increase the risk of their becoming infected, and that the possibility of the epidemic of paratyphoid being due to the prevention of preservatives in food has caused the Ministry of Health to take action, we are indeed presented with a new kind of health propaganda based on etiological principles with which we must confess ourselves unfamiliar. This new group of deficiency diseases will be interesting to the hygienist of the future. The older hygienists will be content to continue to insist on the importance of preventing contamination of food stuffs, on the observance of strict cleanliness in their production, distribution, and storage, and, as a second line of defence, to rely positively on heat for the destruction of overlooked contamination and negatively on cold storage where perishable articles cannot be consumed in their fresh condition.

In the present outbreak of paratyphoid fever there has been a breakdown in this hygienic regime at some point so far undiscovered. There would be no additional security to the public against outbreaks of this character were a "minute quantity of boric acid" permitted to be added to cream as a preservative. It is not in the public interest that an outbreak of infectious disease calling for calm and experienced investigation should be made the subject of a news paper stunt and exploited to revive a practice which has been abolished in America and in regard to which, as the result of careful, prolonged and skilled inquiry official prohibition has tardily followed in this country.

PAY BEDS IN HOSPITALS

A SUMMARY of the report of the special Pay Beds Committee of the King Edward's Fund for London will be found at page 319. This report will command attention, while dealing with Greater London, it merits consideration by others than London citizens and hospital medical staffs, for changes in conditions in the metropolis will certainly have their reactions upon the country generally. The evidence obtained by the committee reveals the number of hospitals which have pay beds, and the great variety that exists in such provision. It is an indication of a widespread and new activity, boards of hospitals and medical staffs are trying out, each according to local conditions, schemes adapted to the needs of their clientele as they see them. Time is needed to show what direction the main line of advance will take, the committee suggests that there will be room for considerable variations at all times, for the circumstances of localities and population differ so widely. Of the need for an extended provision of pay beds it has no doubt, there are at present rather more than 1,000 beds, and the committee thinks that nearly 7,000 are needed. How many of these must be new beds they do not know, since the extent of the existing provision in nursing homes will not be revealed until the Nursing Homes (Registration) Act, 1927, becomes effective. That Act may reduce the number of beds in nursing homes, since the less efficient will probably close down where improvement is not feasible. The committee agrees that for the most part pay beds should be for an intermediate type of patient, it does not exclude the possibility of provision for the well-to-do, on the American model, but it thinks it would be difficult to graft that model on to the existing British practice. Pay beds are not new. The Florence Nightingale Hospital was founded in 1850, other pay bed hospitals have been established since and have done admirable work, but the greatest extension has been through additions to existing voluntary hospitals—a method which is less costly. These additions, however, bring with them their own difficulties in the matter of staffing. Should there be a "closed" staff limited to the existing members at the hospital or a larger staff amounting to free choice of doctor? It would appear that the committee inclines to the solution presented by the British Medical Association policy, that where the pay beds are an integral part of the hospital building a "closed" staff is generally necessary, but that where the provision is separate there should be an "open" staff. The committee concludes, however, that an extended provision must be paralleled by an extended association of all registered practitioners with the work of the hospitals, if only because the success of such ventures requires the goodwill of all practitioners. The fear is discounted that pay beds will militate against the continued popularity of the voluntary hospitals. The reverse is found to be the case, the popularity of the hospitals appears to be increased. It seems only natural that it should be so, for what is found desirable by the citizen who can pay for it will be appreciated by the citizen who cannot pay. The committee emphasizes the need for better accounting by the hospitals, with separate "costing" for the several departments, so that the real cost of pay beds may be known. Additions, they suggest, should be met from new money provided for the purpose, so that the cost shall not be a charge upon the general funds of the charity. For the most part the conclusions of the committee are in agreement with the recommendations of the hospital policy of the British Medical Association, but upon one point there is a sharp difference of opinion. The report states:

No patient in a pay bed should pay any fee to a physician or surgeon, whether a member of the medical staff or not, for treatment received in the hospital, unless the charges which that individual pays to the hospital

cover the whole cost to the hospital of his current maintenance." The British Medical Association policy reads: "This understanding for gratuitous service was mutual and reciprocal, and the general tendency now existing for the exaction of payment, however small, from the patient, necessarily modifies the original understanding." Where the board of a voluntary hospital received contributions from individuals in return for, or in anticipation of, treatment, the members of the visiting medical staffs should receive recognition of their services. "The thought in the minds of the members of the Pay Beds Committee would appear to be that so long as any part of the maintenance of a patient is provided by charity the service of the medical staff should be wholly a charity. Clearly there is no equity in this proposal, justice would be met by making the charitable contribution equal on both sides, and providing that the charity given by the staff should be proportional to the charity of the hospital benefactors. The suggestion of the committee is inconsistent, for the phrase "current maintenance" would appear to exclude overhead and capital charges, which would still be a provision of charity and yet allow of medical staff recognition. In the West London Hospital, when the late Mr. Dan Mason made the splendid benefaction which provided the pay bed wing, he promised to meet deficiencies on working on the scale of charges arranged, and agreed that the medical staff should receive recognition of their services as a matter of course. It would appear, therefore, that benefactors may have wider views than the members of the special committee. There is a more important reason for taking exception to the conclusion of the committee. Patients who now pay in part or whole as occupants of hospital beds—general or pay beds—are often those who were formerly attended in their own homes or in the lesser nursing homes, and for their treatment the attending practitioners—general and consultant (mostly the younger members of hospital staffs)—received fees adjusted to the circumstances of the patient. If more of these patients enter hospitals the ranks of the younger consultants will be sadly thinned. Steps to counter the deficiency of staffing would become imperative, and if, as has been done in some hospitals, this difficulty is met by appointing salaried resident assistant surgeons and physicians, a move will be made towards a stipendiary hospital staff which may have grave reactions upon the status of the voluntary hospitals.

RESEARCH AND ECONOMY

THE study of economy, in the abstract at least, is as common in political circles as the study of research work in the scientific sphere, and it is therefore not at all surprising that the Select Committee of the House of Commons on Estimates should have seen fit in 1926 to suggest that more attention should be paid to the co-ordination of Government research "with a view to economy and efficiency." In accordance with the usual procedure, as the suggestion was accepted by the Cabinet, a subcommittee of the Committee of Civil Research was appointed to consider the question, and its report¹ has now been published. Mr. W. G. A. Ormesby Gore, M.P., Under Secretary of State for the Colonies, was chairman of the subcommittee and his colleagues included Dr. W. D. Elliot, M.P., and Sir Walter Fletcher, secretary of the Medical Research Council, in addition to representatives of interested departments and of the financial "watch-dogs" of the Treasury. It may be noted at the outset that the subcommittee has not, apparently, found any general ground for the belief that there is much scope for "economy" in the present organization of State-aided or

¹ London: H.M. Stationery Office or through any bookseller. 1928. 2s. 6d. net.

State-controlled research, the report, therefore, is descriptive rather than critical. It is valuable, however, in that it gives an admirable survey of the existing system, with some interesting comments on its characteristic features. The influence of the State in relation to scientific research is, of course, the power of the purse, and the report therefore takes the financial basis of the system as its starting point. Much of the money given in the form of Government grants to the universities is employed in the promotion of research, while there are several organizations, established and maintained by the State, which are devoted to research of a more "utilitarian" type (to use the subcommittee's phrase) than that which proceeds in the academic sphere. Among these organizations there is the Medical Research Council. This body enjoys practical autonomy, it has full executive responsibility, complete administrative control of all work within its own scope, and is financed by the system of a grant-in-aid which allows it complete discretion as to the nature of its expenditure. It is an interesting comment on the relation between economy and research that this method has proved highly satisfactory, the scientific members of the Council, actuated by a desire to secure the maximum for research proper, have a direct interest in enforcing the utmost economy in other directions. The range of its activities is considerable, it assists investigators engaged on approved work at suitable institutions in diverse ways, conducts organized inquiries, maintains the National Institute for Medical Research with a permanent staff (this including a biological standards department), supports a department of experimental medicine and a national collection of type cultures, provides for the work of the Industrial Fatigue Research Board, and undertakes various other auxiliary works. The Council co-operates with the Ministry of Health, the Scottish Board of Health, and other Government departments, with the medical branches of the fighting services, and with other research organizations, notably those in connexion with industry. It is significant to note, in view of the suggestion which led to the initiation of this inquiry, that while there is no imposing effort at organized co-ordination the subcommittee found ample evidence that there is practically no "departmentalism" in the field of research. The Government agencies, the universities, medical schools, and technical institutions, the various learned, professional, and trade societies, and a multitude of private organizations and individuals are all, in the main contributing their quota to the sum of knowledge unguudgingly. There is, however, one limitation which should be remembered as applying to State aided research, particularly in connexion with industry, but to some degree also in other directions. State effort is confined, by its nature, to work which is primarily unremunerative. Here, as in other matters, the State undertakes that which does not offer the prospect of profit to private enterprise. Criticism of the results of research is therefore almost impossible on financial grounds, the yield cannot be reduced to a monetary value.

POST GRADUATION STUDY

ALTHOUGH it is almost a commonplace that medical education, at any rate of the more practical and useful kind, begins rather than ends with the acquisition of a degree or diploma, medical post-graduate study has not yet reached the degree of development which is obviously desirable, particularly in these days of rapid scientific progress. This is to some extent due to the fact that what medical practitioners need in this respect is difficult to formulate precisely and, therefore, hard to supply. Some recently qualified students contemplate training in specialties, others require opportunities for practical work—apart from house appointments—which may supplement their book know-

ledge. They have generally small financial resources, but ample time and freedom from domestic ties. On the other hand, a practitioner of several years' standing who wishes to keep abreast of the latest knowledge and methods can, as a rule, afford less time but more money. It is perhaps insufficiently recognized that these two classes of graduates need very different kinds of educational facilities. The results would probably be better if more careful consideration were given to this point by post-graduate training centres and by would-be students. A third group is that of intending specialists who wish to cultivate a limited field more thoroughly. At present those responsible for providing training facilities and for constructing programmes aim too often at satisfying all these groups simultaneously, with consequent disappointment. Moreover, in this country there is a relative lack of opportunity for practical work as contrasted with the case in certain Continental countries, where, for example, operative dexterity can be acquired under the personal supervision of distinguished surgeons. The question is largely one of finance, as is indicated by Dr W. D. Cutler, dean of the New York Post Graduate Medical School, in a report in the July issue of the *Bulletin of the Association of American Medical Colleges*. Those who are endeavouring at our leading medical hospitals and medical schools to improve the methods of medical education are to a large extent handicapped by having to work in old buildings designed for the conveyance of information verbally rather than for the development of dexterity. This contrasts sadly with such clinics as those of Vienna, which were built just before the war. The arrangements in that city enable patients to be wheeled on beds into the lecture theatres, special laboratories—apart from the main ones of the institution—are provided for students, and each building forms a complete unit, with full accommodation for radiological and other investigations and for various forms of treatment. Again, in Paris the tendency for certain hospitals to specialize for such general subjects as surgery, medicine, and gynaecology facilitates remarkably the post-graduate training of general practitioners, and such considerations must be borne in mind by those who are endeavouring to improve matters in Great Britain and to attract a larger number of students from our own and from other countries. One reason which leads some practitioners in this country to contemplate a course of study abroad is that it can be combined with a holiday for themselves and their families, and the language difficulty is not insuperable in some centres of medical education. For example, the American Medical Association of Vienna caters for practitioners from all English speaking countries, and arrangements are made month by month for special practical courses in all subjects in our language. But, whether taken at home or abroad, post-graduate instruction is becoming of more importance every year. The interest taken in this matter by the late Editor of the *British Medical Journal*, Sir Dawson Williams, is well known, it may be added that in the head office of the British Medical Association a considerable mass of information about post-graduate facilities at home and abroad is being accumulated for inquirers. Moreover, the value of the increasingly numerous clinical meetings of Branches and Divisions of the Association should not be overlooked. Progress in the science of healing will obviously become more rapid when general practitioners can be brought into closer practical touch with modern developments, and the present tendency towards internationalism might well be turned to account, not only in the interests of British medical men and women who wish to acquaint themselves with the practice of the chief medical centres on the Continent, but also of visitors from abroad, who would gladly come to our teaching institutions if the language and other difficulties could be diminished. The

facilities already existing in Great Britain are too little known, and even to-day it is possibly not superfluous to mention the work of the Fellowship of Medicine and Post-Graduate Medical Association in respect of London Announcements by the Fellowship appear regularly in our columns, and further information about courses and general clinical work can be obtained from 1, Wimpole Street, W 1.

THE CRIPPLES JOURNAL

THE July number of the *Cripples' Journal* contains the weighty announcement that with the October number it will become an international quarterly periodical managed by an advisory council of representative European surgeons under the chairmanship of Sir Robert Jones and under the editorship of Mr Frederick Watson, who has so ably tended it from its birth and through its infancy until now. We welcome this announcement, for it has for some time been evident, to our thinking, that if the magazine was to have the influence that it should have, it must divest itself of the local associations of its origin and become representative of a much larger number of those interested in cripples and of their views. The current number contains much that will appeal to workers among cripples, including an instructive article by the editor on "What is the Red Cross doing?" followed by one on "The Red Cross in the After-Care Clinics," by Commandant Sylvia Tower, who gives an interesting account of the work done by the Red Cross nurses in orthopaedic clinics, which last, indeed, could hardly exist without their help. Miss Margaret B Cross describes the organization known as the Junior Red Cross, a movement which was first officially recognized in Canada, and the objects of which are the inculcation of the laws of health and the rendering of help to sick and suffering children by their more prosperous brothers and sisters—in short, the observation of the precepts of practical Christianity. Other articles in this number deal with certain cripples' hospital schools and with infantile paralysis. Mr A Roever-Jones contributes a short but clear account of John Hunter, under the serial heading "Pioneers of Orthopaedics."

INTERNATIONAL COMMITTEE ON RHEUMATISM

It will be recalled that the International Committee on Rheumatism grew out of the International Society of Hydrology, and in view of the present campaign against rheumatism in this country the report for 1927 of the central advisory body is of special interest. In March, 1927, the Health Department of the League of Nations was approached, with the result that the question of co-operation is under discussion. The International Committee on Rheumatism has established a central bureau at Amsterdam, and an international library has been founded, with over 1,000 volumes at the present time. The work of the bureau in assisting in the periodical publication of lists of books, pamphlets, and articles on the rheumatic problem has been found most useful by the different national committees, and many communications on the social as well as on the medico-scientific aspect of the subject have been exchanged. The committee proposes to make a statistical study of rheumatism in all countries and for this purpose the scheme of the British Ministry of Health is to be used. The foundation of laboratories and the publication of an international journal devoted to the problems of rheumatism are also under consideration.

PAY BEDS IN LONDON HOSPITALS

REPORT OF THE KING EDWARD'S FUND COMMITTEE

ON July 21st (p. 120) we mentioned briefly the chief findings of the report of the special committee of King Edward's Hospital Fund for London on the provision of pay beds in voluntary hospitals, a further account follows of the data collected and of the conclusions reached. The committee held twenty-two meetings and examined forty witnesses, among whom was a deputation from the Hospitals Committee of the British Medical Association consisting of Messrs H S Souttar, W McAdam Eccles, N Bishop Hamman, and Dr G C Anderson, Deputy Medical Secretary.

A questionnaire was addressed to the several London hospitals to ascertain what provision of pay beds existed, how they were worked, and what schemes existed for the extension of such accommodation. The striking feature of the replies received was the great variation of the schemes in existence, scarcely two of them agreeing in essential details. In the opinion of the committee this does not indicate anything in the nature of chaos, but rather that the hospitals are feeling their way towards the best method of making such provision, and that instructive experiments are being conducted. There is general agreement as to the need for such pay beds. The development of expensive methods of treatment and diagnosis, which has become a commonplace feature of the work of the voluntary hospitals for the poor, has left the middle and professional classes unprovided for in this respect, for it is conceded that private nursing homes do not provide these forms of treatment. Further experience has revealed the fact that where such provision is made for these new classes of hospital patients there is no lack of demand, but rather an excess. It has also been shown that many of the patients who have hitherto been treated in the general wards are quite able and willing to meet the cost of pay beds.

The committee recognizes four types of patients those who cannot pay anything and whose treatment must be free, those who can pay for maintenance in the ordinary wards and yet receive free treatment, those who desire and will pay for the privacy of the private ward, contributing somewhat towards the cost of treatment, and those who can afford the full cost of nursing homes and medical fees. An endeavour was made to find a dividing line between the second and third type of patient. Replies indicate that the highest payment normally received from patients in the ordinary ward is about two guineas a week, the average being possibly as low as 15s even when the free patients are omitted. Income limits showed that the scale of the British Medical Association and that adopted by the Hospitals Saving Association of £4 a week for a bachelor, £5 for a married couple without children under 16, and £6 for those with children gave a fair indication. Many hospitals which have pay beds have income limits, these range from £300 to £800 a year, though there are a very few that make allowance for higher incomes by taking family conditions into account. It is estimated that of the 8,000,000 people of Greater London between 5 and 6 million fall into the type of free patients, 2½ million, or 600,000 families, into the middle or professional classes, and 25,000 are of the well-to-do type. Replies to the questionnaire were received from 150 hospitals, having 15,600 beds; eighty hospitals had pay beds accommodating in all 1,055 patients. Of these beds 164 were in hospitals with medical schools, 353 in other general hospitals with resident medical officers, 126 in hospitals without resident medical officers, 127 in hospitals for women, 28 in children's hospitals, and 125 in other special hospitals. In all 477 are situated within three miles of St Paul's, 429 between three and seven miles away, and the rest farther out; it is these distant hospitals which do not have resident medical officers. Beds are provided in single rooms, and there is every gradation up to wards accommodating as many as 24, with permanent or temporary screens. Privacy appears to be the chief desire of patients in these beds, but they may enjoy certain other advantages—more nurses (all fully trained), ampler diet or wider choice of food, better crockery and furniture—though some hospitals make no difference between the pay beds and the general wards.

We regret to announce the death, on August 12th, of Mr George Edward Wherry, MCh, FRCS, for many years university lecturer in surgery and consulting surgeon to Addenbrooke's Hospital, Cambridge. We hope to publish a memoir in our next issue.

Wide Variations in Charges

Pay beds are no new provision, the Florence Nightingale Hospital was founded in 1850. The greatest increase in the number of such beds, however, has occurred since 1920, and in the last eight years 465 have been added, while during the same period 1,600 new ordinary beds have been provided, in 1920 pay beds were 4 per cent of the total, now they are 7 per cent. Charges vary greatly, but about half the hospitals have rates of four to five guineas a week, a few go so low as two guineas, and still fewer as high as nine or ten guineas. The high-priced beds are at the teaching hospitals, the lowest at small hospitals on the outskirts of Greater London, which have no resident staffs. Charges are fixed by the estimated cost of the pay beds to the hospital and the means of the prospective patients. The first factor is not easy to ascertain, for most hospitals do not keep separate accounts of this department of their work; it is suggested that a complete system of costing would automatically disclose the real figures. The lines for such costing have been suggested by the King Edward Fund. Estimates of the capital expense of the beds are still harder to ascertain, but it is said that a complete pay bed hospital could be built and equipped for something less than £1,000 per bed, exclusive of the site. The total charge to the patient is of some interest. At the West London Hospital, where the parties to the treatment—doctor and patient—have the choice of making their own terms or leaving the assessment to a special committee, about 75 per cent of the patients are so assessed at a total inclusive cost, including the medical fee. The average cost works out at most hospitals at about three weeks' maintenance charge plus the medical fee, while the average medical fees paid range from merely nominal amounts of five guineas for an operation up to a third or, occasionally, even one-half of the usual fee. In seven hospitals no fees are allowed whatever the work done, though this does not preclude consultation fees before and after the stay in hospital.

Arrangements for Medical Attendance

Here again there is much variety in practice. In some of the large hospitals the treatment is confined to the normal staff of the hospital; in others any recognized consultant may attend his patient; elsewhere treatment is open to any registered practitioner, and the patient has free choice of doctor. The beds where the treatment is limited to the members of the staff of the hospital number 640, or just over one-half the total available, these being nearly all in the large hospitals. In two of the teaching hospitals—St Thomas's and Guy's—there are pay wards, and consultants on the staff of other teaching hospitals are permitted to undertake treatment of the patients in them, but it appears that very few take advantage of the facilities. The more distant the hospital is from the centre of London, the wider is the choice of doctor. Differences in practice, the committee finds, arise partly from circumstances and partly from policy, but it is held that, quite apart from any question of finance, the limitation of the medical staff causes the outside consultant and still more the general practitioner, to lose touch with his patient, and that the development of the pay bed system should afford increased opportunities for the ordinary medical practitioner to come into contact with the latest developments of work under hospital conditions, and should provide him with increased institutional facilities. The question of practicability is discussed, and the view expressed in the policy of the British Medical Association is cited, that whereas wards integral with the hospital may have to be counted as part of the hospital, there is no obstacle to complete freedom in separate paying blocks, which should be administered on the same lines as an ordinary nursing home.

The responsibility of the managers of the hospital is considered, and it is suggested that if questions of status arise concerning individual doctors (which does not often happen), they are settled by the medical authorities of the hospitals. Where treatment is open to general practitioners a wider definition is required, and the three criteria of the British Medical Association are cited. (It should be noted that the inclusion of these within the hospital

policy of the Association was rejected at the recent meeting of the Representative Body.)

The recommendation of the British Medical Association that, except in emergencies, patients should only be admitted on the recommendation of the attending practitioner is discussed, and there is a final statement that "the maintenance of relations with the general practitioner would obviously be most important to the success of any large extension of the pay bed system, if full use is to be made of the beds."

The Demand for Additional Pay Beds

Numerous witnesses testified to the existence of such a demand on a large scale. The most emphatic expressions come from the larger general hospitals, and where there have pay beds the waiting lists are evidence of the demand. Patients who cannot wait go elsewhere, and it is believed that the lists themselves represent only a fraction of the unsatisfied demand. The pressure does not always produce a high average of daily occupation. Some hospitals have a very high average, for example, Westminster with 13.7 out of 15, West London with 23 out of 26, and St Andrew's, Dollis Hill, with 53 on a nominal 52. Holiday times lower the averages, and patients cannot always come when the vacancy occurs, the allocation of beds between the sexes sometimes causes difficulty, for the male ward may be overfull and the female partly empty, or vice versa. In some hospitals the pay beds are filled by ordinary patients when there are vacancies. It is estimated that the total beds needed would, on the figures before the committee, approach 7,000, including all the beds at present in existence; this estimate includes also beds in nursing homes. The voluntary hospitals at present provide about 1,000 pay beds, while the number of beds in nursing homes is not known, but this information should be ascertained so soon as the Nursing Homes (Registration) Act, 1927, comes into effect.

The effect upon the general working of the voluntary hospitals of the provision of pay beds is discussed. The hospitals do not appear to have suffered in popularity from having extended the scope of their work in this direction, but rather the reverse. There is, moreover, no reason to suppose that the addition of pay beds will prevent or delay the addition of beds for ordinary patients. "If, therefore, it is within the sphere of the voluntary hospitals to supply the demand for pay beds as well as the demand for ordinary beds, if there are practical schemes for adding more pay beds, and if by so doing the hospitals are satisfied that they will increase their popularity and their resources, with resulting benefit to the whole of their work, there seems to be no good reason why they should not do so. There may also well be room for the development of a larger kind of nursing home on hospital lines, if it can be made to pay."

As regards any large extensions in the future, the committee thinks the ideal to be aimed at is that the capital cost of providing pay beds should in all cases be met out of funds specially provided for the purpose, or out of the proceeds of building appeals in which the proposal to provide pay beds has been specially mentioned.

On one point the report of the committee diverges from the recommendations of the hospital policy of the British Medical Association. This will be found in paragraph 128, which reads as follows:

It seems to us that if patients are provided with special pay bed accommodation at less than cost price they are essentially in the same position in relation to the voluntary system as patients in ordinary wards. Here again we do not recommend that the King's Fund should make a hard and fast rule which would condemn particular arrangements such as those which may for instance be in force in connexion with special charities for the assistance of middle-class patients of limited means. But as the general principle for any considerable development of the pay bed system we hold that no patient in a pay bed should pay any fee to a physician or surgeon whether a member of the medical staff or not for treatment received in the hospital unless the charges which that individual pays to the hospital cover the whole cost to the hospital of his current maintenance and of any special services he receives from the hospital.

The report later indicates the way out of the difficulty—by insurance schemes for paying patients. "Whatever views are adopted on these questions, it is clearly desirable that as many of the patients as possible should be enabled

to place themselves in such a position that they can pay the full cost of maintenance in a pay ward, and a medical fee as well." It thereupon proceeds to examine existing schemes such as those of the British Provident Association and the Norfolk and Norwich Hospital, but it is recognized that these are on a small scale, and experience is still lacking as to the working of such a scheme over so large an area as London, with its many hospitals.

Scotland.

Scottish General Board of Control

THE General Board of Control for Scotland has issued its fourteenth annual report dealing with the management of lunatics and the control of mental defectives. It is stated that the Royal Commission of 1857 estimated the number of persons of unsound mind in Scotland as 7,403, or about 1 insane person to 413 of the population. In the year under review the rate was 1 for every 264 of the population. The Board welcomes the establishment of observation wards conducted on hospital lines by various parish councils. In the case of the wards at Stobhill and Duke Street, Glasgow, 1,240 patients passed through them in one year, and of these 788 returned to their homes without the necessity for certification. These wards have to some extent served the purpose of the clinics which are so well known in foreign countries, where mild cases of nervous and mental breakdown seek skilled advice and receive special treatment. The report considers that it would be desirable if the lunacy grant which is given for improving the care of the certified lunatic were changed so that the Board at its discretion, might assist all mentally affected persons. It is pointed out that as a rule all nurses, either male or female have to qualify for the certificate of the Medical-Psychological Association, which can be obtained only after three years' experience of mental nursing and by passing an examination. Attention is drawn to the great extent to which male nurses have been replaced by female nurses in the past thirty years, and it is suggested that a prolonged and severe course of training and an examination for male nurses, equal to that which is undergone by female nurses, is desirable. The increasing extent to which occupational therapy is utilized is commented upon. The exhibition of work from the various institutions throughout Scotland, which took place at Bangour Asylum in July, demonstrated into what useful channels it is possible to direct the energies of patients who, before the introduction of this method of treatment were distinctive, degraded, and costly from the point of view of nursing. Attention is also drawn to the fact that some of the largest institutions have visiting physicians and surgeons from the neighbouring cities, who deal with and advise in cases affecting their specialties. At the beginning of the present year there were in Scotland 18,702 persons officially recognized as insane, including the inmates of training schools for imbecile children. Of these, 2,957 were maintained from private sources, 15,675 by parochial rates, and 70 at the expense of the State. The number of escapes from establishments during 1927 was 129, of whom 55 were brought back within twenty-four hours, while 26 were still absent on the expiry of twenty-eight days from the date of escape. The total expenditure of local authorities for the maintenance of pauper lunatics for the year ending May 15th, 1927, was £779,332. The average cost per head was £51 14s 2d per annum in asylums, and £44 19s 6d per annum in poorhouses. The expenditure for the maintenance of aided mental defectives was £130,627.

New Royal Infirmary Stirling

THE new buildings of the Stirling Royal Infirmary were opened on August 10th by His Royal Highness the Duke of York. Mr. James Thomson, D.L., president of the infirmary who presided and welcomed the Duke and Duchess of York, said that the Stirling Royal Infirmary had been founded fifty years ago, and in that time it had undergone various extensions, which, however, had finally proved insufficient. The directors had decided to build a new hospital for 126 beds with a maternity home of 20 beds

and the cost had finally worked out at £108,000. It was gratifying to know, however, that this large expenditure had been fully met, and the infirmary was to be opened free of debt, the endowment fund not having been touched and remaining at over £70,000. The Duke of York, who opened the main entrance to the infirmary building, said that it was a pleasure to help a cause which must appeal to every man and woman. The infirmary was worthy of its supporters and had great beauty of site and excellence of buildings. To have raised the sum of £108,000 was a magnificent achievement of which the directors might be proud. The new hospital has been erected on fifteen acres of ground to the south west of the town of Stirling, on the Wester Inchlands estate. It stands on an open plateau, beautifully wooded, and commands magnificent views of the surrounding country. The main building runs east and west, with a corridor 600 feet long, and the main wards open off the south side of this corridor. On the north side are placed the kitchen, operating theatres and out-patients' and other departments. The building is two stories high with four surgical wards, two medical wards, and one children's ward, each of sixteen beds, with additional small wards. At the extreme west end of the building is the maternity block containing two wards of eight beds each, with two single wards and one two bed ward, accommodating in all twenty patients. A sun room or day room is also provided in connexion with the maternity unit, facing southwards with French casement windows opening to the floor. The main buildings are designed in a form of Georgian architecture, and a special feature of the main front is the provision of large balconies at the end of each of the wards on to which the patients' beds can be wheeled through French windows. The sanitary towers are placed at the north end of the wards, thus leaving the south end completely free of obstruction to sunlight and air. The building is heated by low-pressure steam and provided with electric lifts for patients' beds.

Red Cross Work in Scotland

A camp of Scottish voluntary aid detachments was held recently at Craigmennie, Aboyne, and was inspected on August 3rd by Lieut. General Sir William Peyton, G.O.C. in Scotland. About two hundred V.A.D. members attended camp under the command of Miss Gardner, assistant county director for Dumbarton. A large number of Red Cross county directors and others were present at the inspection, including the Marquess and Marchioness of Aberdeen and Temair, and Dame Beryl Oliver, head of the V.A.D. department in London. A demonstration was given by V.A.D. members of the working of a casualty clearing station, and at its conclusion General Peyton congratulated the nurses on the excellence of their work. He said that he believed that it was not only the event of war that made it desirable that women should be trained as nurses, there were at present all sorts of emergencies—from aeroplane accidents to motor smashes—in which women could give assistance. The War Office was most sympathetic and appreciative towards the work of the Red Cross, and would do still more if it were not for the necessity of keeping the Army Estimates low. In the evening the V.A.D. nurses attended a ball given by Lord Aberdeen to celebrate his 81st birthday.

Ireland.

Obstetrics and Gynaecology in Dublin

THE August issue of the *Irish Journal of Medical Science*, which is the official journal of the Royal Academy of Medicine in Ireland, is devoted to obstetrical and gynaecological subjects. Three annual reports of Dublin maternity institutions during 1927 are published in it—namely, those of the Rotunda Hospital, the Coombe Hospital, and the National Maternity Hospital. We have already referred on two previous occasions (May 5th, p. 771, and July 14th, p. 70) to the interesting report of the Rotunda Hospital by the master, Dr. Bethel Solomons, the valuable statistics associated with it are now available for closer study. In the Coombe Hospital report for 1927 the master,

Dr Louis Cassidy, deals on similar statistical lines with the work of this institution. In comparison with the Robunda report it is worth noting that, at the Coombe Hospital, the morbidity was reckoned according to two standards—namely, that of the British Medical Association, in which a case is considered morbid if the temperature reaches 100°F on two occasions between the second and eighth days of the puerperium, and Tweedy's standard, which defines morbidity as the appearance of a temperature of 99°F on three consecutive readings after the first twenty-four hours. According to the former standard the percentage of morbidity during the year was 5.0, whereas by Tweedy's method of recording it was 7.2. The morbidity figures in the Coombe Hospital for the year under review compare favourably with those of the previous year. Dr Cassidy regrets the absence of a dental department, and mentions the gratifying increase in the activity of the ante natal department, which has now been three years in existence. The clinical report of the National Maternity Hospital is shorter than those of the other two institutions. The master, Dr P. T. McArdle, reports a morbidity rate of 3.4 per cent, using the standard suggested by the British Medical Association. He comments briefly on the treatment of various emergencies, and records his approval of the use of axis-traction and Kielland's forceps. In addition to these hospital reports, this month's *Irish Journal of Medical Science* contains clinical notes by Dr Cassidy on eleven cases of vesico-vaginal fistulae occurring during labour, and the report of a case of double uterus and vagina, by Dr A. H. Davidson. Abstracts of obstetrical and gynaecological articles and reviews of new books on these subjects are other features of an issue which will interest obstetricians and gynaecologists generally.

The Down County Mental Hospital

In the fifty-eighth annual report of the Down County Mental Hospital, Downpatrick, the resident medical superintendent, Dr M. J. Nolan, comments on the importance of providing for suitable male mental patients facilities for farm work, since very many who enter this institution come from the agricultural classes. He considers, moreover, that no other form of occupation would take its place as a therapeutic agency, and that without it there would be fewer clinical recoveries and a general impairment of physical health. An outbreak of colitis in the institution involving eleven patients was traced to an outside source, and the discovery of the carrier resulted in the prompt arrest of what would otherwise probably have proved to be an epidemic, with possibly endemic sequelae. Dr Nolan emphasizes also the importance of the thorough investigation of each individual case of mental disorder; he adds that although patients in the more advanced stages are, for the most part, outside the scope of psycho-analysis, yet many have responded readily to sympathetic investigation and co-operation in the readjustment of their attitude towards the existing home and family conditions. The report contains numerous illustrations and statistical tables.

Typhoid Fever in County Galway

An outbreak of typhoid fever is reported from Lettermore, Connemara, and ten patients have been removed to the fever wing of the Galway Central Hospital. Dr Sterling Berry, medical inspector of the Local Government and Public Health Department, with Dr Tubridy, medical officer of the district, are investigating the cause of the outbreak. At a meeting of the Galway County Health Board it was agreed that Dr Tubridy should be given freedom to order the destruction of any articles which he feared might be infected, and it was suggested that the local relieving officer should be given a free hand in dispensing relief. A resolution was passed calling on the Government to give a special grant to the people of the area, and also asking that the recommendations of the Caclteacht Commission be carried out.

Scarcity of Nurses in County Carlow

No nurses having applied for the vacancies, recently advertised, in the hospitals of county Carlow, Dr Clinch, medical inspector of the Public Health Department, attended a meeting of the Health Board when this matter

was under consideration. It was stated at the meeting that the salary offered was £65 per annum, with rations (or their equivalent in money), apartments, fuel, and light in each case, and that the lack of applicants was due to a combination organized by the Nurses' Association which has been recently pointing out the inadequacy of the salaries offered by health boards in Ireland. The Board ultimately decided to combine the salary and allowances, and to allow all head nurses £100 per annum, and assistant nurses £80, with apartments, fuel, and light in each case.

Correspondence.

SPA TREATMENT

SIR,—The question, What is a spa? seems to be a little in doubt. Thus, the definition of "spa treatment" proposed at the Representative Meeting of the British Medical Association at Cardiff (*Supplement*, August 4th, p. 75)—"treatment at a place possessing a supply of natural mineral waters of reputed therapeutic value" (with buildings, apparatus, and trained personnel for work in bath-houses and other physico-therapeutic departments)—could not be accepted without further consideration. Some representatives from the coast objected to the word *mineral*, and would prefer to link in one definition the special treatment provided at the seaside with that provided at the spa. (It may be admitted that the word *mineral* is not now a very happy one as applied to medicinal springs, since many of these are less mineralized than ordinary town's water, and, moreover, the word has been captured by the table water industry.)

The same doubt or misapprehension about "spas" is evident in occasional public announcements. At the recent annual Foresters' Court, for example, the Chief Ranger expressed satisfaction at the project to make "spa treatment" available in London.

What are the facts? Historically, many of the great European health resorts have been named after their waters or baths—such as Aix, Acqui, Aachen, Bath, Carlsbad, Salsomaggiore, and Wildbad. In French the prefix *Bagnère*, or the suffix *-les Bains*, is often applied to the *stations hydro-minérales*, and in German-speaking countries the names *quellen* and *baden* are usual. Only in England have places of waters received the general designation "spa," annexing the name of the Belgian resort made famous by Peter the Great. Secondly, it is to be remembered that as a result of the modern study of physical remedies many necessary methods of treatment have been introduced at the spas, and have been so extensively used in England as sometimes to overshadow the use of waters.

Thus present-day treatment at spas includes two things: (1) the internal and external use of medicinal waters which cannot be obtained elsewhere, (2) other kinds of baths and physical methods of treatment—radiant, electrical, mechanical, etc.—which can be obtained elsewhere.

As regards the sea-coast places, the special treatment provided (modern thalassotherapy) includes exposure to the marine climate (heliotherapy, aerotherapy) with the use of sea water and seaweed and the usual necessary physical methods. These are all variously adapted at the different localities, like Torquay and Margate in Laglan, Arrecion and Bercy-sur-Mer, and Wyke on the North Sea. The marine resorts for children and elderly people on the coasts of England form an outer ring of health centres, which is assuredly not less important than the inland group, but the specific treatment they offer is climatic and marine.

Lastly the city clinic, to which the president of the Foresters referred, should have for its chief function to make the physical remedies which can be everywhere obtained conveniently accessible near the homes of the people.

It would surely be well if the spa, the marine health resort, and the physical clinic should each develop along its own special lines. To apply a name which is attached

to medicinal waters either to the coast resort or the clinic would be inappropriate and misleading.—I am, etc.,

London Aug 8th

11 LORTSLEY Lox

ETHYL PETROL

Sir,—The glaring advertisement "Ethyl is safe" is the sequel to the interim report of the Departmental Committee. Yet the Committee did not say that "ethyl is safe" it did say that it was not proved that ethyl is not safe with certain precautions, and it awaits further evidence. The blare of the commercial trumpet has drowned out the still small voice of the scientific Committee.

I agree with Dr. F. C. Ives (*British Medical Journal*, August 4th p 222) that "organized medical opinion is the last ditch in our defence against invasion by this diluted poison" but I do not agree with him that the British Medical Association should be saddled with the collision and scrutiny of evidence in respect of this stuff. The Association has plenty on its hands at the present time, but the medical profession by reason of its experience and position in the community has a special responsibility in this matter, and its members will have to consider whether, in view of that responsibility they are justified in using ethyl petrol and whether, if they are asked they would advise the public to use it.

There is no necessity to be alarmists or to rouse unnecessary fears. Ethyl petrol has a place in the world of the internal combustion engine for tests, races, and stunts but I think that the general opinion of the profession will be against it for extensive public use. Perhaps I should add that I have no interest, financial or other, in any of the oil companies that do not sell ethyl petrol.—I am, etc.,

Warrington Aug 10th

J S MASON

THE GUILLOTINE AND ETHYL CHLORIDE

Sir,—I submit that ethyl chloride is an unsuitable anaesthetic to employ for the operation of enucleation of tonsils. The most important step in the procedure is to prevent all unnecessary haemorrhage, as in other operations, using artery forceps if any particular bleeding point is troublesome. Although the bleeding at the time of operation is often considerable, if measures are not employed to prevent it the oozing which ensues during the next two or three hours will often far exceed this, and if allowed to continue, end in death. I will quote from Dan McKenzie (*Diseases of the Throat, Nose and Ear*) "Before returning the patient to bed make sure that the bleeding is stopped." Ethyl chloride does not allow time for this. Personally I prefer chloroform, and have it administered.—I am, etc.,

Liverpool Aug 13th.

E MALCOLM STOCKDALE

Sir,—There have been many contributions on this subject since the article of Mr Sandiford and Dr Clayton appeared in the *Journal* of July 28th. In a detailed account such as theirs it seems a pity that, while minute points of the part played by a porter are considered, examination of the tonsils after operation is omitted this important feature has not been mentioned in subsequent correspondence. This examination should be made in every case. The obvious rejoinder is "What can be learned?" and "What can be done if it is not complete?" The answer to both depends upon the anaesthetic used. With the closed (ethyl chloride) method one can only learn if both tonsils are complete, and whether the capsule has been "button-holed," the former indicating faulty technique, the latter a guillotine insufficiently blunt. Employing the open ethyl chloride and ether sequence, apart from the fact that there is far less likelihood of "missing a lower pole" should this contingency arise the patient can easily have the remaining portion dissected out, as in adult tonsillectomy, using a Shipway apparatus.

Another omission (I take it that it is an omission, since no mention is made of the practice) is the examination of the patients by a competent person before they are allowed to go home. Surely this is quite the most essential

part of the post-operative treatment. I have had to examine children two hours after tonsillectomy who have had closed ethyl chloride. With them it was practically impossible to get a view of the throat, much less remove any adenoid tags, which are quite frequent with even the most skilled surgeons. The adenotome may be recommended as the solution of this problem, but the septum can never be felt with this instrument, and it is consequently not so efficient as the eurette, whereas after the open ethyl chloride and ether anaesthesia the children are far more tractable, invariably in a better condition to return home, and (more important still) the possibility of adenoid tags persisting is reduced to a minimum, since they can be removed at the time of operation.

I would not, in my present position, have ventured to write this letter had it not appeared to me that two extremely important items in the operation have been totally disregarded. *Actum lente* is the ideal motto for a tonsil clinic.—I am, etc.,

H M JAKES,

London Aug 13th

Hou-Surgeon Ear Nose and Throat
Department Middlesex Hospital

ROUS TUMOURS

Sir,—In an editorial in your issue of July 28th you speak in terms of high commendation of Dr Murphy's views regarding the significance of specificity in Rous tumours. In the same issue you give a review of my book, *On Rous, Leucotic, and Allied Tumours in the Fowl*. It has escaped the notice of your reviewer that the above subject is discussed in full in all its implications and significances in Chapters VIII and IX of my book completed in June, 1927, and published in January, 1928.

Other points of possibly equal importance discussed in the book have not been remarked by your reviewer. Three only need be referred to. In the first place, Carrall's solid work on the etiology of Rous and allied tumours has, for the first time as far as I know, been given due recognition in the second place, it is pointed out that Gyo's work and the work of those (pro- and anti-) who have repeated his experiments is the subject of a basic fallacy (vide top of p 85) which, as far as I am aware, has not been stressed before. While, thirdly, the question of mesenchymatous or sarcomatous tumours (including leucotic and Rous tumours), being in reality diseases of a system—the reticulo-endothelial system—with consequent effect on the exact meaning of the term "metastases," is the burden of several chapters.—I am, etc.,

Aberdeen Aug 10th

J P MCGOWAN

AN UNUSUAL CAUSE OF PAIN AND HAEMATURIA

Sir,—I noticed with interest Mr Frank Harvey's report (July 21st, p 101) on an unusual cause of pain and haematuria, and think that mention of this somewhat similar case may prove interesting.

On August 3rd 1927 I had to perform an operation for a large irreducible inguinal hernia in a patient aged 74. The hernia was of old standing and the bladder was involved. In separating the adhesions the bladder was nicked making a small hole of only about 1/4 inch in length. This was immediately sutured with silk the operation was completed and the wound closed.

The patient made an uninterrupted recovery healing by first intention and was discharged on the eighteenth day. Three weeks after his discharge he complained of difficulty of micturition—only in the upright position. Lying in bed he could make a satisfactory stream but when he was upright the urine commenced as a good stream to stop suddenly with severe pain. The urine contained no blood but large amounts of urates and phosphates and a few pus cells.

The case was treated by daily bladder wash-outs with weak permanganate of potash and the urine very soon became much clearer. About eight days after this to my surprise the patient told me he had something to show me. He produced a pencil shaped calculus chiefly phosphate and about 1 1/2 inches long, which he had passed that morning. The calculus was the silk suture from the bladder surrounded by phosphates. He has had no more trouble with micturition since and is quite well.

The case is interesting because of the comparatively short space of time in which the suture was extruded.—I am, etc.,

EDWARD C ELLIS, M B, Ch B, D P H

Cockermouth July 23rd

THE CURSE OF NOISE

SIR,—I should like to support Dr Hilliard's suggestion (August 11th, p 276) that the Council of the British Medical Association should promote a bill in Parliament with the object of preventing a good deal of the unnecessary noise of which so many complain. One has only to read the letters which have recently appeared in the *Times* to realize how necessary it is that some action should be speedily taken. It would appear that no body of men is better qualified to draft such a bill or more likely to carry it to a successful issue. I feel sure that the attempt would be greatly appreciated by the public and would add to the influence of the Association.—I am, etc.,

Oxford Aug 14th

WM COLLIER

PAYING CENTRES FOR INFANT HYGIENE

SIR,—Your report of the Annual Representative Meeting of the British Medical Association at Cardiff states that the Representative Body reversed, by amendment, the Council's approval of the principle of paying centres for infant hygiene. In the discussion allusion was made to such a centre in Chelsea—presumably the Babies' Club, 35, Danvers Street. May I, as its honorary secretary, submit a few points which do not seem to have received due consideration by the speakers at Cardiff?

From references made to the State-aided infant welfare centres, the majority of the speakers seemed to be agreed that this work has proved a valuable educational force. Some went so far as to admit that the clinics provide general practitioners with work which would not otherwise have come their way. There seemed to be little appreciation, however, that the infant welfare movement, through its clinics, doctors, and especially its health visitors, has created a type of work which has never been undertaken before. Its success throughout the country shows how great was the need, and suggests that the lines on which it has developed have been right.

The middle-class mother has now begun to demand a similar regular medical supervision of her infants, as a preventive measure against disease and delicacy. In many instances she cannot get this from her family doctor, not always because he has not the specialized knowledge for this branch of preventive medicine, but because he cannot organize his work to afford time for the regular supervision of many healthy babies, nor can she afford the money for the necessarily frequent consultations. As a result, some such mothers have begun to attend State-aided welfare centres, others rely on advice of doubtful authority, such as is found in magazine articles or obtained from correspondence bureaux. Others, again, seek help from the nurse who attended them at their confinement, who in many cases was the chief arbiter of their baby's welfare during the first few weeks of life, but whose experience does not necessarily extend much beyond that period. Where lectures are used as a means of education (the method endorsed by the Association's amendment) the mother has to make selections from the knowledge thus gleaned with no one to advise her whether or not it applies to her own child.

In the Babies' Club an honourable attempt has been made to meet the mother's needs on the one hand, and to safeguard the general practitioner on the other. Advice is paid for at a proper rate, the mother may not join unless her family doctor's permission has been obtained, the medical officer of the club may not visit the baby in its home unless at the family doctor's request. While no completely acceptable definition can be given of "sickness" and "treatment," a conscientious attempt is made to exclude sick children, and to confine the advice given to points of management, feeding and hygiene. Profiting by the example of existing welfare centres, advice given by the medical officer of the club is followed up by home visits paid by an experienced health visitor. A very close insight is thus gained into the home conditions, which provides a sufficient answer to the formidable objection raised in the Cardiff discussion that the physician at the clinic must be ignorant of many of the most important factors in the child's life.

We appreciate the feeling of the Association that the trend of such movements is a matter of close concern to the general practitioner, but this development of the infant welfare movement will inevitably continue. Would it not be well to suspend judgement upon an experiment conscientiously planned to further the interests both of the profession and of the public?—I am, etc.,

London Aug 14th

PAMELA HONSLFY ROBINSON

HOSPITAL PATIENTS AND DOCTORS' LETTERS

SIR,—I should like to endorse what was said by Dr Ritchie in the *Journal* of August 4th (p 223). I find the same thing happening here in the Manchester hospitals. When I was a student at Glasgow it was customary for the staff at the hospitals there to refuse to see panel patients without a letter from their doctor. I think this is only just.

This is a matter which ought to be taken up by general practitioners as a whole, as it has been the cause of annoyance for some considerable time.—I am, etc.,

Broughton Manchester Aug 6th.

E HENDERSON

Obituary

DR CHRISTOPHER CHILDS, who died at West Looe, Cornwall, on August 6th, in his 82nd year, was formerly well known by reason of his interest in public health problems. He was born at Liskeard, and at Uppingham School was distinguished as an athlete. He received his medical education at Oxford, St George's Hospital, and the University of Bonn, he obtained the diploma L.R.C.P. in 1875, graduated M.B. Oxon three years later, and proceeded M.D. in 1887, having been admitted a member of the Royal College of Surgeons in 1879. In 1895 he obtained the Diplomas in Public Health of the English Conjoint Board and of the University of Cambridge. After holding the post of house-physician at St George's Hospital he returned to Uppingham as science master and medical officer, under Dr Thring, and took part in the temporary migration of the school to Borth, in Wales, during the outbreak of enteric fever at Uppingham. He then practised for some time in London, acting also as a lecturer at University College, and later went to Weymouth, where he was surgeon to the Weymouth and Dorset County Royal Eye Infirmary and physician to the Weymouth Royal Hospital. Throughout his active professional life he found time for the study of preventive medicine and epidemiology, and was one of the pioneers in the treatment of dysentery at the time of the South African war. He was the author of a number of contributions on epidemiology and water pollution to medical publications. Dr Childs was a Fellow, and had formerly been a member of the council, of the Royal Sanitary Institute. He was a member of the British Medical Association for over fifty years, and acted for a prolonged period as honorary secretary of the committee set up by the Annual Meeting at Bournemouth in 1891, which investigated the clinical evidence with regard to anaesthetics. Between that year and 1900, when the committee was merged into the Special Chloroform Committee, he devoted himself yearly to the classification and analysis of the thousands of returns submitted. On his retirement from practice a good many years ago he returned to his native county of Cornwall, where he took an active part in the social and political life of West Looe, identifying himself particularly with the local Conservative organization, the Boy Scout movement, and the Cornish fishing industry. He was a Knight of Grace of the Order of St John of Jerusalem. Dr Childs is mourned by his only son, his wife having died several years ago.

DR HERWOOD SMITH, who died at Chichester on July 21st, was well known in London during his active life as a gynaecologist, and in his later years, in retirement at Chichester, he participated in professional affairs on the scientific side. Born in 1837, he received his education at the University of Oxford, graduating in arts in

1861, and afterwards continuing his professional studies at St George's Hospital, London. In 1865 he obtained the diploma M.R.C.P., and graduated M.B. Oxon., proceeding M.D. six years later. He was for a time house-physician at St George's and later was appointed physician accoucheur and physician for diseases of women and children at St George's and St James's Dispensary. Subsequently he became senior physician to the Hospital for Women, Soho Square, and to the British Lying-in Hospital, and was for a period civil medical officer to the Chichester Military Hospital. Dr Smith was among those associated with the British Gynaecological Society in its early days, this body was subsequently merged in the Royal Society of Medicine, of which he was a Fellow. He was also an honorary corresponding Fellow of the Gynaecological Society of Boston, Massachusetts a vice president of the Society for the Study of Inebriety, and a member of the British Medical Association and of the Brighton and Sussex Medico-Chirurgical Society. His contributions to medical periodicals were numerous, and he was the author of *Practical Gynaecology* & *Handbook of Diseases of Women*. Two of his sons are members of the medical profession.

Mr FREDERIC DURHAM, who died on July 16th at the advanced age of 87, was a native of Northampton and received his medical education at Guy's Hospital, in which his brother, the late Arthur Edward Durham, occupied a place of distinction. Frederic Durham obtained the diploma M.R.C.S. in 1869, graduated M.B. Lond. in 1871, and was admitted a Fellow of the Royal College of Surgeons a year later. He occupied a succession of minor appointments at Guy's Hospital and ultimately was appointed surgical registrar. During his tenure of this office he developed a keen interest in pathological histology, a subject to which he gave much time and attention in later years. He was for some years surgeon, and later consulting surgeon, to the North-West London Hospital, but devoted himself very largely to assisting his brother in his work. He was a Fellow of the Royal Society of Medicine and of the Medical Society of London, and was greatly interested in the work of the Royal Medical Benevolent Fund, being a member of the committee of management until his death. In the old-established "Our Club" of Guy's men he was well known, and for some thirty years he was a familiar figure at the Bath Club, where he made his home, although suffering increasingly from osteoarthritis.

The British Medical Association has lately lost a valued servant by the death of Mr TREVER LAPWORTH, who had been Head Printer of this *Journal* since the beginning of 1911, and had spent the whole of his working life (some forty-four years) in the service of the Editorial Department. All who came into personal contact with Mr Lapworth were impressed with his extreme conscientiousness and his devotion to the welfare of the *British Medical Journal*. He was a loyal and most obliging fellow worker, who grudged no time or trouble in carrying out the responsible and exacting duties that fell to his lot week by week and year by year. Although his health and strength had been gradually failing for several years past he remained at work in the Printing Department until within a week of his death on August 10th. Mr Lapworth was in his sixtieth year and unmarried. The funeral, at Finchley on August 14th, was attended by the Editor of the *Journal* and other members of the headquarters staff of the Association who wished to pay a last tribute to their old friend and faithful colleague. Mr F. Martin of the *Lancet* was also present on behalf of the printing staff of our contemporary.

The following well-known foreign medical men have recently died: Inspector General Jacon, formerly director of the Val-de-Grace Military Hospital, Paris, and Commander of the Legion of Honour, Dr LÉON DUFOUT, of Tëcamp, the founder in 1894 of the first "Goutte de Lait," and Professor E. BOSTROM, a Giessen pathologist, aged 76.

Universities and Colleges

UNIVERSITY OF OXFORD

The Theodore Williams scholarship in physiology for 1928-29 has been awarded by the Board of Management, on the recommendation of the Waynflete Professor of Physiology, to R. A. Beaver of New College.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIO, TRINITY COLLEGE

The following appointments have been made:—Lecturer in Biochemistry William Fearon Sc.D. Lecturer in Biophysics James Bell, Sc.D. Lecturer in Applied Anatomy Arthur Chance M.D., M.Ch. Lecturer in Sanitary Construction and Planning Alfred D. Delap, B.A. Lecturer in Chemistry and Public Health W. O. Ramsdon M.A. University Professor of Chemistry Emil A. Werner, M.A. Sc.D.

The annual post graduate course in mediolue surgery, and allied subjects will be held this year from September 17th to October 6th. Particulars can be obtained on application to Professor A. T. Dixon, Deane Faculty of Physio.

The Services

TERRITORIAL DECORATION

The King has conferred the Territorial Decoration upon the following officers of the R.A.M.C. (T.A.) Majors R. I. Dacre, A. Young (ret.) and W. T. Briscoe.

ROYAL ARMY MEDICAL COLLEGE

The following prizes have been awarded at the conclusion of the summer course for houteants on probation Royal Army Medical Corps and Indian Medical Service Herbert Prize (about £20) highest aggregate marks Lieutenant F. McL. Richardson R.A.M.C. 1st Montefiore Prize (£20 and bronze medal) military surgery Lieutenant A. McMillan R.A.M.C. (2nd) Lieutenant S. S. Bhatnagar I.V.S. Parkes Memorial (medal and £5) hygiene Lieutenant F. McL. Richardson R.A.M.C. Ronald Martin (medal and £5), tropical medicine Lieutenant F. McL. Richardson R.A.M.C. Tulloch Memorial (silver medal) pathology by R.A.M.C. officer Lieutenant G. T. L. Archer Fayer Memorial (bronze medal) pathology by I.M.S. officer Lieutenant C. J. F. Cropper De Chaumont Prize second highest marks in hygiene, Lieutenant S. R. M. Mackay R.A.M.C.

Medical News.

The old students dinner of St Thomas's Hospital Medical School will take place on Friday, October 25th, at St Thomas's House, Lambeth Palace Road, when Mr Edwin Francis White, F.R.C.S., will take the chair.

The Fellowship of Medicine and Post Graduate Medical Association announces that a fortnight's all day course begins on Monday, August 27th, at the Queen Mary's Hospital, Stratford, E. In general medicine surgery, and the specialties. From September 11th to October 5th, on Tuesdays and Saturdays each week there will be lecture demonstrations in psychological medicine at the Bethlem Royal Hospital at 11 a.m. Four courses will be given from September 17th to 29th one being an intensive all day course in diseases of children by the staff at the Queen's Hospital, Hackney Road, where luncheon and tea will be provided by the hospital authorities. In the same period afternoon lecture demonstrations in ophthalmology will be given by the honorary staff at the Royal Eye Hospital, and an all day course in orthopaedics by the staff at the Royal National Orthopaedic Hospital. The fourth course undertaken by the staff of the Westminster Hospital, consists of instruction in medicine surgery, and the specialties. From September 25th to October 17th a series of lecture demonstrations in electro-therapy will be given at the Royal Free Hospital. Copies of syllabuses and information regarding the general course may be obtained from the secretary of the Fellowship 1, Wimpole Street, W.1.

The Sir Charles Hastings Lecture by Sir George Newman on "The foundations of national health" delivered at the British Medical Association House on March 21st has with the Association's consent been published in pamphlet form by H.M. Stationery Office (price 3d net). The lecture was printed in full in the *Supplement* to our issue of March 24th (p. 93).

The Royal Commission on Local Government, now engaged upon the second part of the inquiry entrusted to it of considering the relations between the various existing local authorities, has issued Part XI of its minutes of evidence (obtainable from H.M. Stationery Office or through any book seller, price 6s net). This contains evidence given on behalf of the Association of Municipal Corporations the Urban District Councils Association, the Westmorland County Council, and by Mr E. D. Shino, formerly Lord Mayor of Manchester.

THE Water Pollution Research Board of the Department of Scientific and Industrial Research has issued a summary of current literature relating to water supplies, sewage, trade waste waters, river pollution, and other related subjects. This summary has been placed in the Library of the Association, where it will be available for the use of members.

A SUBCOMMITTEE appointed by the Heart Committee of the New York Tuberculosis and Health Association has been investigating the criteria of the diagnosis and classification of heart disease, and its report—which takes the form of a textbook—will shortly be published by Messrs Paul B Hoeber, Inc., of New York. It comprises a uniform nomenclature and diagnostic criteria.

IN connexion with the sixth international congress for combating tuberculosis, to be held at Rome in September, arrangements have been made for visits from September 20th to the 24th to various tuberculosis and social hygiene institutions in Naples and the neighbouring towns. A descriptive book is being prepared for those attending the congress, who are also invited to the opening ceremony of two new pavilions for tuberculous patients in the Ospedale Provinciale Psichiatrico, Naples, and to other functions. For information about lodgings and the journey application should be made to the Compagnia Italiana Turista (CIT), Piazza Trieste 6 Trento, 45, Naples.

A POST GRADUATE course on cancer organized by Dr Gussset, director of the anti cancer centre of Strasbourg, will be held at the Strasbourg faculty of medicine from October 16th to 31st, when lectures and demonstrations on cancer will be given in the various departments of the faculty. The fee is 300 francs. Further information can be obtained from Dr Gussset, Hôpital Civil, Strasbourg.

SIR C J MARTIN, director of the Lister Institute, has been appointed by the Minister of Agriculture and Fisheries to be chairman of the departmental committee which will report on the reconstruction of the Royal Veterinary College with reference to the cost, the accommodation to be provided, the site of a new building, and arrangements to be made in respect of the Animal Pathology Research Institute now situated at the college. The other members of the committee are Dr O Charnock Bradley, Sir Merrick Barrall, Mr H E Dale, Sir Walter Fletcher, Mr J R Jackson, Sir E Cooper Perry, Major General H T Sawyer, and Lieut Colonel Sir Archibald Waigall. The secretary of this committee is Mr V E Wilkins of the Ministry of Agriculture and Fisheries.

DR. MARGARET E. McFILL writes from Belfast: I can speak only for Manchuria, where I have been a medical missionary for twenty seven and a half years. I agree with the Chinese informants that it is not true that patients pay retaining fees to their doctors which are discontinued during illness. Chinese "doctors" often guarantee "cures" and extract money from patients in advance. The "cures" are not always satisfactory. I cannot speak with authority for other parts of China, but do not think it likely that there is much truth in the oft-repeated story.

MATERNITY WORK IN RUSSIA

DR T. ENGEL (Birmingham) asks how he may obtain a copy or translation of the rules for maternity cases in Russia. He particularly desires information about ante natal work.

INCOME TAX

Wife's Medical Earnings

"S. D. T." is married and resides with her husband. Since November 1926, she has had a plate up at their residence, but so far there has been no financial return from patients. What should be deducted in her husband's return of their total joint income in respect of expenses?

* * * Apparently there has been no net cash income yet but presumably fees are or will be due for professional services so that on the basis of "hookings"—appropriate to a new practice—there would be no real loss. What expenses can be deducted in arriving at the book profit or the loss if there should be one, must depend so much on the precise facts that guidance is difficult. A obergymnast is considered to be entitled to one-eighth of the general cost of rent etc. for the use of his study for his clerical office, and perhaps some fraction between that and the one-half commonly applied to provincial practitioners might be reasonable.

Tax Payable after Retirement

"E. E. M." contemplates retiring from the Colonial Service and inquires what tax will be payable by him on £900 pension plus £1 100 interest.

* * * This calculation is as follows:

Total Income	---	£2 000
Deduct: Earned income allowance	---	£150
Personal allowance (married)	---	£225
Children (3)	---	£160
		£535
		£1 465
of which £225 chargeable at 2% tax	---	£22 10 0
and the balance £1,240 chargeable at 4%	---	£248 0 0
		£270 10 0

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to *The Editor, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1*.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBERS of the British Medical Association and the *British Medical Journal* are: *MUSEUM* 3561 3562 3563 and 3564 (internal exchange four lines).

The TELEGRAPHIC ADDRESSES are: EDITOR of the *British Medical Journal* Athology Westcent London.

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements etc.) Articulate Westcent London.

MEDICAL SECRETARY Mediucern Westcent London.

The address of the Irish Office of the British Medical Association is 15 16 South Frederick Street, Dublin (telegrams *Bacillus Dublin* telephone 62550 Dublin) and of the Scottish Office 7 Drumshugh Gardens, Edinburgh (telegrams *Associate, Edinburgh* telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

MEDICAL TREATMENT IN CHINA

DR J. JONES (Bromley, Kent) writes in answer to Fleet Surgeon Home's inquiry in the *British Medical Journal* of August 4th (p. 228). Though I have been a medical missionary in China from 1905 to 1927 (excluding furloughs) and have served in four of China's provinces I cannot recall any Chinese telling me of the system of retaining fees for patients, which was discontinued during periods of ill health. Neither has my wife who has lived in China longer than I heard of that practice.

LETTERS, NOTES, ETC.

SUNSPOTS AND SUDDEN DEATH

SOME months ago (April 16th 1927, p. 750) we mentioned the hypothesis submitted to the Académie de Médecine by Dr M. Fauré, associating the appearance of the occurrence of acute crises in various chronic illnesses with the passage of spots over the solar meridian. Dr Fauré whose address is La Malou, Hémeil, France, now invites any interested to communicate directly with him with a view to the collection of clinical evidence. He undertakes also to notify in advance the transit of these sunspots.

ST THOMAS'S DIRECTORY

A NEW edition has been prepared of the *Alphabetical and Local List of Old Students of St Thomas's Hospital*. The greater part of this directory is arranged in two sections the first being an alphabetical list of names and the second a local list. Old St Thomas's men will welcome this compilation which is we understand, largely due to the industry of Mr Robert Hopkins.

BARLEY FOR INFANTS

MRS S. K. FEN ROBINSON and Co. LTD. of Norwich have revised the infant feeding directions and recipes on the container of their patent barley for infants and for making barley water and puddings bringing up to date the feeding recipes and simplifying the process of preparing feeds.

THE REPORT OF THE COMMITTEE ON VACCINATION

Correction

WE have been asked to correct two errors which appeared in the summary of the above report published in the *Journal* of August 11th. On page 267 line 21 from foot of the first column, majority should be minority. On page 268 line 10 from top of the first column, revaccinations should be vaccinations.

VACANCIES

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 35, 37, 40, 41, and 42 of our advertisement columns and advertisements as to partnerships, assistantships, and locum tenencies at pages 38 and 39.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 408.

A Paper

ON

THE DIAGNOSIS OF URETERIC CALCULI*

BY

ANDREW LULLINGTON, C.B., C.M.C., M.D., F.R.C.S.I.,

Professor of Surgery, Queen's University, Belfast Surgeon
Royal Victoria Hospital, Belfast

In opening this discussion I shall limit myself to an account of my own personal experience, confident that omissions in the presentation of the subject will be dealt with by others.

COMPOSITION OF URETERIC CALCULI

I have made a rough analysis of 35 ureteric calculi passed by patients or removed by operation. In no fewer than 29 of these—that is, in 80 per cent.—the main constituent was calcium oxalate. In 5 cases phosphates predominated and in one case only was there a preponderance of uric acid. If this experience is corroborated by others, the accounts given in the textbooks, which emphasize uric acid or urates as the chief constituent of renal and ureteric calculi, require modification.

CHARACTER AND EFFECTS

Ureteric calculi vary, of course, in size, shape, and colour. A very common type is small in size, irregular in shape and outline, with sharp edges, greyish or brown in colour, and often crystalline in appearance. The sharp, almost knife-like projections of these little calculi lacinate the delicate mucous membrane of the ureter in their passage and the calculi are liable to be held up at the points where the ureter narrows or changes its direction. Hence they are frequently arrested at the outlet of the renal pelvis at the vesical end of the ureter, and, much less frequently in my experience, at the hrim of the pelvis. It takes very little trauma to draw blood from the mucous membrane of the ureter. The passage of a smooth ureteric catheter even with the greatest care, is liable to be followed by slight haemorrhage, and if the catheter is retained for any length of time the specimen obtained from the ureter may be deeply blood stained. It is easy to account, therefore, for two, at least, of the signs and symptoms of ureteric calculus—namely, haemorrhage and pain. Haemorrhage is caused by laceration of the mucous membrane and pain by the irritation and consequent increased peristalsis of the ureter. Another cause of pain is the increased tension produced in the renal pelvis when the calculus causes a partial block of the ureter. A ureteric calculus rarely causes complete obstruction of the ureter. The urine tends to find its way past even a large calculus and may actually groove or tunnel it. The absence of an efflux from the affected side does not necessarily mean a mechanical block, it may be due to a reflex anuria. I have only once seen a complete mechanical block, and this occurred in a patient who had suffered from a tuberculous kidney for many years. The lower end of the ureter on the affected side was occupied by a large phosphatic calculus which had mushroomed into the bladder.

There is another remarkable phenomenon produced by the presence of these irregular foreign bodies in the ureter, and that is reflex polyuria on the affected side. Twenty years ago when the Association met in Sheffield at a discussion on the "Indications for nephrotomy and nephrectomy" I brought forward the subject of unilateral diuresis and gave several examples. Since then I have made some hundreds of observations, and the views then expressed as to the importance of this sign in diagnosis have been abundantly confirmed. Let me give a recent example.

A gentleman aged 45 about two months before examination began to complain of attacks of pain in the left side radiating downwards. The attacks were associated with vomiting and on several occasions with haematuria. When the urine was examined however on August 10th 1927 it was found to be chemically and microscopically free from abnormal constituents.

But in opening a discussion in the Section of Surgery of the Annual Meeting of the British Medical Association Cardiff 1928

except for a number of calcium oxalate crystals. On ureteric catheterization the flow on the affected side was found to be rapid and copious and the specimen had a specific gravity of 1005. On the sound side the flow was very scanty and the specific gravity of the specimen was 1015. A radiogram showed a small shadow possibly due to a calculus in the position of the lower end of the left ureter. About eighteen days after cystoscopy I had a severe attack of pain and three days later passed a small irregular calculus a little larger than a hemp seed. A week later cystoscopy was again carried out and the specific gravity was now 1015 on both sides and the quantity of urine equal on the two sides.

Note that in this case the urine at the time of examination was perfectly normal, and the only unequivocal sign incriminating the kidney was a definite polyuria on the affected side, which passed off when the calculus was got rid of.

Another case, in which a more detailed examination of the urine was made and which has already been published,¹ is the following.

A man aged 34 was seized ten days before examination with severe pain in the left loin radiating to the pubis. This passed off to recur again in a very severe form several times. Cystoscopy was carried out shortly after one of these attacks and catheters were passed into the ureters. The catheter on the left side encountered an obstruction a short distance up which was negotiated with a little difficulty. The flow from this side was vigorous and free while that from the right was sluggish and scanty. The specimen obtained from the left side had a specific gravity of 1010 contained 0.304 per cent of chlorides and 0.48 per cent of urea and was much greater in quantity than that obtained from the right side. That from the right side had a specific gravity of 1030 contained 0.836 per cent of chlorides and 2.16 per cent of urea and was discharged in drop depositing mites on cooling. A radiogram showed a small shadow about the site of a pin's head at the lower end of the left ureter. On the third day after cystoscopy a small speiculated calculus was passed per urethram and all pain ceased. Four and a half days later the ureters were again catheterized with the following result. There was now no demonstrable difference in the rate of flow and the specific gravity was 1015 on both sides. The specimen from the left side showed 1.45 per cent of chlorides and 0.84 per cent of urea while that from the right showed 1.40 per cent of chlorides and 0.78 per cent of urea. In other words the specimens on the two sides were almost identical. On both occasions there were a few red blood corpuscles in the specimen from the left side but there was no pus in either specimen.

In these cases of unilateral diuresis the jets on the affected side follow one another in more rapid succession than on the opposite side, and the quantity in each jet is larger in amount. There may also be some irregularity in the rhythm on the affected side. The specific gravity is estimated by glass beads, and the quantity necessary is about 4 to 5 c.c.m. Smaller quantities will suffice, but are more troublesome to work with.

For the purposes of this discussion I have looked up the notes of 50 undoubted cases of ureteric calculus occurring in my own practice. All except two of the cases were proved or presumed to be in the lower ureter, and all true renal calculi were excluded. In 20 of these the investigation just mentioned was carried out, and in no fewer than 14, or 70 per cent., an easily demonstrable diuresis, with diminished specific gravity of the specimen, was present on the affected side. In 3 cases no difference could be detected between the two sides, and in 3 again, probably reflex in character, was present. In one of the latter cases, on a second examination, though the calculus was still present, an abundant flow of dilute urine was obtained from the affected side. The calculus was subsequently removed by operation. When a calculus has been present for some time in a ureter hydronephrosis may result and it is desirable to know if the dilute urine which is secreted by a hydronephrotic kidney differs in any way from that due to diuresis. My colleague Dr. Mavis, who has been associated with me in this work, will deal with this point and will give the results of his examination of the urine in a number of cases.

While much has been written on calculous anuria very little has been said on the occurrence of unilateral diuresis from whatever cause produced. The explanation of both phenomena is afforded by a study of the nerve supply to the kidney and its influence on the blood flow. Through the splanchnic nerves the kidney receives vaso-constrictor and vaso-dilator fibres. The stimulus of a calculus may cause vaso-constriction and reduction or cessation of the secretion of urine on that side due to diminished blood flow through the glomeruli. On the other hand, it may cause vaso-dilatation, increased blood flow, and diuresis.

The latter is the more common occurrence. Cushny, in his work on *The Secretion of Urine*, discusses "pressure diuresis" seen in animals where one ureter is slightly obstructed, and states that it is almost certainly due to reflex vaso-dilatation. He suggests that a slight stimulus arouses a dilator effect, while a stronger one, such as the pain of a calculus, sets the more powerful constrictor in action, and thus leads to anuria. My observations go to show, however, that even with severe pain renal or ureteric calculus is much more commonly associated with diuresis than with anuria.

SIGNS AND SYMPTOMS OF URETERIC CALCULI

Pain

The chief symptom of a calculus in the ureter is pain, and it may be the only symptom present. Papan and Ambard² give some interesting facts bearing on renal pain to which a short reference may be made. The kidney receives its chief nerve supply from the splanchnic nerves through the renal plexus, and a branch from the first lumbar ganglion. The nerves to the kidney are, with few exceptions, non-medullated, while those

correspond in part to the kidney, the eleventh and twelfth dorsal and the first lumbar correspond to the pelvis and ureters. Certain reflex phenomena, such as nausea, vomiting, and pallor, with cold sweats, unassociated with disturbance of pulse or respiration, commonly accompany pain due to distension of the renal pelvis. Papan and Ambard are of opinion that renal pain is usually, as a matter of fact, "pyelic," and that obstruction of the ureter declares itself by renal colic due to distension of the pelvis. It would seem reasonable to assume, however, that increased peristalsis of the ureter, the result of an irritant such as a calculus, is a factor in the production of the pain known as renal colic.

The pain due to the passage or the arrest of a ureteric calculus cannot, I think, be distinguished from that due to a renal calculus lodged in the pelvis of the kidney. I have gone over the notes of my cases of ureteric calculus and compared them with those of known cases of renal calculus, and have come to the conclusion that the site and character of the pain may give no clue whatever to the size or position of the calculus. It is further evident from these notes that a precisely similar calculus may give rise in one



FIG. 1.—Ureteric calculus occupying a frequent position—that is opposite the ischial spine.



FIG. 2.—Ureteric catheter arrested by calculus.

distributed to the pelvis and ureter are for the most part medullated. The cells met with in the ganglia of the renal plexus are of the sympathetic type. It appears probable that renal pain issues from the sympathetic, the cells of which oppose an obstacle to impressions only overcome when these are of a violent nature. It is probable that painful sensations in the sympathetic system are really only perceived on quitting that system and gaining, by way of the innu communicantes, the posterior roots of the cord and through them the cerebro-spinal centres. Hence it is that pain is often reflected along the course of nerves connected with the corresponding innu communicantes.

Compared with the kidney, the pelvis and ureters are highly sensitive. Distension of the pelvis is very definitely painful. If more than 3 to 7 c.c. of fluid are injected into a renal pelvis, pain resembling renal colic is, as a rule, provoked and may at once be relieved by drawing off the fluid injected. The pain commences, as a rule, in the costo-lumbar region, or in the subcostal region in the anterior axillary line. Tender points can be demonstrated by touch in the costo-lumbar, subcostal para umbilical, and iliac regions. These areas are those to which pain is referred by the cerebro-spinal nerves from impressions received by the sympathetic. Pain may be referred along the course of the nerves of the lumbar plexus towards the thigh, the testicle or labia majora, or to the renal region of the opposite side. Zones of cutaneous hyperaesthesia may be demonstrated by stroking, pinching or pinching the skin. The tenth, eleventh, and twelfth dorsal segments

patient to the merest discomfort, while in another the pain may be of the severest character, radiating to the utmost terminations of the peripheral nerves. Again, a calculus may remain in the ureter for weeks or months and only periodically give evidence of its presence.

The pain in the cases that have come under my notice has varied very much in position, character, and severity. In a few vague discomfort only was complained of, referred to the back, or the side, or to the iliac region. In others attacks of typical renal colic occurred, the pain commencing in the costo vertebral angle and radiating downwards to the iliac region, the testis or vulva, the hip, the thigh, the rectum, the knee, or even to the foot. In some cases it was referred to the umbilicus or to the opposite side. In other cases the pain commenced in the iliac region and radiated upwards to the back and downwards to the lower part of the body. In others again the pain was stationary in the back or side or in the iliac region. In a case of renal calculus not included in this series, the patient, a woman aged 30, yelled with pain in the knee. In another case of renal calculus the pain started in the region of the left kidney and radiated to the shoulder and the back of the head. In a certain proportion of cases a note was made of rigidity, or at least of increased tone of the abdominal muscles on the affected side, but the board-like rigidity of peritonitis was never present. Tenderness over the kidney and ureters was frequently found. The pain when severe was often accompanied by vomiting, pallor, and cold sweats.

The pain may be of momentary duration or may last

for hours. It may begin gradually or suddenly and cease in the same way. It may occur in attacks with long or short intervals of complete freedom as it may be continuous. It may come on in the middle of the night while the patient is in bed or it may occur while he is walking about. In many cases it is aggravated by exercise. Hot fomentations frequently relieve it. Its character also varies, being described as an ache, a sense of discomfort, a gnawing or burning sensation, a bursting feeling or a feeling of fullness, a stab, a tearing or cutting sensation, and so on. It is generally easily distinguishable from the more familiar pain of intestinal colic.

I have been struck, in reading the notes, how often pain in the iliac fossa, either fixed or radiating, was complained of. Given a patient with a pain in the right iliac fossa, vomiting, and some tenderness and rigidity on that side, and it is easy to see how the case may be



FIG. 3.—Calculi in lower part of ureter and two in lower part of a hydronephrotic sac. Calculi are also present in the opposite kidney.

mistaken for one of appendicitis. The easy going diagnosis of chronic appendicitis is responsible for more errors than one cares to contemplate with equanimity. Frequently patients state that they have been operated on for appendicitis without relief. Before a surgeon commits himself to a diagnosis of chronic appendicitis a complete chemical and microscopical examination of the urine should be made. If still in doubt he may be saved from the chagrin of an unsuccessful operation by a cystoscopic examination and the discovery of significant changes at the ureteric orifice on the affected side, or a unilateral diuresis. Should an appendix at operation be found to be healthy or at least not sufficiently diseased to account for the patient's symptoms the abdomen ought not to be closed without a detailed examination, and in this the ureter should be included. The most frequent place in the lower ureter for a calculus to be arrested is at or near its entrance into the bladder, and this portion can be explored in a doubtful case by detaching the peritoneum from the pelvic wall so as to expose the ureter extraperitoneally. A catheter in the ureter from the bladder will much facilitate this exploration. If a calculus be found it can be removed and an abortive operation averted.

Frequency of Micturition

It is generally believed that when a ureteric calculus approaches the bladder its arrival is heralded by frequency of micturition and straining. This symptom however may be entirely absent. I removed a calculus about the

size of a date stone from the lower end of the right ureter in a woman aged 21 who did not have any frequency of micturition, also a large calculus, 3 inches long and 1 inch thick, from the vesical end of the left ureter in a boy aged 18½ years who had no frequency and no dysuria. In another case, that of a male aged 43, the calculus was actually seen by cystoscopy in the orifice of the left ureter, and yet there was no complaint of frequency or dysuria. On the other hand, I have seen many cases of calculus lodged in the renal pelvis in which frequency of micturition was present. All this tends to demonstrate how difficult it is by symptoms alone to locate a urinary calculus.

Rectal Tenesmus

One or two of my patients with a calculus arrested at the entrance of the ureter into the bladder have complained of rectal tenesmus.

Inflammatory Signs

The presence of a calculus in the kidney or ureter is liable to give rise to inflammatory changes, and infection by micro-organisms, generally the *Bacillus coli*, is not infrequent. In addition to pyelitis, ureteritis and peri-

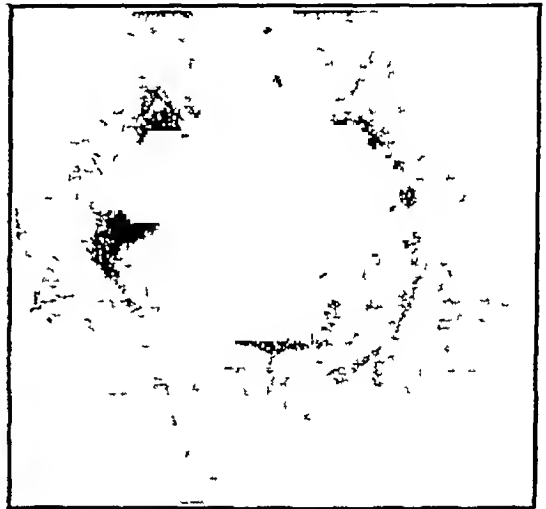


FIG. 4.—Showing relation of phleboliths to bladder. The cystogram shows also a filling defect due to a tumour.

ureteritis at the point of arrest, leading to much thickening may occur. These changes are frequently associated with a rise of temperature and an increase in the pulse rate. A leucocytosis may be revealed on blood examination, and pus and micro-organisms will be found in the urine.

The Presence of Abnormal Constituents in the Urine

Haematuria may be the first symptom of a renal or ureteric calculus, and in rare cases the only symptom. I have pointed out that a calculus may be lodged in the ureter and yet the urine may fail to show any microscopical or chemical abnormality. In a case of suspected ureteric calculus, however, it is very unlikely that this state of affairs will continue. Frequent examinations should be made especially for blood which may perhaps be detected only by the microscope. The specimen for this examination should be taken without any instrumentation. A catheter, no matter how carefully passed, may draw microscopical blood and obscure the diagnosis. The meatus in both sexes may be carefully cleansed and contamination avoided by measures that will readily suggest themselves. The presence of microscopical blood is of more importance in diagnosis than a few pus cells having regard to the fact that the latter are so frequently found in the urethra. Pus and albumin in the urine are, of course, confirmatory tests and should always be looked for. The presence of crystals of triple phosphate, calcium oxalate, or uric acid is so frequent as to be of only secondary value in diagnosis, unless in great abundance.

EXAMINATION OF THE PATIENT

The patient will be examined for tenderness and swelling of the kidney, for tenderness along the course of the ureter, for tenderness of the testicle on the affected side without other obvious cause, often with a negative result also for the areas of hyperaesthesia to which reference has already been made. Rigidity of the abdominal muscles is more suggestive of an intra-abdominal lesion, but, as stated above, it may be present with renal or ureteric calculus. Besides appendicitis, acute and chronic, many other intra-abdominal conditions may give rise to symptoms more or less resembling those of ureteric calculus. Such are cholecystitis, gall-stones, gastric and duodenal ulcer, intestinal obstruction, colitis, tuberculosis and other infections of the abdominal lymphatic glands, and affections of the ovary and tubes. The surgeon's examination will include, therefore, a wide survey of the abdominal organs. Other affections of the kidney itself may give rise to symptoms indistinguishable from those of renal or ureteric calculus. Hydronephrosis, for instance, may give rise to typical renal colic as severe as that caused by a calculus. Renal colic may be present also in tuberculous and other infections of the kidney, malignant growths, hydatid disease, haematuria with clots, etc., and is due to the passage of clots or portions of growth or cysts down the ureter. In fact, any lesion that narrows or obstructs the ureter in any part of its course may give the symptoms of stone in the ureter, and these can be eliminated for the most part by cystoscopy, ureteric catheterization, ureterography, and pyelography.

A rectal or vaginal examination is a most important part of the examination of a suspected case of ureteric calculus. The stone can frequently be felt in the lower end of the ureter through the rectal or vaginal wall, or the ureter may be felt greatly thickened, as was found in the following cases. In a male, aged 22, with symptoms of renal calculus with vesical irritability I was able to feel through the rectal wall what I took to be a thickening of the lower end of the right ureter. The swelling was about the size of an almond. X-rays showed a well-defined ovoid shadow in this position. Operation disclosed a segment of ureter about three times the normal size, with thick walls enclosing a calculus about the size of a melon seed. In a girl, aged 21, with pain in the right iliac fossa radiating to the back and without vesical symptoms, the lower end of the right ureter could be felt greatly thickened per vaginam. At operation, the ureter just proximal to the bladder was found thickened to about the size of a plum stone, and a calculus about the size of a date stone was liberated from its interior. A thickened ureter, therefore, as felt per vaginam or per rectum, may be an important sign of an impacted ureteric calculus.

X-RAY EXAMINATION

Examination by x-rays is one of the most valuable means of diagnosis at our disposal, but many are the pitfalls. A discussion of this subject alone would occupy all the time at my disposal.

The shadow of a calculus varies according to its atomic weight and its density. Those composed of calcium oxalate give the deepest shadows, phosphatic stones come next, while uric acid calculi may give no shadow whatever (Hazard). Of the various opaque bodies likely to be mistaken for calculi in the urinary tract the most important from their position, size and shape are the phleboliths, the frequency of which has only been demonstrated since the use of x-rays for diagnosis has become general (see Fig. 4). Phleboliths are round or oval in shape, small and uniform in size, often bilateral, and situated, as a rule, below the great sciatic notch and lateral to the line of the ureter (Culligan). If multiple they are usually disposed in a linear fashion rather than in groups. The shadow of a phlebolith resembles closely that of a ureteric calculus, but the latter is more apt to be irregular in shape and outline. A very common situation for the shadow of a ureteric calculus is opposite to the ischial spine (see Fig. 1).

Calcified glands following on tuberculous infection are very common. The shadows given by these are generally larger, more irregular in shape and less dense than those of phleboliths. Some of the shadows may show areas of

greater density at the periphery in the form of rings or crescents. Calcified glands are collected into groups rather than rows, but isolated ones occur and may be difficult to distinguish from ureteric calculi. Calcification of the pelvic ligaments and mesos, faecal excursions or foreign bodies in the intestine and in the appendix, and retained foreign bodies, such as the missiles of war, have all been mistaken for urinary calculi.

To establish a diagnosis an ordinary radiogram is first taken, and if suspicious shadows appear the exact relationship to the kidney, ureter, and bladder is defined by an opaque catheter (see Fig. 2), or by a ureterogram, a pyelogram, or a cystogram. The value of this examination is greatly enhanced by stereoscopic radiography. It is obvious that the opaque catheter, for instance, may pass across the shadow of a body which is in front of or behind it. The exact relationship may be determined by knowing the shift of the x-ray tube and its distance from the plate in taking stereoscopic radiograms. Accurate calculation can then be made of how far a body giving a shadow is removed from the ureter or kidney. During the war this method proved invaluable, and surprisingly accurate localization of foreign bodies relative to the kidney and ureter was obtained in many cases. The value of a ureterogram or pyelogram when a shadow does not coincide exactly with the line of the opaque catheter is obvious. For instance, a ureter may be dilated and the shadow, though not touching that of the opaque catheter, may be seen to be covered by the shadow of the dilated ureter. Very striking results are sometimes seen by pyelography, as, for instance, in one of my cases in which, in addition to three shadows in the line of the lower ureter, two small oval shadows were seen far removed from the line of the upper ureter. Their significance was shown by pyelography, which demonstrated a huge hydronephrosis with two shadows at its lower limit. The diagnosis was obviously a couple of calculi which had gravitated to the bottom of a hydronephrotic sac (see Fig. 3).

I have laid some stress on the possibility of mistaking a case of ureteric calculus for one of appendicitis, but I have a specimen which shows how a diseased appendix may be mistaken for a ureteric calculus. In this case the x-ray report strongly suggested calculi in the ureter, and to make the diagnosis more difficult there was a slight difference in the urine from the two sides, that on the right having a specific gravity of 1015 as compared with 1020 on the left. In addition, the ureteric catheter encountered some opposition a few inches up on the right side. The urine on the affected side, however, did not contain pus which would almost certainly have been the case if calculi of the size suggested by the shadows seen in the radiogram had been present in the ureter. The appendix was therefore explored, and found to contain one large and one small concretion of the correct size and shape. The proximity of the appendix to the ureter in this case may have caused some obstruction to the passage of the catheter, hence the difficulty in diagnosis.

It is not uncommon to find calcified glands in the neighbourhood of the kidney or ureter, but it is not generally known, I think, that calcified areas may be present in the perineal or peri-ureteric fat. I have several specimens in which this condition was found, and will mention one example in which the x-ray report stated that there were four shadows in the renal region—one circular and three irregular in shape—probably calculi. When the kidney was explored I could only find one round-shaped calculus in the pelvis. After searching in vain for the other three I found in the perineal fat three irregular calcified masses corresponding in size and shape to the x-ray shadows. Here an opaque ureteric catheter and stereoscopic radiograms would have been of great assistance.

In passing the ureteric catheter it may be felt to hit against what appears to be an obstruction in the ureter. With a little manipulation it may or may not be made to pass on. This difficulty in passing the catheter is so frequently found in cases with no abnormality whatever in the ureter that it cannot be considered of any diagnostic importance. The tip of the catheter may catch, for instance, in a fold of the mucous membrane or be arrested by spasm. A ureteric calculus, even one of considerable

sive, may on the other hand, offer no obstacle to the passage of the catheter, and it may not even be felt as an obstruction.

CYSTOSCOPIC APPEARANCES

Looking over my case sheets I find that, in addition to the alterations in the rate of secretion and in the rhythm of the jets to which I have already referred, and the presence of blood or pus in the efflux, I have notes of certain changes at the ureteric orifice on the affected side as seen by the cystoscope: the following description is based on these notes. There may be no apparent departure from the normal the orifice remaining slit-like and free from surrounding vascularity or oedema. Thus there were no obvious changes in three cases in each of which a calculus was subsequently removed from the ureter, just proximal to its entrance into the bladder wall. In 20 out of the 50 cases however, definite changes were specially described. These consisted of the following.

Some departure from the slit-like shape of the orifice, which had become sinuous, oval, circular, or irregular in shape. In some cases the orifice was more patulous than normal. In a few the only noticeable change was increased vascularity, without swelling round the orifice. In the large majority however, there was a good deal of redness and oedema at and around the orifice. The opening of the ureter in some cases was completely obscured and perched on the top of a little mound or hillock of oedematous mucous membrane, and was only discovered by probing about with the tip of the catheter. The chief sign was therefore, alteration of the shape of the orifice,

associated with oedema at the spot and for some distance around. The orifice if not obscured often appeared like a dimple in the centre of a raised area of mucous membrane. In a few cases oedematous tags resembling minute papillomata were seen surrounding the opening. Occasionally flecks of lymph were seen on the lips or shores of purulent material projecting from the orifice.

A very characteristic sign was the presence of small haemorrhagic points and splashes around the orifice extending in some cases along the interureteric bar as well as laterally. In four cases the calculus was actually seen in the depths of the orifice or about to drop into the bladder. In five cases examined after an attack of pain the calculus was seen lying at the base of the bladder.

I have thus had the opportunity of observing what may be termed the birth of the calculus. The ureteric orifice has more than a fancied resemblance to the vulva and it is fascinating to watch the calculus like a foetal head advancing and breaching as in the act of parturition. Like my friends the obstetricians I have 'put on forceps' to assist nature and in a few cases I have even performed a miniature cephalotripsy. When the dystocia has been insurmountable I have like them, resorted to a form of Caesarean section and finally, again like them, I have been amply rewarded for my trouble by the effusive thanks accorded to me when I have presented to the author of its being the fruit of his loins.

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ENCEPHALO-MYELITIS IN VIRUS DISEASES AND EXANTHEMATA*

BY

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THE HISTOLOGY OF POST-VACCINAL ENCEPHALITIS

I UNDERSTAND that the primary subject of the discussion is the nature of encephalo-myelitis following vaccination. It is no longer necessary to argue that an encephalo-myelitis is sometimes a complication of vaccination. The exact cause of the encephalo-myelitis need alone be discussed.

Is the encephalitis caused by the virus of vaccination lymph, or by some other infection introduced at vaccination, or does the vaccinal virus excite some latent infection? If the encephalo-myelitis is the result of an infection introduced at vaccination or excited by the vaccination, are the resulting histological changes due to the action of the introduced or excited infection alone or to the combined action or the interaction of such an infective agent and the vaccinal virus?

In finding an answer to these questions a great many methods are of service, one of these is comparative histology. To that method my remarks will be confined.

The histological changes in post-vaccinal encephalitis have been remarkably uniform in all cases which I have seen or of which I have read a description. The case of Paul (1923) may be an exception. I have not had access to the description of this actual case, but only to that of the example of severe poliomyelitis in which, he says the changes were astonishingly similar. The description of seven brains and cords given by Turnbull and McIntosh (1926) amplified that of two brains by Bastiaanse (1925) and has in turn been confirmed, amplified and in one point corrected by the descriptions of three brains and cords by Perdrau (1928) of one brain and cord and one segment of brain by Schürmann (1928) and of three brains by Luksch (1927) in his later paper. I have subjected the formaldehyde-paraffin material from the first four of our seven cases to other stains, particularly Victoria blue and Mallory's phosphotungstic haematoxylin with the

latter not only can the fibroglia and myelin be stained but the bodies of the proliferated glial cells are sharply defined. A further case was obtained by Dr Woods during my holiday in September 1927: a male of three months who became ill on the tenth day after vaccination and died on the twenty-fifth day. In this example, which for convenience may be referred to as our Case viii, the condition was subacute as in our Case iv.

To the naked eye congestion and oedema are visible in most examples: haemorrhage into the leptomeninges and subdural space of the brain one or two punctiform haemorrhages into the spinal cord and blurring of the demarcation between the grey matter and white matter of the cord have been observed in some examples (Turnbull and McIntosh).

Microscopically focal histological changes extend from the cortex of the brain to the lumbosacral cord. The incidence was maximal in the lumbosacral cord and the pons, and was least in the upper cervical cord of our first seven cases. Case viii differs in that the affection of the spinal cord is greatest in thoracic segments there it is of great severity. Perdrau found the most severe lesions in the pons and upper medulla and the maximal lesions in the spinal cord in the lower thoracic segments and the lumbosacral enlargement. Schürmann found the maximum in the pons and medulla. Luksch (brain and brain stem) in the pons and substantia nigra we found the inflammation in the mid brain to be greatest in the substantia nigra. Schürmann found a fairly severe affection of the optic tract and nerves.

We found the white matter in the cerebrum to be more affected than the grey but in the central nervous system considered as a whole we estimated that the grey matter was more affected than the white. Perdrau found the white to be most affected in the cerebrum and cerebellum but the grey in the brain stem and spinal cord. In the brain and brain stem Bastiaanse considered the white matter to be most affected. Luksch the grey and white to be about equally involved.

The histological changes can be divided into acute and subacute types. The acute type is usually found in patients who die from fourteen to seventeen days after vaccination and the subacute in those who survive longer.

In the acute type there is a slight, intermittent infiltration of the leptomeninges chiefly about veins, with small and large lymphocytes, plasmacytoid and true plasma cells, large mononuclear leucocytes and endothelial cells. The

* Read in opening a discussion in the Section of Pathology and Bacteriology of the Annual Meeting of the British Medical Association Cardiff 1923.

vessels are engorged, and frequently contain thrombi, occasionally there are haemorrhages. Within the central nervous system engorgement is again found, thrombi are occasionally met, haemorrhages are rare, and are small and perivascular. The essential change consists of perivascular and marginal zones of demyelination. After describing these zones of demyelination we unfortunately named them zones of "softening"—a term generally regarded as indicating complete colliquative necrosis in addition to rapid demyelination. We also described the occurrence of areas of infiltration without demyelination in the grey matter and very rarely in the white. I have stained my series again, and find, as Perdrau did, that there is some demyelination in all the zones without exception, for instance, round the vessel in fig 2 of our paper. The only extra-adventitial infiltration without demyelination is found in places such as the pons, where there is a diffuse proliferation of glial cells between numerous adjacent areas of demyelination.

The perivascular zones of demyelination (Figs 1 to 4) form wide sleeves which surround vessels, almost always veins, for long distances and extend along their branches. The marginal zones are found most frequently along the edges of the ventral fissure of the spinal cord, but also in the remainder of the periphery of the cord (Fig 4). Schramm found them also beneath the pia of the brain,

and very deeply stained they then give a positive reaction for fibrin with Weigert-Gram. This thickening I believe to be due to a fibrous inhibition, and not to proliferation, I have seen the same change unaccompanied by any other beneath the pia in a cerebral sulcus. Usually the limiting membrane is unaltered or rarified. Further from the vessel the fibrils form a wide-meshed net, and frequently appear to be diminished in number. The changes in the marginal zones are similar, except that I have not seen fibrinoid thickening of the limiting membrane.

Perdrau has found an incipient demyelination free from glial cells round many vessels. But in the conspicuous perivascular and marginal zones the wide-meshed net of glial fibrils usually contains, in the acute cases, a great number of proliferated glial cells. A few fibrous astrocytes are present, but not more than normally. The bulk of the cells have a relatively abundant cytoplasm, and are polygonal, round, or oval. The nuclei vary greatly in shape and depth of stain; various forms of degeneration to complete disappearance are seen. The cytoplasm is usually vacuolated, and may be foam-like. By Hottel's method Perdrau has found these cells to be microglia, and by Horzheimer's method he proved the presence of fat within them. The cells contain myelin as well as fat. In addition to these glial cells there are neutrophil leucocytes where the inflammation is exception-

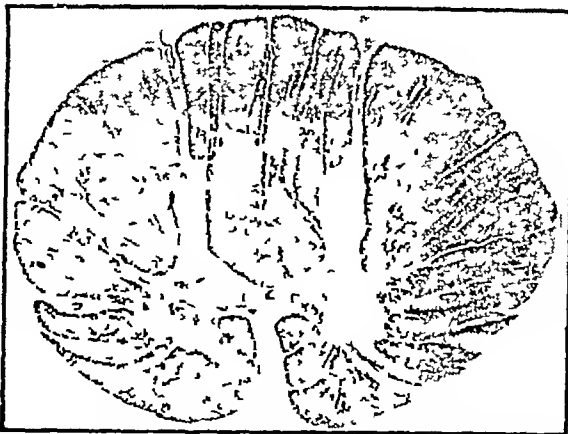


FIG 1.—Perivascular demyelination in spinal cord. Second thoracic segment. Case III of Turnbull and McIntosh. Female, 22 years. Weigert's iron haematoxylin and van Gieson. (From the British Journal of Experimental Pathology.)

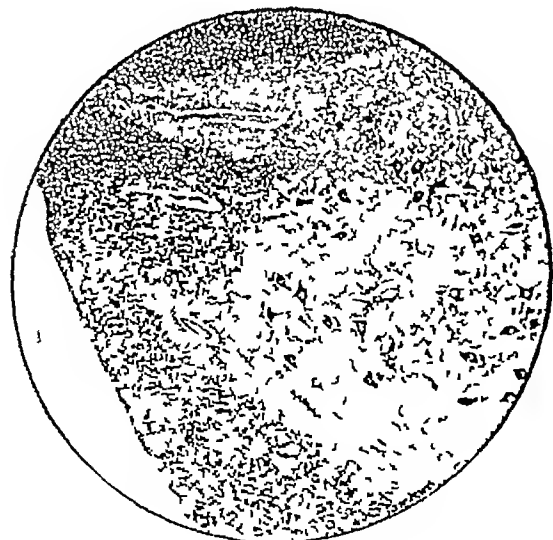


FIG 2.—Perivascular demyelination in white and adjacent grey matter. Lateral aspect of ventral horn with white matter of fourth lumbar segment of spinal cord. Case III female, 22 years. Weigert's iron haematoxylin and van Gieson. 2/3 in obj. oc. Zeiss 4. (From the British Journal of Experimental Pathology.)

the brain stem, and the optic nerves and tracts. Further, he found a similar zone beneath the epudyma of the lateral ventricles.

The zones of demyelination appear under low magnifications sharply defined, especially the perivascular zones. Within them demyelination is usually complete, except at the margin. Only a fraction of the axis cylinders survive (Perdrau, Schramm). The glial fibrils immediately round the vessel—the vascular limiting membrane—are sometimes thickened, form an abnormally close feltwork, and

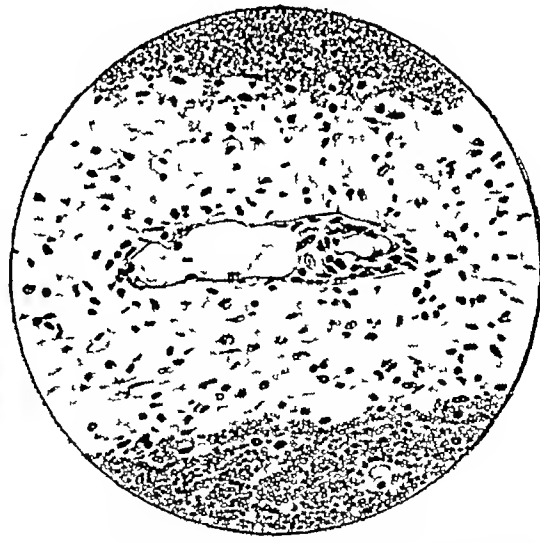


FIG 3.—Perivascular demyelination in white matter. Posterior white column thoracic cord. Case I male, 15 years. Weigert's iron haematoxylin and van Gieson. 1/5 in obj. oc. Zeiss 4.6. (From the British Journal of Experimental Pathology.)

ally intense. Amphocytes and plasmacytoid cells are rarely present. Proliferated glial cells extend to a variable distance beyond the zones of demyelination and cause a diffuse infiltration in the most severely affected regions.

The adventitial sheaths of vessels occasionally contain coagulated albumin, even when there is no other change in the adventitia or surrounding tissue. Infiltration of the adventitia (Fig 3) is an inconspicuous feature, and is frequently absent from vessels surrounded by zones of demyelination. The infiltrating cells are large and small

lymphocytes, plasmaeoid cells, plasma cells, large mononuclear leucocytes, and cells with a fibrocytic type of nucleus. The number of plasma cells here and in the meninges is in some cases sparse.

In addition to perivascular and marginal demyelination Perdrau in Marchi preparations found degeneration of isolated fibres scattered throughout the central nervous system, especially upon the ventral surface of the corpus callosum. He also found degeneration of isolated fibres in the posterior roots. In our subacute Case viii there are conspicuous areas of demyelination in the anterior roots in the ninth thoracic segment. The root ganglia may be slightly infiltrated (Perdrau) or unaltered (Turnhill and Melutosh, Schürmann). The bodies of the neurons are astonishingly well preserved (Fig 2). There is often clumping of neuro-chromatin or tigrolysis, but loss of angularity and complete necrosis are very rare. Bastianse alone has described neuronophagia, in the *locus niger*.

In the subacute type the changes have usually continued for a longer period, consequently the adventitial sheaths are distended with a mosaic of large fat-granule cells. In Case viii these cells have completely replaced the small round cells in almost all sheaths, and they extend into the

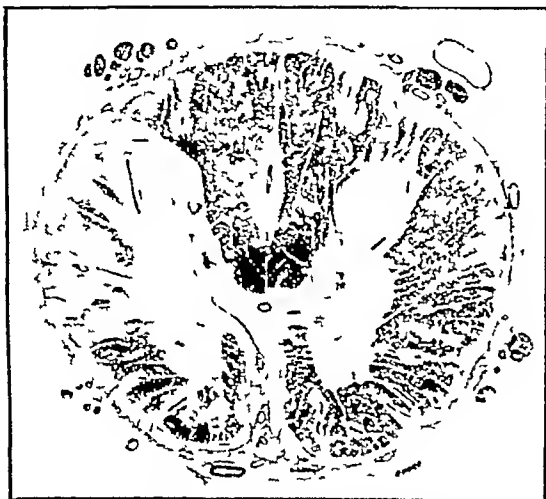


FIG 4.—Perivascular and marginal zones of demyelination, large area of confluent demyelination in left lateral column and grey matter. Ninth thoracic segment. Case viii (subacute) male, 5 months. Weigert Pal.

leptomeninges, where they are very abundant opposite the most affected areas (Fig 5). The perivascular zones of demyelination may be scanty and narrow, or may coalesce to form large areas, as in Perdrau's Case ii and our Case viii, in which there is almost complete demyelination of the lateral column and grey matter on the left side of thoracic segments (Fig 4). The changes in the glia, particularly the fibroglia, in this later stage are obviously important in estimating the relation of the condition to disseminated sclerosis. I regret that an investigation of the glial changes in our Cases ii and viii is not yet (June) finished.

According to these histological changes post-vaccinal encephalitis is as we reported in 1924, clearly distinct from polymyelitis and oncephalitis lethargica and belongs, as Perdrau and Schürmann emphasized, to the group of conditions which are characterized by demyelination. Certain examples of the disseminated myelitis of Westphal (1874), disseminated encephalo-myelitis of later writers, disseminated sclerosis, and encephalitis periaxialis diffusa of Schilder (1912).

There can be no doubt that a condition resembling post-vaccinal encephalitis has occurred independently of recent vaccination and observed exanthemata. Kussner and Brosin (1886) described accurately identical changes in the cord of a man who had suffered for a year from chronic gonorrhoea. The changes described in the cord in the first case of Francotte (1890) appear to be similar, whilst Krabho (1913) described the changes in the brain. Very

similar but more chronic changes were described by Dreschfeld (1894). Wohlwill (1928) said that he had observed changes identical with these of post-vaccinal encephalitis in a patient who was not suffering from any known infectious disease. In the last two years in Germany a large number of cases have been observed, for instance by Redlich (1927), which resemble post-vaccinal encephalitis clinically. Similar cases have been observed in London by Hunter and Bruin (1928). The histological changes found by Redlich in a patient who died after an illness of four and a half months appear to have resembled those of the acute form of disseminated sclerosis more closely than those of post-vaccinal encephalitis. I have commenced the examination of one of the London cases—a boy of 5 years who died after an illness of three days. I can only say that as yet (June) congestion, oedema, and a few small perivascular haemorrhages have alone been found.

Similar histological changes have been found in affections of the central nervous system complicating exanthemata. Wohlwill (1928) has described two cases complicating measles, the only difference from post-vaccinal encephalitis was the absence in the first case of adventitial and meningeal infiltrations. In other cases the encephalitis complicating measles appears to have differed in being essentially haemorrhagic (Winnicott and Gibbs 1926, Musser and Hauke, 1928). The changes in the case of

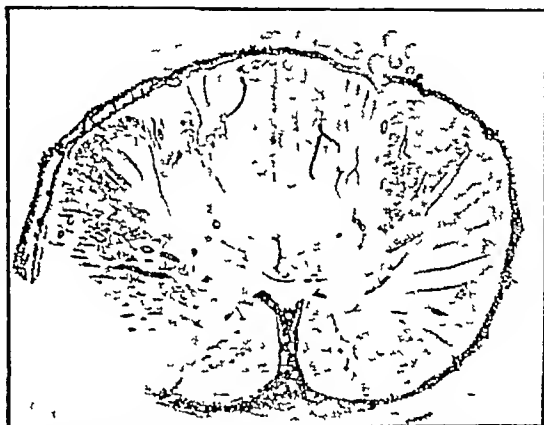


FIG 5.—Large fat-granule cells in pia and vascular sheaths, small fat-granule cells in pale perivascular and marginal zones of demyelination and in large confluent area of demyelination in left lateral column. Sixth thoracic segment. Case viii (subacute) male 3 months. Busch Marchi.

Barlow (1886, 1887) were of yet another kind, if the description can be trusted. There can be little doubt that a similar encephalitis may complicate small-pox in view of the changes described in the cord by Westphal (1874) in two cases and by Eichorst (1913) in one. I have not found an adequate description of encephalo-myelitis in numps and chicken-pox.

Finally in paralysis complicating antirabic treatment the conditions found by Fielder (1914-15), Jochmann (1913), and Babes and Mirouesco (1908) appear to be those of post-vaccinal encephalitis although the descriptions lack precision.

Changes resembling those of post-vaccinal encephalitis have, therefore, been found complicating measles as well as, perhaps small-pox have probably complicated Pasteur's antirabic treatment, and have been found in cases in which there was no evidence of recent vaccination or of an exanthem.

As regards the nomenclature of this group of cases, most of the earlier examples quoted were called acute disseminated myelitis, the cord alone having been examined. It would appear correct therefore, to call the condition 'acute disseminated encephalo-myelitis'. This term, however, has been applied to cases which can be distinguished from the post-vaccinal group histologically (Wohlwill, 1928), and are regarded by many as the acute form of disseminated sclerosis (Anton and Wohlwill, 1912). To avoid confusion, therefore, it would be advisable to use the

term "disseminated encephalo-mylitis of the post-vaccinal type." The question of the relation between acute disseminated encephalo-mylitis of the post-vaccinal type, acute and chronic disseminated sclerosis, and encephalitis periaxialis diffusa is one which others here are more competent to discuss. In the above remarks I have placed in one group the cases of post-vaccinal encephalitis with those which appear to have shown essentially the same histological picture, and have separated this group from acute disseminated sclerosis. Wohlwill (1928) has pointed out the cardinal point of differentiation—the whole length of a vessel is surrounded by demyelination in the former and only a segment in the latter. But the pathogenic processes are essentially similar consequently the different pictures may simply represent modified reactions to a single agent and the histological differentiation be artificial. I find it impossible to consider acute and chronic disseminated sclerosis to be other than varieties of one condition—transitions between the two and mixtures of the two have been the rule rather than the exception in my experience.

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ENCEPHALO-MYELITIS IN VIRUS INFECTIONS AND EXANTHEMATA

AN EXPERIMENTAL AND PATHOLOGICAL STUDY *

BY

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THAT an encephalitis or an encephalo-mylitis is at times liable to appear during certain acute infections has been known for some considerable time. Our knowledge, however, of the exact nature of this complication in some cases is very scanty. Encephalo-mylitis, whether primary or secondary, may be divided into two main groups—(a) purulent and (b) non-purulent. The purulent form is the result of the localization of some pyogenic bacterium in the brain substance while the non-purulent is usually the result of a virus infection, and it is this form which is under discussion to-day. Encephalo-mylitis is found in such virus infections as poliomyelitis, encephalitis lethargica, small pox, vaccination, chicken-pox, measles, mumps, typhus, etc. and with these I propose to deal in the above order.

POLIOMYELITIS

Symptoms suggestive of cerebral irritation are not uncommonly met with in cases of acute anterior poliomyelitis, while in a few instances a definite encephalitis occurs, and to this form the name cerebral poliomyelitis has been applied. True cerebral poliomyelitis, however, is relatively rare, thus Wickmann, in the great Swedish epidemic of

1905, did not see any definite cerebral cases, and none were recorded by Peabody, Draper, and Dochez in the great New York epidemic of 1909. The first cases were described by Stimpell in 1884, and to them he gave the name poliomyelitis, but in the light of our present knowledge it seems very probable that many of his twenty-four cases were not cases of true poliomyelitis. It is certainly true that in the majority of the fatal cases of poliomyelitis small focal areas of encephalitis can usually be demonstrated in the cortex to the brain, while in the experimental disease in monkeys, although the major lesion is always in the cord, focal areas of inflammation can be found in the brain.

My own investigations have convinced me that an extensive cerebral involvement in acute anterior poliomyelitis is unusual and, as a rule, the lesions in the brain are slight and mainly consist of a few scattered areas of perivascular cellular infiltration of vessel sheaths.

Experimental Disease

An experimental infection can readily be produced in monkeys by the inoculation of infective material from cases of poliomyelitis. The animal develops, after an incubation period of about a week, a very definite flaccid paralysis, and histological lesions in the cord identical with those in human cases are found. The maximal lesion is always found in the cord, no matter how the infection is made. In most cases isolated lesions are also to be found in the brain, and particularly in the grey matter at the base. Rabbits can also be infected, but with some difficulty.

ENCEPHALITIS LETHARGICA

In encephalitis lethargica the main pathological lesion is an encephalitis of varying intensity, but, as a rule, most marked in the basal ganglia of the brain, while the cord is generally unaffected. The most characteristic histological lesion is a well marked perivascular sheath infiltration, forming at times quite a distinct cuff round the vessel. The infiltration consists chiefly of lymphocytes with a number of plasma cells. Polynuclear leucocytes are conspicuously absent. In addition, there is a certain amount of infiltration of the perivascular penechyma and glial proliferation. The nerve cells are usually not affected.

Experimental Disease

As is generally admitted, encephalitis lethargica appears to have been unknown till the outbreak recorded by von Economo in 1916 in Vienna. I had the opportunity of examining some of the earliest cases which occurred in this country, and early came to the conclusion that we had to deal with an entirely new lesion and disease. In collaboration with Professor Turnbull, I was successful in inoculating material from an acute outbreak into monkeys and rabbits, and reproducing symptoms and lesions which showed great similarity to the natural infection in man.

Some writers have confirmed our findings while others have failed to do so, and base their arguments mainly on two grounds: (1) failure to produce any lesion at all, and (2) that lesions found in the experimental rabbit are due to the spontaneous encephalitis of rabbit, and not to the inoculum. But the great similarity of the lesion in man to that of the experimental disease in rabbits may be seen in photomicrographs, while histologically the spontaneous encephalitis of rabbits is quite another type, and no one familiar with the two lesions could use the second argument.

SMALL-POX

Clinical accounts of small-pox contain frequent references to the appearance of symptoms which suggest involvement of the nervous system. For instance, there may be convulsions and delirium during the first fever or during the eruptive stage while later there may appear definite parietic manifestations. A full account of the literature dealing with nervous complications of variola has been given in an earlier paper by Professor Turnbull and myself, so it is unnecessary to give it in detail here.

Fortunately, owing to the kindness of Dr. Carrow, medical officer for Chesterfield, I was able to examine the brain of a child who developed cerebral symptoms after

an attack of mild small pox. Histologically, a very definite type of encephalitis was found.

The histological lesion consists of a perivascular small cell infiltration characterized by a slight infiltration of the vessel sheath and a more diffuse wide infiltration of the surrounding parenchyma, which often shows well marked demyelination of the nerve fibres. The cellular infiltration is composed mainly of large cells with oval clear nuclei, together with a number of lymphocytes. Polynuclears are uncommon as also are plasma cells. The meninges are only slightly involved.

The general appearance of this inflammatory lesion is very striking, and the sharply demarcated vessel, with the surrounding cellular infiltration arranged in an irradiating manner is strongly suggestive of a tissue culture.

In this case the encephalitis was apparently diffuse in the upper brain, but gradually lessened as one passed down, till in the medulla there was no sign of it. Unfortunately the cord was not obtained for examination. The striking similarity of the lesion to that of post-vaccinal encephalitis will be referred to again.

POST-VACCINAL ENCEPHALITIS

In recent years a new type of encephalitis has been observed in relation to vaccination: the main clinical and pathological features of which Professor Turnbull has just given you. The occurrence of this particular type of case was noted by him as long ago as 1912 when we were investigating an epidemic of poliomyelitis. In 1926 Professor Turnbull and I published a paper recording our investigations on six cases of this particular post-vaccinal encephalitis. Altogether now some hundreds of similar cases have been published in Europe by Bastianse, Luksch, and others.

As the condition has been fully described by Professor Turnbull I shall content myself with indicating the features which I think have an essential bearing on the etiology of the condition. It is now generally admitted that post-vaccinal encephalitis bears a very constant relation to vaccination both as regards time and place. The condition manifests itself on the average 10 to 14 days after vaccination as headache, delirium, paresis, and ultimately coma and death in the fatal cases.

There has been considerable division of opinion as regards the true nature of this encephalitis, among these opinions two are worthy of mention.

- 1 That the disease is vaccinal in origin.
- 2 That the condition is due to the presence of a dormant virus stimulated into activity by the vaccination.

It has been suggested that the dormant virus might be poliomyelitis, encephalitis lethargica, herpes febrilis or some unknown virus. Neither time nor space allows of a complete analysis of the various views, so I propose to give only those data which I think have a direct bearing on the problem.

Histological Data

An examination of the lesions of the central nervous system shows that they present a very constant and characteristic histological picture, the main features of which might be summarized much as follows:

- 1 Wide distribution of lesions in grey and white matter of the brain and cord.
- 2 Perivascular nature of the lesion.
- 3 Slight vessel sheath infiltration with considerable extra vascular parenchymatous infiltration.
- 4 Infiltration composed mainly of large endothelial type of cells and glial cells.
- 5 Perivascular areas of softening or demyelination. Here as in post-varicellar encephalitis the general appearance of the perivascular cellular infiltration is suggestive of a tissue culture growth.
- 6 Occasional presence of small focal lesions in the internal organs.

The above lesions, I think, are sufficient to show that we have a new pathological entity, in that the lesions are distinct from those met with in the known virus

infections of the central nervous system—poliomyelitis and encephalitis lethargica. But in order completely to incriminate the virus of vaccinia it is essential that lesions of a closely similar nature can be produced by animal inoculation.

Experimental Data

Material from the central nervous system of these cases of post-vaccinal encephalitis was inoculated (a) intracerebrally and (b) intracutaneously into rabbits and monkeys. The intracerebral inoculations only produced a slight rise of temperature and some transient paresis, but by special intradermic inoculations into rabbits it was possible to recover vaccinia virus on several occasions. The negative nature of the intracerebral inoculations, to my mind clearly demonstrates that neither the virus of encephalitis lethargica nor that of poliomyelitis is present and I think that that of herpes febrilis might be included also as it has a distinctive lesion and so readily affects rabbits.

The actual presence of the vaccinia virus is not absolute proof, however, that the condition is solely due to the vaccinia virus as under normal conditions vaccinia virus can be demonstrated in the blood for some days after the vaccination has reached its height. The real proof would be the production of a similar lesion by the inoculation of vaccinia virus, thus conforming to the so-called postulates of Koch.

What, then, is the effect of intracerebral and intravenous inoculations of vaccinia? It has been known for some years that intracerebral inoculations of vaccinia virus into rabbits produces a fatal encephalitis of varying severity, and that there is considerable difficulty in carrying on the inoculations in series (Morie). Levaditi, however, a few years ago, succeeded in raising the virulence of a strain of vaccinia to such a degree that it could be successfully carried on from one animal to another. To this strain he gave the name of neuro-vaccine. The lesions produced in the brain are more meningeal than encephalitic and frequently show large areas of necrosis in addition.

My own experiments confirmed the above, in that at first I found it easy to produce an encephalitis with ordinary strains of vaccine lymph, but quite impossible to make passages in series. After many attempts, however, I succeeded in raising the virulence for rabbits of a freshly isolated various strain of vaccine lymph by rapid passage on the skin of the rabbit. This vaccine lymph was of such a virulence that frequently a general eruption, with internal focal lesions followed in the rabbit after simultaneous inoculation.

With the same virus I made a series of intracerebral inoculations, and then found that by this procedure I had got a very highly neurotropic strain for the rabbit. Intracerebral inoculations regularly produced a fatal issue in four to five days, and on examination of the brain very characteristic histological changes were observed. In contrast to what I found before, there were very definite areas of encephalitis in the brain, extensive meningeal lesions and, at times definite indications of perivascular softening. In addition the etiology of these lesions was of the type characteristic of post-vaccinal infiltrations.

These results at once invalidate Levaditi's failure to produce comparable lesions in rabbits' brains with his neuro-vaccine a negative result which he used as an argument against the varicolar nature of the post-vaccinal encephalitis.

Further I found that intravenous inoculations of Levaditi's neuro-vaccine and of my own high virulent vaccine lymph produced focal lesions in the internal organs of the rabbits. The lesions are to my mind absolutely typical of the lesions I found in the organs of cases of post-vaccinal encephalitis and, to judge from the written descriptions are similar to the focal lesion that occurs in true small pox.

The focal lesions were described many years ago as occurring in the internal organs of fatal cases of small pox but the histological descriptions are poor and somewhat difficult to visualize. So far as can be gathered there is no modern histological investigation recorded. For some

reason or another it is impossible to obtain pathological material from fatal cases of small-pox. The focal lesions in small pox are described by Weigott, Chiari, Roger, and Weil, the focal areas can be seen with the naked eye as pale areas about the size of a pin, non-purulent, with central necrosis.

The focal areas observed in cases of post-vaccinal encephalitis are visible to the naked eye, whitish in colour, and somewhat larger than, or about the size of, milium tubercles. Their general and histological appearance is at first sight suggestive of a tubercle. They differ in that they show more evidence of healing (fibrosis) than is usually found in tubercles, giant cells are prominent features, with a surrounding zone of fibrosis and lymphocytes. The fact that no tubercle bacilli could be demonstrated in the lesions, and the evidence of healing, strongly support the view that they are not tubercles, but granulomata resulting from multiple foci of some virus.

The following summary, based on the above experiments, suggests, I think, that vaccine virus is the causal agent.

1 Intracerebral inoculations of neurotropic strains of variolous lymph produce an encephalitis in rabbits, presenting the main histological characters of post-vaccinal encephalitis.

2 Intravenous injections of neurotropic strains of vaccinia produce focal lesions in the internal organs similar to those found at times in cases of post-vaccinal encephalitis and in variola.

3 The failure to produce any of the known virus infections of the central nervous system by animal inoculation with the material from post-vaccinal encephalitis.

4 The occurrence of a very similar cerebral lesion in a case of encephalitis following on small-pox.

CHICKEN-POX, MEASLES, MUMPS, AND TYPHUS

Encephalitis, as I have previously pointed out, has been recorded in cases of chicken-pox, measles, and mumps, but such a complication is rare.

In the case of chicken-pox (varicella), clinical records show that symptoms suggestive of an involvement of the central nervous system occur from time to time, and in the literature some dozen cases of encephalo-myelitis have been recorded. An excellent summary of these is given in a recent publication by Wilson and Foid, who record three cases which came under their own care. Recovery in most instances was complete in a few weeks' time. Fatal cases of chicken-pox are rare, so that no histological details are available, so far, I have only had the opportunity of examining the organs from one case of small-pox and, unfortunately, in that case the brain was not available.

Nervous involvement in measles and mumps is still more rare. Recently Wohlwill has recorded two cases of encephalitis during measles, and the histological changes are believed to show considerable resemblance to those found in post-vaccinal encephalitis. But I must reserve my judgement until I have had a chance of examining his work in detail.

Encephalitis in typhus fever is a constant feature, and may, therefore, be regarded as part of the actual disease process. Microscopical examination shows the constant presence of lesions in the central nervous system and internal organs. In general the encephalitic lesions show a great similarity to those of post-vaccinal and post-variolar encephalitis. The pathological changes have been described by Ceelen, Nicol, Spielmeyer, Walach, Todd, and Palfrey, and consist essentially of proliferations of large clear cells into the surrounding nerve tissue with infiltration of inflammatory cells (plasma cells, lymphocytes, and a few polymuclear leucocytes).

Four types of lesions are described, but the two most characteristic are the "compact" (tubercle-like) nodules of cells, and the "rosette" or diffuse perivascular outgrowth. The proliferated cells are generally considered to be glial in origin, but Wolbach and his co-workers are of the opinion that they are mesoblastic and derived mainly from the blood vessels.

As a rule, gross lesions are not visible to the eye, and the meninges show only a slight inflammatory infiltration.

Experimental Disease

Typhus has been experimentally transmitted to monkeys (cercopithecus) by intraperitoneal injections of blood from cases of the disease, and to guinea-pigs by injection of pathological tissue and lice from human cases. The virus can be carried on from guinea-pig to guinea-pig indefinitely by injection. Lesions are found in the central nervous system of these animals identical with those found in man.

SUMMARY

A non-suppurative encephalo-myelitis can occur in a number of virus infections—in particular, poliomyelitis, encephalitis lethargica, small pox, vaccinia, chicken pox, measles, mumps, and typhus fever.

In the case of poliomyelitis, localized areas of encephalitis are not infrequently found in fatal cases and, histologically, the lesions are typical of that known to occur in poliomyelitis.

In encephalitis lethargica the encephalitis is constant and a normal feature of the infection, with characteristic histological lesions.

The encephalitic complication is exceedingly rare in chicken-pox, measles, and mumps, and we know very little about the lesions produced.

In vaccinia and small-pox a very characteristic and diffuse encephalo-myelitis is found. Histological and experimental research have shown that the lesions in the two conditions are identical, characteristic, and definitely distinct from those of poliomyelitis and encephalitis lethargica.

The only virus that could be demonstrated in post-vaccinal encephalitis was vaccinia. Certain strains of vaccinia virus will produce in rabbits a vaccinal encephalitis showing the same type of lesion. These facts lead strongly to the belief that the lesions of post-vaccinal encephalitis are characteristic of the action of the virus of vaccinia on the central nervous system.

An encephalo-myelitis is apparently present in all cases of typhus fever, and here again the histological picture is distinctive, although there are resemblances to those met with in post-vaccinal encephalitis.

GENERAL CONCLUSIONS

We have seen, therefore, that encephalo-myelitis may occur during the course of several virus infections, either as part of the disease process or as a complication, and investigations of these conditions show that a histological picture of a certain type can be assigned to each. Doubtless further studies will bring forward additional new types as the differential features are better understood. This is well illustrated in the case of encephalitis lethargica and post-vaccinal encephalitis, each of which have been ascribed by certain writers to causes other than its specific virus.

The characteristic histological appearances of these conditions, together with the fact that lesions comparable with those found in the natural disease can be reproduced experimentally in animals by the inoculation of virus-containing material, is strong evidence that the encephalitis is actually produced by the infecting virus in each of the above-mentioned diseases.

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PREVENTION AND TREATMENT OF DIPHTHERIA

BY

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THE unflinching interest taken in the subject of the prevention and treatment of diphtheria, which appeals alike to the general physician, pediatrician, hygienist, and bacteriologist, is shown by the fact that this is the fifth time within two and a half years that I have been honoured with an invitation to open a discussion more or less directly connected with the subject. A certain amount of repetition of what I have said on previous occasions is therefore inevitable, but I have endeavoured to bring my remarks up to date.

The question of prevention may be considered under two headings—namely, (1) general measures, including isolation, disinfection, and treatment of the carrier, and (2) specific immunization.

GENERAL MEASURES

Although it is doubtful whether isolation of diphtheria patients in special hospitals has had much effect in reducing its incidence, there is general agreement among sanitary authorities that diphtheria is a disease which, more than any other of those admitted to fever hospitals, requires such treatment. Not only does the laryngeal type of the disease need close and skilful supervision, but the prevention, detection, and treatment of the various forms of post-diphtheritic paralysis are best carried out by a resident medical and nursing staff.

As regards disinfection, there is a growing tendency, which is carried out in practice by several medical officers of health, superintendents of fever hospitals, and other sanitary authorities, to discredit the value of terminal disinfection after diphtheria, and to regard the living carrier, whether actually suffering from diphtheria or not, as responsible for the spread of the disease.

The period of isolation of a diphtheria patient should be determined by clinical considerations. In the absence of any discharges from the nose or ear, or acute inflammatory condition of the throat, a patient who has had a mild attack may be set at liberty at the end of a month. In cases of any degree of severity the period of detention should be prolonged to at least six weeks, most of which should be spent in bed, as during this time some form of paralysis is likely to develop. In the great majority of cases the throat becomes free of diphtheria bacilli within a few days after the membrane has disappeared, and only a small minority persist as carriers of virulent bacilli.

No uniformly successful method has been discovered for putting an end to the carrier state. Various lotions, gargles, and pastilles have been tried, with a varying degree of success, but the results are not convincing. The persistence of the carrier state is usually due to some local infection, such as chronically inflamed tonsils and adenoids or affection of the nasal sinuses. This is strikingly proved by the most efficacious if not the only remedy for the carrier state apart from the *vis medicatrix naturae*, being tonsillectomy and treatment of sinus infections. Tonsillectomy, however, and other surgical measures are not always practicable, nor, indeed, universally successful. In the absence of any morbid condition of the throat and nose the practice of insisting on one or two negative faecal and nasal cultures before discharging a patient is merely illusory, as owing to the frequent occurrence of intermittency in the carrier state a false sense of security may be afforded by such cultures. In their recent investigation J. E. McCartney and W. Harvey did not consider a carrier as free from bacilli until six consecutive examinations, spread over a period of six weeks, produced negative results.

As it has been found that the return case rate in those hospitals which have abandoned the practice of swabbing patients before discharge is no higher than in those in which it is still observed, since my appointment as medical

superintendent two and a half years ago I have discontinued the practice at my own hospital without finding that this discontinuance was followed by an increase in the return case rate.

SPECIFIC IMMUNIZATION

No invariably effective method being available for putting an end to the carrier state the most reliable method of prophylaxis of diphtheria consists in specific immunization.

Passive immunization by injection of antitoxin has never been used to a very large extent in this country compared with the Continent and the United States for protecting the other members of a family or community in which a case of diphtheria has occurred. The immunity which injection of antitoxin confers though immediate, is only of short duration, being rarely longer than three or four weeks. The method also renders the patient hypersensitive—that is, liable to have an unusually severe reaction when a therapeutic dose is administered in the course of the next few years. It is further said to interfere with the subsequent process of active immunization, because the injected mixture has been rendered too much overneutralized to ensure a response. The substitution of cattle serum for horse serum in prophylaxis, in order to avoid a tendency to anaphylaxis, has been carried out in the Argentine, but in this country, so far as I know, cattle serum is not available.

The prophylactic dose of diphtheria antitoxin is usually 500 units, irrespective of age, and may be given subcutaneously or intramuscularly.

The administration of antitoxin by the mouth, which is still sometimes practised both for prophylactic and therapeutic purposes, is, as I pointed out over twenty-one years ago (1906), absolutely futile, and the attribution of any value to it is due to ignoring the fact that many persons exposed to infection may escape an attack of diphtheria not only among the medical and nursing staffs of large fever hospitals, but also among the more susceptible population of younger persons. A convincing proof of the uselessness of this mode of administration of antitoxin has recently been furnished by the Schick test, a positive reaction being in no way affected after administration of antitoxin by the mouth, while it is immediately rendered negative by subcutaneous injection (Aviragnet, Lereboullet, and Marie Lesne Bontellier, and Longevin). The inefficacy of rectal injection of antitoxin has been proved in the same way (Raymond).

It is generally agreed that prophylactic injection of antitoxin should be confined to children, and that adults should not be so treated, on the grounds that the latter are less susceptible to diphtheria and are more likely to come under treatment early if they do contract the disease, whereas they are more prone to a severe attack of serious sickness.

In hospitals and well-to-do families in private practice where the children can be kept under close observation after exposure to infection passive immunization need not in my opinion, be carried out, though I am well aware that it is the practice in some clinics to administer prophylactic injections on a large scale, with or without a preliminary Schick test, on the occurrence of a single case of diphtheria in a children's ward.

ACTIVE IMMUNIZATION

In contrast with the temporary protection afforded by passive immunization, a more durable and possibly permanent immunity is conferred by active immunization. This method of protection against diphtheria was first introduced in 1913 by von Bebring to whom we are all indebted for diphtheria antitoxin, but it was first used on a large scale by Park and Zingher in the United States and subsequently on the continent of Europe, and last of all in this country, where its progress has been less rapid than elsewhere, but now appears to be steadily gaining ground. The substance used for injection at first consisted of a standardized mixture of toxin and antitoxin in three subcutaneous injections of which were given in doses of 0.5 to 1 c.c., with intervals of a week between each dose. The Schick test was then performed to determine whether immunity had been established or not.

* Read in opening a discussion in the Section of Medicine at the Annual Meeting of the British Medical Association, Cardiff, 1928.

It has recently, however, become the practice to dispense with the preliminary Schick test, especially in public health work, in dealing with children under 6 years of age, owing to the great majority of them being susceptible to diphtheria and an unnecessary prick is thus avoided. On the other hand, in the case of adults, who are more likely to react severely than children to the immunizing injections, a preliminary Schick test is indispensable. This particularly applies to the nursing staffs of fever hospitals, in a large proportion of which it is now the rule to carry out active immunization of the nurses when they join the staff.

Since the introduction of active immunization of newcomers—it was considered unnecessary to apply the method to the older nurses—the incidence of diphtheria among the nurses at my hospital, though it has never been very high, has shown a slight fall. It must be admitted, however, that attacks of diphtheria occasionally do occur in nurses whose Schick reactions were negative either spontaneously or as the result of active immunization. This occurrence is probably due to the fact that nurses in the course of their duties are exposed to massive doses of virulent infection which succeed in breaking down their natural or acquired immunity, whereas other persons with negative Schick reactions, who are exposed to only slight and occasional infection, escape.

In some hospitals active immunization is made as compulsory as vaccination against small-pox, while in others it is optional. I have adopted a halfway plan of making all nurses who object to active immunization call at my office and I have found that the disagreeable prospect of an interview with the medical superintendent usually acts as a deterrent to refusal. In addition to its use in protecting nurses active immunization is also indicated in schools, crèches, orphanages, and other collections of children.

Although no fatal accidents following active immunization have taken place in this country, the local reaction and constitutional disturbance are occasionally sufficiently severe to necessitate the nurse being taken off duty for one or two days. In these circumstances, therefore—namely, occasional failure to protect and possibility of severe reactions—I have hesitated to make active immunization against diphtheria compulsory like vaccination against small-pox, especially as in diphtheria antitoxin we have an infallible remedy which will jugulate the disease if used within the first twenty-four hours, whereas in small-pox there is no treatment, however early it is applied, which will invariably modify its course.

The fatal accidents to which I have alluded have been extraordinarily rare in comparison with the vast number of prophylactic injections given, but have of late acquired an undue prominence. With the exception of the disaster reported by Tsien, Dzen, and Chang, which occurred in China, where the deaths of 5 out of 81 persons injected appear to have been due to a streptococcal contamination of the toxin-antitoxin mixture, the fatalities were caused by diphtheritic intoxication, as at Dallas in Texas,¹ at Baden near Vienna,² and at Moscow.³ Death in such cases occurred within a few days from toxæmia, or two or three weeks later from characteristic diphtheritic paralysis, while cases which recovered had cutaneous necroses at the site of injection or extensive paralysis. In this country, however, as already stated, no fatalities following active immunization have occurred, or at all events have been reported, nor, indeed, is it likely that they will occur in the future, owing to the fact that the toxin in the immunizing mixture has been generally replaced by toxoid—that is, toxin treated with heat and formalin.

Dr W. H. Park, director of the Research Laboratories of the Department of Health, New York City, has combined the test for determining immunity with prophylactic injection as follows, thus doing away with the necessity for a preliminary Schick test. 1 ccm of toxin-antitoxin of the standard degree of incomplete neutrality is injected subcutaneously on the inner side of the arm just above the elbow. On the sixth or seventh day the arm is inspected and those in whom there is no reaction

are given no further injections. Those who show a slight reaction are given a second injection, and those who give a definite reaction are given two injections. Dr R. A. O'Brien, whom I recently consulted about this method, kindly supplied me, about six months ago, with a preparation named D.P.I.M. (diphtheria prophylactic immunizing mixture), in which the Schick test was combined with an immunizing mixture for intradermal use. Although satisfactory results have been obtained on guinea-pigs, our experience of the preparation has not been encouraging. Not only were local reactions more severe, but a smaller number of nurses were immunized after the usual number of injections than when the ordinary immunizing preparation was used.

Some French clinicians, such as Lesne, Marquety, Lemme, and Moumignat, have recently adopted the nasal route in preference to subcutaneous injection for active immunization, and found that it was possible to convert a positive into a negative Schick reaction by instilling into each nostril three or four drops of pure anatoxin (diphtheria toxin deprived of its toxic properties by the combined action of heat and formalin) for eight consecutive days, followed, after an interval of eight days, by another course of equal duration. Anatoxin, therefore, like adrenaline, can be absorbed into the system from the nostrils, and, if the value of this method is confirmed, intranasal instillation may prove more acceptable, especially to those of a pusillanimous disposition, than subcutaneous injections. The only drawback to the method as C. Zoeller and G. Ramon have shown, is the impossibility of being certain how much anatoxin has been absorbed, for some may be expelled from the nostrils or pass down the oesophagus. More anatoxin, therefore, must be used, so that intranasal inoculation is not so economical as subcutaneous injection.

TREATMENT

The treatment of diphtheria may be considered in order of importance, under the three headings of serum therapy, general measures, and local treatment.

Serum Therapy

It is the custom in most of the Metropolitan Asylums Board Hospitals to employ comparatively large doses of antitoxin, 4,000 to 8,000 units being given for mild faucial or nasal cases, 12,000 to 16,000 units for moderate attacks, and 24,000 units, repeated if necessary for severe cases. As regards the route for introduction of antitoxin, unquestionably the best, in my opinion, is the intramuscular, the injection being made on the outer side of the thigh into the body of the vastus externus. The thigh is to be preferred to the gluteal region, not only because there is less risk of injuring important vessels and nerves, but also because the femoral muscles are much more compact and exercise greater pressure on the injected fluid. Intramuscular injection ensures a much more rapid absorption of antitoxin than the subcutaneous method, and is much safer and pleasanter for the patient than intravenous injection, which, as even its most enthusiastic advocates admit, is followed in a large proportion of cases by rigors or shock.

Abscesses at the site of injection, which if proper care be taken should be extremely rare, are less common in my experience than after subcutaneous injection, and usually heal up quite as quickly.

It might seem hardly necessary to give utterance to the commonplace remark that we should be guided by the clinical appearances and not by the bacteriological report in the treatment of a case of sore throat, but I still frequently see cases that have been treated at home for "septic tonsillitis" owing to a single negative swab which has probably not been taken with sufficient care, and are sent to hospital only to die when the clinical evidence of diphtheria becomes too glaringly obvious.

While fully convinced of the importance of the early administration of antitoxin—I have never seen a death from diphtheria or severe paralysis when antitoxin had been given on the first day of disease—I cannot too strongly denounce the doctrine which appears still to be widely taught, especially by throat specialists, that antitoxin is of no value after the fifth day of disease. If this doctrine

¹ J. Amer. Med. Assoc. 1919 lxxiii 1778.
² Kl. Woch. 1925 lv 169.
³ Bull. Inst. Pasteur 1927 xxv 312.

were consistently acted upon the mortality of diphtheria would be considerably higher than it is at present.

In a series of 3,000 diphtherial patients of whom I was in charge throughout their illnesses no fewer than 539, or 17.9 per cent, were admitted after the fifth day. With the exception of 12 very mild cases all the patients in whom membrane was present in the throat or nose received antitoxin. Of these 18 died—a mortality of only 5.5 per cent. As the great majority of these cases were in children, and every form of the disease was represented, the low mortality cannot be attributed to the patients being adults, among whom the death rate from diphtheria is usually low, nor to the mildness of the attack. In view of the fact that in the pre-antitoxin era, even when cases were brought under treatment at the very onset of the disease, the mortality was never less than 23.8 per cent, and often rose to 50 per cent or higher, we can only ascribe the low figure of 5.5 per cent to the use of antitoxin.

It is important to realize, as I pointed out many years ago (1907), that the evolution of diphtheria may be rapid and malignant, so that even enormous doses of antitoxin given on the second day of disease may not avert a fatal issue or comparatively slow and benign, so that the disease, which may have been in progress for a week, yields rapidly to a small dose of antitoxin without any sequel.

We should, therefore, be guided by clinical rather than chronological considerations in our treatment of diphtheria—the presence of membrane in the throat, nose, or elsewhere, however late in the disease, being an indication for serotherapy. I have seen so many late cases in which my original gloomy prognosis was happily falsified that I am inclined to say of diphtheria as Ricord did of syphilis: "As regards recovery, everything is possible, sometimes even the impossible."

The chief advance in recent times in the treatment of diphtheria is the use of a refined or concentrated serum whereby the incidence of rashes and other unpleasant sequels is reduced to a minimum. Since our employment of this serum at the Western Hospital in April, 1927, the frequency of serum sickness has fallen from about 60 to under 30 per cent. The only serum phenomenon now seen is urticaria, which is often limited to the site of injection, lasts only for a few hours, and is not accompanied by rise of temperature or constitutional disturbance. With the raw or unconcentrated serum not only was urticaria much more frequent but in about 12 to 15 per cent of the cases injected a secondary rash, at first amorphous or morbilliform and later circinate, appeared, usually attended by a more or less considerable rise of temperature, pains in the joints or muscles, and a varying degree of cervical adenitis. In a small percentage of cases there was a return of the sore throat, manifested by patches on the tonsils to which I gave the name many years ago (1906) of "angina redux." Since the refined serum has been employed I have not seen any of these manifestations of the secondary syndrome.

The introduction of this refined serum is a great boon to the patient. Though somewhat more expensive than the unconcentrated antitoxin it is well worth the additional cost. In previous times it not infrequently happened that the patients, especially adults, suffered as much or even more from serum sickness than from an attack of diphtheria.

General Treatment

Next to early administration of antitoxin the most important principle in the treatment of diphtheria is the enforcement of rest for a period proportionate to the severity of the initial angina. In mild cases rest in bed for the greater part of the time in the recumbent position should continue for three weeks, while in severe cases the period of recumbency should be extended to six weeks, or more if any paralysis is present.

It is doubtful if any drug has the power to modify favourably the course of the disease, though I am inclined to think that adrenaline may be of value in forestalling or combating the suprarenal insufficiency which plays an important part in the syndrome known as cardiac paralysis.

Alcohol was long regarded as an indispensable drug in the treatment of diphtheria and as such was advocated by such well known authorities as Jacoby of New York

and Ker of Edinburgh, as well as by many lesser luminaries in the medical firmament. Even now it is still used on a large scale in the acute stage or in convalescence by some pyretologists, who harbour the delusion that alcohol is a cardiac stimulant or is otherwise indispensable.

When I was appointed medical superintendent at the Western Hospital I found that the annual consumption of brandy in the previous year (1925) had been 2,589 oz., most of which had been employed in the treatment of diphtheria. I at once set to work to convince my colleagues that alcohol, so far from being of any value in the disease, was liable to increase the myocardial degeneration initiated by the diphtheritic poison.

The result of my anti-alcoholic campaign was that the amount of brandy ordered on the diet sheets fell from an average of about 30 or daily to nil without any ill effects, the diphtheria mortality being lower in 1926 (4.53 per cent) than in the previous year (8.54 per cent), while in 1927, when no alcohol at all was used in the treatment of the disease, the diphtheria mortality (3.01 per cent) was lower than in any of the other Metropolitan Asylums Board hospitals, although the type of disease has remained the same during the last three years.

Time does not permit me to deal with the relative merits of tracheotomy and intubation, or to discuss the management of diphtheritic paralysis, about which there is little new to be said. A few remarks, however, may be made in conclusion, as regards the local treatment of diphtheria. Since the introduction of antitoxin local treatment in the form of syringing, spraying or gargling has occupied a very secondary position in treatment. In my series of 3,000 cases I have employed local treatment in only 364 cases, or 12.13 per cent. Most of these patients were older children or adults, who welcome any form of local treatment, which young children as a rule resist.

From comparative observations I have found that the average period for the throat to become clean after injection of antitoxin is practically the same, whether local treatment is employed or not.

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RARE COMPLICATIONS OF ACUTE APPENDICITIS*

BY

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THE following cases of appendicitis are of considerable interest and seem to deserve recording. They are noteworthy on account of their extreme rarity and because they present many unusual features, which increased the difficulty of pre-operative diagnosis.

CASE I—Acute Appendicitis Accompanying a Perforated Duodenal Ulcer.

A man aged 35 was admitted to hospital on August 21st 1927 complaining of abdominal pain and vomiting.
 History.—Nine hours before admission the patient was seized with sudden pain in the upper part of the abdomen. The pain started slightly to the right of the midline and passed down the right side of the abdomen into the right iliac fossa. It was sufficiently severe to double him up and its onset was accompanied by vomiting. The patient had suffered off and on for eighteen years with pain in the upper abdomen coming on two hours after food and lasting for a variable period. The pain was relieved by taking food. He gave no history of vomiting and had never been jaundiced. The bowels and micturition had always been normal.

* From a paper read to the Kidderminster Medical Society, April 20th 1928.

Examination—On admission the patient looked ill, the mucous membranes were slightly cyanosed, the tongue was dry and furred. Temperature 98° F, pulse 110, respirations 24. The pupils were semi-dilated, and reacted normally to light and accommodation. Nothing abnormal was found in the examination of the chest. The abdomen did not move on respiration, and there appeared to be some fullness in the right iliac fossa. There was tenderness and rigidity all over the abdomen which was most marked in the right iliac fossa. There was dullness in the flanks and in the right iliac fossa. Liver dullness was present. Rectal examination disclosed nothing abnormal.

Operation—An immediate exploratory laparotomy was performed, a two-inch incision being made in the right iliac fossa. On opening the peritoneal cavity much turbid but odourless fluid exuded. The appendix was brought into the wound, and was found to be swollen, the whole of the outer coat was markedly inflamed and there were many recent adhesions around it. The appendix was removed in the usual manner. On further examination it was discovered that the lumen was filled with a thick blood stained fluid which had a fetid odour. On washing away the fluid it was seen that the mucous membrane of the appendix was altered in its distal half, and that this region was studded with multiple large thrombi. No perforation was present. It was not thought that the condition of the appendix was sufficient to account for the large amount of free turbid fluid in the peritoneal cavity. A second right paramedian incision was made in the upper abdomen when it was discovered that turbid fluid was oozing from a small punched-out perforation one-eighth of an inch in diameter situated on the superior surface of the duodenum just distal to the pylorus. An indurated area about one inch in diameter was palpated surrounding the perforation. The perforation was closed by a purse-string suture and then sewn over. The gall bladder was found to contain a hard mass but no operation on it was performed. The upper incision was partially closed with tubal drainage down to the region of the perforation. A drainage tube was passed through the incision in the right iliac fossa down into the pelvis and the rest of the wound was closed.

The patient made an uninterrupted recovery and was discharged from hospital three weeks later with his wounds healed. He was advised to return to hospital in one month for exploration of the gall bladder.

He was readmitted one month later and cholecystostomy was performed when the gall bladder was found to contain a mass of clay like material but there were no definitely formed stones. The cystic duct was full of the same material which was evacuated with a gall bladder spoon. A tube was inserted into the gall bladder and secured with a purse string suture. The gall bladder was then sewn to the posterior aspect of the anterior abdominal wall and the rest of the wound was closed. There was slight bile drainage for four weeks after which the patient was discharged from hospital quite well with his wound healed.

Comment

The association between duodenal ulcer and chronic appendicitis has long been well recognized, but perforation in the former and acute inflammation in the latter occurring at the same time is very unusual, although it is not infrequently found that some degree of peri-appendicitis accompanies a perforated ulcer.

Where two conditions are present at the same time it is always wise to associate them rather than to make two separate diagnoses, nevertheless, in this case the possibility must be borne in mind that the duodenal ulcer had been present for a number of years, and had in its intimate connexion with the acute inflammation in the appendix. On the other hand, it may well be that there had been chronic inflammation in the appendix, which had been superseded by acute inflammation, and that this had caused the onset of an acute process in the ulcer, previously present, which had resulted in perforation, or that the acute process in the appendix was secondary to an acute process in the ulcer.

In this case, although the symptoms pointed to its being one of duodenal perforation rather than acute appendicitis, the onset of pain being in the upper abdomen and there being a long history of indigestion, nevertheless, from the examination of the abdomen, some difficulty in pre-operative diagnosis was presented. The case was further complicated by the additional presence of gall stone sand.

CASE II—An Acute Gangrenous Perforated Appendix in the Sac of a Strangulated Inguinal Hernia

A man, aged 77, was admitted to hospital on January 23rd 1928 complaining of abdominal pain and vomiting.

History—The patient had had bilateral inguinal hernia for forty years. Both herniae had always been easily reducible and had been partially controlled by a truss for many years. Two days before admission he was seized with sudden severe pain in the right groin, the onset of the pain was accompanied by vomiting. The pain and vomiting had persisted and the hernia on the right side had become tender and irreducible. The vomit had been dark brown in colour during the last twenty-four hours before admission. In the course of the previous two days his abdomen had gradually increased in size and he had had

diarrhoea. For the last twenty-four hours he had not passed any flatus. Micturition had always been normal.

Examination—On admission the patient looked ill. His tongue was dry, and covered with a dark brown fur. Temperature 99.6° F, pulse 110, respirations 24. Nothing abnormal was discovered in the examination of the chest. The abdomen was markedly distended but moved on respiration. There was tenderness all over the abdomen but no rigidity, the percussion note was resonant and there was no dullness in the flanks. Bilateral inguinal herniae were present extending down into the scrotum. The skin over the right hernia was reddened in the region of the external abdominal ring. The hernia was very tender on palpation, and the percussion note over it was resonant. No attempt was made to reduce the hernia. By the rectum nothing abnormal was discovered.

Operation—An incision was made over the right hernia, the sac was defined and the cord was separated. A small amount of green turbid fluid escaped on opening the sac which was found to contain the caecum and omentum. The caecum was injected and had recently formed flakes of lymph on its surface. The appendix was in the centre of the sac, the whole of its wall in its distal three-quarters was gangrenous and there was a small perforation about one inch from the distal end. The gut was constricted by the neck of the sac. The cavity was swabbed out and the appendix was removed. The caecum and omentum were returned into the peritoneal cavity. The sac was tied and excised and the wound closed with drainage.

Subsequent History—The patient was treated with enemata and aperients. On January 24th he had a good result from a turpentine enema passing much flatus and formed faeces. His abdomen was less distended and he had not vomited. The following day he had not passed flatus and the abdomen was more distended, he vomited green fluid several times during the day and had clear results from enemata. On January 27th the abdomen was still more distended, he had not passed flatus and had had clear results from enemata. He was vomiting dark brown fluid. The abdomen was not rigid.

Second Operation—Exploratory laparotomy was performed through an incision in the right iliac fossa. On opening the peritoneal cavity it was found that the small intestine and caecum were markedly distended. There was no peritonitis. A band was felt constricting the large intestine just distal to the caecum and the transverse colon and descending colon were collapsed. The constricting band was divided and caecostomy was performed. The wound was closed and the caecostomy was opened, when a slight amount of flatus escaped.

On January 28th the patient had frequent large openings of the bowels by the rectum. The caecostomy had not acted. Two days later he was much weaker. His bowels were well open both by the rectum and by the caecostomy. His abdomen was less distended. He was incontinent of faeces. He died on February 1st.

Comment

In this case the question arises whether the condition was primarily one of acute appendicitis or whether it was secondarily due to strangulation of the appendix. The fact that there were recently formed flakes of lymph in the region of the appendix, and that the organ was perforated, suggests that the condition was primarily one of acute appendicitis rather than a strangulation of the appendix. An unusual feature in this case was the additional presence of a constricting band, which added considerably to the difficulties in pre-operative diagnosis, although, owing to the absence of signs of peritonitis, organic obstruction by a band had been suspected.

CASE III—An Acute Gangrenous Perforated Appendix in the Sac of a Lost Operative Ventral Hernia

A man aged 25 was admitted to hospital on February 1st, 1928, complaining of abdominal pain.

History—Fourteen days before admission the patient had sudden severe pain in the right iliac fossa accompanied by vomiting. The pain had persisted although after the first few hours it had become much less severe and was now merely a dull ache. He had had no further vomiting. He suffered from constipation the bowels being opened with difficulty every two or three days. Micturition was normal. He had been operated upon two years previously for appendix abscess. The abscess was drained but the appendix was not removed. He was advised to return to hospital three months later for removal of the appendix, but he failed to do so.

Examination—On admission the patient looked ill. His tongue was moist and slightly furred. Temperature 98.4° F, pulse 82, respirations 20. Nothing abnormal was discovered in the examination of the chest. There was a ventral hernia about four inches in diameter in the region of the old appendix abscess scar, the skin over the hernia was normal. The abdomen moved well on respiration and there was no distension, tenderness or rigidity in any part. A hard mass three inches by two inches was felt in the centre of the ventral hernia, the mass was not tender and there was no gurgling on palpation. The percussion note over it was dull. Nothing abnormal was discovered on rectal examination.

Operation—An incision was made over the ventral hernia and the sac was defined. It was thin walled and lobulated and contained a mass of omentum in the centre of which was a gangrenous perforated appendix surrounded by four ounces of pus. The appendix surrounded by the omentum and pus was wrapped in a gauze swab and removed. The scar tissue of the old wound was excised, and the fasciae and muscle were drawn

together with mattress sutures, the wound being partially closed with tubal drainage.

The patient made an uninterrupted recovery and was discharged from hospital five weeks later quite well and with his wound healed.

Comment

This was an undoubted case of a recurrent attack of acute appendicitis, and merely gives additional evidence to prove the advisability of not operating on these cases.

It is interesting to note that in this particular case the patient himself alone was to blame.

An unusual feature was that the recurrent attack occurred inside the sac of a post-operative ventral hernia, and this complication helped to cause some difficulty in pre-operative diagnosis.

The absence of tenderness over the hernial sac and of rise of temperature pointed to the condition being one of incarcerated hernia rather than to its being an acute gangrenous perforated appendix, with the presence of pus.

I am indebted to Mr Lionel Stretton for permission to publish these cases.

SYNDACTYLISM IN FOUR GENERATIONS

BY

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RECENTLY I have treated the rare condition of syndactylism in three generations of one family, and a member of the fourth generation, now deceased, was definitely known to have this deformity. These cases are submitted as an interesting problem on the subject of heredity.

Syndactylism as the name implies, is a condition in which there are webbed fingers with a more or less close union of contiguous digits. Three main varieties may be distinguished: (1) union by skin only, (2) union by skin and fibrous tissue, (3) a condition when the bones are more or less fused together.¹



FIG 1

Photographs of the hands of the grandmother mentioned in the text. Fig. 1 shows the backs of the hands and Fig. 2 and 3 the palms. The rudimentary separation of the thumb of the right hand is seen in Fig. 2.



FIG 2

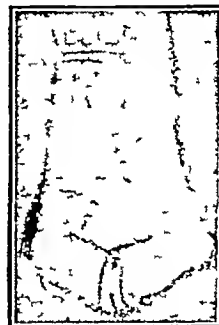


FIG 3

Another variety, the "lattice type" exists in which the bases of the fingers are separated, but distally they are united. Such cases afford a strong reason for assuming a mechanical origin. It is possible that the fingers have developed and then later, for some reason, they have been subjected to pressure and adhesion has taken place. This assumption is strengthened when it is noticed that sometimes at the point of union the last phalanx of one finger overlaps the other. It is usually the inner side of the hand which is affected, and the fusion of the thumb and index finger is a rarity. Messrs Roucaurol and Klausner have however reported cases of this rare type.

CAUSATION

The leading theories of causation according to Roucaurol and other authorities are:

- 1 Lesions of the foetal nervous system (Cernik)
- 2 External pressure and traumatism during pregnancy (Crusellier)
- 3 Embryonic amniotic adhesion (Lommelongue)
- 4 Amniotic loops or bridles (Doreste)
- 5 Reversion to early conditions (Darwin)
- 6 Osler thinks it occurs more frequently in children of epileptic appearance.

Edward states that it is a stigma of degeneration occurring in persons of weakened intellect.

Goldman asserts that syndactylism may be regarded as an arrest of development since during foetal life the fingers are bound together for a time by webs of varying extent the thumb almost always remains free and in most instances two fingers only usually the third and fourth are bound together.

Like many foot and hand conditions, syndactylism is markedly hereditary.² Lucet³ mentions a syndactylic

family of thirty-nine members fourteen of whom had the deformity. Sverdrup⁴ describes it in six generations of a Norwegian family. Lpstein reports it occurring in five generations, transmission occurring in male and female.

A valuable monograph⁵ by Messrs Lewis and Embleton gives a very exhaustive investigation of the members of one family in which there is a record of forty-four members having deformities of the hand and foot. Douglas P. Murphy⁶ has made a study of the deformity in five successive generations.

In the Johns Hopkins Hospital Bulletin⁷ of 1927 a case was reported of combined acrocephaly and syndactylism occurring in mother and daughter. The two cases reported support the view expressed by Park and Powers that the combined malformations are evidences of germ-plasm defects rather than the results of externally operating causes.

CASES DESCRIBED

I have been able to obtain full details from the living members of this family which I am about to describe. Unfortunately I have not been able to trace the great-grandmother, but she was definitely known to have deformed hands.

The grandmother aged 65 has syndactylism of both hands and has never undergone operation for the deformity. From the accompanying photograph (Fig. 1) it will be seen that there is complete syndactylism of the left hand with that rare occurrence the fusion of the thumb and index finger. The dorsal surface of the hand is very misshapen on the ulnar side with marked bosses over the interphalangeal joints. The nails are very large and there is a slight division in them showing attempts at separate nail formation. The right hand has complete syndactylism but the thumb is separated in a rudimentary form (Fig. 2). There are less fingernails on the right hand and they are marked by grooves showing attempts at separation. In spite of these deformities she is quite dexterous and can manage all simple household work.

The mother Mrs. X aged 33, has syndactylism of both hands. She came under the care of Mr. Openshaw at the London Hospital in 1897 when she was 3 years old and was successfully operated upon. She has one sister who is similarly affected and three other sisters who are quite normal in this respect. There was also a stillborn brother who was said to have had the prevalent defect. Originally in both hands the fingers were enclosed in a web of skin.

Both Mrs. X and her sister had six sets of digital bones on the right but the mother and one of the other children's sixth set were more complete than Mrs. X's whose sixth finger consisted of a small rudimentary process of the other side of the hand. The digital bones otherwise appeared quite complete and the movement suggested that the muscles were normally attached. At the distal part of the web of skin was a ridge of nail-like substance representing the normal nails. The thumb was partially separate on each hand.

In a period of three years fifteen operations were performed and as a result she now has five very useful and completely functioning digits on each hand. She is able to wear a wedding

ring can do anything with the fingers, and is able to write well. She has a slight nasal deformity—a flattening of the terminal cartilage. Her mother has the same defect in a slight degree. The feet of both are quite normal.

The child, aged 6, was treated at the London Hospital by Mr. Souttar when she was 15 months old. She had complete syndactyly of both hands. The x-ray report showed that the right hand had six metacarpal bones and the left hand had five metacarpals. She exhibited polydactylism in both feet and had a supernumerary digit on the tibial side of the big toe on each foot.

She was operated on in 1922 and the hands were divided down the centre along an incomplete division which was present. There were three fingers on each side of the division. The completed hand was of the 'lobster claw' variety.

In a further operation the supernumerary digits of the feet were removed. She has had no further operations, but her hands in their present form are quite useful. She exhibits the nasal deformity of the mother.

It will be noticed in these interesting series that the stigma has continually appeared in females, although it is known that one stillborn male had the defect.

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Memoranda :

MEDICAL, SURGICAL, OBSTETRICAL.

ANTISTREPTOCOCCAL SERUM FOR INSECT BITES

THE British Isles are remarkably free from dangerous biting insects, but at this time of the year, as noted in the lay press, they take their small toll of life. The insignificant origin makes this all the more distressing. The course taken by these cases is that, immediately following the bite, there is acute inflammation, due either to poison in the insect's mouth or to its excreta deposited there. This inflammation subsides, but after a day or two lymphangitis or erysipelas develops, and the patient dies of septicaemia. The two following cases are reported to show the remarkable effect of polyvalent antistreptococcal serum. I have not heard previously of the use of this serum in such cases.

Case 1.—A woman while gathering raspberries, was bitten by a grey fly. She saw me ten minutes later when the finger was twice its normal size, red and pulsating violently. I advised a tight bandage for an hour, fomentation, and radiant heat. The following morning the finger seemed to be much better, but twelve hours later it became intensely painful. Lymphangitis was present and spreading on to the dorsum of the hand, and the patient felt ill. An injection of 25 ccm. of polyvalent antistreptococcal serum was given into the buttock with the result that in three hours the lymphangitis had almost gone and the pain was much less. The bite discharged for three days, after which the patient had no further trouble.

Case 2.—A child aged 5 with a similar history was given 5 ccm. of serum, in one hour the lymphangitis which had extended almost up to the elbow was arrested and it had disappeared on the following day.

Being interested in infected insect bites as a cause of non-filarial elephantiasis, I made inquiries as to what insects found in this country were liable to cause infection. It appears that almost all the fatal bites are due to the stable-fly, *Stomoxys*, the mandibles of which are heavily infected with bacteria, especially streptococci, from contact with manure and stable refuse. The house-fly is neither a blood sucker nor a biter. Occasionally infection may follow mosquito stings, but it is rarely that any bite in this country causes death, except the *Stomoxys*.

Harrow

A. P. BERTWISTLE, F.R.C.S. (Ld)

COMPLETE RUPTURE OF JEJUNUM WITHOUT EXTERNAL WOUND

THE interesting case of complete transverse rupture of the jejunum without external wound reported by Dr. J. R. Armstrong in the *British Medical Journal* of June 23rd (p. 1064) recalls a very similar case which occurred in my hospital practice in Hankow, China, about four years ago and which was not recorded at the time.

A Chinese postman was carrying mail bags on his back a launch when he fell between the launch and pontoon to which it was moored, and his abdomen was nipped between the two. He was brought straight to hospital, and I saw him soon afterwards. There was no injury to the skin of the abdomen, but he complained of very severe pain in the epigastrium, and the abdominal wall was very rigid. These symptoms, together with the history, made me advise operation at once and fortunately there was no delay over consulting relatives who might or might not consent.

The jejunum was found completely severed transversely in one place, but no other viscus was injured. The peritoneum contained some blood but no escaped bowel contents. A little trimming of the bruised ends was all that was needed before doing an end-to-end suture.

The operation gave speedy relief to his pain, there was little or no vomiting, and convalescence was uneventful.

This satisfactory result I attributed to the fact that he was a young and healthy man, that there was little soiling of the peritoneum with bowel contents, and that operation was performed early, within less than three hours of the accident.

Glasgow

R. AIRD

A CASE OF HERMAPHRODISM

Records of individuals of doubtful sex have been unearthed at U. of the Chaldees, and men of old believed in true hermaphroditism, but no case of the efficient formation and discharge of both sperm and ova by the same individual is known. In fact, only three or four cases of undoubted "true" anatomical hermaphroditism are accepted, and in these both partners were not perfectly developed. True physiological hermaphroditism is probably impossible. It is better, therefore, to use the word "hermaphrodite" as meaning simply an individual whose sex is doubtful. No legal definition of sex exists, and it is often impossible to say to which sex an individual of this kind should be assigned.

Such extraordinary advances have been made already in the present century in our knowledge of the meaning of sex and its determination—and so many experiments are now being made in grafting and transplantation and endocrine medication—that the subject is of greater interest than ever. So seldom, however, have human abnormalities come to operation or to post-mortem examination that our knowledge is still very scanty and our textbooks imperfect, and it seems desirable to report the following case:

XY, aged 22, not a twin. Appearance is that of well developed female in all respects but has never menstruated although each month there is malaise and aching in head, back, groins and breasts. Psychically, seems to be typically feminine, is courting. Other members of the family are said to be abnormal. In the left groin is a reducible lump, and pressure on this causes nausea and sometimes vomiting.

Operation for Hernia (November 7th, 1927).—The lump, when exposed, did not look like an ovary but like a testis, with another solid body attached. Vaginal examination was then made, the vagina was roomy but no cervix, uterus or ovary could be felt. Next the abdomen was opened. No ovary tube or uterus could be seen but just inside the right internal abdominal ring there was a lump looking exactly like that exposed in the left inguinal canal. The abdomen was closed. The left ovotestis (?) was removed and radical cure of hernia completed. Convalescence was normal.

Pathological Reports (Clinical Research Association)

Section A is undoubtedly a testis and shows actual though irregular spermatogenesis. The cells of Leydig are also seen.

Section B shows an interlaced fibrous tissue with irregular vessels. We cannot certainly identify the tissue of which it is the stroma.

Section C. There is no recognizable ovarian tissue and the organ judging by its stroma is more probably a testis. But no genital epithelium of either type is seen.

The specimen was sent to the Royal College of Surgeons, and Sir Arthur Keith with his usual enthusiasm and kindness, had further sections examined without finding any definite ova or Graafian follicles but the areas of fibrous stroma seem to me to be comparable to ovarian tissue.

Human hermaphrodites, like "XY," are usually born singly and are, therefore, less analogous to the well known "free-martin" than to sexually abnormal goats and pigs—where an ovotestis is not unusual and there is a strong hereditary element. The free-martin is externally female, but no sperms are formed by the testes, and it is always sterile and so there cannot be any heredity. Fusion of the chorions of the twin embryos allows mixing of the bloods, so that the testicular hormone from the male twin, being secreted earlier, reaches the female twin and transforms its

ovaries into testes before the ovarian hormone has developed. Fusion of chorions has never been found in the pig. Sexually abnormal goats have been born singly, and certain boars continually sire sexually abnormal offspring.

Females possess male characters in a latent condition and transmit them to their descendants, and it is known—from "freaks of Nature" and from experiments—that individuals of either sex can develop under special conditions, into individuals of the opposite sex. For instance, the healthy ovary of a hen may become converted by disease into a functional testis and the same individual, after acting as a mother, may become the father of offspring—a change of secondary sexual characters (comb, plumage, spurs) accompanying.

Although the sex of the early embryo is determined by the sex chromosomes, the sex hormones—in mammals—very soon prevail and assume entire control. So that in the case of "XY," whilst the organ removed is certainly a testis and is not proved to be an ovi-testis, it seems impossible to account for the very well marked secondary female characters, unless at some period an ovarian hormone circulated. Was it not formerly an ovi-testis, even if it is not such now? If it is, this case is one of "true" anatomical hermaphroditism (so-called) and to be added to the three or four which are all that the best authorities will accept.

Another interesting problem for discussion would be the advice to be given as regards the bringing up of hermaphrodites. Most British authorities following Lawson Tait, advise that they should be treated as males. But in such a case as that of "XY," and remembering that the habits, feelings, and desires depend chiefly on the surroundings of early life, it seems better to agree with Blair Bell and let the anatomy of the external genitals decide. Anyhow "XY" has been left in ignorance of her most unhappy fate.

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Rebuefus.

THE FILTERABLE VIRUSES

THE book on the *Filterable Viruses*¹ which has recently appeared under the general editorship of Dr. T. M. Rivers of the Rockefeller Institute is an attempt to present in a systematic manner some of the chief problems encountered in this field of work. Each of the ten chapters of which the book is composed is written by a different author, the man selected being one who has given particular and practical attention to the subject on which he writes. The first chapter, by Dr. Rivers himself, is a review of some general aspects of the filterable viruses. This is followed by chapters on filters and filtration by Stuart Mudd on tissue cultures by Carrel, and on the intracellular pathology of virus diseases by Cowdry. Virus disease of man as exemplified by poliomyelitis is dealt with by Amos and of mammals as exemplified by foot-and-mouth disease and vesicular stomatitis by Olitsky. Virus disease of fowls as instanced by fowl pox is in the hands of Goodpastor and virus diseases of insects and of plants respectively are dealt with by Glaser and by Kunkel. Finally the subject of virus diseases of bacteria in the sense of bacteriophage is reviewed by Bronfenbrener. A full list of references is attached to each article.

So far as we are aware this is the first systematic treatise on the subject of the filterable viruses to appear in the English language in book form. For that reason and also because of the high standard maintained throughout and of the wide perspective that it offers this book is a timely and valuable contribution to progress. The general review by Dr. Rivers himself is particularly to be commended, not merely because of its careful and critical air but also because of its philosophic and constructive outlook.

¹ *Filterable Viruses*. Edited by Thomas M. Rivers. London: Baillière Tindall and Cox, 1958. (Roy. 8vo pp. ix + 423. 26 figures, 15 plates, 34s. net.)

Doubtless in future editions more space will be allotted to the serological side of these infections, which recent work in this country and elsewhere has brought into prominence.

DISEASES OF THE ALIMENTARY TRACT

THE publication of Dr. MARTIN REHFUSS's book, *The Diagnosis and Treatment of Diseases of the Stomach*,² marks an important event in the history of gastro-enterology. The last twenty years have witnessed the development of radiological and biochemical methods which have given much greater precision to the diagnosis of stomach diseases. The pathology and treatment of gastric disorders have been placed upon a sounder basis because of the recorded experience of individual surgeons and physicians and the accurate statistics of hospitals. It is fortunate that a physician who has himself made important contributions to this branch of medicine should have found opportunity to become the historian and exponent of the science and practice of his own specialty. For this is what Dr. Rehfuß has achieved—a book which is both a history and an exposition. These two qualities are not apparent in the general arrangement of the work but the reader becomes conscious of them in the detail of almost every chapter. Dr. Rehfuß says that he wrote the book in the manner in which the subject appealed to him and that he aimed at a practical volume devoted to the consideration of everyday problems in diseases of the stomach and digestive tract. The book is divided into three parts but it is not easy to find a title for each of these divisions which will cover their contents. The first might be described as an introduction to practical gastro-enterology and includes chapters on anatomy, physiology, gastric analysis, radiology and gastroscopy. The second section is a systematic survey of each variety of stomach disease. The third section is devoted to a consideration of gastric symptoms caused by diseases of other organs of the body and to diet. The book contains 519 illustrations, many of them in colour. The author says in his introduction "my excuse for the volume is to put forth in book form my own conception of the subject, embodying all those important communications from the most diverse sources and by many authors which seemed essential to the subject." He has achieved his object with unusual lucidity and distinction and there is no need to speak of an excuse for such a notable service to medicine.

Dr. BASSLER's textbook entitled *Diseases of the Intestines*³ and now in its third edition, comprises a survey of diseases of the liver, gall-bladder, pancreas, and lower alimentary tract. The first question that is likely to be asked about such a book is, What information does it contain which is not to be found in the larger textbooks of general medicine? The justification for a special book of this sort lies in the fact that more space can be given to diagnostic methods, particularly laboratory and x-ray examinations and in the longer account of recent experimental work. We do not notice in Dr. Bassler's volume much about pathology or treatment that is not adequately described in the type of general textbook to which we have referred, but diagnostic methods are certainly considered with much more detail than can be accorded elsewhere. It would have been of advantage to the reader if the author had more frequently given the result of his experience with some of these tests. The book is generously illustrated but some of the reproductions of sections and pictures of bacteria are not of much value. For instance the coloured plates representing the microscopic appearances of stained films in different types of intestinal intoxication are likely to be misleading if taken too literally. The almost complete neglect of references is a grave defect in a large work which professes to offer more guidance than a student's textbook and will frequently occasion disappointment when this volume is consulted.

² *Diagnosis and Treatment of Diseases of the Stomach*. By Martin Rehfuß. M.D. Philadelphia and London: W. B. Saunders Company, 1957. (6 x 9½ pp. 125. 519 illustrations, 65s. net.)

³ *Diseases of the Intestines* including the Liver, Gall-bladder, Pancreas and Lower Alimentary Tract. By Anthony Bassler, M.D., F.A.C.P. Third edition revised and enlarged. Philadelphia: F. A. Davis Company, 1958. (Med. 8vo pp. xx + 805. 199 figures, 78 plates, 10 dollars net.)

THE CARDIAC MECHANISM

In a book on the mechanism of the heart and its anomalies Dr GÉRAUDEL of Paris describes the subject from a novel point of view, which he has already expressed in several publications. He is discontented with what he calls the "classie" theory of the mechanism of the heart beat, the origin of the excitation wave in the sino-auricular node and its spread through the chambers of the heart in orderly sequence. He believes that the intimate correlation of auricle and ventricle is illusory, that in reality the sino-auricular and the auricular-ventricular nodes are entirely independent centres initiating their own rhythms, that in health these rhythms are in equilibrium, and this equilibrium masks their independence, which is revealed by disease. To the special centres he applies the term

"cardio-neuteurs", the S-A node he calls the 'atrio-neuteur', and the A-V node and its prolongations the "ventriculo-neuteur". Each has its own blood supply, and the normal working of the heart depends on the maintenance of normal circulation through the cardio-neuteurs. Disturbances of circulation in one or other, or both, of these territories produce abnormalities in the cardiac mechanism, ischaemia produces slowing, while hyperaemia increases activity. In accordance with this conception Dr Géraudel applies a new terminology to the various disturbances met with clinically—for example, 'prio-systoles' for premature beats and 'hypertachyrythmie auriculaire' for auricular fibrillation.

The first 130 odd pages are given to an account of the special anatomy and physiology of the heart, of the electro-cardiograph, its method of use, and the electro-cardiogram and its normal variations. The remaining 150 pages contain descriptions of the anomalies of cardiac mechanism as recorded by the electro-cardiograph. To these descriptions the author adds the classic and then his personal explanation so that the reader may choose. The choice is not difficult, for, when the volume is examined for evidence in support of his conception little is found. Apparently almost the sole evidence is the finding of obstruction in the artery supplying the 'ventriculo-neuteur' in three cases of heart-block, and of the artery supplying the 'atrio-neuteur' in a case of nodal rhythm.

While it may be admitted, on the one hand, that anomalies of rhythm may be caused through circulatory disturbances, and, on the other, that the classic explanation of the anomalies is not always satisfactory, yet, until Dr Géraudel produces for his views as substantial a body of evidence as there is for the classic theory, his work can hardly be regarded, in the words of the preface, as marking an epoch in the history of cardiology.

LETHAL SOCIAL CUSTOMS

THE disastrous hygienic consequences of certain social customs in India were brought into prominent notice by the controversy that followed the appearance of Miss Mayo's book, *Mother India*. Most persons probably were less impressed by the inaccuracies that were charged against the author than by the number of her charges that were tacitly admitted by her adversaries. Those of our readers who followed this discussion may be glad to hear of a little volume, *The Purdah System and its Effect on Motherhood*, lately published by Dr KATHLEEN VAUGHAN. The status of the two books mentioned is very different, for *Mother India* might be described as the impressions of a tourist, while Dr Vaughan records certain salient facts observed during her work as superintendent of the Zenana at Srinagar Kashmir. It is distressing to learn from this authoritative source that the evils of the purdah system were, if anything, understated by Miss Mayo.

The valley of Kashmir has an altitude of 5,000 feet, and is on the same latitude as southern Spain. The winter is

severe, but the climate is exceptionally good for the greater part of the year. It would be one of the last places in the world in which to anticipate diseases due to light deficiency. The stupidity of man has however, succeeded in frustrating the beneficence of Nature. Dr Vaughan found that in Kashmir osteomalacia was extremely common among the women of the town, but unknown among the peasant women and the women of the boatman class who worked in the open air, moreover, it was unknown in boys and men. The disease was indeed clearly associated with the purdah system. This system is described as follows (p. 10).

A common history is that of confinement to the house at 8 or 9 years of age, marriage at 10 or 11, menstruation at 12 or 13 and close confinement in the husband's house until after the first child is born in the very high-class families the women hardly leave the house until they die.

The author summarizes her conclusions as follows.

Everything would seem to have been arranged to keep these women in the dark and as light is essential to all life they suffer both in body and mind. Deprived of light their skin ceases to form vitamin D from ergosterol their calcium metabolism is interfered with their bones become soft the pelvis crumples up, and we have the classical picture of osteomalacia with its results in difficult childbirth and too often death of mother and child after days of agony when skilled help is not available. There is no doubt that much trouble in later years at the child-bearing period could be entirely avoided by the provision of light for the child as an infant as a girl as a woman. Everywhere there is sufficient light but they cannot use it. This miserable state of affairs all too common in the East, whereby the woman is to all intents and purposes a prisoner in her own home, leads to gross pelvic deformity rendering the birth of children difficult, and unnecessarily dangerous if not impossible and can be prevented by providing her with light. The conclusions drawn from these observations are open to all but the results of such research have never yet been applied to maternity and infant welfare problems in India. It is necessary to point out to those in authority that the present working of the 'purdah' system, by depriving the girls and women of sunlight, is directly responsible for the production of osteomalacia, gross pelvic deformity, and the deaths of thousands of mothers and children in childbirth annually. No schemes for improving the national health of India can afford to ignore such a state of things which takes toll of the more educated of the people whose lives and work are essential to the preservation of all that is good in an ancient civilization.

The author also quotes authorities to show that osteomalacia is common all over India amongst purdah women, and, in particular, mentions a striking example in Bombay, where the disease is unknown among the Parsees, whose women live open air lives but is common among women of the weaver class, who live in dark rooms devoid of direct sunlight. She makes the further observation that one consequence of the purdah system is to make a child marriage almost necessary if living children are to be obtained.

Doubtless the East has accumulated practical wisdom in the course of a few thousand years and has observed that childbirth is easy at puberty and is not so later on when the pelvis has been deformed by an indoor life and is unyielding. I have seen labour in a Hindu girl of 15 or 16 begin with the foetal head bulging over the pelvic brim and end quite normally without interference provided time was given due no doubt to the moulding of the child's head and the elasticity of the mother's still partly cartilaginous pelvis.

Much has been written against the system of child marriages, but this passage suggests that reform must begin with the modification or abolition of the utterly unhygienic purdah system. The evils produced by the purdah system are of great general interest because there is a tendency to assume the existence of certain laws of social evolution that will prevent the occurrence of utterly injurious and useless social customs. Unfortunately the only limit that natural selection imposes on human folly is that it guarantees the ultimate destruction of any community which sins too deeply against the laws of Nature. Customs which interfere with the production of healthy children are peculiarly injurious from the racial standpoint, and the prolonged existence of the purdah system, with all its dire consequences is a reminder of the extreme slowness of the working of the corrective influences of natural selection.

It is easy for us to realize the ills of the purdah system, but it is well to remember that life in our great cities has been organized with an almost equal disregard of some of the fundamental laws of hygiene. Dr Leonard Hill points this moral forcibly in a short preface he has contributed to Dr Vaughan's book.

Le Mécanisme du Cœur et ses Anomalies. Par Emile Géraudel. Études Anatomiques et Electrocardiographiques. Préface du Professeur Vaquez. Paris: Masson et Cie. 1928. (Sup. roy. 8vo pp. vii + 285. 200 figures. 55 fr.)
Mother India. By Katherine Mayo. London: J. Cape. 1927. (5½ x 8½ in. 391 pp. 6s. 6d. net.)
The Purdah System and its Effect on Motherhood. By Kathleen Olga Vaughan. With a Preface by Leonard Hill, M.D., F.R.S., and an Introduction by H. H. Warrall, A.R.S.M., M.D. Cambridge: Hoffer and Sons Ltd. 1928. (Cr. 8vo pp. xv + 48. 1 plate. 2s. 6d. net.)

Our civilization is also not free from blame. Modern research has shown that rickets is caused by the screening from sunlight of women and children by houses clothes and smoke pollution of cities. With rickets goes the decay of teeth. There is evidence that the whole trouble can be prevented by wise feeding and adequate exposure of the skin to open air and sunshine. So too with tuberculosis through ignorance the nation is to blame for the confinement of women and children in slum tenements, just as Indians and Kashmiris are for the confinement in the purdah. While seeking to reform the purdah custom let us see to it that we prevent disease and deformity occasioned by want of light and air at home. Preventive medicine shows the way to stop all this and a new age may look back with astonishment on the artificial teeth of this generation, and the prevalence of rickets and tuberculosis just as we look with astonishment on the purdah system and its consequences.

CREATININE AND CREATININE

THE most recent addition to that admirable series of monographs on biochemistry, edited by Professor R. H. A. Plimmer and Sir F. G. Hopkins is a volume entitled *Creatine and Creatinine*,¹ by Professor ANDREW HUNTER. Creatinine is quantitatively the most important simple nitrogenous constituent of muscle. Creatinine yields only to urea a similar position of importance in the chemistry of the urine. Chemically the two substances are closely related, their mutual transformations are readily effected and their estimation in biological fluids and tissues is simple. No two substances would seem to have greater claims upon the attention of the student of metabolism, and it is true that no two substances have so held the sustained interest alike of the biochemist, the physiologist, and the clinician. Nevertheless it remains to this day a matter of some uncertainty whether the creatinine of the urine derives from the creatine of the muscle or whether the two substances have independent metabolic histories. More elusive still is the larger problem of the origin of the creatine of the muscle. Interest in these questions is likely to be greatly intensified by evidence which has become available during the past year that creatine is intimately associated with the phenomenon of muscle contraction. The problem of creatine is no longer simply one of nitrogen metabolism. It invades the wider field of carbohydrate metabolism. This is an appropriate time therefore, to take stock of our accumulated knowledge of the chemistry and physiology of creatine and creatinine. The appearance of Professor Hunter's admirable and exhaustive monograph is most timely.

The chemistry of these two substances is first reviewed in full and clear detail. There follows the more difficult assembly of the physiological literature. The author has performed a Herculean task. A bibliography of some eight hundred references to original literature is adequate testimony to this. This field has not only been reconnoitred with industry, but also with great ability and discretion. The assembly of data and arguments in an orderly and judicious review has been entirely successful. The critical faculty which is brought to bear on the various physiological hypotheses is always helpful, never impotent. There can be little recompense to the author of such a monograph other than the knowledge of a difficult task accomplished and the realization of a generous gift to his contemporaries. We should therefore be the more ready to acknowledge our full appreciation of the value of his labour.

NOTES ON BOOKS

Dr. JOSEPH HOLLIS has written a book on *Tuberculous Intoxication*,² in which he refers practically every symptom from which mankind may suffer to latent tuberculosis. His general thesis is that persons with a latent tuberculous focus are hypersensitive to the toxins of the tubercle bacillus that they react to a fresh infection by lysing the bacilli, and that the products or endotoxins thus liberated from the bacilli act on the endocrine glands, and through them produce a severe constitutional reaction. Thus, such symptoms as blushing and other vasomotor disturbances, palpitation, arrhythmia, headache, vertigo, fatigue, restlessness, insomnia, all humour psychoses, nightmares, anorexia, nausea, diarrhoea, constipation, rheumatism, menstrual disorders, chronic skin lesions, and

a host of others all result directly or indirectly from the reaction of the over-sensitive body cells to the toxins of the tubercle bacillus. This hypothesis which is nothing else than Friedberger's anaphylactic theory of infection has practically no evidence in its favour. The so-called evidence that the author brings forward to support it is not worth serious consideration. The book is full of misleading and unproven statements and its perusal will leave the reader wondering at the lack of critical ability displayed by the author.

We have received the third volume of a series on medical radiology,³ prepared by four German writers, a notice of the two previous ones appeared in our issue of December 25th 1925 (p. 1231). The present part covers a large amount of ground and the subjects dealt with include the application of X-rays to diagnosis of conditions of the nose, ears, appendix and ecchymococcal infections of the lungs, the use of diathermy in gynaecology and the influence of light treatment on the skin and on metabolism. The book is well illustrated and contains good indexes and a bibliography.

Few callings we imagine can present more opportunity for unpleasant moments than that of the health visitor who surely must combine the wisdom of the serpent with the ease of handling of the toad. It is well therefore that Miss PHYLIS ARMITAGE, now matron of Lady Northey Home, Nairn, should, out of the fullness of her experience, produce a hand-book *Health Visiting The New Profession*.⁴ So few is it that doubt still seems to exist as to whether the main training should be in social work or in nursing and if the latter, whether the training should be in a general or a children's hospital. To judge however from the space devoted by Miss Armitage to descriptions of maternity and child welfare work and of disease it would seem that among much varied knowledge considerable acquaintance with medicine is necessary in health visitors. Herein lies one of the dangers of the profession for it is easy to imagine an ardent health visitor with a smattering of many sciences getting at variance consciously or unconsciously with a doctor whose opinion does not coincide with Miss Armitage's summaries of the treatment of disease. And the author—very occasionally we admit—lets fall remarks about doctors which are not quite discreet. However she wisely ends by telling the health visitor that she is not appointed for the purpose of posing as an amateur doctor and the medical officer of health under whom the visitor works will doubtless see that this advice is carried out. The author's zeal is shown by the story of her visit to a peer whom she found to be ignorant of his duty to notify the birth of his offspring and whose ignorance was shared by the two distinguished consultants in attendance on the peeress.

The verses written during a period of some forty years by the late Dr. MORRIS F. COCK,⁵ (1856-1924), one time of South Molton, Devon, have been collected by his widow. Written in simple language they touch rather a meditative and pathetic note in dealing with the aspects of life and death that naturally bulk so largely in a doctor's life.

¹ *Ergebnisse der medizinischen Strahlenforschung*. Herausgegeben von H. Holfelder, H. Holtzhausen, O. Jüngling und H. Martinus. Band III. Leipzig: G. Thieme, 1928. (Sup. roy. 8vo pp. 791, 613 figures, 5166.)

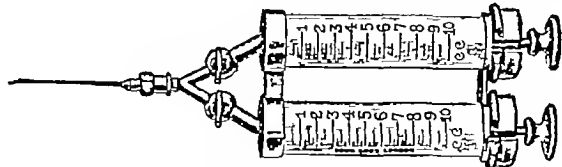
² *Health Visiting The New Profession*. By C. Phyllis Armitage. London: J. Ball, Sons and Danielsson Ltd. 1927. (Cr. 8vo pp. x + 332, 1 plate, 7s. 6d. net.)

³ *Poems*. By Morris F. Cock. With a foreword by Florence E. Cock. London: A. H. Mather, 1928. (Cr. 8vo pp. xi + 123, 1 plate, 5s.)

PREPARATIONS AND APPLIANCES

A TWIN SYRINGE FOR USE IN VENEREAL TREATMENT

DR. R. J. HELSBY (Bangor) writes: I have found in doing venereal disease work that when a specimen of blood is to be taken and an injection of neobarsivan to be made at the same time, that the needle frequently moves and perforates the vein when the syringes are being changed. The neobarsivan then permeates



the tissues with disastrous results to the patient. I have had this twin syringe with stopcocks made for me by Messrs. Down Brothers. Both stopcocks are closed and the neobarsivan is mixed in one syringe. The needle with syringe attached is then introduced into the vein and blood is drawn into the empty syringe after opening the stopcock. The stopcock is then closed and the other one opened. The neobarsivan being injected without in any way disturbing the needle.

¹ *Creatine and Creatinine*. By Andrew Hunter. M.B. F.R.S. Can. London and New York: Longmans, Green and Co. Ltd. 1928. (6 x 9 1/2 in. vii + 221, 14 net.)

² *Tuberculous Intoxications*. By Joseph Hollis. M.D. Edinburgh: E. and S. Livingstone, 1928. (Demy. 8vo pp. ix + 132, 10s. 6d. net.)

British Medical Journal.

SATURDAY, AUGUST 25TH, 1928.

RECENT WORK ON THE FILTERABLE VIRUSES

IN spite of the difficulties that beset the experimental investigation of diseases belonging to the virus category, and particularly of those which affect man, knowledge appears to be slowly but steadily advancing in regard to this group of pathogenic agents. How widespread and varied are the activities of these viruses is well brought out in the recently published book by Dr Thomas M. Rivers and his colleagues of the Rockefeller Institute at New York, of which a review appears in our current issue at page 343. In this book the present state of knowledge is set out concerning selected examples of viruses affecting respectively man, other mammals, birds, insects, and plants. Nor is the end necessarily there, for some authorities maintain that the bacteriophage associated with the names of Twort and d'Herelle is nothing else than an instance of an ultra microscopic virus affecting bacteria themselves.

The chief interest to the medical reader, however, of recent work on viruses lies in the light it tends to throw on diseases of man brought about by agencies of this group. Here at present data are perforce limited, and, as the pitfalls are many, caution is particularly necessary. Nevertheless, some encouraging facts are emerging with regard both to prophylaxis and diagnosis. The important question whether it is possible to prevent a disease of the virus category by means of killed virus was apparently solved some years ago when rabies virus killed by phenol was successfully introduced into India for the prevention of hydrophobia, the credit for this advance is due to the pioneer work of Sir David Semple and his colleagues. Parallel but less convincing results in a preventive sense have from time to time been reported experimentally on animals with vaccinia virus inactivated by heat, and more recently by Knoepfelmacher and Stohr in the human subject, it would seem that dosage is here an all important factor and that repeated injections may be necessary for success. Moreover, according to its most recent report (of which an account was given in our issue of August 11th at p. 268) the members of the Foot and Mouth Disease Research Committee appear to have satisfied themselves that protection can be obtained against that disease with the virus after it has been killed by means of formalin.

A further direction in which progress is being made is in the application of serological methods to the diagnosis of virus infections. Experimental evidence has been furnished by a number of observers to the effect that specific antibodies occur regularly in the serum in cases of infection by the viruses of vaccinia and variola. We may note in particular that, according to Mervyn Gordon, in the serum of rabbits suitably prepared against vaccinia, specific antibodies showing an equal affinity for the viruses of vaccinia and of variola can be demonstrated by the complement fixation test and also by the agglutination or precipitin test. Evidence was found that serum prepared by

such means against vaccinia virus could be used for the diagnosis of small pox. It is of special interest in this connexion to observe from the latest report of the Foot and Mouth Disease Research Committee that Professor Ciucu of Bucarest, working in London at the Lister Institute, has succeeded in applying the complement fixation test to the diagnosis of infections by that virus, and that in this way he has been able to distinguish between the two different types of foot-and-mouth virus.

Recent developments, therefore, in the study of the filterable viruses are of considerable promise, and their general tendency is to bring these infectious noise and more into line with those produced by the ordinary pathogenic bacteria.

NOISE.

COMPLAINTS of the noise of London as well as of other cities are not new. Sir Walter Besant wrote of London that 'in the days of Whittington there was no noisier city in the whole world,' a rather bold and sweeping generalization, incapable of proof. Much of that din was inevitable in the carrying on of the handicrafts of the time, but the noises of which we now complain are to a large extent avoidable and might be prevented. At the recent Annual Representative Meeting of the British Medical Association at Cardiff a resolution was moved by the representative of the Edinburgh and Leith Division and carried without discussion, to the effect that the Association should support any measures designed to suppress unnecessary noise, and declaring that any preventable noise between the hours of 11 p.m. and 6 a.m. which is injurious to health should be regarded as a nuisance within the meaning of the Public Health Acts. Dr John Stevens, who moved the resolution, spoke eloquently of the harmful effects of noise and even of silent vibration on the central nervous system, and asked if motor horns could not be less used at night time. The public, he said, were looking to our profession for a pronouncement which might be of service to legislators and local authorities in taking steps to mitigate this evil.

The wording of the Cardiff resolution prudently avoided any reference to specific noises, but everyone who reads it will understand that the framers of it had in mind chiefly the sounds produced by traffic in our streets. Early this month the *Times* opened its columns to a correspondence on the subject of speed and noise, which was begun by a letter from Mr Harold Begbie and continued by various other writers, including Professor William A. Bone, Canon Jocelyn Perkins, Canon Spooner, and Sir Robert Armstrong Jones. Canon Perkins speaks, from personal experience as a former inpatient of Westminster Hospital, of the perpetual hurricane of noise by which that hospital is surrounded and of his sufferings therefrom, in common with other patients. That such sufferings seriously diminish the chances or progress of recovery in many patients is unquestionable and the authority of Sir Robert Armstrong-Jones supports the view that the nervous system must in many cases be injured by these continual and violent stimuli which assault the ears by day and by night. All the correspondents are agreed as to the evil which cries aloud for cure, but the remedies so far proposed are, unfortunately, not very definite or promising.

In discussing this matter it is not possible to separate the question of speed from that of vibration

and noise, for a very large part of the noise and most of the vibration are caused or at least increased by high speed, and even the motor horn nuisance is an indirect result, seeing that it is a rapid approach that calls for a loud warning. Is it too late to undo the *laissez faire* policy which, as one correspondent pointed out, has turned our highways into tracks for high speed and heavy locomotives without any of the safeguards which the railway companies have been forced to provide? The competition is an unfair one, for the railway companies have had to buy the land on which their rails are laid, often at very high prices. They have been put to great expense in providing safeguards for the public, such as bridges, while their rivals have the roads, which they destroy, kept up at the public expense, they pay no rates and provide no safeguards. The lighter private vehicles make less clamour and vibration in running, but their horns make up for any such comparative silence. As for the motor cycle, it is probably for its size the noisiest vehicle that the wit of man has ever invented, and it is no consolation to the sufferer from its successful imitation of a pneumatic drill or loud machine gun, that it often itself puts an end to the racket by slaying its rider or passenger.

It is clear that unless speed on the roads can be effectively regulated—and all attempts made to do so have hitherto notoriously failed—noise will continue. Dr Harvey Hilliard, writing in our issue of August 11th put forward the practical suggestion that the Council of the British Medical Association should promote a bill in Parliament not only to repeal past enactments which permit or enforce noise, but also to make unnecessary noise of all kinds punishable by law. This suggestion was warmly endorsed by Dr William Collier, a past president of the Association, in a letter which we printed last week and further support, by Dr Dan McKenzie and Mr Muirhead Little, will be found in our correspondence columns to day. If the Council, after careful consideration of the great difficulties in the definition of an unnecessary noise and in establishing securely that its effects are noxious sees its way to promote such a bill and to enlist in its support the medical members of Parliament, it will certainly earn the gratitude of many millions of sufferers from the nuisance of speed and noise. This evil is so acute, so diverse and so widespread that nothing short of an Act of Parliament seems likely to abate it. As Canon Spooner has well said, it is a revolution, not a mere change of fashion, through which we are passing.

THE PROBLEM OF MOUNT EVEREST

THE news that an eminent British physiologist has, this summer blazed a new and unsuspected trail to the summit of Mont Blanc reminds us that mountaineering is, historically, a pursuit of scientific men. In the eighteenth and nineteenth centuries mountain climbing was undertaken almost exclusively by men whose interest was to observe the effects upon themselves of exposure to low barometric pressures. Within more recent years climbing has become a sport attracting men of divers callings, but such names as Hingston, Wollaston, Longstaff and Somervell remind us that there are still to be found medical men fit and ready to share in the most hazardous expeditions to high altitudes.

These names, and with them the epic stories of those supreme adventures in mountaineering the several Everest expeditions are brought to mind by

a recent contribution to the *Lancet* on the physiological 'Problem of Mount Everest,' by Dr Argall Campbell. By general consent, the physiological limitation to the attainment of great height resides in the limit of man's adaptability to environments of abnormally low partial pressures of oxygen. At the top of Mount Everest the tension of oxygen is only about 7.5 per cent of an atmosphere, being but a third of that at sea level. What are the physiological effects of low tensions of oxygen? To answer this question the physiologist has taken his laboratory to the mountain. He has also sought to bring the mountain into his laboratory. Closed chambers have been devised in which the subject of experiment is placed and in which the composition of the atmosphere may be controlled at will. Here may be studied the physiological and psychological effects of exposure to any desired oxygen tension under all manner of conditions of rest and activity. Many such studies have been made on man, and this 'armchair mountaineering' has not been without its thrills. But the simulation of such extremes of atmosphere as those obtaining at the summit of Everest are not feasible with man, and Dr Campbell's observations on animals are of special interest on this account. He has made prolonged studies of the effects upon a variety of animals—mice, rats, rabbits, guinea pigs, cats and a monkey—of lengthy sojourn in the decompression chamber. The animals were subjected to a gradual reduction of oxygen tension spreading over several weeks until a partial pressure of 7.5 per cent of an atmosphere was attained. The rabbits, rats, and mice alone survived, and even amongst these groups there were casualties. The most notable pathological change observed was an extreme congestion of the liver and parts of the heart and lungs. This congestion must be attributed to failure in the forward movement of the blood for which the heart is held primarily responsible, though failure of the vasomotor nervous centres or other factors controlling capillary dilatation may be contributory. Dr Campbell concludes that the ability to withstand low tensions of oxygen is conditioned by the ability of the heart muscle to maintain an efficient circulation under the abnormal conditions.

What then is the contribution of these experiments to the problem of Mount Everest? In the first place it is argued that the permanent effects of high altitudes are gradually established as the result of prolonged exposure to lack of oxygen. It therefore seems plausible that the daily inhalation of oxygen for several hours when at the base camps would be preferable to the policy of reserving the oxygen supply for use during the actual climbing at greater heights. It is further suggested that daily subjection to low tensions of oxygen in the decompression chamber might prove to be of valuable assistance in the selection and training of suitable climbers.

The experimental animals of Dr Campbell were not required to undertake arduous exercise, and were not subjected to low temperatures, snow, ice, and chilling winds. Is it to be wondered at that his results give the author no confident grounds for the faith that man will conquer Everest and return? Yet such is the heart of man that we doubt if he will take 'No' for an answer. Indeed, when we recall how near—how tragically near—to success were Irvine and Mallory and how Norton and Somervell reached 28,000 feet and came back, it is difficult to believe that the little more is beyond human reach.

DIPHTHERIA IMMUNIZATION THE QUEENSLAND
FATALITIES

THE chief interest of the report of the Royal Commission which inquired into the Queensland fatalities relates to the finding—after the definite exclusion of diphtherial toxæmia—that the deaths were caused by staphylococci with which the toxin antitoxin prophylactic mixture had been contaminated and which had grown freely in the absence of any antiseptic. The Commission, after calling attention to the absence of *post mortem* and clinical data essential to a full understanding of what happened, critically weighs the evidence available and, though fully realizing that the verdict may cause "surprise and possible controversy," concludes that it could not avoid deciding that the aureus-like staphylococci found in pure culture in the inoculated bottle and in the abscesses of the survivors caused the deaths. The Commission has ably and fully set out the evidence for and against the conclusion which as a body of experienced pathologists, it was at first reluctant to accept. Staphylococci are not generally recognized as liable to cause death within twenty-four hours of inoculation into human beings but we must admit with the Commissioners that "there is not, within our knowledge any previous experience of the results of the subcutaneous injection of large numbers of living staphylococci into young children." They examined the literature and point out that general staphylococcal infections are rarely fatal in less than forty-eight hours, yet in the records of one Brisbane hospital were found three instances of staphylococcal osteomyelitis in children, aged from 2 to 11 years, with death within approximately twenty-four hours. The toxin made by the 'Bundaberg staphylococci' in culture produced skin reactions in some human volunteers in a dilution of 1 in 2,000. There is only one small point in which we have been unable to follow the evidence. The Commission found it "inconceivable that sufficient staphylococcal toxin could be produced *in vitro* in the toxin antitoxin mixture to account for the symptoms," and thinks that the toxin must have been rapidly formed in the tissues of the children injected. We are not quite clear why the possibility of the formation *in vitro* of a staphylococcal toxin lethal to human beings, though not to laboratory animals, was excluded by the Commission. Whatever be the truth on this point, it is fortunate that *Staphylococcus aureus* is readily killed by the usual $\frac{1}{2}$ per cent of phenolic antiseptic contained in vaccines, antitoxins, and prophylactic mixtures issued in most parts of the world. It is worthy of remark that of thirty-two rubber-capped bottles distributed from the same batch of prophylactic as that used in Bundaberg to medical men and recovered by the Commission, 30 per cent were contaminated. Some of the contaminations were considered as "doubtless referable to faulty technique."

SOCIAL PROGRESS IN BERMONDSEY

DR R KING BROWN, who is shortly retiring from the post of medical officer of health for the borough of Bermondsey, has incorporated in his annual report for 1927—the last he will submit—an interesting outline of the growth of the public health department and of the changes noticeable in the social life of the community since he entered the service of the borough in February, 1901. Bermondsey, despite the fact that it touches upon the central area of London, is probably little more than a name to most Londoners, and merely a name to others, but, as Dr King Brown points out, many of the changes which he recalls are the local expressions of national changes. His survey, therefore has a certain general interest, it brings into perspective within a definite area twenty-seven years of social development which has been largely characterized by increasing attention

to public health. When he assumed office the metropolitan boroughs had just been constituted to replace the pre-existing confusion of archaic local government units which traced their descent from ecclesiastical parishes. The borough of Bermondsey succeeded to the territories of the Bermondsey Vestry, the Rotherhithe Vestry, and the St Olave's Board of Works, the three units forming an area with an extensive river front lined with wharves, docks and warehouses, and a hinterland of crowded streets with many factories and workshops. At that time the population of the borough was 130,760 last year it was estimated at 121,000. The reduction has been due, he explains, to the clearance of certain areas for improvements, the replacement of houses by factories, the reduction of population through a decrease in births, and migration to the suburbs—all these being changes characteristic of urban England since the beginning of this century. Both the death rate and the birth rate have fallen by almost half—the death rate from 20.8 in 1901 to 12.9 last year, and the birth rate from 34.2 per 1,000 of population in 1901 to 18.5 last year. The report suggests that the decline in infantile mortality is closely connected with the fall in the birth rate and the consequent reduction in the size of families, another important factor being the education of the mothers—in a general way and also through the agency of the municipal authorities and voluntary bodies. There has been a satisfactory fall in the incidence of infectious diseases as a whole, enteric fever, as elsewhere in Great Britain, has practically disappeared. Dr King Brown considers that the most interesting changes during the period of his office in Bermondsey have been in the general condition of the inhabitants, especially the working classes, and in the public health department itself. He is impressed by the fact that babies and children are much more sensibly clothed, and thinks that this applies also to adults, especially to women. They are, further much "better dressed," and this he attributes to higher wages, smaller families, and the spread of knowledge, especially that relating to health. There has also been a great improvement in the cleanliness, ventilation, and general appearance of the homes. The sobriety of the general population has considerably increased, and here again education seems to the observer to have played the chief part. In tracing the evolution of the health department Dr King Brown explains that before his appointment as the first full-time medical officer for the borough the staff consisted of a part-time medical officer, a chief sanitary inspector, eight district inspectors, and three clerks. There are now five full-time medical officers (two being employed in connexion with the tuberculosis dispensary and two engaged in maternity and child welfare work), a full-time dental surgeon with a part-time assistant, an inspectorate of fourteen, a staff of eight health visitors, nurses and other assistants for dispensary and dental work, and a numerous staff of clerks, etc. The tuberculosis dispensary and the dental clinic both began as voluntary activities, and were taken over by the municipality after the war, their work has in each case expanded considerably since then. In connexion with the treatment of tuberculosis the Bermondsey Council has, since July, 1924 reserved six beds at Dr Rollier's centre at Leysin, while in 1925 light treatment was introduced experimentally at the tuberculosis dispensary, and a specially constructed solarium—one of the first under municipal auspices in England—was opened in 1926. The most recent development has been the inauguration of a systematic health propaganda campaign: this work has been carried out by lectures and the circulation of printed matter, and, more recently by the use of cinema films prepared by the department itself. Dr King Brown notes that the great interest in public health work which has made possible rapid progress in recent years dates from the war, and here, once more, the experience of Bermondsey represents that of the

country as a whole. His survey, based upon observations made over the greater part of his professional life, may, with its record of definite advance, hearten some of those who, being in too intimate contact with the public health system to stand back and see things in perspective, seem "no painful inch to gain."

A JAPANESE REPORT ON SANOCRYSYN

It is a significant fact that in spite of the introduction during the past few years of two or three different chemotherapeutic agents by highly capable investigators, it is the surgical measures of treating pulmonary tuberculosis that are coming more and more into favour. Each year sees an increase in the number of workers who adopt the methods of artificial pneumothorax, thoracoplasty, and pleurectomy for the treatment of the more severe cases of tuberculosis, and a decrease in the number of those who pin their faith to the therapeutic action of drugs. The report¹ just issued by the Sanocrysin Research Committee of Japan does not seem likely to alter this position. After an intensive series of experiments on the action of sanocrysin on the tubercle bacillus *in vitro* and *in vivo*, after a carefully planned series of therapeutic experiments on rats, guinea pigs, rabbits, and calves, and after separate tests on two groups of patients, each lasting about a year, the most they can say in its favour is that it may be regarded as a stimulant in the stationary proliferative type of pulmonary tuberculosis. On the contrary side can be set a long list of grievances. It was found, for example, that it caused but little structural alteration in tubercle bacilli, and that it did not deprive them of their acid fast properties. Its germicidal action was extremely low, even contact for two hours at 40° C with a 1 per cent solution followed by twenty hours at room temperature failed to destroy the bacilli or to render them avirulent to guinea-pigs. No evidence was obtained that it had any lytic action on the bacilli in the animal body or in cultures in the test tube when employed in a 1 per cent solution. Therapeutic experiments with rats and rabbits infected with tuberculosis gave entirely negative results, even though strains of low virulence alone were used, with guinea-pigs there was evidence that the lesions were slightly less extensive than in the controls, but it was doubtful whether this difference could be regarded as significant. Experiments on calves completely failed to disclose any therapeutic action, many animals, in fact, were made very much worse by treatment. The tests on tuberculous patients were similarly disappointing. In the first series of 49 patients who were selected as specially suitable for treatment, only 8 were improved after a year, 9 were stationary, 11 had become worse, 14 were dead, and 7 were lost sight of after discharge. In the second series of 39 selected patients, 15 were improved after a year, 7 were stationary, 11 were worse, and 6 were dead. These figures are necessarily rough, but they indicate clearly enough that no obvious beneficial effect resulted. It is especially significant in this second series that of the 15 "improved" patients two alone ceased to have tubercle bacilli in the sputum. Experiments on Moellgaard's immune serum failed to substantiate the claims made for it by its discoverer. Its agglutinating and precipitating powers were low, its opsonic action was negligible, it had no antituberculin effect and it did not counteract the intoxication following on the injection of sanocrysin. For this reason it was not deemed of sufficient value to use on human patients. Altogether the report of the Japanese workers merely confirms the opinion that the majority of clinicians in this country have adopted—namely, that sanocrysin is not a specific agent in the cure of tuberculosis, that it does not directly destroy the

tubercle bacillus, but that it may perhaps be useful on occasion for stimulating cures of a stationary type which do not respond to the usual sanatorium treatment. On the other hand, it is an intensely toxic substance, and unless used with great care it may cause serious damage to the patient's tissues. Cases with laryngeal and intestinal tuberculosis were found to be especially unsuitable for treatment.

GIUSEPPE FLAJANI

In an article published some months ago Dr Francesco Rampini of Anconaro¹ gave an account of his fellow townsman Giuseppe Flajani, whose name, like that of Graves in this country and of Basedow in France and Germany, is always associated in Italy with exophthalmic goitre. Flajani was born at Anconaro on July 4th, 1739, and, after studies in literature and philosophy at Ascoli, went to Rome in 1758, where he qualified as a physician and surgeon in 1761. Following his natural taste for anatomy, he established an anatomical museum for the use of students in the Ospedale di San Spirito, where he was appointed a surgeon in 1769. Three years later he was elected senior surgeon to the hospital and lecturer on surgical operations, as well as director of the museum to which he added many new specimens, especially vesical calculi which he had removed himself. His reputation now began to spread over Europe, and he was elected a member of the Academies of Naples, Florence, Bologna, Genoa, Sicca, Lucca, Vienna, Mannheim, and Göttingen. Like his contemporary Richard Mead, he collected a valuable library, which contained not only medical and surgical works, but was also rich in literary treasures, rare editions, and valuable manuscripts. In 1777 he published an Italian translation of Pereval Pott's new method of treating dislocations and fractures, with a preface by Francesco Petraglia. In 1786 appeared his work on a new method of dealing with certain surgical diseases—namely, aneurysms of the lower limbs, especially of the popliteal artery, fractures of the clavicle and patella, and the external use of camphor in wounds. In 1798 he began the publication of his collection of surgical observations and reflections, which continued to appear until 1803, and contained, among other subjects, his description of the disease known in Italy as "morbo di Flajani," thus antedating Graves by at least thirty-two years and Basedow by thirty-seven years. In the last year of his life Flajani founded the *Giornale Medico di Roma*, which was continued after his death in 1813, and contained a description of contemporary medical and surgical activities and the scientific development of the Roman school. On this account Flajani may be regarded as one of the pioneers of Italian medical journalism. His posthumous works included one on lithotomy and another on the French disease, which he maintained was not brought over from America, but originated in Europe. His memory is kept alive in his birthplace by his name having been given to one of the streets of Anconaro.

INHALATION ANAESTHESIA

THE furious controversy which at one time raged over the claims of rival discoverers of the use of ether for dental and surgical operations has been dead for some time, but it had a very lingering death. This country had but little concern in that dispute for all the claimants of the honour of introducing ether anaesthesia—Morton, Jackson, and Long—were citizens of the United States, as was Wells, who first used nitrous oxide in dentistry. In our columns on September 10th 1927 (p. 471), Prebendary F. Wayland Joyce recalled the claim of H. H. Hickman to be considered

¹ The Report on Sanocrysin (Moellgaard) Investigation. The Sanocrysin Research Committee of Japan. (Hongo Tokyo, Kyorinsha Printing Company, 1927. (74 x 101) pp. 73. 7 plates.)

² *Bollettino dell'Istituto Storico Italiano dell'arte sanitaria* Nov. 1927, December 1927.

a pioneer in inhalation anaesthesia, which Mr C J S Thompson had previously advanced in the *Journal* of April 13th, 1912 (p 843). In a letter which he has recently addressed to us Prebendary Jayco appeals to us "to do justice in this matter," and to secure for Hickman the credit due to him as the true pioneer in the nineteenth century in anaesthesia by inhalation. As has been already stated in our columns and elsewhere, to Hickman undoubtedly belongs the honour of being the first to experiment with the idea of producing unconsciousness in that way, but the gas used by him in his experiments on animals was carbon dioxide, with which, as we can surely now state a safe and sufficiently deep state of anaesthesia could not be produced. Had Hickman pushed his investigations further, and attempted to render human subjects insensible to pain by such means, it is highly probable that fatalities would have ensued, which would have discredited the method and might even have discouraged subsequent experimenters from attempts to produce anaesthesia by means of ether gases or vapours. It is regrettable that Hickman did not recognize the value of nitrous oxide, with which, as well as carbon dioxide, he experimented. Sir Humphry Davy had long before introduced this gas, and many people had safely inhaled it when diluted with air, but its exhilarating effects when so used masked its possibilities as a true anaesthetic. Discouraged by his ill-success, Hickman seems to have given up his investigations, and ill health and his death at the age of 26 cut off all hope of his making a second start on what might have proved to be a most promising line of research. His tombstone in Bromfield churchyard, Shropshire, has fallen into decay, and we understand that the Section of Anaesthetics of the Royal Society of Medicine is forming a committee to raise funds for its restoration.

LORD HALDANE.

THE death of Viscount Haldane, O M, F R S, will recall to some of our readers that this distinguished statesman, lawyer, and philosopher was a nephew of Sir John Burdon-Sanderson, M.D, F R S, Regius Professor of Medicine at Oxford from 1895 to 1905, and eminent alike as experimental physiologist and pathologist, and a brother of Dr J S Haldane, F R S, of Oxford, many of whose addresses on the physiology of respiration and other subjects have appeared in these pages. Lord Haldane's personal claim to remembrance by our profession rests on his work as Secretary of State for War between 1906 and 1912. In the words of Sir Alfred Keogh, he was one of the two statesmen in latter days (that is, since Lord Herbert of Lea left the War Office in 1860) who understood the Army Medical Department. The Territorial Service set up by Lord Haldane enabled the officers of the R A M C to come into organic union with their brethren of the civilian profession before the outbreak of war.

THE EDUCATIONAL NUMBER 1928

Our next issue, dated September 1st will be the annual Educational Number of the *British Medical Journal*. The familiar sections, giving an outline of the requirements of the General Medical Council and of the universities and other licensing bodies in Great Britain and Ireland, have been brought up to date, and the information showing the opportunities offered by the various medical schools and other teaching institutions has been corrected by the authorities concerned. These sections the object of which is to furnish a handy guide to intending students of medicine, are supplemented by articles of special interest to newly qualified practitioners on such matters as post-graduation study, the public health services, tropical medicine, psychological medicine, and dental surgery. A new article on

women in medicine to-day has been specially contributed, and the editorial notes on some aspects of professional study and practice have been revised and amplified. In the sections dealing with the public services will be found a concise account of the present terms and conditions of service in the R N M S, the R A M C, and the R A F M S, which the Representative Body of the British Medical Association has decided are satisfactory and such as can be commended to the notice of the younger members of our profession. Particulars are also given of the terms laid down for the I M S under the scheme of reorganization. The opening articles for this year's Educational Number have been written by Professor J A Nixon on "The Art and Science of Medicine in Relation to Professional Training," and by Dr R D Gillespie on "The Art of Study: Its Principles and their Application."

MEDICAL SOCIETY OF LONDON

THE next session of the Medical Society of London will open on October 8th, when the annual general meeting will be held at 8 p.m. and Dr J W Carr will deliver his presidential address on medical ambitions and ideals, at 8.30. At the meeting on October 22nd Dr C L Lakin and Mr A Tudor Edwards will open a discussion on the diagnosis and treatment of empyema. On November 12th a discussion on the medico-legal aspects of fractures will be introduced by Professor E Hey Groves and Dr James Neal. A clinical evening will be held on November 26th, and on December 10th Dr Wilfred Harris, Mr P J Verrall, and Dr James Brailsford will introduce a discussion on sacro-iliac pain. The Lettsomian Lectures, on dermatology in relation to other branches of medicine, will be delivered by Dr H W Barber on February 18th and 27th and March 6th, 1929. The annual oration will be given by Professor G Grey Turner, who has chosen cancer of the colon as his subject.

THE HALF YEARLY INDEXES

THE usual half-yearly indexes to the *Journal* and to the *Supplement* and *Epitome* have been prepared and will be ready shortly, they will, however, not be issued with all copies of the *Journal*, but only to those readers who ask for them. Any member or subscriber who desires to have one or all of the indexes can obtain what he wants, post free, by sending a post-card notifying his desire to the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W C 1. Those wishing to receive the indexes regularly as published should intimate this desire.

At the annual general meeting of the Royal Medical Psychological Association held last month at Wakefield a memorandum was received from the Parliamentary Committee of the Association on the Report of the Royal Commission on Lunacy and Mental Disorder. This memorandum was approved by the Council in July, and is now published as a supplement to the *Journal of Mental Science* by Messrs Adlard and Son, 21, Hart Street, W C 1, at the price of 1s.

APPLICATIONS for the Radcliffe Crocker Travelling Scholarship in Dermatology must be submitted to the committee of University College Hospital Medical School by September 30th. As announced in our advertisement pages this week, the scholarship is of the approximate value of £280, tenable for twelve months, to be spent at some place of study named by the School Committee, outside the United Kingdom. Further particulars can be obtained on application to the Dean of the School.

IMPORTED SURGICAL INSTRUMENTS

PROPOSED ORDER UNDER THE MERCHANDISE
MARKS ACT

The Standing Committee under the Merchandise Marks Acts, 1826, has recommended that an indication of origin should be borne at the time of sale or exposure for sale in the United Kingdom by imported goods of the following classes—surgical, medical, dental, and veterinary instruments and appliances, aseptic hospital and dental furniture, and dental supplies.

The report of the Committee, which is addressed to the President of the Board of Trade, states that the inquiry dealt with two references arising from applications for marking orders from the Surgical Instrument Manufacturers Association Incorporated and the Association of Dental Manufacturers and Traders of the United Kingdom—these were considered jointly at the request of the applicants. A group of between thirty and forty importers and dealers opposed the grant of a marking order. Eleven witnesses were heard at the inquiry on March 19th and 20th, a reference to which appeared in the *Journal* on March 31st (p. 581), and the members of the Committee conferred with representatives of the medical profession (Mr H. S. Souttar and Dr R. Wallace Henry, nominated at the Committee's request by the British Medical Association) and with officers of the Board of Customs.

The applicants stated that, in the absence of a mark of origin on imported goods of the descriptions affected, a purchaser would not know that he was buying imported material, and suggested that this confusion was increased by certain practices—such as the marking of goods in English, their description by English names in catalogues, importers representing themselves to be manufacturers, and sellers dealing in both British and imported goods. They asked that goods should bear an indication of origin, not only at the time of sale or exposure for sale, but also at the time of importation, and that wherever practicable a permanent mark should be required on imported goods.

The importers, on the other hand, stated that they were not concerned with dental instruments and the other dental goods included in the application and maintained that for the remaining goods a marking order was unnecessary. It was argued that the usual purchasers—surgeons, general practitioners, or hospital authorities—knew whether the goods were British or imported, and that a purchaser could easily distinguish between the two by the fact that British-made goods were generally marked, and by the difference in price. The importers contended, moreover, that nothing should be done to restrict the supply of essential instruments and maintained that the British manufacturers could not meet the whole of the trade demand. Objection was taken to an importation marking order on the ground that it would lead to serious delays at the Customs, while it was alleged that permanent marking would amount to a prohibition of importation since no medical practitioner would use instruments permanently marked with an indication of their foreign origin.

The Committee's Conclusions

The Committee concluded that in the absence of a mark of origin on the imported goods there is a reasonable possibility that purchasers may be misled as to their origin, especially having regard to certain catalogues which were brought to our notice at the inquiry. It is not prepared to recommend that any class of these goods should bear an indication of origin at the time of importation, mainly because of the administrative difficulty which would arise in connexion with the Customs and also because of the danger of injury to delicate instruments at examination. It also desired to avoid needless interference with the re-export trade. The Committee did not consider it necessary to require specifically that the goods should bear a mark of origin when exposed for sale by a wholesale dealer. A permanent mark is not regarded as essential to give the necessary information to the purchaser at the time of sale or exposure for sale; it is suggested that an indication on a label securely attached to the goods should be sufficient. It is pointed out that any permanent mark must be applied before importation, inasmuch as the marking of steel goods of these categories except at the time of manufacture would

not only involve injury to the goods, but would increase the difficulty of sterilization, and that the alternative of etching would not be practicable in the case of plated goods. Little evidence was placed before the members of the Committee in regard to parts of instruments, and it did not consider that the Order should apply to them.

Both parties agreed that large stocks of these goods were held, and that some of them were disposed of very slowly, but in view of the elastic nature of the methods of marking proposed, the Committee suggested that the proposed Order in Council should come into force three months after it was made. An annex to the report, giving the full recommendations regarding the classes of goods covered by the proposed Order in Council and the methods of marking to be employed, reads as follows:

Recommendations as to Marking

1. The following classes and descriptions of imported goods shall bear an indication of origin at the time of sale or exposure for sale in the United Kingdom—namely:

(a) Surgical, medical, dental, and veterinary instruments made wholly or mainly of metal.

(b) Surgical, medical, dental and veterinary appliances of all descriptions not including artificial eyes.

(c) Aseptic hospital furniture made wholly or mainly of metal including operation and examination tables and chairs, instrument and dressing tables, ward lockers, instrument and dressing cabinets, sterilizers for instrument dressings and bowls.

(d) The following classes of dentists' supplies: Artificial teeth, absorbent wool rolls and pellets, abrasive points, strips and discs, dental rubber, rubber dam, gutta percha, temporary stopping, dental wax of all descriptions, impression compound of all descriptions, dental cements and amalgams, and foil, crowns, discs, solder, cylinders, plate and wire of gold, platinum, and other precious metal.

(e) Dental furniture including dental chairs as well as bases, bodies and headrests therefor, instrument tables, lockers, dental cabinets and dental cuspidors.

2. The indication of origin shall at the option of the person by whom it is applied be given as follows:

(a) die-marked, etched, or otherwise impressed on the article itself; or

(b) printed or stamped on a label securely affixed or attached to the article; or

(c) in cases in which the article is habitually sold or exposed for sale in a case or other container or fixed on a card, printed, stamped or impressed on the case, container, or card.

CONTROL OF DANGEROUS DRUGS

HOME OFFICE ANNOUNCEMENTS

IMPORTANT changes in the regulations governing the traffic in dangerous drugs are announced in two official communiques issued by the Home Office on August 17th. The first relates to the extension of the control exercised under the Dangerous Drugs Act, 1920, to cover certain morphine derivatives and other drugs, and the second to the coming into operation of the Dangerous Drugs Act 1925. This new measure gives effect to the International Opium Convention of 1925, which comes into force in September, and which was discussed in the *Journal* of July 21st (p. 117). The Home Office communiques are as follows:

Extension of Control

The Home Secretary wishes to draw attention to the fact that by Order in Council, made under Section 8 (2) of the Dangerous Drugs Act, 1920, Part III of that Act, which provides for the control of morphine, heroin and cocaine, has been applied to the following drugs: benzoyl-morphine, dihydro-oxycodone, dihydro-codeinone, and their respective salts, and to any preparation, admixture, and extract containing them. Benzoyl-morphine is an ester of morphine which, because it is not subject to the International Opium Convention and because morphine can be easily recovered from it, has been manufactured recently in large quantities on the Continent for export to the Far East. The League of Nations has recommended that its manufacture, sale, etc. should be controlled in the same way as morphine. Dihydro-oxycodone and dihydro-codeinone are produced as pharmaceutical products usually in the form of salts by certain German firms under the trade names of 'Ludodal' ('Lukodal') and 'Dicedido' respectively. The League has reported that these drugs

¹ Cmd. 3148. London: H.M. Stationery Office or through any book-seller. 1934. 2d. net.

possess similar narcotic properties to those of morphine, and recommended the application of the same system of control. None of these drugs is manufactured, so far as is known, in Great Britain.

International Opium Convention, 1925

The Home Secretary gives notice that the Dangerous Drugs Act, 1925, which was passed to give effect to the International Opium Convention of 1925, will come into operation on September 25th next, the date on which the Convention comes into force. The chief alterations made by the new Act will be the extension of control to Indian hemp and the resin obtained from it (hashish) and any extract or tincture of Indian hemp, and to preparations containing less than 1/10 per cent of diacetyl-morphine (heroin), which up to now have been exempted. After September 25th a licence will be required for importing or exporting any of these drugs. The Dangerous Drugs Act, 1925, will modify the definition of medicinal opium for the purposes of the Dangerous Drugs Acts. It will mean in future raw opium which has undergone the processes necessary to adapt it for medicinal use in accordance with the requirements of the *British Pharmacopoeia*, whether it is in the form of powder or is in any other form, and whether it is or is not mixed with neutral substances.

EDUCATIONAL ADVANCE AND THE MIXED SCHOOL

If it be the duty of the family physician to advise as to the upbringing of children, it is clearly necessary for him to have a real acquaintance with the educational system of the country and a knowledge of the main problems with which teachers and education administrators are concerned. This becomes the more urgent in so far as the practitioner of medicine realizes that his business must necessarily lie not merely with physical conditions, but with mental and other aspects of the human individual, and not merely with the cure, or even avoidance, of ill health, but with the more complete development of what bodily or mental powers the whole personality possesses. Health and education are thus seen to be but two aspects of the same subject. Recent proposals for the radical modification of educational organization in England and Wales should, therefore, be of great interest to the medical profession as to others.

In the *Journal* of January 15th, 1927, we gave considerable attention to the report, then just published, of the Consultative Committee of the Board of Education on the "Education of the Adolescent," both in a special article (p. 114) and a leading article (p. 107). In spite of the fact that the main proposals of that report were welcomed almost unanimously by education authorities, administrators, and teachers alike, the President of the Board of Education immediately issued a pronouncement that he did not propose to adopt the most important and urgent of these proposals, and he has since done but little to encourage the adoption of any of them. The Board of Education has now, however, issued a pamphlet entitled *The New Prospect in Education*,¹ in the hope that it may assist towards the solution of problems of organization in connexion with the provision of proper educational facilities for older children on the lines suggested in the Consultative Committee's report. Along with this may well be considered an excellent presentation of the case for the co-education of boys and girls just published by the University of London Press under the title of *The Mixed School*,² by Mr. B. A. Howard. The problems have obviously a close connexion.

The provision considered in the Board of Education pamphlet is that which would be needed constitutionally upon the adoption of the Consultative Committee's recom-

mendation that there should be secured for all pupils (not merely a selected number as now) a break at the age of 11 years, or just over, and a fresh start at that age on a definitely new stage of education in schools of varied types. Although recognizing that this has become the "generally accepted basis of all reorganization proposals" the pamphlet contains plenty of evidence of the continuance of what was described in our previous article as "the present discouraging temper and restrictive policy of the Board of Education." It emphasizes to an almost depressing degree what has come to be called "the inevitability of gradualness," in spite of the fact that local education authorities are as an organized body almost clamouring for central action to be taken in order to avoid the disadvantages inherent in action taken by individual areas. It stresses over and over again, and in our opinion unduly, the recognized difficulties which have to be overcome and which are very real in some areas. It almost ignores, or even actually obstructs, the two prerequisites of the proposed post-primary schools if they are to be successful—a four years' course to the age of 15 years, and smaller classes. The need for both these was stated by the Consultative Committee, which urged that the former should be enacted so as to take effect in the year 1932. The Board postpones the raising of the school age indefinitely, and states as the "reasonable provision" for a senior school of 400-440 pupils, 6 classes of 40 each and 2 classes of more than 40, with none below that number! However, it seems likely, if the present attitude of the Board of Education be maintained, that the large and progressive authorities, whether county or urban, will be in advance of the Board, and that, if the Board will allow them they will have established in their areas within the next eight years a system by which all children (except a relatively small number who may be exempted in their last year) will be educated in a junior school till the age of 11 (or in an infant school from 5 to 8 years and a junior school from 8 to 11) and in a senior school (of one type or another) till 15 years of age, and that an increasing number of such children will voluntarily stay on in school for one, two, or three years more. Not only will these senior schools be of varied types as a whole (the present "secondary," "central" and "junior technical" schools are such types), but within themselves they will offer in their later years alternative courses to individual pupils.

It is evident that in such a scheme all the children up to the age of 11 years, or a little over this age, would be educated in mixed school. The interesting question arises as to whether, or how far, it is desirable that boys and girls beyond that age should be placed in separate schools, or whether the co-education of the sexes should continue. In a circular issued more than three years ago the Board of Education stated that it was strongly in favour of separate departments for senior boys and senior girls. One would have thought that it might now be less dogmatic, but it still states that "there is no reason to depart from this view, but in less populous areas it may be necessary to establish mixed schools in order to assemble enough children to form a separate senior school of reasonable size." The Board thus regards the mixed school merely as a disagreeable economic necessity. It is not quite evident why it should do so. A large number of expert and practical educationists and a considerable number of education authorities do not agree with this view. In America and in all the Scandinavian countries co-education is throughout the normal method. In this country the first-class boarding schools of the Society of Friends have been of this character for a hundred and twenty years and more recent two outstanding privately owned schools coming within the rank of what are called public schools, have been deliberately established on this principle. Bedales School, near Petersfield, founded in 1893 and St. George's School at Harpenden, founded in 1907. Speaking only a few weeks ago at the coming of age celebration at the latter school the Duchess of Atholl Parliamentary Secretary to the Board of Education more open-minded than her department, said that "of all experiments none was more interesting or fruitful with greater possibilities for the welfare of the country than the experiment of co-education, it seemed unquestionable

¹ *The New Prospect in Education*. Board of Education Educational Pamphlets, No. 60. London: H.M. Stationery Office, 1928. Price 6d net.
² *The Mixed School*. By B. A. Howard, M.A., Head Master, Adley and Stanhope Schools, London. University of London Press, Ltd., 1928. (Post 6ro pp. 238. 6s. net.)

that if boys and girls had grown up together, worked together, and played together, they should be able to enter on life with a knowledge of the mentality and habits of their sexes which should be a very valuable guide to them."

Some of the foremost local authorities in the realm of higher education have deliberately adopted the policy of encouraging the provision of mixed secondary day schools. The county council of Middlesex is an example. Of the secondary schools for which that council is responsible twelve are for boys only, nine for girls only, and seventeen are mixed. It is interesting, possibly instructive, to note that in these schools, judged by examination results, the boys in the mixed schools do better than those in the boys' schools, and the girls in the mixed schools better than those in the girls' schools. The arguments, of course, are not all on one side, nor is any class of school without its imperfections and disadvantages.

We could not desire a more reasonable statement of the problem or of the case for co-education, than Mr Howard gives in his book on *The Mixed School*. It is clear and comprehensive in presentation and argument, interesting in style, moderate and fair in tone and has on almost every page an acceptable touch of wit and the right sort of humour. Mr Howard deals with the question from the point of view of history, of morals, of society, of pedagogy. He then considers certain special difficulties to which co-education may give rise, and some of the specific objections which are raised against it. He rightly emphasizes the fact that many of the difficulties and objections or all kinds are really common to schools of all types and not peculiar to mixed schools, and that co-education does not necessarily mean identical education. The physical differences between the sexes necessitate that for games and physical exercises there must be separation of boys and girls in the gym, and a mixed school should offer to individual pupils an even greater variety of choice in scholastic and manual work than is available in an ordinary school. It is claimed that the mixed school is not only theoretically the more desirable, but that in practice, given proper staffing and management, its difficulties disappear and its advantages become more and more evident.

Ireland.

Public Health Congress in Dublin

THE annual congress of the Royal Institute of Public Health which opened in the Mansion House, Dublin on August 15th was attended by approximately three hundred delegates, representative of Great Britain, Ireland, the United States, America, France, Switzerland, India, the British Dominions, and other countries. The delegates were cordially welcomed on behalf of the city of Dublin by Mr Commissioner Murphy, the Reverend Dr Westropp Roberts, Vice-Provost of Trinity College, Dr Denis J. Coffey, President of University College, Dr W. A. Winter, President of the Royal College of Physicians of Ireland, Mr T. F. Gordon, President of the Royal College of Surgeons in Ireland, and Dr Edward Magee, President of the Apothecaries' Hall, Dublin. The presidential address was delivered by General R. Mulcahy, Minister for Local Government and Public Health in the Free State. Sir Thomas Oliver, M.D., Vice-Chancellor of the University of Durham and chairman of the council of the Royal Institute of Public Health, said he had great pleasure in asking General Mulcahy to accept the honorary fellowship of the Institute in recognition of his eminent services to public health. The King and the Prince of Wales sent messages wishing success to the congress. The delegates were entertained at a garden party given by the Governor-General, Mr James McNeill, and Mrs McNeill. On Saturday, August 18th, they took part in excursions to Killarney, the international motor race at Belfast, the Shannon engineering works and a visit to the Dublin Corporation Waterworks at Roundwood Co. Wicklow. On the last-named excursion President Cosgrave accompanied the delegates, who were the guests of Dr Myles Keogh, T.D.

Medical Inspection of School Children

A report on the medical inspection of schools, issued by the Free State Ministry of Local Government and Public Health, states that the first local authority to establish a school medical service was the county borough of Cork, in 1924. As a preliminary the school medical officer made a general survey of the physical condition of the children attending the twenty-seven national and other elementary schools coming within the scope of the scheme, in order to obtain a basis of comparison and to gain an insight into the purposes to which further progress might be most usefully directed. The results of this examination were as follows: children examined, 11,286, children tested with Snellen's types, 8,166, suffering from defective teeth, 69.9 per cent, defective eyes, 22.5 per cent, defective nose and throat, 5.8 per cent, minor ailments, 9.4 per cent, malnutrition, 8.0 per cent, in a state of uncleanness, 11.8 per cent. During 1926 the following received treatment: (1) at Eye, Ear, and Throat Hospital and by private practitioners—(a) operation treatment, 103, (b) refraction, 511, (c) glasses prescribed, 503, (2) at Dental Hospital and by own dentist, 1,054, (3) at school clinic—minor ailments, 359, (4) provision of surgical appliances, 3. The only other local authority to adopt a scheme in 1924 was the Clonmel Corporation. In 1926 1,335 children were inspected, 223 of whom received dental treatment. A scheme is now operating in Dublin, and it is hoped to inaugurate schemes in the counties of Cork, Carlow, Kildare, and Offaly this year.

Censorship Proposals in the Free State

The Censorship of Publications Bill, which was read for the first time in the Dail before its adjournment, is in many of its aspects of considerable interest to the medical profession. The bill provides that, in addition to books, periodical publications which are found to be usually or frequently indecent or obscene, or have generally tended to inculcate principles contrary to public morality, will also be banned on advice from the Censorship Board. The importation, sale, or distribution, except under special permit of any banned publication will be punishable by a fine not exceeding £50, or by imprisonment up to six months. A register of prohibited publications will be kept in Dublin and will be open for inspection free of charge. Customs authorities will have power to stop the import of banned publications and the postal authorities will also have power to prevent the post office being used for their distribution. It is proposed to extend the Indecent Advertisements Act (1889) to apply to advertisements relating to sexual diseases or questions, or to drugs, medicines, appliances, treatments, or methods of procuring abortion or miscarriage or of preventing conception. Offences under this part of the Act are to be met by fines not exceeding £25 or imprisonment not exceeding six months. The sale or distribution of indecent pictures is also banned. The police will have power on warrant to search places suspected of keeping such pictures for sale or distribution. Regulations will be made prescribing the manner in which complaints will be made to the Minister and the procedure of the Censorship Board, the officers and servants of which will be appointed at such remuneration as the Minister of Finance may determine. The bill will come up for second reading in the Dail in October.

England and Wales.

University of Liverpool Gynaecological and Obstetrical Department

PROFESSOR BLAIR BELL has republished in monograph form a series of papers contributed to the *Journal of Obstetrics and Gynaecology of the British Empire* on the material and methods of the Gynaecological and Obstetrical Department in the University of Liverpool. In order to set forth the minimum requirement of a clinic of this kind and assist those who may have to organize a new clinic. The ground floor plan of his department, with its lecture

thiatric, museum, laboratories, research and private rooms forming a compact and self-contained unit, will be the only of, and an ideal to be hopefully pursued by, many who have to train future medical practitioners without the "minimum requirements of a complete obstetrical and gynaecological clinic," as therein set out. The classification of the museum specimens and the arrangement of subjects in the lecture course are scientific and sound, and will be of particular interest to teachers. Systematic lectures are clearly made a feature in the Liverpool school, seventy being given for each course, and of these the subject-matter of the first fifty-nine is given, the statement being made that the remainder are devoted to gynaecological operations and procedures as time allows. The allocation of time among the various subjects will not appeal to all, for there appears to be an undue proportion of lectures devoted to gynaecology, considering its lesser importance in practice as compared with obstetrics. While no lecture is specifically devoted to ante-natal supervision or the preventive aspect, this side is doubtless considered throughout the sixteen lectures devoted to the disorders of conception, parturition and the puerperium, the four lectures on obstetric operations, and the lecture on foetal injuries. All the lectures are illustrated by lantern slides, an average of about twenty slides being used for each. Those parts of the monograph in which the arrangement of the out-patient and in-patient departments and operating theatres in the Liverpool Royal Infirmary is described and illustrated will be of interest to more than teachers, and the whole monograph is one on which Professor Blair Bell may be congratulated. He has performed a useful service which might well find imitators among the directors of other departments and in other universities and schools.

Preston Hall Tuberculosis Settlement

An interesting account of the working of an occupational therapy centre for the treatment of consumptives is given in a report on the British Legion Village, Preston Hall, Kent, which has been prepared by the medical director, Dr J B McDougall. This settlement has been devoted to the treatment of ex-service men for over three years, the establishment now consists of the Hall itself, used as the sanatorium, with beds for 66 patients, hut shelters accommodating 48 patients, two hostels providing for 13 and 38 patients respectively, and the "village," with its miniature streets of cottages, its village hall, and various workshops. At the end of March the permanent population of the settlement was 654, there were 131 patients in residence in the sanatorium, and 122 male settlers (ex-patients) in the village, of whom over 100 were married men living with their wives and children. These men, together with a number of the patients, find employment in the industries of the settlement, which comprise the appliances department (producing all kinds of portable buildings, from rabbit hutches to bungalows), the building and joinery department, the manufacture of fibre and leather goods, printing, farm and gardens, stores department, administrative department. Preston Hall is modelled upon the larger and better known Papworth Colony, whose medical director, Dr P C Vairnei-Jones, undertook the reconstruction of the settlement in 1925, and was responsible for its administration until 1927, when Dr McDougall assumed charge. It will be recalled that an account of the Papworth institution was published on June 30th (p 1115). Dr McDougall, in his report, deals in equal detail with the medical and economic aspects of the work, and gives an interesting summary of the financial position of the scheme. The three fundamental principles are described as (1) the treatment and education of the patient suffering from pulmonary tuberculosis, (2) occupational therapy, and (3) adequate after-care for those who have passed successfully through the earlier stages by the provision of permanent employment and residence in the village settlement. Patients at Preston Hall who make satisfactory progress and are judged capable of exercising for four and a half hours each day are drafted into the industries, the reasons for this step being carefully explained, and emphasis being laid upon the fact that the work is equally important from the medical and the economic point of view. Apart from

the possibility it offers of restoring to the patient his economic independence, the exercises afford a means of testing his resistance, medically and economically, to the disease from which he is suffering. The conditions to be satisfied before a patient can become a settler and a permanent member of the community constitute a severe test of his capacity. He must be capable of working for at least thirty-eight hours each week, and must be efficient in the work in which he has been trained while a patient, the industries, further, should be in a position to maintain him and to provide a reasonable wage for his work. In effect, therefore, each settler must be, within the limitations of the scheme, economically sound. In the three years covered by the report, out of 620 patients admitted to the sanatorium suffering from tuberculosis of the lung at all stages of the disease, 91, or 14.2 per cent, have been admitted to the settlement and given permanent employment. It is stated that any lowering of the standard of admission would necessitate the payment of a substantial subsidy for maintenance. A feature of some interest is the surprisingly high number rejected as settlers owing to unsuitability on temperamental grounds. Of 207 patients sent to the industries with a view to graduation as settlers in 1927-28, 68 were found to be inefficient and 66 were regarded as likely to become efficient but were temperamentally unsuitable, or were forced to leave for domestic reasons, or were discharged on disciplinary grounds. Many have been unable to adapt themselves to the requirements of the new environment. The remainder of the 207 patients includes those accepted as settlers, those awaiting admission, and those whose status is not yet decided. Dr McDougall holds that, on a national scale, it would be impossible to make settlement treatment available for more than a percentage of all cases, and he believes that, without a subsidy, it would be difficult to secure generally the progressive expansion in the industries which has been possible at Preston Hall.

We regret to add that since the issue of this report the Preston Hall workshops have suffered considerable damage from an outbreak of fire which occurred on August 14th. According to newspaper accounts over 50 per cent of the settlers will be thrown out of employment. It is to be hoped that it will be possible to reconstruct the damaged workshops and resume operations fully at an early date.

The Hayling Island Mosquito Control Institute

The first annual report of the British Mosquito Control Institute, Hayling Island, provides evidence of the steady growth of a campaign which is likely to be of increasing value in the prevention of malaria. A year ago (August 20th, 1927, p 325) we mentioned briefly how this organization came into being, and the fact that many distinguished parasitologists, including Dr Andrew Balfour, Professor Balfour-Browne, Sir Ronald Ross, Sir William Simpson, and Dr C M Wenyon, are members of the council indicates the importance of the work, of which Mr J I Marshall has acted since the outset as honorary director in a special building erected at his own expense. In addition to being the only organization of this kind which is devoted entirely to mosquito control research, the Institute embodies a mosquito control scheme in actual and continuous operation. Advice relating to prophylaxis and the treatment of infested areas is supplied by correspondence and by visits of experts from the Institute, which frequently result in the inception of active campaigns, including the necessary treatment of mosquito-breeding neighbourhoods. Two-day instructional courses in laboratory and field work are given at the Institute, commencing on the first Tuesday in each month. These courses will be of special interest to sanitary officers, to persons contemplating foreign travel or residence abroad and to those who wish to obtain general knowledge about the subject of mosquito control. Beyond the lectures and laboratory work, practical field work is arranged, including the surveying of an area containing breeding places, the collecting of larvae and mosquitos, and the various methods of applying oil and larvicide to infected water. An illustrated booklet describing these educational courses can be obtained gratis from the secretary of the Institute. Facilities for research work are available, and a reference library is being built.

up In the director's report it is mentioned that lectures on mosquito control have been given in different towns during the year under review, and it will be recalled that the Institute was responsible for an exhibit at the convocation of the Royal Society in May (*Journal*, May 26th, p. 912)

Correspondence.

ESTIMATION OF PUERPERAL MORBIDITY

SIR.—From the very interesting note in last week's *British Medical Journal* (p. 321) the impression might be got that we do not use the "Rotunda" method of estimation of morbidity at the Rotunda Hospital. I revived this method of estimation (which was started by Dr Tweedy and which we always call the "Rotunda" method) when I was appointed master in November, 1926. In addition, I use the British Medical Association standard. The "Rotunda" method is as follows:

A patient is considered morbid if the temperature and pulse concurrently are above 99° F and 90 per minute respectively, on three consecutive occasions from the second day to the day of departure from the hospital.

I have revived this method in order to determine whether the health of the institution can be better estimated thus. A patient is not morbid, according to the British Medical Association standard, if fever occurs only after the eighth day. It is interesting to note that last year the rate by each standard was the same.

It is very important, when making up annual statistics of morbidity, that certain patients should only be considered, and that an estimation should be obtained of the number of women delivered, not admitted.—I am, etc.,

BETHEL SOLOMONS,
Master Rotunda Hospital.

Dublin Aug 18th.

THE GUILLotine AND ETHYL CHLORIDE

SIR.—We should be thankful to Mr Stuart Carruthers (August 11th, p. 273) for his criticism of the theatre administration outlined in Mr Sandiford and Dr Clayton's paper (July 28th, p. 149), and for telling us of the high state of perfection to which he has brought his own. Yet even Mr Carruthers appears to range himself on their side as "the surgeon in a hurry" when he says that he can deal with twenty cases in an hour.

There are many who think that this hurry is wrong. It was Sir William Milligan who first suggested to me that from the moment the patient is put on to the table to that at which he is lifted off again the time should never be less than ten minutes, but in clinics of teaching schools where assistants, both of the medical and nursing profession are always inexperienced learners, it should, in my opinion, be not less than a quarter of an hour.

In this operation tragedies of an irrevocable nature may arise with lightning rapidity. These are best prevented by everything being done decently and in order, without any haste, and with the full attention of all concerned directed upon doing the operation rather than upon getting it over. When they arise immediate action of an appropriate nature is needed, and to do the right thing at the right moment is the harder the higher the pitch at which all are working.

Only to-day has arrived the text of the Registrar-General's statistical review for 1926. In it we learn (p. 109) that the number of deaths has again jumped up by a further 25 per cent to the appalling number of 556 and of these 32 were during operations upon tonsils and/or adenoids (p. 112). Great as must be our sympathy with those of our colleagues to whom these tragedies have occurred yet we cannot deny that these are thirty-two unnecessary deaths. In major abdominal operations a few minutes saved may be a factor in the recovery of the patient and in persons desperately ill every second may be of value, but in the great majority of operations surgery in a hurry is wrong and it is reasonable to suppose that the practice of operating with the eye on the clock, which has been so much to the fore in the last

decade, may be associated with the constant rise in the number of deaths under anaesthesia in the same period. Team work may be an essential part of modern surgery, but if it be designed to get through the work quickly rather than to do it with efficiency and greater safety to the patient, then we are better without it.

I regret the more those parts of Mr Sandiford and Dr Clayton's paper that have been criticized, because in the rest of their paper they have given a good description of the reversed guillotine method of enucleation of the tonsil—though, with Mr Carruthers, I do not like avulsion—and any such description will do good in counteracting the influence of those who say that every tonsil must be dissected out and who repeat the incorrect statement that no tonsil ever was or ever can be enucleated with the guillotine. For many years this school has appeared more often in print than their numbers warrant, and anything that will counterbalance their influence is of value. It is a pity, then, when the effect of such an article is impaired by matters to which objections may be raised—I am, etc.,

Guy's Hospital S.E.1 Aug 13th

T. B. LAYTON

THE CURSE OF NOISE

SIR.—Some twelve or thirteen years ago I published a small book to draw attention to the modern plague of noise and to appeal for its reduction. So much has the plague increased since then that I might as well have spared myself the trouble. All the same, noise makers are not having things all their own way, and the ever-growing irritation of our long suffering community is at last working itself up to the determination that all harassing and unnecessary noise has got to stop. The time is past for invective, no matter how eloquent. What we want is action.

Government departments approached for help murmur sympathy, but confess impotence, they find themselves without power to act. Only Parliament is able to grant that power, for which reason we, as a profession, should certainly give our warmest support to any bill introduced into Parliament to this end.

Difficulties will arise, no doubt, but, as difficulties so often do, they will vanish when confronted with the weapon of common sense. Someone is sure to ask, for example, "How can you give a legal definition of a 'noise'?" The answer to that apparent poser is simple. If a sanitary inspector can distinguish between an inoffensive odour and a smell which is equally a "nuisance," surely it will be quite as easy for him to decide when a sound becomes a "noise," and equally a "nuisance," that is to say, something not only objectionable in itself but also injurious to health.

To deal with what we may call stationary noises then, would seem to be simple enough. But what about the ever-increasing rush and roar of motor traffic, from which we are all of us sufferers and in which we are most of us also transgressors? On the former occasion I ventured to urge the total abolition of the motor horn, a proposal that may seem to be rather too radical, since it would mean that we should have to rely wholly upon the skill and caution of drivers. Yet even here opinion seems to be changing, for quite recently there has been advocated the constitution of "zones of silence" in the domestic parts of our cities wherein no motor horn shall sound—obviously the thin end of a wedge that will lead sooner or later to the silencing of all horns and hooters. In practice, as a matter of fact, it is quite safe to dispense with them, since without his warning hooter a driver is forced to be much more cautious.

The most objectionable type of motor vehicle is, of course, the ponderous lorry that comes thundering along our empty streets at dead of night and not only wakes us up in a panic but even makes the floors and walls of our dwelling-houses quiver and tremble. The passage of such bone-shakers through our dormitory-streets, by night at least should be absolutely prohibited.

Efforts to abolish or minimize public noise as a little consideration will show, will produce, however, some far-reaching effects of commercial importance, so that it is

from the business world that opposition to reform is likely to proceed. On the other hand, what is equally true is that as the solution of the noise problem is in the long run an engineering duty, engineers, faced by the necessity of devising comparatively noiseless machinery, will certainly succeed in doing so. And in the speeding up of this desirable transformation the pressure of an Act of Parliament will undoubtedly exercise a powerful and lasting influence.

There is no need at this time of day to labour the point that the matter is one of the public health, whether the noise be produced in factories, workshops, or streets. That being so, it is fitting and proper that the British Medical Association should charge itself with the drafting and passage of such a bill with as little delay as possible—I am, etc.,

London W 1 Aug 19th.

DAN MCKENZIE

SIR,—May I be allowed to say that Dr Harvey Hilliard's suggestion (August 11th, p. 276) that a bill to suppress unnecessary noise should be promoted in Parliament seems to me a sound one. A similar suggestion is made in a letter in this morning's *Times* by the late Warden of New College. Probably such a bill would find much support in the House of Commons, but its opponents would doubtless detect its weak points and at once point out the difficulty of defining harmful noise and that of the measurement of the quality and quantity of sounds. It may be assumed, however, that all angry passions are harmful to their host always and sometimes to their objects, and the violent disturbance of one's attempt, or slumber, rouse furious rages in many of us. Such sufferings as those described by Mr Arthur Baumann and others in the same paper are unquestionably harmful. I have myself lately escaped from somewhat similar afflictions.

Until a year ago I lived in a street which had become a by-pass for Oxford Street and a direct route from Bayswater to the East and North-East, and vice versa. The heavy lorries and motor cars shoal and shocked us day and night, so much so that a year or so since a neighbour's house front had to be partly rebuilt. At night hurrying cars would utter four or five nerve-wracking hoots at the cross-roads nearly under my windows, and repeat them at each quickly succeeding cross-road till the sounds died away somewhere near the Middlesex Hospital, by which time other cars had taken up the chorus and drowned more distant sounds. But the *bête-noire* to everyone in the house was a certain lorry which passed regularly about midnight, laden with milk cans and with many loose and resonant parts. Its speed was inestimable and it shook the whole house. I can only compare the din to that of a fast goods train on a badly laid track when checked by the engine brakes. It is true that Sunday brought a cessation of the lorry thunder, but it brought an increase of motor hooting at night from cars returning late from devastating excursions to the countryside and hurrying to their homes on the other side of London. Happily I escaped from this inferno of din last summer, and now rejoice in a flat, which *up to this time* is not noisy in the day and is quiet at night. The unfortunate speculator who bought my lease has not yet been able to find a tenant. A deaf family, whom it would suit admirably, does not seem to have come that way.

There are two measures which seem to me practical and possible. These are the entire suppression of all solid tyres and the prohibition of the use of motor horns at night. The forty-mile-an-hour driver appears to think that if he hoots loudly and often enough he need not slow down at cross-roads. If he were not allowed to hoot, he would have to go slower and be more careful. As for the motor cyclist, the process by which he chainmates himself and his friends should be speeded up. The present rate of mortality is too small, for our comfort. Let me end this too long letter on a note of thankfulness. The war did away with the terrible cab whistle and nearly all the hoarse bawling of the latest edition hawker—I am, etc.,

London S W Aug 18th

E. MUIRHEAD LITTLE

TROPICAL AUSTRALIA

SIR,—With reference to the correspondence in your columns on tropical Australia, I know nothing of "the percentage of white Queenslanders who carry out manual labour in the open, under the trying conditions obtaining in the coastal region, who are Italians or of Italian origin," but nearly twenty-five years ago I was in charge of a country hospital at Burketown, situated in the low lying coastal area of the Gulf of Carpentaria, and I do know that practically the whole of the white Queenslanders were of British origin, and that the menfolk who laboured in the open air were of a type that I have not seen surpassed anywhere.

Two facts were impressed on my mind: (1) the necessity for open-air exercise (work) in a hot climate, (2) the unfortunate housing conditions under which the women had to live, most of the so-called houses being constructed of corrugated iron, very hot in summer, and bitterly cold in winter (natural ice in winter I saw quite often). Malaria was still evident, but not the widespread disease I had anticipated. It would be on account of the extensive swamps. I have not the slightest doubt, from what I have seen, that British stock can work and thrive in our northern country, provided they have suitable housing and ample open-air exercise (work), and also provided they take alcohol only in moderation, or preferably not at all—I am, etc.,

Brisbane June 28th

ERNEST CULIN, M.B., Ch.M.

UNSUCCESSFUL FORCEPS CASES

SIR,—I have read with great interest the papers by Dr Douglas Miller, Dr James Hendry, and Dr Fletcher Shaw on the above subject, published in the *British Medical Journal* of August 4th. They seem to be in a bad way in the North, their description of the cases put before them out-Herods Herod, and calls for deep thought as to the teaching in their universities.

From a practitioner's point of view it cannot be too strongly put, and ought to be an accepted axiom, that no artificial delivery should be attempted until there is full dilatation of the os. If Nature fails, Champetier de Ribes' bags or some other recognized method should be used to accomplish that end before anything else is done.

The position of the head should be clearly ascertained and the passing of the head, under an anaesthetic, is the simplest and least manipulative in the long run. When an occipito-posterior presentation is diagnosed it has to be rectified. The case has already been considerably delayed. If the head is rotated bimanually there is always the chance of its returning, for Nature placed it so and the cause not being rectified must make it liable to recur.

In a patient with a reasonably sized bim, surely with the hand already there the easiest and safest method would be to bring down a leg and turn. I am very much surprised that Drs Miller, Hendry, and Shaw in their addresses have not mentioned turning, it is certainly scientific and puts Nature at its best. The bones of the head in descent will be compressed from below, causing folding over of the edges of the parietal bones, giving considerable room, and avoiding the tedious moulding spoken of, much to the benefit of the child and mother. With the head in the pelvis and the occipito-posterior position persisting the head must be returned above the brim to rotate, and, having returned it, I should advocate bringing down a leg every time—a very simple procedure, with little or no handling, and needing no force, only steady traction.

Perhaps I am old fashioned, but I have a great horror of the callous way in which a woman is left hour after hour fighting to produce the moulding of the head, which one would think must bruise and compress the child's brain out of the normal shape, let alone mauling the woman's soft parts oedematous and sodden, and facilitating the entry of germs. The mere fact that moulding is necessary shows an abnormal state of things. Even when the forceps are required for the after-coming head it is quite simple, and the head is again in the right position to

produce most folding over of the parietal bones. I think Nature points the way. A breech birth is a normal birth, why try to avoid it?—I am, etc.,

Wellington Aug 14th

A Z C CRESSY

DUT AND PULPERIAL SIPSIS

Sir,—In the discussion of the problems connected with maternal mortality I have failed to notice what appears to me to be an extremely important possible cause of puerperal infection.

If underneath the room in the house or nursing home in which a pregnant woman was awaiting confinement there ran a leaking sewer, she, her nurse, and her accoucheur would all insist on her going elsewhere in view of the risk of infection.

In a high percentage of human beings under modern methods of dietary the lower alimentary canal is somewhat in the nature of a sewer. Examination of the faeces demonstrates that in a very considerable number of cases septic organisms are present in large numbers. What happens, therefore, is that delivery takes place very often in close proximity to a possible source of septic infection.

The mere giving of an enema or a series of purgative medicines has been shown to be of very little efficacy in reducing the septic condition of the alimentary canal, while antiseptic drugs have proved to be equally valueless. The wiser method of diminishing these organisms is by a sufficiently long course of dieting designed so that no food should be provided suitable for the organisms that we wish to get rid of.

Roughly speaking, the alimentary canal of a horse or a cow out on grass is free from dangerous micro-organisms, although the alimentary canal is considerably elongated in these animals. In carnivorous animals Nature gets over the difficulty of the dietary by extensively shortening the intestines. In the human animal, however, the intestine is similar in length and character to that of the frugivorous anthropoids. The lower intestine has a tendency, therefore, to become an infected sewer when constipation and flesh eating are associated.

The surgical method is to remove this piece of intestine. The more natural method is to use a dietary by which infection is avoided. In countries where coarse cereal foods and plenty of oil and salads are used the addition of a small amount of meat is unimportant, but in countries like England where most of the foods are ultra-refined, and where a high proportion of stall fed fattened beasts' meat is eaten, constipation is very prevalent, and a septic condition of the lower intestine follows.

Dietary therefore, in childbirth is a matter of supreme importance in the prevention of puerperal sepsis. Meat should be eliminated from it, salads and vegetables should be used largely purged and similar cereal dishes should replace the finer preparations of oat and wheat, oil and butter should find a considerable place while the proteins should be obtained from cheese, milk, and nut foods during the whole period a mother is carrying her baby.—I am, etc.,

London W 2, Aug 13th

JOSIAH OLDFIELD

INSECT BITES AND RHEUMATISM

Sir—I am anxious to secure the co-operation of medical practitioners throughout the country in obtaining information regarding children who are badly bitten by insects at this time of the year.

I believe such children, especially those whose bites develop into sores, are the very ones who are predisposed to acute rheumatism and chorea. These children do not drink milk, either on account of poverty, or dislike, and unfortunately at the same time aggravate this lack of lime food by having a perverse appetite for acids like vinegar or lemon. The latter part of the summer is the time when the children are badly bitten by fleas, sand fleas, harvest bugs, and midges, and it is within the next month the cases of acute rheumatism and carditis tend to show themselves.

It is interesting to note that the areas in which the human flea flourishes are coincident with those of acute

rheumatism, the tropics being free from both. One cannot help being struck by the fact of the periodicity in the viciousness of most of these insects, including fleas. Personally I feel convinced that the course of acute rheumatism is more that of a disease due to a protozoon than one due to coen, and I have made the suggestion that the Aschoff bodies are probably the encysted forms of the protozoon responsible for acute rheumatism, though it is only fair to say that Professors Nuttall and Kettle are not prepared to accept my hypothesis.

I shall be very grateful to readers who will be so kind as to collect information for me on these lines and write to me on the subject.—I am, etc.,

61 Waller Road Swansea,
Aug. 18th

G ARBOUR STEPHENS,
Consulting Cardiologist King Edward
VII Welsh National Memorial

SEA SICKNESS

Sir,—There has been considerable correspondence lately in the *Journal* on the subject of sea-sickness (June 23rd, p 1089, etc.), and I am surprised that no one has mentioned the respiratory disturbance associated with this malady, I believe it is the most important factor in precipitating an attack.

Sea-sickness is largely a question of temperament, and those who are most prone to it belong to the nervous, or neurobilious type of constitution. It is people of this class who, under appropriate emotional excitement, give a "sigh of relief," a "gasp of astonishment," a "cry of joy," a "scream of terror," all of which are accompanied by abnormal respiration. Likewise, these people feel nausea from excitement, apprehension, suspense, or at horrifying sights, also, they hold the breath whilst running, or carrying heavy weights for a short distance. In all these instances, and I could mention many more, respiration does not flow in the usual rhythm. With people of this type altered respiration is one of the ways of giving expression to emotion. The nerve centres of vomiting and respiration lie close together in the medulla, and rapid respiration will relieve nausea, whereas it is aggravated by lessened and irregular breathing, thus slowing the reaction of one centre upon the other.

When an individual of this type is going to cross the Channel it may be noticed that as the boat train approaches the harbour he tends to become silent, or to express anxiety as to the condition of the sea, he will become, possibly, a trifle pale and have an altered look in the eyes, and his respiration, if it could be measured, would show that it has lost its easy rhythm. It is little wonder that he ascends the gangway (perhaps with a heavy suitcase in his hand to accentuate respiratory trouble) with the nausea of apprehension and excitement at his epigastrium, and that with the first few pitches or rolls of the boat, with consequent "catchings of the breath," his collapse is complete. The nausea of apprehension has been converted by the respiratory trouble into active retching or vomiting.

Sea-sickness is a complex in which various other nerve centres become involved ultimately thus the frequent retchings cause the entrance of bile into the stomach and gastric hyperacidity, resulting in vertigo and depression of the general circulation with all their consequences. There is no need to lay too much stress upon the action of the vestibular centre or upon altered blood circulation in the liver, as these are brought only into play after an attack of sickness has been excited. The vast majority of attacks commence before, or at latest as soon as the ship starts to pitch and roll and I have known of vomiting taking place before going on board. As one of your correspondents points out, sickness at sea and *mal-de-mer* are not necessarily the same thing, but the latter with all its graver symptoms is the follow-on of the former, if continued.

Proneness to the malady is, no doubt a very variable quantity but I am disposed to maintain that the onset of abnormal respiration is the determining factor. Persons endowed with sangfroid preserve normal respiration under all abnormal conditions and so escape sea-sickness, and are pronounced good sailors. However this gift occasionally

fails them during very stormy weather, and they become as other men. The recovery from sea-sickness after being at sea for a few days can be explained by the sufferer having, at last, acquired the art of maintaining normal free respiration under all conditions of sailing, and like most acquired rits, it is never quite lost again, but stands in good service in future voyages. In turn the self confidence gained hinders the onset of the nausea of apprehension—so fatal on starting a voyage at sea.

People who are prone to sea-sickness cannot do better than go below immediately after embarking, and lie supine in an airy cabin, or saloon, covering themselves with a rug to counteract the chilly feeling that generally precedes sickness. The pitch and roll of the boat is much less below deck. The eyes should be closed so as to exclude ocular impressions, and the mind should be concentrated upon the occupation of maintaining regular, normal breathing throughout all conditions of sailing. This course of action has a most calming effect upon both body and mind, and will secure a comfortable passage to many a sufferer. The tendency to gasp at every pitch and roll soon subsides, and the mind being usefully occupied dispels the nausea of apprehension. The supine position should be kept until the ship is really in calm water, or even until the anchor is cast, if the sea voyage be of a few hours' duration only. When the voyage is going to last for some days, rest in bed must continue until the art of breathing normally under all conditions has been acquired.

It is scarcely needful to say that individuals of the type referred to should take no food during the two hours before going on board, and, if the voyage be short, should continue to fast until on shore again.—I am, etc.,

Stroud July 23rd

J A BLAIN, M D, D Sc

PATHOGENESIS OF ACUTE PRIMARY GLAUCOMA

Sir,—The circulation of the blood in the iris in the intact eyeball of the pithed toad can be observed under the microscope.

The method consists in cutting away a portion of the upper jaw round the eyeball, reflecting the lower eyelid, and placing the toad on the stage of the microscope. A low power of the microscope can be used. Light is thrown through the edge of the eyeball by mirror and condenser. The inner edge of the iris can be focused and easily seen as adjacent to a blue violet colour in the pupil of the eye. The blood can then be seen circulating in the vessels of the iris.

The way is now open for direct observation and measurement of blood pressure along the lines indicated in the recent paper by Leonard Hill on the capillary blood pressure in relation to oedema and cerebral and intra-ocular pressure.—I am, etc.,

Halesowen Aug 7th.

JAMES M McQUEEN

ACUTE NEPHRITIS

Sir—In the report of the proceedings of the Section of Medicine, held at Cardiff on July 27th (*British Medical Journal*, p 298), the opinion is attributed to me that "acute nephritis" is "almost certainly" the result of a toxin. I did not say this, and I did not and do not think this. All the argument I offered indicates that physical causes, even in the non-pregnant as in the pregnant, play a much larger part in the genesis of "acute nephritis" than physicians of to-day conceive. Indeed, in considering the etiology of acute nephritis, in spite of the evidence, physical conditions are almost universally ignored. It is a curious fact that the effect of the passage of blood through capillaries, only possible in virtue of the existence and play of physical forces, recognized in the physiological class-room of some importance for the well-being of tissue cells, should, in the domains of medicine and obstetrics, whether at the bedside or in the *post-mortem* room, be so completely passed by.—I am, etc.,

Rugby Aug 18th

R H PARSONS

* *British Journal of Experimental Pathology* 1923 vol ix p 135.

SHOCK IN BLACK RACES

Sir,—I would like to add my support to Dr S M Dickson's statement in your issue of March 24th (p 524). In my experience the black man stands surgical shock in a most remarkable manner. During the great war I had the opportunity of seeing large numbers of wounded Europeans, Indians, and Africans, and I would certainly place the African first as regards his powers of resistance to surgical shock. With medical cases the position is entirely changed, and if the patient is kept in bed for any length of time he gives in and dies.—I am, etc.,

N P JEWELL, FRCSL

European Hospital Nairobi June 20th

Obituary

GEORGE EDWARD WHERRY, M Chir, FRCS,

Consulting Surgeon Addenbrooke's Hospital Cambridge

The death of G L Wherry in Switzerland, where he had delighted to dwell, will recall then Cambridge days to many generations of men now immersed in life on less pleasant lines, and a number of active surgeons in London who have examined at Cambridge will feel regret for the pleasant and kindly host who always entertained them on the eve of their labours. In the middle of July he went abroad in good spirits, and, after staying on the way at Wiesbaden, reached Zeimatt, where he was suddenly taken ill with acute abdominal symptoms, and died, nine days later, on August 12th.

Born on December 31st, 1852, at Bourne in Lincolnshire, George Edward Wherry was educated medically at St Thomas's Hospital, taking the Membership of the College of Surgeons in 1873 and registering on February 10th, 1874 after reaching the age of 21, in the Medical School he was for a time an assistant demonstrator of anatomy. In 1874 he was elected house-surgeon to Addenbrooke's Hospital, a post then much sought after, as it was compatible with taking a degree at the University. He accordingly became a member of Downing College, of which he was, naturally much to his gratification, last autumn elected an Honorary Fellow in recognition of his long services to medical education in the University. During his three years at Addenbrooke's he had as fellow resident Dr William Fwart, and began a life-long friendship with Dr Henry Guillemaud, who has provided some of the information here utilized. In 1878 he took the degrees of B A and M B, and was nominated by Sir George Humphry as his deputy at the hospital. The next year was remarkable for a number of successes, he proceeded by examination to the higher degree of Master of Surgery (M Chir), changed after the war to M Chir, being the fifteenth to receive this degree, which had been established in 1862, took the final FRCS, and on November 24th was elected surgeon to Addenbrooke's, an additional surgeoncy having been found necessary. With the very short interval in 1878 he had therefore served the hospital for forty-one years when he retired in 1915 on account of age, and was elected honorary consulting surgeon. Soon after his appointment to the hospital he initiated an ophthalmic out-patient department, which became extremely popular. From 1884 to 1911 he was University lecturer in surgery, undertaking operative surgery and clinical instruction. After the death, in 1915, of Howard Marsh, who was professor of surgery from 1903 to 1915, no successor was appointed, and Wherry was a most efficient and popular supervisor of the surgical examinations until his retirement a year ago, when he was succeeded by Dr H B Roderick. On October 17th last the examiners who had worked with him spontaneously showed their appreciation by a testimonial and a friendly dinner in London, when he entertained them with a speech full of humorous reminiscences.

His medical writings, though neither voluminous nor very numerous, were of rather special interest, such as *Preventive Surgery* (1895), *Alpine Notes and the Climbing Foot* (1896), *On Spinal Growth* (1898), *Why both Legs are of Equal Length* (1901), *The Horns of Animals* (1902). Some of these were reprinted in *Notes from a Knapsack* (1909), with some general essays, including speculations

about the use of certain spiral horns for hearing purposes, the rising posture of ungulate animals, and the teaching manner. Others of his essays were on curious out-of-the-way subjects, such as "The ears of Buddha," and "Rings under the eaves of old houses" in order to fit the thutch-hooks to remove the thatch if the house caught fire. Charles Lamb was a special favourite of his, and in 1925 he edited a charmingly written and illustrated little volume, *Cambridge and Charles Lamb*, telling the story of six Cambridge Charles Lamb dinners, held between 1909 and 1914 at the first of which he was in the chair, and made a most admirable speech in the manner of Lamb. The volume also contains his accounts of George Dyer, the friend of Lamb and protégé of Dr Anthony Askew of William Freund, best known from Lamb's verse as "Dyer's friend" and of Charles Syle, who did much to start these Lamb dinners. An Alpine climber since 1890, he was on the committee of the Alpine Club and wrote in the *Alpine Journal*, his last contribution in 1925 was a sympathetic "In memoriam" notice of A. D. Godley, Public Orator at Oxford, his brilliant friend and companion on many climbing expeditions, both in the Lake District and in the Alps.

Wherry was tall, spare, and active, and to the last an enthusiastic walker. In his early days he was a runner, and indeed mentioned in his lectures how he once ruptured the quadriceps extension in a race. He was a genial and interesting companion, full of information about antiquarian and biographical history of Cambridge and the neighbourhood, well read, and apt at quotation. H. R.

SIR CHARLES BALANCE sends us the following tribute to his old friend.

George Wherry was my senior in the profession by a few years. When I was a student at St Thomas's Hospital I occasionally spent week-ends up at Cambridge, the attraction being a visit to the wards of Addenbrooke's with Sir George Humphry. Wherry was then assistant surgeon, and my friendship with him dates from these Cambridge visits. His personality was very attractive. He was shrewd, reserved, gentle, unselfish, self-effacing, and affectionate. The fairy queens that ruled his life were not the hussies—gain, fashion, pleasure, power—"to whose domain belongs the nether sphere, the fleeting hour." He let them go, without one envious sigh, one anxious scheme.

Wherry had a great interest in the progress of surgery, especially in his own university, but his thoughts on this subject were uttered only in the privacy of an after-dinner talk and in the presence of an appreciative friend. Even then his conversation was gay, modest and impersonal so that his hearer would hardly know that he was a surgeon living at Cambridge. I am convinced that had Wherry been attached to a London hospital his character and attainments in general learning would have won for him a high position in the profession of surgery. But Wherry was an English gentleman who played the game of life manfully.

Wherry possessed a great sense of humour. He was a charming host and his conversation, punctuated with wit and wisdom garnered from many sources was delightful to listen to. Seldom I think he was conscious of quotation from prose or poetry. His memory was so good that the illustration of an argument or a jest in this way came naturally to him. Well, for me Lucius is dead and I am a better man since I have had the privilege of claiming Wherry as a friend. Some men are remembered less for what they have done than for what they were. Their influence persists in the lives of those who knew them purifying motive and encouraging virtue. Such a man was my friend.

WILLIAM SMITH SYME, M.D., F.R.F.P.S.

Surgeon Glasgow Ear, Nose and Throat Hospital and Lecturer in the University of Glasgow.

We regret to announce the death of Dr W. S. Syme, son of Glasgow, which occurred at Abersoch, North Wales, where he was on holiday, on August 14th. He was well known in Glasgow as a specialist and university teacher in diseases of the ear, nose, and throat, and in Carlisle, where he had practised as a consultant for many years.

William Smith Syme was a native of Newfoundland and received his medical education at the University of

Edinburgh, graduating M.B., C.M. in 1891, and proceeding M.D. seven years later. In 1918 he was admitted to the Fellowship of the Royal Faculty of Physicians and Surgeons of Glasgow. For some months after graduating he worked as an assistant in Crewe, and afterwards commenced general practice at Gamlingay, in Cambridgeshire. In 1903, however, he removed to Glasgow in order to bring himself more into contact with the scientific side of medicine, and, although he had not yet developed a decided preference for any specialty, he undertook a good deal of clinical work at the Ear, Nose, and Throat Hospital. Subsequently he resolved to devote himself to this branch, and practised as a consultant in Carlisle, and afterwards in Dumfries also, while continuing his work in Glasgow, where he made steady progress. In 1917 he was appointed surgeon to the Ear, Nose and Throat Hospital, and three years later he became lecturer in diseases of the nose and throat in the University of Glasgow, and surgeon for diseases of the nose and throat in the Western Infirmary, Glasgow. He was also consulting aurist and laryngologist to the Royal Hospital for Sick Children, Glasgow.

Dr Syme played an active part in professional affairs, notably on the scientific side. He was one of the founders of the Scottish Otological and Laryngological Society, and acted for many years as its honorary secretary and treasurer. In the British Medical Association he was honorary secretary of the Section of Laryngology at the Annual Meeting in 1922 at Glasgow, and a vice-president of the Section of Otology and Laryngology in 1924 at Bradford. He served also as chairman of the Glasgow Central Division from 1923 to 1925 and his colleagues in the Border Counties elected him an associate member of their Branch. A Fellow of the Royal Society of Medicine, he was, at the time of his death, president-elect of the Laryngological Section. He made numerous contributions to medical journals, and was the author of the well-known *Handbook of Diseases of the Nose, Throat, and Ear*, published in 1920. With his wide professional activities he found time also for the cultivation of other interests. He was a Fellow of the Royal Society of Edinburgh, and had been president of the Rnskin Society in Glasgow. His eldest son, Dr W. S. Syme, jun., has for several years been working with his father as an assistant in the Ear, Nose, and Throat Hospital and the throat and nose department of the Western Infirmary, Glasgow.

THE LATE DR W. J. HOWARTH

DR CHARLES PORTER, late medical officer of health, Johannesburg, sends us the following personal appreciation of Dr W. J. Howarth, of whom an obituary notice appeared in our issue of June 23rd (p. 1091).

Following so soon after the death of the late Dr James Wheatley it is sad to ask indulgence for a last brief tribute of warm regard and respect for another old and valued friend, the late Dr W. J. Howarth, ex-president of the Society of Medical Officers of Health. That friendship dated from 1905, when he worked with me in Stockport, both before and after taking his D.P.H. for nearly a year, whenever opportunity offered. His facility for making friends and his loyalty in keeping them, his notable ability and cheery keenness and confidence foreshadowed the rapid success and advancement which characterized his work in Bury, Derby, the county of Kent, culminating in his appointment to the City of London, and one hoped for further achievement and honours for him. But that has gone with him and while sympathizing deeply with those he has left and lamenting the long and distressing tragedy of illness which ended his fine career, one cannot help recalling in the circumstances Wordsworth's lines:

Why should we weep to sorrow cling
When thankfulness were best?

Dr JOHN WALTER MELVILLE who died at the Royal Southern Hospital, Liverpool, on July 22nd at the age of 24 after a short illness following an operation for appendicitis, was a native of Barrow-in-Furness. He received his medical education at the University of Liverpool, where he was also a student of dentistry and graduated B.D.S. with honours in 1926 and M.B., Ch.B. in

1927, having earlier in that year obtained the diplomas M R C S and L R C P. In October last he was appointed tutor in dental surgery at the University of Leeds, but, having a preference for general surgery and desiring to specialize in such work eventually, he relinquished this post to become resident house surgeon at the Royal Southern Hospital, Liverpool, where he was working at the time of his death. He was a member of the British Medical Association. Dr Melville was a keen student of literature and of the drama; he was devoted to all kinds of out-of-door exercise but particularly to the sea, having an intimate knowledge of ships and shipping, and showing considerable skill as a yachtsman. The interment took place at Rampside, near Barrow-in-Furness, on July 25th, the bearers being all members of the medical profession.

Dr ARTHUR DAVID YULE, who died at Airthroath on July 23rd at the age of 53, had been in practice in that town for about twenty-five years and had been medical officer of health since 1911. He received his medical education at the University of Edinburgh and University College, Dundee, graduating M B, Ch B Edin with honours in 1896 and B Sc in public health two years later. He was subsequently appointed house surgeon at Leith Hospital, and later became resident physician successively at Leith Fever Hospital and at the Paddington Green Children's Hospital, London, afterwards settling in Airthroath. There he built up an extensive practice and was appointed surgeon to the Airthroath Infirmary, becoming medical officer of health for the burgh seventeen years ago. He was a member of the British Medical Association. Dr Yule had recently been particularly busy in connexion with the epidemic of small-pox which had broken out in the town, and it is believed that the discharge of the specially heavy duty which this entailed was largely responsible for the onset of his illness. He is survived by his widow and three children. The interment at the Western Cemetery, Airthroath, on July 25th, was attended by a large number of the general public and of representative persons, including the provost and magistrates of the burgh.

Dr GEORGE OLIPHANT McKANE, who died at Cleethorpes on July 26th in his eighty-first year, had been in practice for nearly half a century, and retired only three or four years ago. A native of Hexham, he qualified as a chemist before beginning his medical studies at Newcastle-on-Tyne. In 1875 he obtained the diplomas L R C P and L M Ed and L R F P S Glas, and commenced practice at Byers Green, Durham, removing later to Leeds and subsequently settling in the Grimsby district. The last twenty years of his active life were spent at Waltham, near Grimsby, where he conducted a large country practice and held the appointment of medical officer of health to the Grimsby Rural District Council. Dr McKane was a man of strong personality, and possessed a cheerful and sympathetic disposition which made him a popular figure with the country people among whom he worked and whose confidence he enjoyed to a marked degree. He was for long a member of the British Medical Association. His two sons are both in the medical profession, and held commissions in the Royal Army Medical Corps during the war.

Mr WILLIAM MARSHALL OAKDEN, who died on August 12th in his 42nd year, and who had been medical superintendent of St Luke's Hospital, Lowestoft, for the past six years, was educated at the King Edward VI Grammar School, Retford, and the Nottingham High School, proceeding as a foundation scholar to Peterhouse, Cambridge, where he took first-class honours in the Natural Sciences Tripos. He then entered St Thomas's Hospital with a scholarship, and subsequently gained the Bristowe medal. In 1913 he graduated M B, B Ch Camb, and was admitted a Fellow of the Royal College of Surgeons of England, having obtained the diplomas M R C S and L R C P two years earlier. After serving as casualty officer, house-surgeon, resident anaesthetist, and clinical assistant in the ear department at St Thomas's he was appointed

resident assistant surgeon and surgical registrar at St George's Hospital. During the war he held a commission in the Royal Army Medical Corps, serving in the acting rank of major in Salonika as a surgical specialist. In 1919 he was appointed orthopaedic surgeon at Springfield Park Ministry of Pensions Hospital, Liverpool, and in the following year became senior assistant surgeon at Queen Mary's Hospital, Carshalton. On the inauguration of the Metropolitan Asylums Board in 1922 of St Luke's Hospital, Lowestoft, for the treatment of surgical tuberculosis in adults Mr Oakden was appointed medical superintendent, an office he held until his death. He was a Fellow of the Royal Society of Medicine, and an active member of the Norwich Medico-Chirurgical Society and the British Orthopaedic Association, and only a few weeks ago was elected chairman of the North Suffolk Division of the British Medical Association. At the interment, which was attended by a large number of his professional brethren and others, the Association was represented by Dr W. Tyson. A colleague writes: Oakden was doing excellent surgical work at St Luke's Hospital, and there is little doubt that his close application to the many-sided duties of the responsible post which he held had a deleterious effect on a constitution which did not appear too robust. When he could be induced to speak at a medical meeting he impressed those present by the soundness and wide range of his knowledge. Those who had the privilege of his friendship knew how loyal and straight he was in all his dealings and how behind his quiet and reserved manner was a rich fund of humour. He had a well stored mind, and found his chief recreation in books and in music. He will be sadly missed.

The Services

HONORARY PHYSICIANS AND SURGEON TO THE KING

THE King has approved of the appointment of Lieut Colonel R. McCarrison, C I E., and Lieut. Colonel W. H. Leonard of the Indian Medical Service to be honorary physicians to His Majesty, with the brevet rank of colonel, in succession to Colonel C. R. Bakhle and Major General A. A. Gibbs (retired). Lieut. Colonel G. D. Franklin, C I E., O B E., I M S., has been appointed honorary surgeon to His Majesty, with the brevet rank of colonel, in succession to Colonel R. W. Knox, D S O (ret.).

DEATHS IN THE SERVICES

Dr Henry Pottinger Keatinge, C M G, died at Regent Road, Jersey, on June 21st, aged 67. He was the son of General R. H. Keatinge, V C., and grandson of the Right Hon. Richard Keatinge, Judge of the Irish Probate Court. He was educated at Uppingham at Guy's Hospital, and at Durham University where he graduated with honours as M B in 1883, also taking the diploma of M R C S in 1883, and subsequently obtained the F R C S in 1893. From 1884 to 1889 he served in the Egyptian Army taking part in the Nile campaign of 1885, and in several other actions on the Egyptian frontier, gaining the Egyptian medal, with three clasps, the Khedive's bronze star, and the Order of the Osmanieh (4th class). In 1890 he was appointed to the Egyptian Government Medical School at Cairo, and to the Kasr el Ainy Hospital, of both of which he subsequently became director. In 1913 he received the C M G. During the war he was at the head of the Kasr el Ainy Hospital, was mentioned in despatches and received the Order of the Medjidieh (2nd class). He retired in 1919, when he was given the Order of the Nile (2nd class). He was a corresponding member of the Zoological Society, an honorary Fellow of the Royal Academy of Medicine in Ireland, a member of the Egyptian Institute, and of the Garick and Flyfishers clubs.

Colonel Robert Wallace Wright, C M G., Army Medical Service (ret.) died at Totton, Southampton, on June 20th, aged 64. He was born on October 5th, 1863, educated at St George's, and took the L R C P Lond in 1885 and the M R C S in 1886. Entering the army as surgeon on July 28th, 1886, he attained the rank of colonel on March 1st, 1915, in the long list of war promotions on that day and retired on March 14th, 1919, when acting as a D D M S. He served throughout the great war was thrice mentioned in despatches, in the *London Gazette* of June 15th, 1916, January 1st, 1917, and December 24th, 1917, and received the C M G. in 1917.

Lieut Colonel Walter Taylor Finlayson, DSO, Indian Medical Service, died on board the P and O *ss China* on June 10th. He was born on July 14th 1877, educated at Melbourne University and St Mary's Hospital, and took the M.R.C.S. and L.R.C.P. Lond in 1903. Entering the I.M.S. as lieutenant on January 30th, 1904, he attained the rank of lieutenant colonel on July 30th, 1923. He served in the recent great war and received the DSO on January 1st, 1918. He was in civil employment in the Jails Department in the Punjab and was on his way out from Fimlongh when his death took place.

Medical News.

LIEUTENANT COLONEL C. T. SAMMAN, R.A.M.C. (ret.), has been elected Master of the Society of Apothecaries of London for the ensuing year.

THE first National Glass Convention is to be held at Bournemouth from September 19th to 22nd, when there will be discussions on the organization of the glass industry and a conference on the legislation concerned. The programme of the conference may be obtained from Mr Geoffrey Marchand, V.A., Glass Manufacturers' Federation, Aldwych House, W.C.2.

A PUBLIC health congress and exhibition, organized under the auspices of the various associations representing municipal and other local authorities, will be held in the Royal Agricultural Hall, London, in the week beginning on Monday, November 19th, when the opening ceremony will be performed by Mr Neville Chamberlain, Minister of Health, who as president of the congress, will afterwards address the delegates. The congress is designed to bring together all public health authorities and all interested in social welfare work, and the organizing committee, under the chairmanship of Sir Frederick Mills, has secured the co-operation of many distinguished workers in the field of public health. Sir George Newman will give an address on the opening day on the purpose of the public health services. On the following day, Sir Walter Fletcher will discuss research in public health, and Mr C. Hubert Bond will deal with local organization for the prevention and treatment of mental disorders. On Friday, November 23rd, Dr W. M. Willoughby, medical officer of health for the City of London, will give an address on food protection, and on the same day Mr R. H. P. Orde, of the British Red Cross Society, will speak on the construction and equipment of hospitals. Housing, the smoke problem, milk supply, water supply, sewage, and town cleansing will also be discussed.

THE Fellowship of Medicine and Post-Graduate Medical Association announces that an intensive course of two weeks duration will commence on Monday, August 27th, at the Queen Mary's Hospital, Stratford, E.1. Instruction will be given in all departments of medicine, surgery, and the specialties. Copies of the syllabus may be obtained from the secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1, who will also supply information concerning other forthcoming special courses.

THE fourteenth annual conference of the National Association for the Prevention of Tuberculosis, which is to be held in the British Medical Association House, Tavistock Square, London, on October 15th and 16th, will be attended by a number of Canadian medical officers who are visiting Europe to study tuberculosis work. Sir Arthur Stanley will preside and the principal speakers in the first day's discussion, on 'The occurrence of tuberculosis among primitive peoples,' will include Dr R. C. Ferguson (Saskatchewan), Dr Vassal (Annam) and Professor S. Lyle Cummins. The subject for the second day's proceedings will be 'The principles underlying a scheme of anti-tuberculosis measures in any country,' and the opening speakers will be Sir Robert Philip, Dr Howard Holbrook (Canada), and Dr G. Lissant Cox. A dinner in honour of the Canadian visitors will be given in the Savoy Hotel on the first day of the conference. The proceedings are open to all persons interested in tuberculosis, the fee for membership of the conference being £1. Full information may be had from the secretary of the Association, 1, Gordon Square, London, W.C.1.

Recently the association announced the publication of a new series of posters designed to assist organizations and individuals in anti-tuberculosis work. These posters are eminently suitable for display in schools, hospitals and dispensaries, public buildings and workplaces; most are printed in colour. Each embodies either a simple, direct message of advice on preventive methods or an appeal for support in the general campaign. A number of the posters have been prepared in postcard form. Another educational activity is the creation of a caravan service with three motor vehicles, each carrying a medical practitioner as lecturer,

with a cluoma, supplies of films, posters, charts, photographs, and other material for a small tuberculosis exhibition. These units are placed at the services of local authorities, etc., throughout Britain, and requests for co-operation will be welcomed. A booklet illustrating the association's posters and giving details of the caravan educational service may be had on application to the address given above.

THE total number of cases of paratyphoid fever under treatment in London on August 22nd was 119, fresh cases having been reported to the Metropolitan Asylums Board during the past few days from Kensington, Fulham, Lambeth, Lewisham, Islington, Shoreditch, Stepney, and Hackney.

WE have been asked to direct the attention of medical practitioners to an advertisement which appears in this issue relating to 'The Retreat,' a maternity home for unmarried mothers, with a baby home attached, owned by the National Free Church Women's Council, but in practice non-denominational. The home is conducted in accordance with the requirements of the Ministry of Health, from which it receives an annual grant. Girls are expected to remain in the home for at least six months, and nuptial fees are charged. Full information may be obtained from the Superintendent, 19, Ross Road, London, S.E.5.

THE July issue of the *Kenya and East African Medical Journal* contains a report of an investigation into animal nutrition in Kenya, the supervision of which was undertaken by Dr J. B. Orr, director of the Rowett Research Institute, Aberdeen. One conclusion reached was that, in areas where the pasture is deficient in minerals, an increased rate of growth in lambs and calves, and a better yield of milk in cows, can be obtained by feeding with appropriate mineral mixtures. The issue also contains an article on the control of billharzia disease, by Dr T. G. Cawston, and an account by Dr A. R. Paterson of the organization of antimalarial work in the Federated Malay States.

THE Ministry of Health has issued a circular (No. 911) referring to the scheme for the investigation of the causes of maternal death outlined in Circular 888, of which a summary was published in the *Journal* of April 28th (p. 729), and stating that the Minister understands that some maternity and child welfare authorities are in doubt as to how they can obtain particulars of maternal deaths occurring in their areas. It is pointed out that under Section 28 of the Registration of Births and Deaths Act, 1874, a sanitary authority can obtain from the registrar, on payment of the prescribed fees, returns of such particulars, which, it is understood, may also be obtained by a county council. The circular suggests that each local authority whose medical officer of health has undertaken responsibility for this investigation should make the necessary arrangements with the registrars in their areas.

AN appeal has been issued for support for the Incorporated Soldiers and Sailors' Help Society. Founded thirty years ago, the society has been faced with heavy responsibilities, particularly since the war, when it organized the Lord Roberts Memorial Workshops to provide for the training and employment of disabled ex-service men. In addition, large numbers have been helped with grants of money or clothing, or with work, or otherwise, and in all assistance has been given to over 900,000 ex-service men. The society depends entirely upon the response to its own appeals, receiving no assistance from any other organization. Donations should be sent to the chairman, Countess Roberts, at the head quarters of the society, Room A 122, Brompton Road, S.W.3.

Paton's List of Schools and Tutors, the thirty-first edition of which has just been issued, is intended to assist parents in the choice of schools suitable to their location, their preference in educational methods, and their pockets. Each school is included in a classified list and is also the subject of a brief descriptive note. The work also contains a list of scholarships and exhibitions, and a series of articles dealing with the preliminary educational requirements of the various professions and of certain other callings, with information regarding the prospects they offer. The price of the book is 5s. Copies may be consulted at many libraries and clubs in England, India, and the Dominions, and at British embassies and consulates abroad.

THE second issue of *Leprosy Notes*, published quarterly by the British Empire Leprosy Relief Association, opens with an account by Dr E. Muir of the organization of the campaign against the disease. Dr Muir also contributes a note on the use of potassium iodide in leprosy, while Sir Leonard Rogers discusses the bearing on prophylaxis of recent advances in treatment. Dr E. A. O. Travers describes the Tal Poong Choo treatment, which he states has been successfully employed for some years at the leprosy asylum at Kuala Lumpur. Tal Poong Choo is the Chinese name for *Hydnocarpus anthelmintica*, which is given in the form of a powder, with a small quantity of cannabis indica. Other articles deal with leprosy in the Southern Sudan, in Uganda, in the West Indies, and in India.

PROFESSOR FRANCIS DE TORDAY who is senior physician to the children's State asylum in Budapest has published a pamphlet entitled *Science of Disease in Childhood and the Protection of Children in Hungary*, which gives an account of the hospitals and other institutions concerned with pediatrics in Budapest and elsewhere in Hungary. The pamphlet contains also a description of the methods taken with regard to child protection in that country. It is published by the Royal Hungarian University, Budapest.

DR. HERMANN LUDWIG, professor of gynaecology at Erlangen, has been nominated an honorary member of the American College of Radiology, and Dr. Erlo Hoffmann, professor of dermatology at Bonn, has been nominated an honorary member of the Spanish Dermatological Society.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The Editor, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names not necessarily for publication.

Authors desiring REPRINTS of their articles published in the **BRITISH MEDICAL JOURNAL** must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1 on receipt of proofs.

All communications with reference to ADVERTISEMENTS as well as orders for copies of the JOURNAL should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBERS of the British Medical Association and the **BRITISH MEDICAL JOURNAL** are **MUSEUM 9561 9562 9563** and **JOG 1** (internal exchange, four lines).

The TELEGRAPHIC ADDRESSES are **EDITOR of the British Medical Journal, Antology Westcent London**.

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.) **Articulate Westcent London**.

MEDICAL SECRETARY, Medicine Westcent London.

The address of the Irish Office of the British Medical Association is 16 South Frederick Street, Dublin (telegrams **Basillus Dublin** telephone 62550 Dublin) and of the Scottish Office 7 Drumsheugh Gardens, Edinburgh (telegrams **Associate, Edinburgh**, telephone 24361 Edinburgh).

QUERIES AND ANSWERS

OBSTETRICAL FORCEPS

"T. E." asks where the original descriptions can be found of Barnes's and Denman's obstetrical forceps.

Mr. C. J. S. Thompson informs us that Thomas Denman first described his forceps in his *Introduction to the Practice of Midwifery* at page 357 of the 1835 edition. Robert Barnes originally described his instrument in his *Lectures in Obstetric Operations*, 1870 vol. I, p. 10.

CHRONIC GLOSSITIS

"N. B." would like suggestions for treatment in a case of chronic glossitis (two and a half years duration) in a young married woman of 30, the usual remedies including no autogenous vaccine made from *B. coli streptococci Staphylococcus albus* and aureus—these organisms having been found in the intestine—failing to give any relief. The patient who is slightly neurotic had an attack of cystitis due to *B. coli* over six years ago. There is no specific trouble.

RATE OF FLUID ABSORPTION BY THE BODY

Dr. T. H. Bishop (London) writes in reply to Dr. A. H. Skinner's inquiry (August 4th, p. 227) regarding the absorption of fluids under the skin and into the peritoneal cavity for the purpose of replacing the fluid loss in cholera. He may be interested to know that I employed the intraperitoneal route for saline perfusion during cholera epidemic work in Bengal from 1910 to 1914. Using a special trocar cannula I found it possible to introduce from sixty to one hundred ounces in from ten to fifteen minutes. The rapidity of absorption could be noted by the early return of the peripheral pulse, which frequently happened in favourable cases before the entire quantity of the fluid had entered the cavity. Hamburger has shown (and I was able to confirm this observation) that absorption by the peritoneum in the case of a healthy dog goes on after death. The technique of perfusion is simple—it was used successfully by the staff of assistant and assistant surgeons working with me—but to minimize the risk of injury to the intestine it is best to perform the necessary puncture of the abdominal wall while fluid is issuing from the cannula. I came to regard the intraperitoneal as equally effective with the intravenous route in the type of case where fluid loss was the principal feature—there was the added advantage that, if fluid

replacement was going to succeed one perfusion operation was sufficient. I first used hypertonic saline solution but believing that the greater concentration caused much of the discomfort which followed I later adopted Locke's solution, and think that this gave as good results without the same amount of discomfort. The method was described in the *Indian Journal of Medical Research* (October 1913) and the trocar-cannula used was made from my design by Messrs. Smith, Stanstreet, Ltd. of Calcutta. Starling's Fluids of the Body is very useful in the study of absorption problems.

INCOME TAX

Expenses of American Tour

We have been asked whether the expenses of the surgical tour in Canada and the United States which was referred to in our issue of February 4th last can be treated by members of the party as expenses admissible for income tax purposes in calculating the liability of their respective firms.

The tour seems to have been mainly or entirely for educational purposes though perhaps it may have served subsidiary purposes also. On that basis the expense would seem to be somewhat analogous to that incurred in taking special post-graduate courses and could not properly be regarded as incurred wholly and exclusively in carrying on the work of the practice. We regret that we cannot find adequate grounds on which to advise that a claim for the allowance of these expenses can be made good.

National Health Insurance Fees

"G. C." writes to say that an Inspector of Taxes has applied to the clerk to an Insurance Committee for particulars of the amounts paid as capitation fees to a certain doctor. Can the request be enforced?

In our opinion the relationship of employer and employee does not exist between the Insurance Committee and the medical men concerned, and on that basis the request is not enforceable as the statutory power which the Inspector quotes is not applicable.

LETTERS, NOTES, ETC.

MEDICAL TREATMENT IN CHINA

Dr. G. DOUGLAS GRAY (Chalfont St Giles) writes: Probably the two answers to Fleet Surgeon Home's inquiry as to retaining fees being non-payable during illness in China may be sufficient but as this cannot have been very frequently quoted may I be allowed to add that I never found any evidence of it during my long residence as medical officer to H. B. M. Legation in Peking. In my official capacity I had to collect information, conditions of practice etc. from medical practitioners all over China and no Chinese or foreign doctor had any acquaintance of contracts which ceased when their Chinese patients fell ill.

TREATMENT OF ECLAMPSIA

MAJOR FLEMING GOW I.M.S. asks us to correct the last sentence attributed to him in the report of the discussion on eclampsia in the Section of Obstetrics and Gynaecology of the Royal Society of Medicine (*Journal* June 23rd p. 1066). He stated that he had 'practically given up Caesarean section for eclampsia unless there was also present some definite indication for that operation such as the under-developed pelvis which was frequently found in primiparae aged 13 or 14 in Bengal.'

MOHAMMADAN PILGRIM SHIPS

Dr. K. SHALLCROSS DICKINSON (Sandertand) writes with reference to the inquiry of 'Port Said' (May 26th, p. 930), and the reply published on August 4th (p. 223). A friend who is engaged in carrying pilgrims from the Dutch East Indies to the Straits Settlements in ships belonging to the three companies, informs him that the scale of normal daily rations laid down by the Dutch authorities is ample care is taken to secure for each pilgrim plenty of food ventilation and about 20 square feet of space. Bathroom and lavatory accommodation is adequate and is kept clean and all open decks are covered with awnings. Each ship carrying 1,000 or more must be provided with two doctors and all medicines are issued free of cost. The sick can have medical attention at any time of the day or night and beyond the official inspection every morning the doctors are expected to pay visits at intervals during the day. Dr. Dickinson's correspondent states that he has never seen any harsh treatment of pilgrims by ship's officers. Most of the deaths occur among the old people in consequence of senile decay, and the mortality appears to be rather higher on the return voyage owing to the arduous nature of the pilgrimage apart from the sea voyage. He suggests that the same conditions probably prevail generally as regards pilgrims travelling from British Indian ports and that such neglect as was mentioned by 'Port Said' should be reported to the Consular and Board of Trade authorities.

VACANCIES.

NOTIFICATIONS of offices vacant in universities medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 36 37 38 39 42 and 43 of our advertisement columns and advertisements as to partnerships assistantships, and locumtenencies at pages 40 and 41. A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 193.

THE British Medical Journal.

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THE ART AND SCIENCE OF MEDICINE IN RELATION TO PROFESSIONAL TRAINING

BY

J. A. NIXON, C.M.G., M.D., F.R.C.P.,

PROFESSOR OF MEDICINE, UNIVERSITY OF BRISTOL, PHYSICIAN AND DEAN OF FACULTY, BRISTOL ROYAL INFIRMARY

THE late Professor Kanthack, in an address delivered thirty years ago before the Alcornthian Society of St. Bartholomew's Hospital, spoke of the coveted goal of medicine as being its establishment as an exact biological science. Medicine might, perhaps, be easier to teach if it ever became an exact biological science, it would certainly be easier to practise if a doctor's duty were performed according to the ascertained rules and laws of an exact science as an astronomer applies known rules and laws. The lawyer is judged by the virtue of his pleading not by the issue of the cause, he may gain success where he fails to gain a verdict but the physician as Bacon said, "hath no particular acts demonstrative of his ability, but is judged most by the event" (or result). Dr. PIERCE, in his presidential address read before the Institute of Medicine of Chicago in December, 1927, summed up the competent physician as "a man who, with a background of science practises an art that he has gotten through technical training."

RESEARCH AND PRACTICE

The doctor differs from most other craftsmen because he is expected to discover the scientific laws underlying his craft as well as to apply them in practice. Discoveries in the science as well as in the art of medicine are commonly made by men who have been trained for the practical craft of medicine. There have been conspicuous exceptions, notably Christopher Wren, who, becoming interested in medical problems through his connexion with the Royal Society, made the first intravenous injections of drugs in animals for the purpose of observing their effects and also performed in a dog the first splenectomy. Pasteur came almost accidentally to human diseases from his researches into brewing and wine making. Jesty, the Dorset farmer noticing how milkers were rendered immune from small pox, practised systematic inoculation with cow-pox with such success that Jenner was led thereby to the introduction of vaccination.

The advancement of medical knowledge cannot, however depend solely upon such windfalls from outside the ranks of the profession therefore medical education must be planned on broad enough lines to give a common starting-point for the researcher as well as for the practitioner. Nor is the role of the practitioner at any time so completely separated that he may not, whilst engaged in practice, make discoveries that place him among the researchers. The converse unfortunately is less likely to happen, laboratory research may so engross the attention that the research worker may seek no further experience in the

practice of medicine. On the whole, the advantage is with the practitioner, for he can never abandon wholly the experimental method, nor need he cease to enlarge the boundaries of his own knowledge because he is observing the responses of human beings rather than those of guinea pigs.

THE PURPOSE OF A MEDICAL TRAINING

When a medical student is first qualified he has to recollect what he has learnt of the experience of others but presently he must rely on his own and he soon finds that experience must be actively gained, it does not fall into the lap unsought. The policy of "wait and see" does not succeed so well as that of "look and see." The purpose and design of the medical curriculum is to train the student partly in the science of "looking and seeing" and partly in the craft or technique of "doing." Or should one say the *art* of looking and seeing? For surely it is in a manner an artist's gift to be able to see clearly or as Dr. John Brown expressed it "all primary discoveries are made by men who are artists in the sciences in which they work."

It is a defect in our whole education that the artist's sense is deliberately repressed, the prizes tend to go to possessors of superior memories rather than to those who can observe and reason best. Matters are perhaps not quite so bad as when Swift could write

Our knowledge is but mere remembrance all
Remembrance is our treasure and our food

And Dugald Stewart had the courage to speak even plainer. "Those men," he wrote, "who are possessed of a memory for detached and insulated facts are very seldom distinguished by the higher gifts of mind. Men of little ingenuity seldom forget the ideas they acquire because they know when an occasion occurs for applying their knowledge to use they must trust to memory and not to invention."

PRELIMINARY STUDIES

Modern education and even medical education is beginning to set less value upon overloading the memory with unrelated and undigested facts than formerly. Epictetus long ago compared the memorizing system to the behaviour of sheep who after they had been feeding should prevent their shepherds with the very grass itself which they had cropped and swallowed instead of concocting it into wool and milk. The elementary sciences the pre-medical subjects of chemistry physics biology and botany are in the curriculum to familiarize the student with the structure

and behaviour of the materials with which, and upon which, he will have to work, also with the instruments that will aid him in his task. The student passes from generalized studies to a particularized study of human structure and function in anatomy and physiology, together with the chemistry and physics of living tissues. The main object of these studies is to train the eye to observe, the mind to reason, and the hand to act, though there is a danger that the intervention of examinations may obscure this object. Anatomy, above all other subjects in the curriculum, may be so taught as to become a matter of memory and nothing else. It is possible for a student with a retentive memory to gain the approbation of teachers and examiners by the very methods that would have caused the shepherds to slaughter Epictetus's sheep out of hand.

CLINICAL EDUCATION

The clinical portion of medical education embraces a somewhat different plan. The problems are the diagnosis of diseases, their prognosis, and treatment, or, better still, their prevention. An entirely new factor comes into play. Hitherto the student has been set the task of investigating the behaviour of materials by observing objective signs, his studies of human patients must include the interpretation of symptoms—that is, of discomforts and pains experienced and complained of by the patient. The interpretation of signs might conceivably become an exact biological science, but any scientist would justifiably reject the results of an experiment which involved so large a contribution of personal error as the description of symptoms given by an average patient. The marvel is not that doctors sometimes misinterpret symptoms, but that they ever learn enough of the art of happy guessing to come to any correct conclusions. Sometimes the symptoms or sensations of the patient are so unequivocal as to leave scarcely any margin of doubt. Sometimes there are objective signs which, taken in conjunction with the symptoms, lead to a correct conclusion.

In the interpretation of symptoms collective experience of the past, and especially records of post-mortem examinations, have their greatest value. In the interpretation of signs every artificial means of improving the instruments of observation must be welcomed. It is not so very long since the methods of diagnosis consisted in listening to the patient's account of his symptoms, looking at his tongue, feeling his pulse, and perhaps inspecting his urine. Slowly new methods forced their way in, each in turn meeting with some opposition. Auscultation and percussion have been in use for little more than a hundred years, the use of the clinical thermometer is not so old, all that is embraced in clinical pathology dates back at most some fifty years.

MEMORY, OBSERVATION, AND REASONING

Nowadays to probe deeper into Nature's mysteries of health and sickness the student must spend many hours, not in memorizing all the wisdom of the ancients, but in learning to use the tools of a calling in which every craftsman must observe for himself. Still there hangs over him the threatening storm-cloud of examinations. Tradition adds to the terror by persisting that examiners in clinical subjects prefer feats of memory to proofs of ability to observe accurately and reason clearly. Any accurate observer can be trusted to amass a useful store of experience, no store of remembered facts can come to the rescue of inaccurate observation. It is of little use knowing how to perform a given operation if the skill to perceive the need for the operation is lacking.

Medical education seems to the beginner to waste a great deal of time in the preliminary sciences, but their study involves the use of a large variety of instruments of precision: it imparts accuracy to the organs of perception, and trains the mind to logical reasoning. Clinical medicine demands the use of many instrumental aids to the organs of perception. The extremest and simplest illustration of their use lies in *x* rays, without which the eye of the keenest observer would be blind. The medical student then must learn by constant practice the operations of surgery, how to employ the stethoscope, laryngoscope, ophthalmoscope, cystoscope, and any other instru-

ments which represent to the doctor the telescope of the astronomer. Moreover, he must, in addition, use the microscope and the test tube.

BEDSIDE AND LABORATORY

At present there is a passing struggle over the place of laboratory work in the clinical curriculum. The struggle will pass as all previous ones have done, and the student of two generations hence will marvel to hear that the laboratory was ever kept at arm's length from the bedside. But the discoveries of one generation are the common places of the next, so that, as Courdoret phrased it, "two years employed under an able teacher carry the student beyond those conclusions which limited the inquiries of Leibnitz and of Newton," a truth which the teacher of clinical subjects occasionally overlooks. The student grows impatient of the "barrack square" drill which the time-honoured methods of inspection, palpation, percussion, and auscultation embody; he asks whether the *x* rays have not superseded this load-carrying labour. The teacher who insists on the old methods must be sure of his reasons for preserving the handicraft after the introduction of machinery.

After obtaining a qualification the newly fledged doctor makes his choice of practising his profession directly upon the actual patient or more indirectly by studying the general problems of the healing art without reference to individuals. In common parlance he must become a practitioner or a laboratory worker—although the distinction is inaccurate. Let some such distinction be dictated by purely economic considerations. Mere lack of time is one great economic force which separates the bedside worker from the laboratory worker. The former must listen to the patient's talk, and while the patient is talking the worker in the laboratory can go on unhindered thereby. It is not so much a difference in scientific method that distinguishes them as a different distribution in their fields of endurance. The laboratory worker is a patient watcher of tubes and Petri dishes; the physician a patient listener to the human voice, the surgeon adds thereto a patience in handiwork, and the obstetrician a mighty patience with the works of Nature.

The branch of medicine which the doctor decides to follow is often dictated by opportunity. Sometimes the decision is due to an evaluation of talents made by the individual or the teacher, sometimes it is arrived at by exhaustion of a particular field or fields of patience. Beyond and above these there exists in some natures a strong urge towards personal service, which seems to make direct contact with the patient imperative. Such natures are not inspired so keenly by the spirit of serving humanity in the abstract as by the sight of the individual imploring their aid.

THE VALUE OF A COMMON CURRICULUM

But for all these ultimate destinations the medical curriculum starts on the same lines and continues on the same lines up to the point of qualification. It is better that it should be so than that choice of diverse roads should be offered too soon to the undergraduate student. If the choice could be made too early the danger might arise that some part of medical practice would be relegated to an inferior caste of craftsmen with a shortened course of training.

Economic pressure occasionally brings out complaints that doctors ask too high wages, sometimes there seems a risk that "approved societies" might be content with, or even demand, something less than a full training for "panel practitioners." The like has happened before in the history of medicine when the monkish physician, despising the surgical handicraft, made over the surgical part of medicine almost entirely to the barbers. Fortunately the jettison was never complete, Henry of Mondeville, Guy of Chauliac, and John of Arderne helped to keep human surgery from falling to the level of saw-golding. It will be a sorry day if the education of the medical student divides too soon, so that the training for general practice becomes divorced from the training for research work.

This strange medley of a curriculum is worth retaining if it can give in our own time a Lister, a Hughlings Jackson, a Michael Foster, and a James Mackenzie.

THE ART OF STUDY ITS PRINCIPLES AND THEIR APPLICATION

BY

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STUDY, even of the sciences, is an art. But it is a lowly form of art, being with most of us a means to an end, and not to be pursued for its own sake. It is therefore desirable to make use of whatever general principles may increase our studious efficiency. Naturally, psychology is appealed to as the appropriate body of knowledge from which to derive such principles, and it may be of some interest and practical utility to set forth briefly the experimental and other psychological data whose interpretation may facilitate study. The data are not many, the deductions are neither of great value nor very novel, but they have some intrinsic interest, as well as one or two practical applications.

The problem of efficiency in study can be attacked from two sides—the subject-matter, and the mental processes involved. The latter alone can be dealt with here, the interest of the subject-matter depends upon its content and the manner in which it is presented by its professors.

THE MENTAL PROCESS

The mental process involved in study is, strictly speaking, a unitary whole, but several aspects of the process may conveniently be distinguished, these are principally attention, memory and association.

In considering, first, the mental process in its entirety, study may be regarded as a form of "mental work." Experimentally a "mental work" curve has been obtained from a simple task, like adding figures continuously. There is at first a general, but very irregular, tendency for a rise to occur in the number of figures added per unit of time, followed by a decline in the number added. Several factors are at work in producing such a complex curve. The influence of practice, which is most marked in the beginning and should lead to a gradual and continuous rise, is soon interfered with by fatigue. The latter is a complex affair, and its particular nature depends largely on the kind of task involved. Probably very little of the fatigue that appears in every mental task is actually mental in origin. In writing down additions, for example, there is the digital muscular fatigue, in reading there is ocular fatigue and so on. Much also of what masquerades as fatigue is the result of distraction—other objects attract the attention, and the main performance is interfered with. This is well exemplified in the difference in the amount of work done on a task that is of itself interesting, and on one that is merely boring.

Distractions operate much more readily in the latter case and reduce the output, thus simulating the effects of fatigue. But it is possible that a certain minimal amount of distraction is beneficial in increasing the mental output over short periods. For example, persons working an ergometer (against a load of one kilogram) with their upper limbs, and adding columns of figures at the same time were found in some instances to perform more work of each kind (mental and muscular) than when doing either kind alone. An illustration of the comparative indefatigability of mental performance as contrasted with physical performance was furnished by the feat of Dr Arai who multiplied pairs of four-place figures (for example, 2,738 × 4,912) continuously for twelve hours without a break. At the end of twelve hours of continuous multiplication she took rather more than twice as long to perform each complete four figure multiplication as she did at the beginning. Her efficiency was therefore still very high, as even at the end she was performing a feat which probably could not be equalled by two persons out of a thousand engaged in mathematical work" (Watson). Furthermore a normal

period of sleep completely restored her capacity, the work being repeated on four successive days.

Fluctuations in the rate of improvement in any mental performance take place in other ways. We may improve for several days at some task, and then fail to make any progress for a time after which the improvement may be resumed. It is quite likely that subconscious rearrangements have been occurring, which when they are completed, enable further improvement to take place. "Spurts" also occur, notably at the beginning, when the novelty of the task engages all the mental energy and at the end when the prospect of the satisfaction of a completed task is accompanied by increased attention to it—interest being the essential factor in both these instances.

There is another factor called "incitement" or the "warming up" that occurs as the task proceeds. It is as if our mental machinery had a degree of inertia which can be overcome only gradually. Hence the importance of continuity of working and the avoidance of outside interruptions. To be called away to a telephone even for a few minutes causes a greater loss in efficiency than is indicated by the mere loss of time, the output of work immediately after such an interruption is less than the output immediately before.

On the other hand it is found to be beneficial if brief "rest pauses" are introduced at considerable intervals during long periods of work. In this way, not only mental work may be made more efficient, but the output of factories has been favourably influenced. In a sweet manufacturing factory, where the working conditions were investigated by the National Institute of Industrial Psychology, an increase in output of 5 per cent was produced simply by the introduction of a few rest pauses at definite times in the working day. In a well known group of restaurants, the curve of breakages rose steeply in the late afternoon. By the introduction of a rest pause of about fifteen minutes duration at 3 p.m. the curve was flattened to an almost horizontal line.

It is usually considered that to transfer one's attention to another task after feeling "fatigued" at a previous one is efficacious in restoring mental efficiency. "Change of work is as good as a holiday" is an almost proverbial saying which is in part confirmed and in part controverted by experimental evidence. The so-called "subjective fatigue" (which is another name for boredom) certainly tends to be abolished in this way. There is some statistical mathematical evidence that a person readily bored by prolonged continuous work of one kind is likely to be similarly affected by continuous work of any kind—a conclusion which hardly requires such elaborate proof.

Two kinds of "objective fatigue" have been distinguished—specific and general. Specific objective fatigue as the name implies is not transferred from one operation to another—that is a change in the type of work abolishes it, but in a given individual it is apt to appear specially in a certain type or in certain types of mental work. General objective fatigue—a fatigue which having been induced by one type of operation persists after a change has been made to some other kind of work—may account for from 5 to 25 per cent of the total fatigue that is only 5 to 25 per cent of the original efficiency cannot be restored by a mere change of occupation (Spearman).

Several general deductions can be made from the experimental results that have been summarized. Mental fatigue is a matter of comparative unimportance. Only a small proportion of it (general objective fatigue) is probably attributable to cerebral activity. Even this proportion is readily abolished by a rest pause or by normal periods of sleep. The greater part of "mental fatigue" is made up of boredom (for which there are obvious remedies) or by

the so-called "specific objective fatigue," which is surmounted by changing over to another type of mental activity—for example, so simple a change as from the multiplication to the cancellation of numbers. Clinical experience bears out these experimental findings. "Mental exhaustion," "brain strain" from "overwork," and the like can be safely discarded as a hypothesis in 999 out of 1,000 cases. The apparent mental incapacity in such cases is nearly always the result, not of intellectual effort, but of anxiety or a kindred emotional disturbance, resulting from preoccupation with some personal problem. This is brought home very dramatically in the sudden recovery of persons complaining of "brain-fag," which has perhaps limited their work to periods of less than an hour each, when a source of worry is removed. For practical purposes the mind is almost tireless. On the other hand, violent physical exercise disables a person from concentrated mental work for some time afterwards. Even when there is considerable deprivation of sleep, intellectual accomplishment may be persistently maintained at a high level if the worker does not worry about his insomnia.

Another and a very obvious deduction from the experimental work is the desirability of arranging work in such a way that it can be carried on without interruption for several hours at a time if need be. "Warming up" can then occur to the full. Much the most difficult part of any study is the beginning of it. At the same time, a judicious arrangement of "rest pauses" (which need only be very brief) increases the total mental output. The loss of "interest" with such short pauses is not great. The distribution and length of the pauses has to be worked out empirically by each individual for the type of work that he does.

MEMORY AND ATTENTION

So much for the total mental process. We may now turn to some of its aspects. Memory is one of the most important aspects of the mental process involved in study. There are three distinguishable stages in memory—namely, the impression of an experience on the mind, its retention there, and its recall when wanted. It is convenient to consider these separately and to examine their conditions.

A very important factor in the impression or registration of an experience is the nature of the subject matter (its lucidity, etc.), but our present concern is with the most efficient mental attitude. It is well known that the clearness of our impressions depends largely on our attention to the objects producing them. The field or range of attention can be regarded as having a focus or central "area," and a margin. Objects in the focus of attention are more clearly perceived than objects in the fringe or "marginal field" of attention. This fact is very well established. Nevertheless it is interesting to know that objects in the fringe or margin of attention are sometimes much more distinctly and firmly impressed than at first seems credible. Thus Dr Morton Prince's subject, B. C. A., looked into a crystal (a method of bringing focal attention to bear on experiences originally in the "fringe"),

and saw there some printed words which had no meaning for her whatever and awakened no memory of any previous experience. It was afterwards found that the words represented a cablegram message which she unconsciously overheard while it was being transmitted over the telephone to the telegraph office by my secretary in the next room. She had no recollection of having heard the words as she was absorbed in reading a book at the time. The correctness of the visual reproduction is shown not only by the automatic writing (another method of recalling marginal impressions) which remembered and recorded the whole experience, but also by comparison with the original cablegram.

For ordinary purposes, however, the majority of us cannot rely on anything but focal attention. Ability to attend persistently seems to be directly proportioned to the degree of intelligence possessed by the person attending. Extreme instability of attention is a symptom in mentally defective persons. By experiment it is found that a lapse of attention, usually unnoticed, occurs in normal persons every few seconds. For example, if a watch be placed just within hearing, it is found to become alternately audible and inaudible. Fatigue and alcohol increase, while bromide is said to diminish the depth and duration of these lapses. Any toxæmia besides alcohol, and organic brain disease,

have a similar effect in producing frequent and prolonged lapses of attention. This increased fluctuation of attention, or "mental-tension defect," is a useful diagnostic sign. It helps also to account for the greater difficulty in studying experienced after a meal with which alcohol has been taken.

Useful attention—that is, attention to the task in hand—is disturbed more often by preoccupation with other interests than by any other cause. "Single mindedness" is essential for efficient work of any kind, and certainly not least in studious occupations. Where persons (n. s.) suffering from organic brain disease and demonstrable toxæmia complain that their concentration is very bad, it is usually safe to reply that, on the contrary, it is very good, but it is directed faultily towards some personal source of worry.

The second, and more exclusively memorial, aspect of memory process is the retention of an impression on the mind. James considers retentivity to be immensely important.

"The persistence or permanence" of impressions "is a physiological property of the brain tissue of the individual, whilst their number is altogether due to the facts of his mental experience. Let the quality of permanence be called physiological retentiveness. This tenacity differs enormously from infancy to old age, and from one person to another. Some minds are like wax under a seal—no impression, however disconnected is wiped out. Others like a jelly vibrate to every touch but under usual conditions retain no permanent mark. Those latter minds, before they can recollect a fact must weave it into their permanent stores of knowledge. They have no *desultory* memory. Those persons on the contrary, who retain names, dates, and addresses, anecdotes, gossip, poetry, quotations and all sorts of miscellaneous facts without an effort have *desultory* memory in a high degree. No one was probably ever effective on a voluminous scale without a high degree of this physiological retentiveness. In the practical as in the theoretic life, the man whose acquisitions stick is the man who is always achieving and advancing whilst his neighbours, spending most of their time in relearning what they once knew but have forgotten, simply hold their own. A Charlemagne, a Luther, a Leibnitz, a Walter Scott any example in short of your quarto or folio editions of mankind must needs have an amazing retentiveness of this purely physiological sort. Not that mere tenacity will make a man great. It must be coupled with great passions and great intellect besides."

Imbeciles sometimes have an extraordinary, and extraordinarily limited, memory. Forbes Winslow (quoted by Tiedgold) mentioned the case of a man who "could remember the day when every person had been buried in the parish for fifty-five years, and could repeat with unvarying accuracy the name and age of the deceased, and the mourners at the funeral. But he was a complete fool. Out of the line of burials he had not one idea, could not give an intelligible reply to a single question, nor be trusted to feed himself."

Mere memory, then, in the sense of physiological retentiveness, is not enough. To have it in high degree is a great asset, but unless its stores are utilizable in an intelligent way, a phenomenal memory is of little help and may even be a hindrance. It is nevertheless natural to inquire whether this native retentiveness can be improved in any way. James holds that it cannot. McDougall thinks he has proved that it can be improved by repeated exercise, but the improvement he claims is slight of the best.

Experiments on the power of retention in normal individuals yield some interesting results. The experiments have principally been performed with series of nonsense syllables (that is, syllables like "rel," "tes," "bup"), because this is the simplest material for testing pure retention, and the least likely to be complicated by other functions, such as associations of ideas. If a series of, say, sixteen such syllables has been completely learned, a "curve of forgetting" is obtained. Two things can be observed from such a curve that it falls off at first very rapidly and then much more slowly so that nearly 50 per cent of what has been learned is lost in the first hour, but only a further 16 per cent at the end of a day and a further 14 per cent (80 per cent in all) at the end of a month.

Evidently, therefore, so far as this experiment goes what we have learnt within the last few hours benefits us little more than what we learnt twenty-four hours or even many days ago. Superimposing two curves, one twenty-four hours older than the other we obtain a comparatively slight difference in the quantity retained after twenty-four

hours. Hence it would appear that the last night's cram before an examination is of little benefit. Unless for the acquisition of entirely new material, we lose comparatively slightly by abstaining from all work in the last few days before an examination, and probably gain considerably in that elusive quality called "freshness."

SUBCONSCIOUS ELABORATION

Mental freshness as opposed to "staleness" is probably dependent on several factors. One of these is "retro-active inhibition"; it has been found by experiment that if two tasks are learned in quick succession the acquisition of the second to some extent impairs the memory of the first. Another factor in "freshness" may depend on this: there is probably involved, in the learning of any task, a process of subconscious elaboration, which occurs more readily in the intervals of freedom from intensive conscious mental work. This subconscious elaboration is evident in dreams. Coleridge is said to have written *Kubla Khan* from the memory of a dream he had while sleeping under the influence of opium. He had been reading a passage about the palace of Kubla Khan from Purchas's *Pilgrimage* just before he fell asleep, and he wrote down all he could remember of his dream immediately on waking. Usually, however, where composition occurs in dreams and seems to the dreamer to be of superior quality, he finds that what seemed so wonderful in the dream is commonplace, or even meaningless, on waking. Graham Wallas, in his book *The Art of Thought*, records that a relative of his woke one morning with the conviction that she had achieved immortality by the lines

'Leave then thy steed
And let it feed
On more than meets the eye'

On subconscious elaboration seems to depend also the not uncommon experience that a problem—say, a geometrical rider—which has puzzled a person for hours of an evening, may very rapidly be solved with but little more effort on waking the next morning. Similarly, some hysterical persons have the reputation of showing much better arithmetical ability in their dissociated state than in their ordinary waking condition. In composing a dissertation on some subject, especially if it is of a theoretical kind, a similar process occurs. One reads up all the relevant literature, which is necessarily come by in a disconnected way, but when one proceeds to write down the impressions gained from it, and to incorporate them in whatever view one has of the subject, the dissertation seems largely to write itself, the views of others fall relevantly into place in a natural fashion, suitable collocations often occurring in a way certainly not realized before the actual writing was begun.

Instances of a more fruitful kind of subconscious elaboration have frequently been related by men of the rank of genius. It was de Maupassant, I think, who said, *Ce n'est pas moi qui pense ce sont mes idées qui pensent pour moi*. Helmholtz, speaking of his methods of thought, said that, after preliminary investigation of a problem, "happy ideas come unexpectedly, without effort, like an inspiration. So far as I am concerned, they have never come to me when my mind was fatigued, or when I was at my working table. They came particularly readily during the slow ascent of wooded hills on a sunny day."

Wallas divides the process of elaboration of new ideas into four phases. The first of these is Preparation, the stage during which the problem was investigated in all directions, the second is the stage, during which Helmholtz was not consciously thinking about the problem which I shall call Incubation, the third, consisting of the appearance of the 'happy idea' together with the psychological events which immediately preceded and accompanied that appearance, I shall call Illumination. The fourth stage is that of Verification, in which "the validity of the idea is tested and the idea itself reduced to exact form."

It is clear that if these methods of geniuses hold also for lesser men, periods of freedom from conscious mental work are more than justified. Psychologists have recently argued against this view, which was dramatically overstated in the pronouncement, "We learn to skate in summer and to swim in winter." But most of us have noticed that our best

ideas, poor things as they may be, often come to us while we are shaving, or in our bath, or engaged on some other desultory activity involving no mental effort. The philosopher Hobbes kept a little notebook where at any hour of the day he would enter the thoughts that "dart" into the mind from the "fringe" of consciousness. Graham Wallas recommends that "anyone who is living a life of intellectual production will do well to keep, as Darwin did, a rather considerable number of 'folders' or envelopes, labelled with the names of subjects to which he finds his mind recurring even although he may not immediately contemplate writing, or lecturing or acting on them." In corollary also the danger from another aspect of too much and too continuous reading has to be remembered: such habits of reading teach us not to think for ourselves but to expect our ideas always to be spoon-fed into us. Independent observation and, wherever it is practicable, experiment to "find out the secrets of nature," are the best correctives.

MEMORY AND ASSOCIATION

To return to nonsense syllables it is dangerous to argue from the learning of these to the learning of sensible material such as comprises any connected body of knowledge. Into the acquisition in memory of the latter much more enters than mere "physiological retentiveness," whereas the learning of the former implies merely the formation of motor habits. A poem or piece of prose is much more completely and easily remembered, as everyone knows, than a series of disconnected words. Nonsense material committed to memory has been found to have disappeared completely at the end of four months, whereas verse will persist for years. An old man, with such senile cortical deterioration as causes him to forget completely what occurs from day to day, will recollect whole series of verses which he committed to memory sixty years before. Frequently one sees advertisements of methods of improving the memory. Even if it be admitted that innate retentiveness, in James's sense, can be increased, which is doubtful, the principal improvement in memory must depend on the multiplication of associations, and most of the advertised tonics for invigorating a feeble memory utilize this fact. Ingenious methods, such as the formation of mnemonics or the invention of 'figure alphabets,' in which each numerical digit corresponds to a letter, are typical of the schemes recommended. James mentions a system advocated by E. Peck in 1833, which consisted in linking together any two ideas by means of an intermediate idea. Such 'ingenious methods' occupy more time than they are usually worth.

The number of associations that a new body of information forms for itself depends upon the number and kind of previous acquisitions. One of the most important—probably the most important—factor in a good memory, especially in the sense of a serviceable memory (and not of mere mechanical registration and reproduction) is the multiplication and verification of the connexions of our experience. To take a very simple example in preparing for an important examination it is unwise to use only one textbook. Some textbook or other should be made the mainstay, but reference to another, even by borrowing it from time to time, will present new viewpoints, or at least will present things in a somewhat different order, in such a way that new associations will be formed for the material gleaned from the staple volume. Still more important is it to talk about the subject in as many of its bearings as one's fellow students can be prevailed upon to discuss (which may not be many). "If a man confer little," says Bacon, "he had need have a present wit." Attendance at lectures has a similar justification. If the lectures are expositions of a subject, and not mere essays read aloud in public, they stimulate associations in the same way. In these days of cheap and well made books this is one of the few remaining justifications for the survival of systematic lectures.

In merely learning anything by heart certain devices are of value. The grouping of the material to be learned into intelligible unities naturally occurs to everyone. The presence of rhythm makes learning easier, for example, poetry is easier to learn by heart than prose. This is presumably related to the fact that every mental and bodily activity tends to be rhythmical. It has also been

found experimentally that if a poem of several verses has to be memorized, it is more economical and effective in the long run to learn it as a whole, rather than stanza by stanza.

Interest is naturally also of vast importance. We remember best what interests us most, although the retention of what has not appeared to interest us at the time, but has remained in the "marginal field," is sometimes remarkable, as we have seen. Interest reduces, also, the effort both of attention and remembering, and it increases the powers of observation as well. It is a frequent occurrence that when a name or a word which we do not seem to have encountered before comes to our notice, and which interests us by its very unfamiliarity, it crops up repeatedly in our experience in the next few weeks. On a similar focusing of interest depends the common "fallacy of the positive instance." Interest leads also to selection. Under the influence of interest we select—often without realizing it—what we wish to remember. But everything should not be left to this more or less instinctive selection. There is with some people too much slavish routine reading, too much of ploughing through masses of more or less unnecessary and irrelevant texts, omitting nothing, lest anything be missed, as some people read every page even of the inferior works of fiction produced by a good author. "Some books are to be read only in parts, others to be read, but not curiously, and some few to be read wholly, and with diligence and attention." Closely related to interest and attention is the general attitude of the student. Too many men sit down to a book or a problem without troubling to form a general notion of what they expect to get out of it.

It has been held by some that every experience is retained—everything seen or heard or done in our life up to date—that nothing is ever completely forgotten. There is no evidence for this statement, and it would be very awkward if it were true. "A good memory for forgetting" sounds like a contradiction in terms, but consider what would happen if we did not, for all practical purposes at least, forget much of our experience. Otherwise, in recalling some event we would laboriously resuscitate every smallest detail that had ever happened contemporaneously with it, and its recollection would occupy nearly as much time, perhaps, as the event itself. In this way we would never be done and could hardly have time available for registering new impressions from the intruding complex burden of the old. How much, for example, of the events of our earlier years do we seem to remember? The first ten years of our lives we could perhaps dismiss in as many minutes, having recollected all we can of them. Nevertheless, although our memory is not of everything we ever experienced, modern psychopathological research has shown it to be much greater than was formerly suspected.

Memory then, so far from being all-inclusive, is selective. The best memory is possessed, as we have said, by the man who makes the greatest number of associations with his experience, but the most effective memory is a combination of associative richness with selection. The organization of memory in accordance with one's prevailing interests is the most effective organization. The man who thinks about his experience has much the better memory. This, by the way, marks the point of distinction between crammed information and real knowledge of a subject. In cramming one does not think—few associations are formed, real knowledge involves organized associations formed under the influence of continued interest.

Much better than a slavish devotion to the minutiae of one subject, is a study, less minute, but more comprehensive, of several. It has frequently happened that outstanding contributions to one science have been made by men trained in some other, they have, in consequence, approached problems from a new and fruitful aspect. For example, physicists have contributed much to astronomy, chemists to physiology, and mathematicians to everything. It is interesting to find how many of the men who have done exceptional work in one branch of medical science have begun their medical work in some other, often only distantly related. The absence of a narrow specialism has been until recently (and still is, to some extent), one of

the glories of medicine in this country. "For expert men can execute, and perhaps judge of particulars, one by one, but the general councils, and the plots and marshalling of affairs, come best from those that are learned in many fields." Fertility of invention arises largely from the interplay of associations, diversity of interests (provided that intensity of interest does not suffer) facilitates such interplay.

HABITS OF WORK

Associations can be multiplied not only between cognate fields of knowledge, but within each field itself. Some of these methods have been mentioned above, for example, by discussion and debate, and by reading different books in the same field. There is another method, which is among the most efficacious, and that is, to write about the subject. To quote again the inexhaustible Bacon, "Reading maketh a full man, conference a ready man, and writing an exact man. And, therefore, if a man write little, he had need have a great memory." It is not, however, merely that writing about a subject improves the memory of it, still more it improves the clearness of a subject in the mind. Writers of monographs and textbooks not infrequently acknowledge that the persons to whom the writing has been most beneficial are the authors themselves. Lord Kelvin is reported to have said that he did not feel that he fully understood anything until he had made a working model of it. Most of us cannot, without disproportionate labour, make a working model of a problem in carbohydrate metabolism, or even of a murmuring heart, but to be able to write a coherent and lucid description of such things is a great advance on merely having memorized some textbook account of them. It is not possible to perform this service for every topic while preparing for an examination, but how seldom is it done even for the most difficult. One of the most valuable of such exercises is the writing of "papers," especially papers on some piece of "original" work (it need not be very original), and not merely critical summaries of literature. The latter, however, can also be very useful in this way, for the reading of original articles in the medical press and the constructive summarizing thereafter of a number of articles on kindred topics is a pleasant and often very stimulating variant to poring over textbooks. It also has the advantage of "mobilizing" one's knowledge. Original work, being less cut and dried and dogmatic than textbooks leads to questioning and to an open mind. The air of authority, too, is less overwhelming in them than in standard books, the constant perusal of which, if unvaried by occasional resort to originals, tends to stifle intelligence. The first few years after graduation have often to be spent by the young medical man in ridding himself of the unquestioning faith in authority and the printed word that he has acquired during his student days, and of the parrot-like habits of memorizing, rather than understanding, a subject which, in defiance of the methods recommended above, many men adopt in their work for examinations. It is a good thing that the student should regularly read—in selective fashion, of course—one of the current general medical periodicals, together with occasional numbers of the more specialized journals, dealing with any subject to which he happens to be specially attracted.

Finally, method, in the sense of orderliness, is a great asset, not only in the acquirement of learning, but in its serviceableness afterwards, and so long as it does not become a fetish, it betokens an orderly mind. The methods adopted must vary with the individual, and with the nature of subject which he is endeavouring to master. Some lay stress on regularity of working habits, it is a good thing, for example, to have a prescribed routine of beginning work at certain hours and working for a certain period of time. A habit can be thereby established which, like every habit, has a certain dynamic effect of its own. Moreover, habit facilitates the "slow dead heave of the will" that overcomes the inertia existing in the most willing people at the beginning of any task, and which is probably a property of mind itself, and even that other inertia which is present in the rest of us, and is a thing of the spirit.

I have to thank Dr. Shepherd Dawson, Dr. C. P. Blacker, and Professor T. B. Johnston for valuable suggestions.

The Profession of Medicine.

INTRODUCTORY

THE profession of medicine, like every other, has its advantages and its drawbacks, and all who think of entering it should try to weigh the one against the other. Our main object throughout this Educational Number of the *British Medical Journal* is to be of assistance to prospective students and their parents, and to those who have lately joined our ranks. Thus, while the pages that follow give full information about the steps that must be taken and the studies that must be pursued in order to become a registered medical practitioner, the Educational Number as a whole is much more than a mere abstract of prospectuses and regulations. It is intended to serve as a kind of guidebook both for those wishing to know what a medical career has to offer, and for others who, having obtained a legal qualification to practise, are uncertain about the line of work for which they are best suited. As in past years, this introductory article gives an opportunity to review some aspects of medical study and practice to-day, in order to put the situation as we see it before those who think of devoting themselves to medicine, and thus help them to gauge their fitness for the calling and the prospects it holds out.

The intending student will find in subsequent pages an account of the course of training required of him, the places where it can be obtained, and the universities and other licensing bodies which test the knowledge gained and confer degrees or diplomas certifying successful candidates to become legally qualified medical practitioners. Sections are included also on post-graduate medical study, on the higher qualifications, both general and special, and on the many and varied spheres of medical work open to registered medical men and women at home and abroad. The details given are founded for the most part on official information, and are arranged along the customary lines.

THE GROUNDWORK OF MEDICAL STUDY

"The most important thing in the education of a really good doctor is his general education." This is the plain truth, spoken the other day to an American audience by an authority on medical education in this country. Next in importance is a good scientific education—a thorough grounding in the basic principles of science. Upon these the student of ordinary intelligence and industry can build up an adequate technical equipment for the practice of his profession. Medicine is an art founded on science; hence the need for a real training in science and the scientific spirit. The temptation to take short views and shortcuts is very strong in the early years of the medical curriculum, but a greater mistake cannot be made than to work at any branch of preliminary study as though it were something to be thrown aside and forgotten when the examination immediately ahead has been passed. The student who has had a good general education and who uses this to master the essentials of each of the fundamental subjects need have little dread of examiners. Moreover, these sciences give a drilling in exact methods in precise manipulations, and in vigorous reasoning which will bear immediate fruit in the clinical part of the curriculum and prove of lasting benefit throughout professional life.

The purpose of a sound training in medicine is to raise on scientific principles a solid structure of practical knowledge and practical skill. Students who keep this in

mind will look upon "exam work" as a weakness in the foundations, and therefore as a hidden danger to the superstructure. Chemistry, physics, and elementary biology prepare the way for anatomy and physiology, and so for medicine and surgery and obstetrics. All authorities are agreed that these preliminary and intermediate sciences form the only appropriate introduction to the study of medicine. It has been well said of the great John Hunter that he "studied anatomy and physiology to get help in diagnosing and treating his patients. He studied dead things to understand the living, and observed living things to understand the dead. A knowledge of how this body is made and how it works must provide the basis for all the more practical subjects of medicine." So much for the groundwork.

PORTALS OF THE PROFESSION

The obvious goal of every student is the entry of his name in the *Medical Register*, which is the official statutory list of qualified medical practitioners kept by the General Medical Council. Those who are not acquainted with the system of medical teaching and examination in these islands, and with the history of our professional institutions, may well feel bewildered at the number and variety of ways in which admission can be obtained to the *Register*. They will see in the table of contents to this Educational Number that there are no fewer than twenty-seven bodies—eighteen universities and nine corporations—which either separately or jointly issue registrable qualifications, and the number of teaching institutions is even larger. Nevertheless, although we have no single State examination in medicine—no "one portal" as it has been termed—the medical courses of the various universities and schools in Great Britain and Ireland run on parallel lines and the obligatory curriculum is much the same for all students. As, however, the individual teaching and examining bodies have different standards and requirements, the choice should be made early, so that a definite plan may be followed. A candidate may, through ignorance, either choose a portal beset with so many difficulties that time and energy which might more profitably be used in some other direction are wasted in efforts foredoomed to failure; or, on the other hand, he may choose one which too late he finds does not open the way to a career suited to his taste and ability. It is therefore important to gain some idea of the value, in different walks of medical life, of the various degrees and diplomas, and of the comparative difficulties they present.

All who wish to enter the profession must comply with certain conditions. These are regulated by the General Medical Council which is a statutory body set up under the Medical Acts, a summary of its functions and requirements is given at page 375. Many changes have lately been made in the medical and pre-medical curriculum, and this section, as well as the article on Professional Study and Examination should be studied with care. It is the business of the General Medical Council so far as possible, to see that a suitable kind of training and the requisite degree of knowledge are secured to the student, and it is the business of the medical schools and examining bodies to give the training and test the knowledge in accordance with the requirements of that Council. Every student, after passing examinations in the subjects of general education and in the preliminary sciences of chemistry and physics, must take a course of training at a recognized

* Sir Norman Walker. Medical Education in Great Britain and Ireland. *Journ. Amer. Med. Assoc.* April 14th 1928 p 1181.

* Sir Arthur Keith. *British Medical Journal* September 4th, 1926 p 410.

medical school, covering a period of at least five years, but usually extended to six years or more.

Examination of candidates as to their fitness to practise medicine, surgery, and obstetrics is left to the licensing bodies, which are of two kinds—the universities, and certain medical corporations in England, Scotland, and Ireland. The requirements of these licensing bodies are summarized elsewhere under separate headings. One of the functions of the General Medical Council, besides that of keeping the *Medical Register* and maintaining discipline within the profession, is to make sure that the tests at each stage do not fall below a certain standard, and that the students examined have undergone prescribed courses at approved institutions. Successful candidates eventually receive either degrees, in the case of a university, or diplomas or licences, in the case of a corporation, these qualifications entitle them to claim insertion of their names in the *Medical Register*. Every student, as soon as he obtains his qualification to practise, should at once register, otherwise he cannot hold a public medical appointment, or sign any certificate required from a legally qualified practitioner (such as a death certificate), or recover professional fees in a court of law.

Holders of diplomas and licences once made up the great majority of all medical men, especially in England and Wales. But universities have greatly multiplied, and so many practitioners are now graduates in medicine that a student at the threshold of his career will do well to consider the advantages of possessing a degree, though it may be desirable to take also a diploma or licence. The medical degrees (M.B., M.D., etc.) granted by the universities in Great Britain and Ireland are mentioned among the particulars about each university printed in later sections.

COST OF MEDICAL EDUCATION

For the ordinary student the cost of medical education resolves itself into the cost of the training at medical school and hospital, and the cost of living during the five or six years of the curriculum. The expenses under these two main headings vary considerably. Besides differences in the charges made for instruction, there are differences in examination fees, as well as in the fees for certificates of qualification, and those who seek the higher degrees and diplomas must expect to pay more for the additional courses and tests and certificates. Again, not all students, however industrious, have the knack of imparting what they know to an examiner, and every setback due to failure in the examination room or to illness means added expense. School and examination fees, together with the cost of board, lodging, clothes, and recreation, form the largest items of expenditure, and to these must be added the money spent on books, microscope, instruments, and so forth. Since professional education must in any case continue for five years at least (a period exceeded by the vast majority), and since the cost of living in different parts of the country varies much, while personal expenditure varies still more, it can only be said in a general way that anyone who thinks of entering the profession should be prepared for an outlay of at least £1,500. Something between two-thirds and three-quarters of the whole amount would probably be spent on maintenance, and the rest in fees, etc., for tuition and examination. The composition fees charged by the different medical schools are stated in the paragraphs relating to each on other pages of this issue. In making any kind of 'trial estimate' the manifold helps available nowadays for the reduction of expense should not be ignored. At nearly all the medical schools more scholarships and money prizes are offered now than in the past, at the Scottish universities bursaries are numerous, and the Carnegie Trust (whose regulations are summarized at page 387) gives pecuniary help to many Scottish students. The main thing to bear in mind is that,

as compared with other professions, the period of training in medicine is long, and for most students expensive. Further guidance on this matter will be found in a memorandum,¹ drawn up by the Registrar of the General Medical Council, on the procedure to be followed in order to enter the profession. This pamphlet gives much useful information, including a comparative table of the cost of study and examination at the various institutions.

Medical students are not commonly the sons or daughters of wealthy parents, very often their education puts a heavy strain on a slender family purse. Hence, before setting out upon this long and exacting course of study, it is usual to weigh, not only the cost, but also the prospects. An overcrowded curriculum would be hard to face if all that could be discerned at the end of it were an overcrowded profession. Without forgetting the adage "there is always room at the top," the youth and the girl of to-day, when reckoning up their chances in any calling, will wish to know the probable numbers of their competitors for the work that is waiting to be done.

THE NUMBERS OF MEDICAL STUDENTS

The following brief survey of the numbers of new medical students in recent years should be read with the notes and tables printed at page 374 on the numbers of registered practitioners. More new students mean more new doctors five or six years later, though, as the chart shows, there is in normal times a fairly constant wastage, due to one cause or another.

For the last thirteen years of the nineteenth century the average entry of medical students in Great Britain and Ireland had been about 1,800, but for the next thirteen years the average was about 1,400. During the war period, although many left to serve with the forces, the whole number studying in the schools grew steadily larger. Thus in 1914 the entries rose to 1,600, and in 1915 to 1,918, in 1916 they were 1,875, in 1917 they rose again to 2,150, and in 1918 they were 2,253, while in the following year, when demobilization was in active progress, as many as 3,420 new students were registered. After 1919 the number of entries rapidly fell. They were 2,531 in 1920, 1,808 in 1921, and 1,833 in 1922. In 1923 they dropped suddenly to 545. This abrupt falling off was, however, more apparent than real, the reason being the introduction in that year, under the new regulations, of a pre-registration test in elementary physics and chemistry. In 1924 the students' entries were 1,043, in 1925 they were 1,070, in 1926 they rose to 1,260, and last year they were 1,214.

The recent decline is an advantage, because the excessive entries of students during the post-war inflation period, if they had gone on long enough, must have led to overstocking of the profession. In the past six years the numbers of new practitioners have greatly exceeded the usual pre-war figure of eleven hundred or so. Registrations in 1922 numbered 1,983, they rose to 2,482 in 1923, and to 2,796 in 1924, in 1925 they were 2,570, in 1926 2,120, and last year 1,941. The large additions to the profession in recent years brought the total number of names in the *Medical Register* up to 53,769 at the end of 1927. This is nearly ten thousand more than the figure for 1917, and fourteen thousand more than that for 1907. There has been no corresponding increase of population in the British Isles during the same decennial periods, and the ratio of doctors to inhabitants is therefore much higher now than ever before. It is true that the scope of medical practice has widened considerably in the meanwhile, and many fresh openings for professional work have followed the growth of diagnostic, curative, and preventive methods, and the rapid development of administrative medicine.

¹ Memorandum on the Procedure to be Adopted by those who intend to enter the Profession of Medicine, with Notes on Costs and Prospects, 1927. General Medical Council, 43, Abchurch Lane, Portland Place, W.1. Price 1. post free.

But there must be bounds to the legitimate medical needs of the community. The new regulations of the General Medical Council, though they were drawn up for another purpose, have tended so far to keep the entries of students within manageable limits and so to maintain a balance between supply and demand.

On the whole, it may be said that for those of good average intelligence and physique who are not afraid of work, the prospect in medicine to-day is quite favourable. The medical profession of this country is not overstocked. Its numbers are still badly distributed, though perhaps not quite so much so as at the beginning of the century.

ATTEST REGISTRATION CHOICE OF A CAREER

The student, having passed all his tests and placed his name on the *Medical Register*, becomes a member of the profession and assumes the privileges and responsibilities that go with legal qualification. But after a qualification to practise has been obtained there is usually a period of transition from the stage of the medical student to that of the established medical practitioner. This time may be put to the greatest advantage by serving as house-physician, house-surgeon, or casualty officer in a hospital by working as assistant or locum-tenent in private practice or by seeing something of the world as a ship surgeon. As a preliminary to practice of whatever kind, nothing is so useful as a year or more spent in junior hospital appointments and all who can afford the time should look upon the holding of such posts as a most profitable investment.

If his mind is not made up already, the young practitioner has now to consider in which branch of the profession he can put his abilities to the best use. The choice is very wide. Among the great variety of paths open to those with different tastes and talents are general practice in town or country, Government service at home or abroad including, of course the medical branches of the Navy and Army and Air Force, and the I.M.S. public health appointments and other administrative or official posts, institutional work, such as that of the mental hospital and Poor Law medical services, and special work in scientific research and teaching, or in one of the many subdivisions of clinical medicine and surgery. Most of these careers are discussed in some detail in the later sections of this Educational Number, but a few words may be said here about general practice and the work of a consultant or specialist.

Further information and advice on such matters will be found in the *Handbook for Recently Qualified Medical Practitioners*, published by the British Medical Association.¹ This comprises articles on the main openings for members of the profession, on some practical aspects of medical work, especially the legal and ethical aspects, on registration and the privileges of practitioners, on medical practice under the National Insurance Acts, on post-graduation study and special diplomas on specialization and consulting practice, on the fellowships, scholarships, studentships, prizes, and research grants open to students and practitioners, and on societies undertaking individual medical defence. The section dealing with practical aspects of professional work will be found of much value to all medical men and women. It embodies a great deal of advice on professional conduct in general, on medico-legal difficulties of common occurrence, and on the relations between doctor and patient and one doctor and another.

GENERAL PRACTICE

General medical practice has hitherto been, and still is, the destination of the great bulk of students. It is estimated that three-quarters at least of those who pass out

of the medical schools become "family doctors" sooner or later. The work is onerous and the pay too often inadequate, but there are compensations, for it is a full life rich in human interest, and many of the very best students now as formerly, choose general practice as a career. Their work is of the utmost value to the public and the profession, because it sets a standard for the branch of medicine in which the generality of students sooner or later become absorbed.

This field of professional life is usually entered in one of three ways. The newcomer may take a house, put up a plate, and wait for work to come to him, he may buy the goodwill of a practice rendered vacant by retirement or death, or he may become a partner in an established firm. The first is more risky than the second, and the second than the third. A well managed partnership of three or more has this advantage over single-handed practice, that it allows each partner leisure for recreation and for keeping up with the progress of medicine. Success in private practice demands a great deal of knowledge beyond that gained at the medical schools, and hence a man is more likely to be accepted as a partner, or to do well on his own account, if he has already some experience as an assistant or deputy. A good many general practitioners therefore begin their work as assistants, and of these few find cause to regret the time spent in learning the ropes under the eye of an experienced senior. As the circumstances of general practice vary much from place to place it is usually best to serve this "post-graduate apprenticeship" under conditions resembling those to be met later. An all round knowledge of practical medicine, surgery, and obstetrics should, if possible, be supplemented by skill in some special branch of work, and the experience gained when holding clinical assistantships or resident posts (not necessarily in teaching hospitals) will prove invaluable in general practice.

The fundamental value of the work done by the general practitioner is better appreciated now than in the past and it is more fully recognized that an efficient medical service must be based upon the skill and devotion of the family medical attendant, working in close touch with the aims and methods of preventive medicine. Under the conditions of to-day his place in the community is more important than ever before. Private practitioners now take a wider view of their duty towards the environment and the habits of their patients than in former times, when they were almost wholly concerned with developed disease in individuals. The doctor of the future will come more and more to study early disturbances of function—the threshold of disease—and the maintenance of bodily and mental health in varying conditions of life and work. While this is all to the good, it cannot be denied that encroachments on private medical practice are perpetually being made, here a little and there a little under the auspices of the State and of voluntary bodies. If such inroads threatened only the material interests of the individual doctor they might have to be endured, like much else that goes on in the name of progress, but it is not difficult to show that in the long run many of them must react against the public interest also. Another trial for the private medical practitioner arises from the multiplication of official requirements and administrative checks imposed by public authorities. Apart from the clerical drudgery thus put upon him, these new demands must tend to cramp the doctor's independence of judgement and action and to divert his mind from purely medical duties.

The national system of compulsory health insurance, now more than sixteen years old, has inevitably had a profound influence upon the great bulk of private practitioners in

¹ *Handbook for Recently Qualified Medical Practitioners*. British Medical Association, Tavistock Square, W.C.1. (3s. 6d. net post free 3s. 9d.)

² A book of practical advice for the newly qualified entitled *How to Start in General Practice* by Isaac C. Briggs is published by John Murray, price 6s.

this country, so much so that it is already difficult to call up a clear picture of what medical practice was like in working-class districts less than a generation ago. The Insurance Acts provide domiciliary medical attendance for some sixteen million persons, and nearly 15,000 members of our profession now undertake responsibility for the medical care of this vast section of the population. These practitioners, by placing their names on the panel (or medical list) signify their assent to the terms of service set out in the Medical Benefit Regulations and other relevant provisions. It would have been strange indeed if a measure so far-reaching and so complex had not brought about great changes in the conditions of general practice, with some detriment to the freedom of the individual doctor. On the other hand, there is general agreement that the panel system has provided a better service than existed under the old "club" arrangements, though it is by no means as complete or as effective as it might be made. Some of its worst faults have been removed through the efforts of the Insurance Acts Committee of the British Medical Association, which represents the interests of the insurance practitioners in all negotiations with the Ministry of Health. "Under the Act as it stands much more could have been done, and should be done, in the matter of wise propaganda directed to the means of preserving health and of preventing disease, but, taking the Act in general, with its many inherent administrative difficulties, it can be said that the major provisions are being sympathetically and effectively implemented. But the degree of success so far attained in itself calls for further and fuller developments, which in due course should be equally available for all insured persons regardless of their membership of any particular society."¹

CONSULTANT AND SPECIALIST PRACTICE

The term consulting practice may be said to comprise in ordinary usage the work of the general medical consultant or "pure physician" and that of the general surgical consultant or operating surgeon. Most general consultants, whether medical or surgical, are specialists in some branch of their practice, and most specialists are consultants in the sense that their work largely comes to them through the recommendation of other practitioners, with whom they act (or should act) in a consultative capacity. In any case, whoever holds himself out as one or the other or both must be assumed to have knowledge and skill above the ordinary.

To be a competent specialist a man should possess, as a background to his expert attainments, a comprehensive knowledge both of medicine and surgery, and if possible should have practised for some years before starting on his own line of work. Intensive study is required of those who aim at becoming consultants or specialists, and they should look upon hospital posts, especially where there are students to be taught, as a vital part of their higher education. For them, as for practitioners of all branches, success will depend in the long run, not only upon mental gifts, special experience, and capacity for hard work, but on the possession of those qualities which inspire confidence both in patients and in colleagues. Moreover, since the consultant or the specialist can scarcely hope at first to pay his way by consulting work or by the exercise of his specialty, he must either have private means, or be prepared, by teaching or in other ways, to make ends meet. If while in preparation for his life-work he can undertake some piece of research bearing upon his clinical studies, this is most advisable, and there is much to be said for spending some months in visits to foreign clinics.

Additional degrees and diplomas are important factors in securing election to the visiting staff of a large hospital, and a few remarks about them may be made here. Beyond the qualifications, such as Bachelor or Licentiate, which admit to the *Medical Register*, most of the licensing bodies bestow higher titles, such as Doctor, Master, or Fellow, after further tests. A considerable number of those who have graduated M.B., including many general practitioners, proceed later to the doctorate, and the possession of an M.D. degree is certainly advantageous to anyone in consulting medical practice. When applying for the post of physician to a hospital it is always useful, and may be obligatory, to hold also the Membership of one of the three Royal Colleges of Physicians, according to the part of the British Isles in which the hospital is situated. So, too, the Fellowship of one of the three Royal Colleges of Surgeons should be obtained by those seeking surgical appointments, and the degree of Master of Surgery is an added distinction. There are also diplomas in a growing number of special branches of work—such as public health, tropical medicine, ophthalmology, laryngology, radiology, tuberculosis, and psychological medicine—which are superfluous for most practitioners, but useful or even indispensable for those who intend to devote themselves to one or other of these subjects. Information about the several diplomas open to qualified practitioners, and about higher degrees, will be found in other parts of this issue. It should perhaps be noted here that of the many diplomas in special subjects granted by licensing bodies only those in public health, sanitary science, and State medicine are at present admissible for entry in the official *Medical Register*, though other special diplomas may of course be included among the particulars of qualification in the *Medical Directory*, published by Messrs J and A Churchill.

A comparatively new feature of medical life, more especially seen in the larger industrial towns of the North of England, is the presence of a growing number of general practitioner specialists, who combine ordinary panel practice with much surgical or other special work in well equipped local hospitals which admit patients in different categories according to their means. Though the fees are small compared with those earned by operating surgeons and specialists in London, the work is by no means unremunerative, and it adds a great deal to the interest of the daily round.

FINANCIAL AND SOCIAL ASPECTS

The pecuniary disadvantages of medicine as a profession are the long and costly training, the time of waiting after qualification before the practitioner can count upon an adequate income, and the heavy working expenses in proportion to his gross earnings. On the other hand, the medical profession affords a fairly certain means of livelihood, with unrivalled opportunities for the exercise of the highest intellectual powers in the service of others. The counterpart of the briefless barrister is practically unknown in medicine. But while no doctor who is willing and able to work need starve, it should be clearly grasped by all who think of adopting it as a career that medicine is a path to fortune only for the few, and anyone who enters it with the sole idea of making money has mistaken his calling. The distinguishing feature of a liberal profession in contrast with a trade is that it is followed more for the general good than for individual profit, the main reward of the medical life is the knowledge of good work well done. Whatever the branch of medical work chosen, there are few doctors who become what a business man would consider even moderately rich by the practice of their profession. Yet, if medicine, from the financial point of view, offers to the majority little more than the means of livelihood, in its social and intellectual aspects the prospect

¹ Sir Ewen Maclean, Presidential Address to the British Medical Association, Cardiff July 1922.

is far brighter. The practitioner's lot is unlike that of many whose common business gives little scope to the higher faculties of the mind, for it is his duty and his privilege to live in, and by, the constant exercise of his intellectual powers. Moreover, the culture which once belonged to the physician alone has spread into all ranks of the profession. The steady improvement in the education, general as well as technical, of the practitioner has added much to his influence with the public, and has been a large factor in raising his social status during the seventy years that have passed since the General Medical Council was constituted under the first Medical Act. A family doctor of the kind that is well styled "the backbone of the profession" holds an excellent position among his neighbours, and is the friend and confidant as well as the medical adviser of many of his patients. Many men go further, and take a leading part in the public life of their district. There are conspicuous instances within our knowledge of the good work in this direction that has been accomplished during an arduous professional career. A proof of the special value of a medical training is the way in which it fits men for leadership among their fellows.

PROFESSIONAL ORGANIZATION

It is a sound rule of conduct that the new practitioner should associate himself as cordially as possible with neighbouring colleagues. The spirit of comradeship, which contributes so much to the value and happiness of undergraduate study, should be preserved, both for its own sake and because in these days no doctor, whatever his position or the nature of his work, can safely stand aside from his fellows. Individuals and isolated groups of practitioners are always handicapped when they attempt to defend their interests against organized bodies, whether these are Government departments, local authorities, or bodies of workmen. In the ordinary course of work the individual doctor is well able to deal with the individual patient and the patient's friends, but he cannot hope to engage successfully in single combat with outside organizations. Apart, however, from such motives of self-interest, every one of us owes a duty to his profession, and the man who holds himself aloof from his brethren fails in that duty and by so much lessens the power and dignity of medicine. Medical men and women must therefore band themselves together, and the first step after registration should be to become an active member of the British Medical Association. Besides having behind him the machinery and the influence of a world-wide professional body, a young practitioner will find in the meetings of his local Division, and in the Annual Meetings of the Association, held in large medical centres, many opportunities for keeping abreast of new work in medicine and for friendly intercourse with colleagues. One other thing that no new graduate should fail to do is to join immediately one of the professional societies which for a small yearly sum undertake individual legal defence of their members. It is sheer folly to put this off even for a day. The need for protection may arise out of the first case attended in hospital or in private practice.

The British Medical Association was founded in 1832 to promote the medical sciences and to maintain the honour and interests of the profession, a brief note on its constitution and activities will be found on page 428. The Association, with Branches throughout the British Empire and a membership of more than 34,000, is the only body that can act for the profession as a whole and speak in its name. The record of ninety-six years' work shows that vocational organization, wisely directed, can combine service for its members with service for the public. Much remains to be done in both ways, and those who are now entering

the profession must not merely consolidate the ground won, but press forward. Every medical man and woman should try to take a share in some at least of the various movements, scientific or social or political, with which the Association has identified itself.

PROFESSIONAL STUDY AND EXAMINATION

THE REVISED SCHEME OF 1922

In 1922 the General Medical Council prescribed a readjustment of the medical curriculum, to come into force at the beginning of the following year. The scheme adopted was in effect a compromise between several "schools of thought" which had been debating the matter for fifteen years or more. In this readjustment among other things, increased emphasis was placed upon sufficient opportunity being afforded for the study, both theoretical and clinical of those subjects which are now so essential in connexion with the treatment centres of a local authority, such as ophthalmology, venereal diseases, orthopaedics ante natal conditions, and infant welfare. Our article printed in page 386 last year on the functions and requirements of the General Medical Council includes the text of the resolutions and recommendations of the Council which have applied since the beginning of 1923. We summarize below the leading features of the revised scheme of professional study and examination, and indicate the importance attached by the Council to the preventive aspects of medicine. The first qualifying examinations based upon this readjusted curriculum have been held during the present year.

THE MEDICAL CURRICULUM TO DAY

The minimum age for registration as a medical student is now 17 years. There has been no formal lengthening of the medical curriculum under the revised scheme, but in practice it has been added to by transferring to preliminary study and examination the subjects of elementary physics and chemistry in their purely scientific aspects. Thus in addition to passing a preliminary examination in general education, an examination (written, oral, and practical) in the elements of physics and chemistry is required by the General Medical Council before the admission of a name to the Students' Register. In the applications of these two subjects to the professional courses—as in biophysics, biochemistry, and pharmacological chemistry—appropriate instruction is to continue throughout the curriculum and is to be tested by examination so that the student shall no longer be able to put behind him as past and done with the knowledge which he acquired as a preliminary. If he has had no facilities at a secondary school or otherwise for obtaining what is necessary for the preliminary or pre-registration examination in chemistry and physics, then he can come for it to the university or medical school, but study there will not count for the medical curriculum. In elementary biology comparatively few secondary schools are equipped for tuition but the General Medical Council has suggested an arrangement for utilizing the work of such schools as are qualified for the purpose. The examination in elementary biology will not be "pre-curriculum," but the instruction may be so and a licensing body can allow students who so desire to sit for the examination immediately after matriculation. Here again, however, it is the wish of the Council that the applications of biology to medicine, surgery and midwifery shall continue to receive adequate attention throughout the courses.

As Sir Norman Walker said in an address to the Annual Congress on Medical Education, Medical Licensing and Hospitals held at Chicago last February: "This pre-registration examination [in elementary physics and chemistry] is still in the experimental stage and some of the bodies are not very sympathetic to it. Most of them, however, have accepted it *pro tanto*, and we are trying to work this new scheme which has at least this merit—that we can now assume that every student starts the five years' curriculum with a working acquaintance with

the elements of chemistry and physics. The Council has to keep a watchful eye lest the examination should be regarded as a sufficient test of knowledge, and the medical curriculum proper recommended by the Education Committee contains the subjects of chemistry, physics, and biology in their application to medicine."

A Block System

Besides the resolutions of the General Medical Council in regard to professional education and examination printed elsewhere at page 377 a series of additional resolutions was adopted in 1922, as follows

(a) That throughout the whole period of study the attention of the student should be directed by his teachers to the importance of the preventive aspects of medicine,

(b) That each Licensing Body should make adequate arrangements for the effective correlation of the several subjects of study throughout its curriculum,

(c) That the teaching of anatomy and physiology should include as a regular part of the courses the demonstration on the living human body of structure and function,

(d) That the curriculum should be so arranged that a minimum period of three years shall in every case be available for study after the completion by the student of the Professional Examinations in Anatomy and Physiology held at the close of the second year,

(e) That the curriculum should be so framed as to afford sufficient opportunities for the study, during the last three years of the course, of Physics, Chemistry, Biology, Anatomy, and Physiology in their practical application to Medicine, Surgery, and Midwifery, and that the student's knowledge of these applications should be subject to test in the Final Examination,

(f) That before the student is admitted to his clinical appointments he should have received practical instruction in clinical methods and in the recognition and interpretation of physical signs,

(g) That instruction should be given, in the courses of Forensic Medicine and Public Health or otherwise on the duties which devolve upon practitioners in their relation to the State and on the generally recognized rules of medical ethics. Attention should be called to all Notices on these subjects issued by the General Medical Council.

The Council, it will be noted, attaches great importance to the reservation of sufficient time for the later subjects of study, free from all worries about passing the examinations of the earlier parts. To that end it recommends what is practically a block system. A minimum of three years should be available, not merely after the courses of anatomy and physiology have been taken, but after the examinations in these subjects have been passed.

Examination Reform

Another notable feature is that in assessing marks in the several examinations account may be taken of "duly attested records of the work done by the candidate throughout his course of study" in the subject. This is an effort to meet the long felt difficulty that a man's mental agility, or the want of it, counts far too much in the examination room. The difficulty is real, but the remedy is not easy, and the Council has been wise in the cautious approach it makes towards a solution. Where, as in the examinations for the various conjoint diplomas, a student will only by chance come before his own teacher as an examiner, absolute impartiality in the attested records will be necessary. On the other hand, at the universities, where the teacher is almost always one of the examiners, an personal like or dislike of a student must influence the report of the internal to the external examiner. The class records should, of course, be available, but the scheme will put a serious ethical obligation on all concerned, and the Council will doubtless watch its operation with keen and critical interest.

Training in Preventive Medicine

The first of the resolutions quoted above should be borne in mind by every teacher throughout the whole curriculum, and not merely in the clinical subjects. All the earlier subjects—physics, chemistry, biology, physiology, anatomy,

and, of course, pathology, bacteriology, and therapeutics also—afford opportunities from the very beginning for instilling into the mind of the student the necessity for his keeping constantly in view, in all the advice and treatment he may give throughout his professional life, the primary importance of promoting the general health of those who entrust themselves to his care, and of preventing trivial ailments from developing into definite disease.

THE NUMBERS OF THE MEDICAL PROFESSION.

A REVIEW OF FIFTY YEARS

During the past fifty-two years the General Medical Council has kept an analytical record of the number of names entered in, added to, or removed from the *Medical Register* in each twelve months. The *Medical Register* has been published annually since the Council was constituted under the first Medical Act of 1858, but before 1876 no such data as these were ascertained.

In order to present a general view of the numerical strength of the medical profession during the past half-century we have extracted from the records and set down below in parallel columns the total number of names in the *Medical Register* on December 31st of each year, and the numbers added annually by registration between 1878 and 1927.

Numerical State of the 'Medical Register'

Year	Names added in Year	Total No. on Dec. 31.	Year	Names added in Year	Total No. on Dec. 31.
1878	996	22,600	1903	1,233	37,878
1879	996	22,516	1904	1,168	38,492
1880	1,123	22,836	1905	1,240	39,060
1881	1,063	23,275	1906	1,197	39,529
1882	1,171	23,801	1907	1,221	39,827
1883	1,304	24,517	1908	1,137	40,257
1884	1,398	25,321	1909	1,143	39,813
1885	1,377	25,998	1910	1,062	40,483
1886	1,431	26,452	1911	1,042	40,913
1887	1,531	27,246	1912	1,157	41,439
1888	1,184	27,939	1913	1,168	41,940
1889	1,305	28,348	1914	1,433	42,378
1890	1,266	29,163	1915	1,526	43,225
1891	1,345	29,555	1916	1,202	43,481
1892	1,513	30,590	1917	1,134	43,819
1893	1,573	31,644	1918	1,077	43,826
1894	1,426	32,637	1919	1,322	44,510
1895	1,446	33,601	1920	1,457	44,761
1896	1,385	34,478	1921	1,760	45,408
1897	1,230	34,642	1922	1,983	46,476
1898	1,210	35,057	1923	2,482	48,140
1899	1,351	35,836	1924	2,796	50,035
1900	1,345	36,355	1925	2,570	51,738
1901	1,318	36,912	1926	2,120	52,614
1902	1,275	37,232	1927	1,841	53,769

The varying proportion of registered medical practitioners to population during the period under review is shown in the following table. This sets out the total population of the British Isles at each decennial census since 1881, and the number of names on the *Medical Register* in the same year, also the corresponding totals in 1926, that for the general population being an official estimate.

Proportion of Practitioners to Population

Year	Registered Practitioners.	Population, British Isles.
1881	23,275	35,241,482
1891	29,555	38,104,975
1901	36,912	41,976,827
1911	40,913	45,370,530
1921	45,408	47,146,506
1926	52,614	48,190,000

These figures show a steady increase in the ratio of doctors to population, which was accelerated during the years immediately following the war. The number of registered practitioners at the end of 1921 was almost exactly double the number at the end of 1876, but the population of Great Britain and Ireland within that period only increased by about 50 per cent. During the year 1927

the new medical registrations numbered 1,941, and there was a net increase of 1,155 names. There is now considerably more than one name in the *Medical Register* to every thousand of population. In the United States of America it is estimated that there is at the present time one medical practitioner to every 753 people. Next to the United States the British Isles appear to have the highest proportion of practitioners to population. Switzerland has approximately one doctor to every 1,135 inhabitants, Germany 1 to 1,320 and Denmark 1 to 1,200.

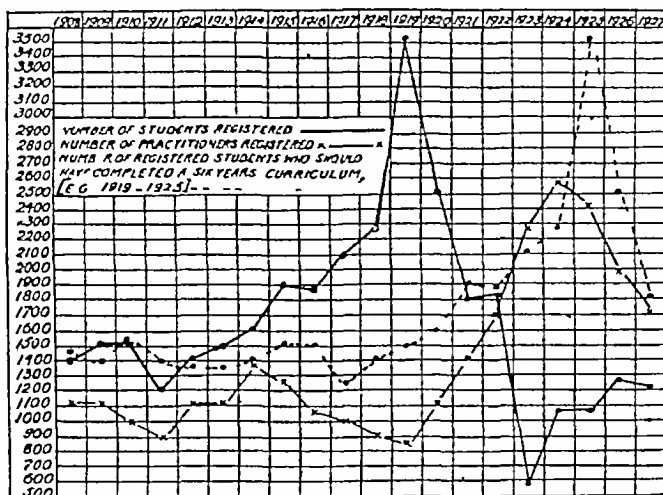
REGISTRATION OF STUDENTS AND PRACTITIONERS

The relation between the numbers of new students and those of newly qualified practitioners during the past twenty years is shown in the accompanying chart, reproduced from the last report of the Finance Committee of the General Medical Council.

The figures for the registration of practitioners year by year apply only to those whose names were entered on the

British list, entries in the colonial and foreign lists of the *Medical Register* being excluded, hence the slight discrepancy between the totals indicated in this chart and

those given in our tables printed above. The chart brings out in a striking way the difference between the number of registered students who should have completed a six years' curriculum in a given year and the number of newly qualified practitioners who in fact registered in that year. In 1919, following the armistice, there was an enormous entry of students, but, as was only natural in the circumstances, a considerable proportion dropped out of the running year by year, and in 1925 the number of those who qualified fell short of expectations by nearly 1,000. Since then the two



Numbers of medical students and practitioners 1908 to 1927

figures have approached each other again, and it is reasonable to suppose that the pre-war relationship between them will be resumed. Some further remarks on the numbers of medical students in recent years will be found in our introductory article on the profession of medicine.

THE GENERAL MEDICAL COUNCIL

THE General Medical Council was established by the Medical Act, 1858, in order 'that persons requiring medical aid should be enabled to distinguish qualified from unqualified practitioners.' It consists of eighteen members appointed by the Universities in the United Kingdom having medical faculties, of nine members appointed by the Medical Corporations, such as the Royal Colleges of Physicians and Surgeons, of five members appointed by His Majesty in Council and of six members directly elected by members of the profession as a whole—a total of thirty-eight. To these are added three dentists who are members of the Dental Board and are appointed for dental business. Although the eighteen members appointed by the Universities and the five members appointed by His Majesty in Council may all be laymen, only one layman has so far been appointed and that was by the Privy Council in 1926.

The Council's offices are at 44, Hallam Street, Portland Place, London, W.1, and it has Branch Offices at 12, Queen Street, Edinburgh and 35, Dawson Street, Dublin.

The Council exists for the protection of the public and not of the profession. Its principal functions are three. First, to keep the *Medical Register*; second, to see that the name of no person is entered thereon as qualified unless he has had an adequate professional education, and to remove therefrom the names of qualified persons who are no longer entitled to public confidence; and third, to provide for the publication of the *British Pharmacopoeia*. It is the appearance of a name upon the *Medical Register*, and not the possession of a degree or diploma, that constitutes a person a duly or legally qualified practitioner of medicine.

The Council has no power to make rules in regard to the medical curriculum or examination but it can pass resolutions and make recommendations relating thereto, and, if any of these were ignored by the licensing bodies, it would be open to the Council to make representations to the Privy Council, which if it thought fit might order that the qualifications obtained from such bodies should not be registrable.

The name of any medical practitioner who has been convicted of felony or misdemeanour, or who is proved

before the Council itself to have been guilty of "infamous conduct in a professional respect," may be erased from the *Medical Register*.

The Medical Acts prohibit attempts being made to impose restriction as to any theory of medicine or surgery, and, once a practitioner has been trained and tested in the knowledge essential for public safety, he may adopt any 'theory' of medicine or surgery in which he honestly believes. The Medical Acts do not prohibit the practice of medicine by unregistered persons, but if they "wilfully and falsely" assume any title implying registration they are liable to prosecution. In this respect the Medical Acts differ from the Midwives and the Dentists Acts, which entirely preclude the practice of midwifery or dentistry by unregistered persons. Unregistered medical practitioners, however, are under certain disabilities, for they cannot recover charges for medical or surgical attendance, etc., in a court of law, they cannot hold an appointment as a medical officer in the Military or Naval Services, or on ships, they cannot give any valid certificate which is required by any Act from a medical practitioner—for example, certificate of death, and they cannot obtain dangerous drugs.

An account of the recommendations that the Council has drawn up in respect of the education of medical students here follows.

REGISTRATION OF MEDICAL STUDENTS

The Council recommends that every intending student of medicine should be registered as such at one of its three offices, whose addresses are given on page 377.

Candidates must produce evidence (a) that they have attained the age of 17 years, (b) that they have passed an examination in general education which is accepted for matriculation or entrance to the Faculties of Arts or Pure Science in a university in the United Kingdom, and in addition thereto that they have passed an examination in elementary chemistry and elementary physics conducted or recognized by one of the licensing bodies.

Application for registration should be addressed to the Registrar for the division of the United Kingdom in which the applicant is residing—England and Wales or Scotland, or Ireland. It must be made on a special form, which can be obtained from one of the offices of the General Medical

Council itself or from one of the various licensing bodies and medical schools

The regulations with regard to registration apply equally to medical and dental students, with the exception that, in the case of the latter, pupils who with a registered dental practitioner may be regarded as a commencement of professional study, and that applications for registration should be addressed to the London office only.

PROFESSIONAL EDUCATION

The rule is that it is only from the date which appears in the Students Register that the medical student's career officially begins, thereafter five years at least must pass before he can present himself for the final examination for any diploma which entitles its lawful possessor to registration as a qualified medical practitioner under the Medical Acts but to meet the circumstances brought about by the dates at which sessions of the medical schools begin and end, the close of the fifth year may be reckoned as occurring at the expiration of fifty-seven months from the date of registration. In any case, the period of five years must be one of bona-fide study, and in every course the following subjects should be included

(i) Elements of General Biology including an introduction to Embryology. This course if the Licensing Bodies permit may be taken before registration and the examination may be passed immediately after registration

(ii) Chemistry Physics and Biology in their application to Medicine

(iii) Human Anatomy and Physiology including Histology Elements of Embryology Biochemistry and Biophysics

(iv) Elementary Bacteriology prior to regular clinical appointments

(v) Pathology general special and clinical and Morbid Anatomy

(vi) Pharmacology and Materia Medica to be taken concurrently with clinical instruction

(vii) Forensic Medicine, Hygiene, and Public Health

(viii) Medicine, including Applied Anatomy and Physiology Clinical Pathology and Therapeutics Children's Diseases Acute Infectious Diseases, Tuberculosis Mental Diseases Skin Diseases and Vaccination

(ix) Surgery, including Applied Anatomy and Physiology and Clinical Pathology Anaesthetics, Diseases of the Eye Ear Throat and Nose Radiology, Venereal Diseases and Orthopaedics.

(x) Midwifery and Diseases of Women, including ante-natal conditions and infant hygiene.

The Council recommends that during the last three of the five academic years clinical subjects shall be studied

The first two years must be passed at a university, or at a school of medicine recognized by any of the licensing bodies enumerated in the schedule to the Medical Act of 1858, and the remainder must be devoted to clinical work at any public hospital or dispensary at home or abroad which is recognized by a licensing body

SPECIAL CONSIDERATIONS

The requirements of the General Medical Council in respect of the education of those who desire to enter the medical profession have now been given in outline, but before leaving this part of the subject the steps which the aspirant should take may be rehearsed in their due order

(1) Pass an examination in arts

(2) Pass an examination conducted or recognized by a licensing body in elementary physics and elementary chemistry

(3) Having attained the age of 17, enter himself at a university or at a medical school recognized by one of the licensing bodies

(4) Obtain registration as a medical student

(5) Study for a minimum of five years certain prescribed subjects

(6) Meanwhile pass sundry intermediate examinations and at the end of the fifth year pass a qualifying examination which will entitle him to receive from a licensing body a legal authority to practise

The Minimum Period—It must be remembered that the period of five years is a minimum, more is often required even by the man of good abilities and reasonable industry, and some of the universities prescribe a longer period. Besides these qualities a student, to obtain a registrable qualification in the minimum period of five years or fifty-seven months, must have a considerable amount of good luck, in other words, he must keep in good health through every term, and never fail at a single examination. Thus, for instance before presenting himself for any examination he must be "signed up" for the subjects covered by that examination this means that his teachers have to certify

that he has diligently attended the required number of lectures or classes in the subjects in question. If, however, the student happens to be ill during the term when such lectures or classes are taking place he may miss enough of them to make it impossible for him to be signed up. Then, again, should he fail to satisfy the examiners at some examination, he cannot present himself for re-examination for at least three months. This generally entails further consequences, because, apart from the student's success at the next stage in his career being imperilled by the need for restudying the subjects in which he has failed, the Examining Boards usually insist upon a definite interval elapsing between one examination and the next. Further, many Boards have refused to recognize lectures and classes which have been attended before the student has passed the requisite examination in earlier subjects, and the Council now recommends that the professional examinations in anatomy and physiology be passed before the minimum period of three years' subsequent study be entered on, in other words, no clinical study should count as such until these examinations have been successfully completed. Failure at an examination may thus not only mean deferment of the date of examinations, but deferment of the beginning of the student's study of certain subjects. It is thus exceedingly easy for a student to fail to qualify in five years, and, as a fact, the majority of students take longer.

In speaking of the minimum period, it is to be remembered also that that time is only sufficient to gain a registrable qualification, such as a Bachelorship of Medicine or Surgery or the diplomas of the Royal Colleges. Those who wish to take a higher qualification—for instance, the F.R.C.S. Eng—must prolong their work for another year or more. So, too, must in some cases those who desire to convert their Bachelorship into a Doctorate. This may entail further formal examination, but at some universities the M.D. is obtainable on presentation of a thesis when the Bachelor has attained a certain age and has practised for a certain number of years. However, a student's career proper may be considered, perhaps, to have ended when he obtains his first registrable qualification, for while preparing himself for any further tests he can, and usually does, hold some junior appointment which more or less covers his expenses.

MEMORANDUM ON STUDENTS' REGISTRATION

The following memorandum has been drawn up by the Registrar of the General Medical Council as to the procedure for those who desire to be registered as medical or dental students

The requirements for the registration of medical and dental students are the same and every intending student should in his own interest register as soon as he commences his professional curriculum

A recognized examination in general education must first be passed. If the student intends to obtain a university degree, he should apply to the university he selects for information as to its matriculation requirements in arts or pure science, or as to any examinations which may be accepted in fulfilment thereof. If the student intends to obtain a qualification from one of the licensing corporations (these are the Conjoint Boards in England, Scotland and Ireland, the Society of Apothecaries of London and the Apothecaries Hall of Dublin) any of the examinations indicated below will be accepted. The subjects required are (1) English, (2) Mathematics (elementary) (3) a language other than English and (4) a fourth subject as required by the regulations of the particular examination to be chosen from the following—namely History Geography Physical Science Natural Science Latin Greek, Hebrew French German, or other language accepted by a university for matriculation.

The requirements of the preliminary examination in general education being satisfied it is then necessary for the student to pass a further or Pre-Registration Examination (theoretical and practical) in Elementary Chemistry and Elementary Physics which is conducted or recognised by one of the licensing bodies—that is a university or licensing corporation. These subjects must be passed in addition to those included in the preliminary examination—for example chemistry taken as one of the four required subjects in the preliminary examination cannot also count as one of the subjects of the Pre-Registration Examination. These subjects may be studied at a university or medical school or at a secondary school or other institution recognized by the body whose pre-registration examination it is intended to take. The student should in every case write beforehand to the body whose qualification he desires to obtain (a list will be found on page 377) for information in regard to its requirements for this examination.

These two examinations (in general education and in physics and chemistry) having been passed and the student having attained the age of 17 years he should apply to one of the universities or one of the medical schools for admission to its course of medical study. When medical study has been begun he should apply to the Dean of the school or to the Registrar of one of the branches of the General Medical Council, for a form of application for registration as a student and should have it completed and sent in to one of the Branch Councils as soon as possible. There is no fee for this registration. The medical curriculum will extend for at least five years and the dental curriculum for at least four years from the date of registration as a student.

A student who has before registration studied the subject of elementary biology at an institution recognized by one of the licensing bodies may if the body sees fit be admitted to the professional examination in this subject immediately after his registration as a student. For information in regard to this he should apply to the body whose medical qualification he seeks.

A dental student may commence his curriculum if he so desires as a pupil in dental mechanics of a registered dental practitioner but study at a dental school is to be preferred. If however he is apprenticed to a dental practitioner he will have to devote twice as much time to instruction in dental mechanics as he would if he had taken this subject in a school. This will have the effect of lengthening the curriculum. In any case a student can only obtain a concession of twelve months out of the four years curriculum.

The addresses of the Branch Registrars are

General Medical Council, 44, Hallam Street, Portland Place
London, W.1

Scottish Branch Council 12 Queen Street Edinburgh

Irish Branch Council 35 Dawson Street Dublin

Examining Bodies in Preliminary Education

The following is a list of the officials of the examining bodies in preliminary education with the names of the examinations in parentheses

Registrar Queen's University of Belfast Belfast. (Matriculation)
Registrar The University of Birmingham Birmingham. (Matriculation)
Registrar The University Bristol Bristol. (Matriculation School Certificate or Higher School Certificate)
Assistant Registrar The University of Cambridge Cambridge. (School or Higher School Certificate)
Medical Registrar University of Cambridge Cambridge. (School or Higher School Certificate)
Registrar University of Durham Durham. (Matriculation)
Registrar Irish Conjoint Board Royal College of Surgeons Dublin. (Preliminary Examination)
Registrar National University of Ireland Dublin. (Matriculation)
Joint Commissioners Intermediate Education Board of Ireland 1 Ilwme Street Dublin. (Leaving Certificate)
Assistant Secretary Ministry of Education Belfast. (Senior Grade Leaving Certificate)
Academic Registrar The University of London South Kensington London S.W.7. (Matriculation General or Higher School Certificate)
Secretary Northern Universities Joint Matriculation Board 315 Oxford Road Manchester. (Matriculation School or Higher School Certificate)
Registrar University Registrar Oxford. (Responsions)
Secretary Oxford Cambridge Schools Examination Board Schools Examination Office Balliol College Oxford. (School or Higher School Certificate)
Secretary Oxford Local Examinations University Press Oxford. (School or Higher School Certificate)
Secretary College of Preceptors Bloomsbury Square London W.C.2. (Senior Certificate)
Secretary Educational Institute of Scotland 47 Moray Place Edinburgh. (Preliminary Medical Certificate)
Secretary Scottish Education Department 14 Queen Street Edinburgh. (Leaving Certificate)
Secretary Scottish Universities Entrance Board 81 North Street St. Andrews. (Scottish Universities Entrance Examination)
Registrar University of Wales Cathays Park Cardiff. (Matriculation)
Clerk Central Welsh Board Cardiff. (School or Higher School Certificate)

[Note—School Certificates other than Higher must show Credits in each of the prescribed subjects]

Licensing Bodies

The following is a list of the officials of licensing bodies and their addresses

Secretary English Conjoint Board 8 Queen Square Bloomsbury W.C.1.
Clerk Society of Apothecaries 11, E.C.4
Registrar The University of London South Kensington S.W.7
Principal Officer University of London South Kensington S.W.7
Registrar Victoria University Manchester
Registrar The University Birmingham
Registrar The University Liverpool
Registrar The University Leeds
Registrar The University Sheffield
Registrar The University Bristol
Registrar University of Wales Cathays Park Cardiff
Secretary Scottish Conjoint Board, 48 Lauriston Place Edinburgh
Dean of the Faculty of Medicine The University Edinburgh
Registrar The University Glasgow
Registrar Royal Faculty of Physicians and Surgeons Glasgow (Dental)
Secretary The University St. Andrews
Secretary Irish Conjoint Board Royal College of Surgeons Dublin
Registrar Apothecaries Hall of Ireland 85 Merrion Square Dublin
Medical Registrar The University Trinity College Dublin
Registrar National University of Ireland University College Dublin
Registrar Queen's University Belfast

Medical Schools

The following is a list of medical schools (other than universities) and their officials

Registrar College of Medicine Newcastle-on-Tyne
Dean of the Medical College St. Bartholomew's Hospital London E.C.1.
Dean of the Medical School Charing Cross Hospital W.C.2.
Dean of the Medical School St. George's Hospital S.W.1.
Dean of the Medical School Guy's Hospital S.E.1.
Dean of the Medical School King's College Strand W.C.2.
Dean of the Medical School King's College Hospital S.E.5.
Dean of the Medical College London Hospital E.1.
Dean of the Medical School St. Mary's Hospital W.2.
Dean of the Medical School Middlesex Hospital W.1.
Dean of the Medical School St. Thomas's Hospital S.E.1.
Dean of the Medical School University College Hospital W.C.1.
Dean of the Medical School Westminster Hospital S.W.1.
Dean of the School of Medicine for Women 8 Hunter Street W.C.1.
*Registrar University College Aberystwyth
*Registrar University College Bangor
*Registrar University College Cardiff
Dean of the Medical School Welsh National School of Medicine Cardiff
Dean of the Medical School University College Swansea
Dean of the Medical School University College Dundee
Dean School of Medicine of the Royal Colleges Surgeons Hall Edinburgh
Dean St. Mungo's College Glasgow
Dean Anderson's College of Medicine Glasgow
Registrar Queen Margaret College Glasgow
Medical Registrar University of Dublin Trinity College, Dublin.
Registrar University College Cork
Registrar University College Dublin
Secretary School of Medicine Royal College of Surgeons Dublin.
Registrar University College Galway
*First year only

Dental Schools

The following is a list of dental schools and their officials in Great Britain and Ireland

Belfast Dean of the Medical Faculty Queen's University
Birmingham Dean of the Dental Hospital 132, Great Charles Street.
Bristol Dean of the Medical Faculty The University
Dublin
Medical Registrar University of Dublin Trinity College.
Registrar Schools of Surgery Royal College of Surgeons in Ireland.
Dunelm Dean of the Dental School 27 Tay Street
Exinburgh Dean of the Dental School 31 Chambers Street
Glasgow Dean Incorporated Dental Hospital and School Dalhousie Street
Leeds Dean of the Medical Faculty The University
Liverpool Director of Dental Education School of Dental Surgery Boundary Place.
London
Dean of the Dental School Guy's Hospital, London Bridge S.E.1.
Dean of the Medical School King's College Hospital Denmark Hill, S.E.5.
Dean of the Dental School London Hospital Turner Street Mile End E.1.
Dean Royal Dental Hospital Leicester Square W.C.2.
Sub-Dean for Dental Students, University College Hospital Medical School University Street Gower Street W.C.1.
Manchester Dean of the Dental School Oxford Road.
Newcastle Dean of the Dental School Handvalde Buildings Percy Street
Sheffield Secretary Board of Dental Studies The University

PROFESSIONAL EXAMINATION

The Council's Recommendations

The following recommendations of the General Medical Council in regard to professional examinations for medical and surgical qualifications were adopted in May, 1922

1 In order to secure due continuity and sequence in medical study two or more Professional Examinations in the earlier subjects should be held antecedently to the Final Examination in Medicine, Surgery and Midwifery

2 Three years at least should intervene between the date of passing the Professional Examination in Anatomy and Physiology and that of admission to the Final Examination in Medicine, Surgery, and Midwifery

3 A candidate remitted in any subject of a Professional Examination should, before he is readmitted to examination therein be required to produce satisfactory evidence that he has during the interval of remission pursued the study of the subject in which he was rejected. Candidates who obtain less than 30 per cent of the marks in any subject should be remitted for a longer period than three months.

4 In all the Professional Examinations sufficient time should be assigned to practical work in order to test the thoroughness of the candidate's knowledge and to encourage practical methods of study

5 Candidates in all their examination work should be carefully supervised

6 Two examiners should always participate in the oral examination of a candidate except in subordinate parts of practical examinations

7 In all written examinations the questions in each subject should be submitted for the approval of all the examiners in that subject

8 In all written examinations an average of at least half an hour should be allowed for a candidate to answer each question

9 It is desirable that examiners and in particular those for the Final Examination in Medicine, Surgery, and Midwifery, should be appointed or re-elected for at least three consecutive years

10 Whatever may be the system of marking, the percentage for a pass in each subject should not be less than 50.

11 In the regulations for the several examinations it should be provided that examiners, in assessing marks, be empowered to take into account the duly attested records of the work done by the candidate throughout his course of study in the subject of the examination.

12 The Final Examination in Medicine, Surgery, and Midwifery, with the exception of the Clinical and Practical Examination in Midwifery and Gynaecology, must not be passed before the close of the fifth academic year of medical study.

13 The three portions of the Final Examination in Medicine, Surgery, and Midwifery should not be further subdivided into sections which may be entered for or passed separately.

14 Compensation in respect of marks as between the three different portions of the Final or Qualifying Examination—namely, Medicine, Surgery, and Midwifery—is contrary to the intention of the Medical Act (1886).

15 The Final Examination should include clinical and practical examinations in Midwifery and Gynaecology.

16 The clinical examination in Medicine, Surgery, and Midwifery should be held in properly equipped hospitals or examinations halls well provided with suitable patients.

17 In the examinations in clinical medicine at least one hour, and in clinical surgery at least half an hour, should be allowed to the candidate for the examination of, and report on, his principal case.

18 In Medicine, in Surgery, and in Midwifery no candidate should be allowed to pass who fails to obtain 50 per cent of the aggregate marks assigned to the whole examination, or who fails to obtain 50 per cent of the marks assigned to the clinical examination, or who fails to obtain 40 per cent of the aggregate of the marks assigned to the written and oral examination. In Midwifery, where a clinical examination is not held, the duly attested records of the work done by the candidate in clinical midwifery must be presented to the examiners for assessment in the Final Examination and no candidate should be allowed to pass who fails to obtain 50 per cent of the aggregate marks assigned to Clinical and Practical Midwifery and Gynaecology.

19 The Final Examination should include the examination of secretions, the testing of urine, clinical microscopy and prescription writing, and there should always be an oral examination in Medicine, Surgery, and Midwifery, which should include an examination on pathological specimens.

20 At the Final Examination each candidate should be submitted to a practical and oral examination in Pathology (macroscopic and microscopic), unless this has been included in a Professional Examination preceding the Final Examination.

21 Whatever be the method of entry for the Final Examination all candidates should be required to complete the three portions of the Final Examination within a period of nineteen months.

This section of the Educational Number would be incomplete without brief mention of the memorandum, drawn up by the Registrar of the General Medical Council, on the procedure to be adopted by those who desire to enter the profession of medicine, to which reference is made in the introductory article at page 370. This pamphlet (price 1s post free) sets out in plain language the information for which the Registrar is often asked by prospective medical students or their guardians.

The English Universities.

THERE are eleven universities in England and Wales and some account of each of them follows. They all have now fully developed medical faculties. Until recently the only exception was the University of Wales whose constituent colleges are those of Aberystwyth, Bangor, Cardiff and Swansea. This university grants degrees and has laid down a six years' curriculum for candidates for the MB and BCh degrees, and it now provides at the Welsh National School of Medicine at Cardiff, instruction in all the subjects of the medical curriculum.

UNIVERSITY OF OXFORD

THE professional degrees conferred by this university are those of Bachelor of Medicine (BM), Bachelor of Surgery (BCh), Doctor of Medicine (DM), and Master of Surgery (MCh). It also grants a Diploma in Public Health and a Diploma in Ophthalmology. On receiving the BM the candidate is entitled to registration by the General Medical

Council. In favourable circumstances this degree and the BCh may be obtained in six or seven years from matriculation. Before receiving either, the candidate must have taken a degree in arts (BA), for which three years' residence within the university is necessary. This, however, does not necessarily mean deferment of professional study for that period, for the subjects chosen for the arts course may be to a great extent the same as those in which examinations would in any case have to be passed for the medical degree, and the courses are dovetailed together.

In accordance with a statute which came into force on October 7th, 1920, women may be matriculated and admitted to degrees in the university. The statute is retrospective under certain conditions. Before matriculation a woman must have been admitted as a member of one of the five societies of women students (Lady Margaret Hall, Somerville College, St Hugh's College, St Hilda's Hall, or the Society of Oxford Home Students). Women members of the university are admitted to all degrees, except those in divinity, under the same conditions as those laid down for men in regard to examinations, courses of study, and fees, and under corresponding conditions as to residence at the university. Among the university diplomas open to women are those in anthropology, ophthalmology, and public health.

There are numerous avenues to the BA degree, but that which constitutes the normal course for medical students, as being the most closely related to their medical studies, is the following. By passing Responsions (or one of the examinations which are accepted as equivalent), the Scripture examination, some of the preliminary examinations in the Natural Science School,¹ in the first public examination, and one of the final honour examinations in the Final Honour School of Natural Science—Physiology being that usually taken.

Responsions and the preliminary examinations in Natural Science may be passed before a candidate is a member of the university; a final honour school may be taken at the end of the third or fourth academical year—that is, within nine or twelve terms respectively, the preliminary examinations of the Natural Science School may be taken as soon as Responsions has been passed or exemption obtained.

PROFESSIONAL DEGREES

To obtain the BM, BCh degrees the candidate must first pass in four of the subjects of the Preliminary Examination of the Natural Science School—namely, physics, chemistry, zoology, and botany.

He then has two further examinations to pass—the First BM and the Second BM. These take place twice a year: the first on the Thursday, the second on the Wednesday of the eighth week of Michaelmas and Trinity terms. Every candidate at the First BM is examined in human anatomy, in physiology and in organic chemistry, but is excused from physiology if he has obtained a first or second class in the Honour School of Physiology, and from organic chemistry if he has satisfied the examiners in Part I of the Honour School of Chemistry. Once he has passed this examination he can, on production of certain certificates, be examined as soon as he pleases in pathology, forensic medicine and hygiene, materia medica, and pharmacology (subjects of the second examination), but cannot present himself for the remaining subjects—medicine, surgery, and midwifery—until the eighteenth term from the day of his matriculation unless he be already a registered medical practitioner, and not until a period of at least thirty-three months has elapsed from the date of his passing the first examination, and he must pass in all the three subjects at one and the same time.

Before admission to the Second BM examination the student must produce certificates of instruction from a medical school recognized by the university, of having acted as clinical clerk and dresser, each for six months and as *post-mortem* clerk for three months, of attendance on labours of instruction in infectious and mental diseases and ophthalmology, and of proficiency in vaccination and

¹ The four subjects of the medical preliminary examination are four of the subjects in the natural science preliminary and can be commenced directly after passing Responsions.

² Membership is constituted by Matriculation and by becoming either a member of a College or a Hall or a non-collegiate student.

the administration of anaesthetics,¹ and of three academic years of hospital attendance. He must also produce certificates of attendance in laboratory courses in pathology, bacteriology, and pharmacology, either in Oxford or in a recognized medical school.

D M AND M CH DEGREES

A Bachelor of Medicine who wishes to proceed to the D M must have entered his thirtieth term and must present a dissertation for approval by the appointed examiners on a subject previously approved by the Regius Professor of Medicine. If a candidate for the M Ch he must have entered his twenty-first term and must pass an examination, which is held in June.

D PH AND D O

Examinations for the Diploma in Public Health are held in Trinity and Michaelmas terms, that for the Diploma in Ophthalmology is held annually in March. For the Diploma in Ophthalmology attendance on a twelve months' course of clinical ophthalmology in hospitals or institutions recognized for the purpose by the Board of the Faculty of Medicine, and on a course of instruction in Oxford lasting two months, is obligatory. Candidates must have their names on the *Medical Register* of the United Kingdom, unless, being Bachelors or Doctors of Medicine of universities outside the United Kingdom, they have obtained special permission from the Board of the Faculty of Medicine.

TEACHING

The several colleges provide their undergraduate members with tutors for all examinations up to the B A degree. In addition, the university provides certain courses of instruction, including lectures, demonstrations, and practical work, which cover all the subjects of the Preliminary Examination and First B M, and those of the Final Examination.

SCHOLARSHIPS

Most colleges grant scholarships open to intending medical students of the maximum value of £100 a year tenable for four years in natural science, chemistry, physics and biology. Exhibitions of varying value are also awarded in these subjects. At two colleges (University and Pembroke) there are medical entrance scholarships of £100 a year. Particulars can be obtained on application to the college tutors. Scholarships for women are also offered by the various women's colleges from the principals of whom details of the examinations may be obtained. A Radcliffe Travelling Fellowship of £300 a year tenable for two years is conferred annually; candidates must have taken the B M degree. A Schorstein Research Fellowship of £200 a year for two years is awarded biennially. The Fellow must engage in research in one of the Medical Departments of the University. A George Herbert Hunt Travelling Scholarship of about £100 is awarded biennially to enable a young medical graduate to spend three months abroad in medical study. A Philip Walker Studentship in Pathology of £200 a year tenable for two years is awarded biennially for the encouragement of research in pathology as also are the Rolleston Memorial Prize and the Radcliffe Prize (£50) for research in natural science (including pathology), and the three Theodore Williams Scholarships in Anatomy, Physiology and Pathology of the value of £50 each tenable for two years. A Radcliffe Scholarship in Pharmacology of £50 for one year open to the University is awarded annually by the Master and Fellows of University College. A Burney Leo King College Hospital Scholarship of £80 is awarded annually.

FEES

An annual fee of £4 10s. is paid to the university for the first four years being reduced to £1 when the B A has been taken. For the degree the fees are the B A £7 10s. the B M and B Ch £14 the D M £25 the M Ch £12. College fees varying in amount are paid for the first four years of membership and in taking degrees. Tuition fees vary from £21 to £30. The minimum annual cost of living during the three university terms may be regarded as not less than £180 or for women not less than £140.

For further information application may be made to Dr E W Ashley Walker, Dean of the School of Medicine, University of Oxford.

UNIVERSITY OF CAMBRIDGE

THE professional degrees given by this university are those of Bachelor of Medicine (M B) and Bachelor of Surgery (B Chir), each of which entitles the possessor to admission to the *Register* by the General Medical Council and the higher degrees of Doctor of Medicine and Master of Surgery. It also grants Diplomas in Tropical Medicine

¹ For the certificates that will be required from candidates amenable to the new Regulations of the General Medical Council see *Examination Statutes* Clarendon Press, Oxford 1925 edition.

and Hygiene, in Public Health, in Hygiene, and in Medical Radiology and Electrology to medical practitioners, not necessarily graduates of the university. Information regarding these diplomas will be found in later sections under the headings Tropical Medicine, Public Health, and Radiology. A candidate for the M B, B Chir degrees need not possess a degree in arts, it is sufficient if he has passed the Previous examination or some other examination accepted by the university as its equivalent. Most students, however, are advised to take the B A degree, preferably by obtaining honours in the Natural Science Tripos at the end of their third year. The attainment of a sufficient standard in certain subjects in this Tripos will secure exemption from the corresponding tests in the First and Second M B examinations. Members of Girton College and Newnham College are now admitted to the M B examinations.

PROFESSIONAL EXAMINATIONS

To obtain the M B degree the candidate must pass three examinations and keep an Act. The B Chir degree (which is a registrable qualification) may be obtained after passing all three examinations.

First M B—This comprises (1) general and inorganic chemistry, (2) mechanics, (3) physics, (4) elementary biology. The parts may be taken together or separately. In either case the candidate, before admission to examination, must have satisfied the requirements in respect of the Previous examination and have paid the registration fee. Certain exemptions from the First M B Examination are allowed, the regulations may be obtained from the Registrar. The examination is held three times in the year.

Second M B—This examination comprises Part I, organic chemistry, Part II, human anatomy and physiology, Part III, elementary pharmacology, including pharmaceutical chemistry and the elements of general pathology. No student is admitted to the first part of the Second Examination until he has passed the first part of the First Examination. No student is admitted to the second part of the Second Examination until he has passed all parts of the First Examination. No student shall be admitted to the third part of the Second Examination until he has passed the first and second parts of the Second Examination. The candidate must present certificates of study in the subjects of the second and third parts. The examinations for Part I are held in October, December, and June, and for Part II in December and June, that for Part III in October and April.

Third M B—This is divided into two parts, to neither of which is the candidate admitted until he has passed the examinations previously mentioned. A candidate for the first part, which deals with the principles and practice of surgery (including special pathology) and midwifery and diseases peculiar to women, must have completed five years of medical study and he signed up in these subjects and have completed two years and a half of hospital practice. Before admission to the second part the candidate must have completed five years of medical study, and be duly signed up in all subjects and have completed three years of hospital practice. The examination is in the principles and practice of physics (including diseases of children, mental diseases, and medical jurisprudence), pathology (including hygiene and preventive medicine) and pharmacology (including therapeutics and toxicology). The Third M B examinations are held twice a year—in June and December.

Act for the M B—Before receiving his M B degree a candidate who has passed the Third M B examinations has to write a thesis. This he reads in public on an assigned day and is then questioned concerning it and other subjects of medicine by the Regius Professor of Physics. If approved at this test he is then certified as having "kept the Act satisfactorily and in due course receives his degree. Medical degrees may be taken in absence by those living abroad the candidate sending to the Regius Professor of Physics a dissertation, which is laid before the Degree Committee.

THE HIGHER DEGREES

The M D degree may be taken by a Bachelor of Medicine of three years' standing (and a Master of Arts of four years' standing).

standing who has completed the course required for M B) after writing a thesis approved by the M D Degree Committee, and keeping a further Act, at which he reads his thesis and is examined thereon. Previously to the Act being kept a topic taken from the general subject of his thesis (whether it be physiology, pathology, pharmacology, practice of medicine, State medicine, or the history of medicine) is submitted to the candidate, on which he is required to write an extempore essay.

A candidate for the M Chir degree who is an M A may be admitted to the examination after he has become legally qualified to practise surgery. Other candidates may be admitted when two years have elapsed after they have passed the Third M B Examination. The examination comprises pathology, surgery, surgical anatomy, and surgical operations. The tests are partly in writing, partly oral, and partly practical; they include the writing of an extempore essay.

FEES

In addition to college fees, tutorial fees, and the expense of living, the following examination fees are payable: First M B £5 5s, Second M B, £6 6s, Third M B £10 10s. For schedules referring to the examinations lists of schools recognized by the university, and other information application should be made to the University Registry, Cambridge.

UNIVERSITY OF LONDON

UNDER the regulations of the University of London the degrees obtainable in the Faculty of Medicine are those of Bachelor of Medicine and Surgery, Master of Surgery in four branches, Doctor of Medicine in six different branches, Bachelor of Dental Surgery, and Bachelor of Pharmacy. The university has its own matriculation examination, and this is of so peculiar a kind that candidates should obtain and carefully study the booklets relating to it. The matriculation examination is open to any person, of either sex, who has attained the age of 16. It is held in January, June, and September, and lasts four days, the first two take place both in London and in certain provincial centres, the September examination is held in London only.

In no circumstances is a degree granted to anyone in less than three years after the date at which he passed the matriculation examination or obtained registration in some other way, and, unless they are already registered medical practitioners of a certain age and standing, all medical students must pass not less than five and a half years in professional study subsequent to matriculation, of which the last three years must be spent at a school of advanced medical studies.

PROFESSIONAL EXAMINATIONS

M B, B S—There are three examinations, the last two being subdivided. They are held twice a year.

The First Examination (held in July and December) covers inorganic chemistry, general biology, and physics, there being two papers, a practical test, and a possible oral test in each subject. The names of successful candidates are placed in alphabetical order, with a note as to any subject in which a candidate has distinguished himself or herself.

The Second Examination is held in March and July. Part I cannot be passed within six months of the passing of the First Examination. It covers organic chemistry, the candidate's knowledge being tested as in the earlier examination. Candidates for Part II must have passed the First Examination at least eighteen months previously, besides having completed Part I of the Second Examination. The subjects are anatomy, physiology, and pharmacology, the tests being written, oral, and practical. Candidates who fail in one subject may sit for re-examination in that subject alone if the examiners think fit.

No candidate is admitted to the Third M B, B S Examination within three academic years from the date of his completing the Second Examination. The subjects are medicine (including mental diseases), pathology, forensic medicine and hygiene, surgery, and obstetrics and gynaecology. They may be divided into two groups, one comprising medicine, pathology, forensic medicine, and hygiene, and the other surgery and obstetrics and gynaecology. Either group may be taken first at the option of the candidate

or the groups may be taken together. Only candidates who show a competent knowledge of all the subjects comprising a group are passed. There is no separate examination held for honours, but the names of successful candidates are divided into an honours list and a pass list, and a university medal may be awarded the candidate who has most distinguished himself in the whole examination.

THE HIGHER DEGREES

M D—An examination for the M D is held twice yearly—in December and July. Every candidate must have passed the examination for the M B, B S, unless he became M B before May, 1904. He may present himself for examination in any one of the following branches: (1) medicine, (2) pathology, (3) mental diseases and psychology, (4) midwifery and diseases of women, (5) State medicine, (6) tropical medicine, and, if he wishes, may pass also in another branch at a subsequent examination.

The period that must elapse between acquiring the M B and sitting for the M D in any branch varies between one and two years, according to the nature of the candidate's previous work, and in all cases evidence must be afforded of special study of the subject chosen, both written and practical examinations must be passed, though exemptions can be obtained from the former in exceptional circumstances. In each branch the scheme of examination is the same: two papers on its special subject, a paper on an allied subject—for example, medicine in the case of branch (4), pathology in branch (1)—an essay on one of two suggested topics connected with the special subject, and a clinical or other practical test. In any branch of the M D Examination a gold medal of the value of £20 may be awarded.

M S—The regulations with regard to the Mastership in Surgery are of a corresponding kind, but there are four branches in which it may be obtained—General Surgery, Dental Surgery, Ophthalmology, and Laryngology, Otology, and Rhinology.

FEES

For Matriculation 2½ guineas for each entry. First Examination 6 guineas for each entry to the whole examination. For re-examination in one subject the fee is 2 guineas. Second Examination Part I 3 guineas for the first and each subsequent entry. Second Examination, Part II 9 guineas for each entry to the whole examination. For re-examination in one subject the fee is 4 guineas. M B, B S Examination 12 guineas for each entry to the whole examination, and 6 guineas for examination or re-examination in either group. M D and M S Examinations 20 guineas and 10 guineas on re-examination.

Inquiries should be addressed to the Academic Registrar the University of London, South Kensington, S.W.7.

UNIVERSITY OF BIRMINGHAM

THIS university confers medical and surgical degrees—namely, M B, Ch B, M D, and Ch M—and also diplomas and degrees in State medicine and dentistry. The M B, Ch B candidate may also combine with the earlier part of his medical curriculum courses leading to the ordinary B Sc degree in Anatomy and Physiology. The degree of B Sc with Honours in one of these subjects requires an extra year. Of the five years' curriculum, the first four must be spent, as a rule, at the university itself, the fifth being passed at any approved school or schools. Occasionally, however, the Senate will reduce the period of enforced residence to three years and exempt from the First M B (Part I) those who have passed elsewhere an examination considered to be its equivalent. A degree of Ph D is also conferred for research study in medicine under special regulations. Candidates must be graduates in medicine of a recognized university.

Students entering the Medical Faculty for the M B, Ch B degrees must have passed—

(1) Either (a) the matriculation examination of the Joint Board of the Universities of Manchester, Liverpool, Leeds, Sheffield, and Birmingham, or (b) some other examination recognized as equivalent to the matriculation. Candidates for medical degrees are recommended to take Latin and a science subject—chemistry or physics—at the matriculation examination, although these subjects are no longer compulsory. The matriculation exam is held in July and September. The regulations and the

list of examinations accepted in lieu thereof will be sent on application to the Secretary to the Board, Joint Matriculation Board, 315, Oxford Road, Manchester

(2) A recognized pre-medical examination in the subjects of chemistry and physics—for example, the Higher School Certificate of the Joint Matriculation Board, or a candidate may attend courses for pre-medical year in the university, October to June, taking chemistry and physics, and biology (optional)

For and after the session 1929-30 the passing of an examination in elementary biology will be compulsory before a student reading for the M B, Ch B Birmingham, or for any medical or dental degree or diploma in which an examination has to be passed in this subject, can enter the Faculty of Medicine

PROFESSIONAL EXAMINATIONS

The candidate for the M B, Ch B degrees has five examinations to pass. In the Second and Final examinations the candidate must pass in all the prescribed subjects or undergo the whole examination again

The First M B (Part I) deals with elementary biology and physical and organic chemistry. The First M B (Part II) deals with anatomy and physiology, and the student must pass in both simultaneously. The Second M B deals with pathology and bacteriology, materia medica, and pharmacy. The Third M B takes place at the end of the fourth year, the subjects being forensic medicine, toxicology, public health, and pharmacology and therapeutics

Final M B—This comprises medicine, surgery, midwifery and diseases of women, ophthalmology, and mental diseases. The candidate, in addition to more ordinary certificates, must be prepared with a certificate of having acted as a *post-mortem* clerk for three months, and received special instruction in anaesthetics and clinical instruction in diseases peculiar to women, asylum ward work, ophthalmology, children's diseases, venereal diseases, ear and throat and skin diseases, etc. In respect to ophthalmology he must show that he has learnt refraction work. He also has to present to the examiners at the time of his examination a short written commentary on a gynaecological subject or case investigated during the period of gynaecological clerkship, and certificates drawn up by himself regarding four actual cases of lunacy and notes on two others

M D—An ordinary candidate for this degree must be a M B, Ch B of not less than one year's standing. He presents an original thesis for approval, and then passes a general examination in the principles and practice of medicine. From the latter the Board of Examiners may exempt a candidate whose thesis is of exceptional merit. The regulations respecting the Ch M are of the same general character. Subject to certain requirements as to special research or other post-graduate study, graduates of other universities may obtain the M D and Ch M in the same way as holders of the Birmingham M B, Ch B

FEES

The fee for matriculation is £2 (payable to Joint Matriculation Board) £2 10s for pre-medical examination (if taken in university) and £2 10s for each of the first four professional examinations. M B, Ch B degree fee £10. M D and Ch M examinations £12 10s each. For further particulars application should be made to the Dean of the Medical Faculty, University of Birmingham

UNIVERSITY OF BRISTOL

In the Faculty of Medicine the following degrees are conferred: Bachelor of Medicine and Bachelor of Surgery (M B and Ch B), Doctor of Medicine (M D), Master of Surgery (Ch M), Bachelor of Dental Surgery (B D S), and Master of Dental Surgery (M D S). There are also the following diplomas: diploma in public health (D P H), diploma in dental surgery (L D S), and diploma in veterinary State medicine. All candidates for degrees in medicine, surgery, and dentistry are required to reach matriculation standard in the School Certificate Examination, or to pass such examination as may be regarded as equivalent by the Senate. All courses, degrees, and diplomas are open to men and women alike

Conjoined Degrees of Bachelor of Medicine and Bachelor of Surgery—Candidates must be not less than 21 years

of age and have pursued the courses prescribed by university regulations, during not less than five years after passing the first examination in chemistry and physics, of which three shall have been spent in the university, and two of these three subsequent to passing the second examination. All candidates for the degrees of M B, Ch B are required to satisfy the examiners in the several subjects of three examinations

The First Examination—The subjects of examination are chemistry (inorganic), physics, and biology, the courses pursued being those for the time being approved for the intermediate part of the B Sc curriculum. This part of the curriculum shall extend over one year. (Candidates who have passed the Higher School Certificate approved by the Board of Education in these subjects will not be required to sit for the First Examination and will be regarded as having completed one year of study)

The Second Examination—The subjects of examination are organic chemistry and elementary anatomy (Part I) and advanced anatomy and physiology (Part II)

The Final Examination—The subjects of examination are materia medica and pharmacy, pharmacology and therapeutics, general pathology, morbid anatomy, and bacteriology (Part I), special pathology, forensic medicine, toxicology, and public health, obstetrics (including diseases of women), surgery (systematic, clinical, practical, and operative, including ophthalmology and oto-rhino-laryngology), medicine (systematic, clinical, and practical, including mental diseases) (Part II). The subjects included in Part II may be taken in two groups—namely, Group I, surgery and obstetrics, Group II, medicine, public health, special pathology, forensic medicine, and toxicology. Candidates may pass Parts I and II together or separately, and the two groups of Part II may likewise be taken together or separately, but no student can obtain honours who elects to take the two groups of Part II separately. Forensic medicine and toxicology may be taken either with Part I or with Group II of Part II

Degree of Doctor of Medicine—Candidates must be Bachelors of the university of not less than two years' standing as such, and may elect either (1) to pass an examination in general medicine, or (2) to pass an examination in State medicine, or (3) to present a dissertation. The candidate who elects to pass the examination in State medicine must hold a diploma in public health of some university or college, and the candidate who elects to present a dissertation may be examined in the subject thereof

Degree of Master of Surgery—Candidates shall be Bachelors of not less than two years' standing as such during which period they shall have attended the surgical practice of an institution approved for the purpose. They shall pass an examination in surgical anatomy, pathology, and bacteriology, and operative, clinical, and general surgery and present to the university a dissertation on some subject of surgery. The degree may be taken also in general surgery, and a special subject—for example, oto-rhino-laryngology, ophthalmology and gynaecology

Diploma in Public Health—Candidates must be at least 23 years of age, be fully registered medical practitioners of not less than two years' standing as such and have passed the examination prescribed by regulation. The examination is divided into two parts

UNIVERSITY OF DURHAM

To its own undergraduates who may be of either sex, this university grants the degrees of Bachelor of Medicine and Bachelor of Surgery (M B, B S), and Doctor of Medicine (M D), Master of Surgery and Doctor of Surgery (M S and D Ch), Bachelor of Hygiene, Doctor of Hygiene, and Bachelor of Dental Surgery and Master of Dental Surgery (B D S and M D S), it also grants diplomas in public health, psychiatry, and dental surgery. The university accepts the Durham University School Certificate Examination (if a sufficient standard is obtained in certain specified subjects) for matriculation purposes but also accepts the tests of a considerable number of other educational bodies as a full or partial equivalent. A list may be obtained on application. In addition to

satisfying the matriculation requirements of the university, every student must (1) pass a pre-registration examination in physics and inorganic chemistry conducted or recognized by the university, and (2) be registered on the books of the General Medical Council. To become a graduate, however, at the university it is not necessary to pass the major portion of the five years' curriculum within its precincts. It is sufficient if, before he presents himself for his final examination, the candidate has spent at least one year in study at the University of Durham College of Medicine, Newcastle-on-Tyne, including the practice of the Royal Victoria Infirmary in the same city. The earlier examinations may be passed while the student works elsewhere.

PROFESSIONAL EXAMINATIONS

There are four professional examinations for the M.B., B.S. degrees. The First, Second, and Third Examinations are held in March and June, and the Final Examination in June and December. The first deals with biology and organic chemistry, the second with anatomy and physiology, the third with pathology, bacteriology, materia medica, pharmacology, general principles of therapeutics, and pharmacy, medical jurisprudence, and public health. At the Final M.B., B.S. the candidate is examined in medicine and clinical medicine, surgery and clinical surgery, midwifery and diseases of women and children, clinical and practical midwifery and gynaecology, and clinically in psychological medicine, diseases of the throat, nose, and ear, diseases of the skin, diseases of the eye, and diseases of children.

U.D.—A Bachelor of Medicine who wishes to proceed to this higher degree must be of at least two years' standing, and must comply with the regulations printed in the Calendar of the College of Medicine. If the candidate is not an M.B. of the university, he must be a practitioner of fifteen years' standing, 40 years of age, and submit to special tests. (See under Degrees for Practitioners, p. 425.)

M.S.—Candidates for this degree must have been engaged in practice for at least two years subsequent to becoming M.B., B.S. Durham. They are submitted to an examination which covers the whole range of surgical knowledge.

D.Ch.—The university grants also the degree of Doctor of Surgery. Candidates for this degree must be registered medical practitioners, not less than 24 years of age. They must devote three years, subsequent to obtaining a registrable qualification, to the study of surgery and ancillary subjects, one at least of the three years must be spent in the university. The candidate must submit to the professor of surgery the course of study he proposes to follow, and this course must be approved by the Board of Faculty of Medicine.

One year must be devoted mainly to work in the departments of anatomy, physiology, pathology, and bacteriology, and the candidate must submit evidence of having so worked. Not less than six months of another year must be spent as a resident surgeon in a recognized teaching hospital, and the rest of the year in the study of surgery in a recognized medical centre. Not less than six months of one of the three years must be spent in surgical study abroad.

Degree of Bachelor of Hygiene and the D.P.H.

No candidate is admitted to the final examination for the degree of B.Hy. unless he is a Bachelor of Medicine and Surgery of not less than two years' standing of a recognized university whose degrees are registrable on the books of the General Medical Council of the United Kingdom.

No candidate is admitted to the final examination for the D.P.H. unless he is a registered medical practitioner of not less than two years' standing.

The course of study for the B.Hy. and D.P.H. extends over a period of not less than twelve calendar months subsequent to the attainment of a qualification registrable by the General Medical Council of the United Kingdom. Candidates for the B.Hy. must attend this course at the University of Durham or at any medical school or institution which is recognized by the university.

The examination for the diploma or degree consists of Part I and Part II each of which extends over not less than two days and is conducted by examiners specially qualified. A candidate must pass in all the subjects of Part I before being admitted to

examination for Part II. In Part I, and also in Part II a candidate must pass in all the specified subjects at one time.

The examination for Part I is practical, written and oral and includes the following subjects: bacteriology and parasitology (including medical entomology), chemistry and physics, and meteorology and climatology in relation to public health. Candidates are not admitted to examination for Part I until after they have completed the prescribed courses of instruction in the subjects thereof.

The examination for Part II includes the following subjects: hygiene and sanitation (including sanitary construction), epidemiology and infectious diseases, sanitary law and vital statistics, public health administration. The examination is written and oral, and includes practical examinations in infectious diseases, food inspection, inspection of premises—dwellings, factories, workshops, schools, etc. Candidates are not admitted to examination for Part II until after they have completed the prescribed courses of instruction in the subjects thereof.

Doctor of Hygiene

Candidates for the degree of Doctor of Hygiene must be Bachelors of Hygiene of the university of two years' standing and are required to satisfy the examiners that they have conducted original research in the subject of public health.

Diploma in Psychiatry

Candidates must be registered medical practitioners and, unless qualified before January 1st 1911, must have attended subsequent to passing their qualifying examinations, courses of instruction in (a) anatomy, (b) physiology, (c) pathology, (d) bacteriology, (e) psychology and experimental psychology, (f) clinical neurology, (g) psychiatry, (h) clinical psychiatry. The examination consists of two parts, namely (1) anatomy, physiology, pathology and bacteriology, (2) psychology and experimental psychology, neurology and psychiatry (systematic and clinical) and candidates may present themselves for the whole examination or for either part separately.

Licence and Degrees in Dental Surgery

L.D.S.—Every dental student must at the commencement of his studentship, be registered in the manner and under the conditions prescribed for medical students.

The First Examination consists of three parts which may be passed separately: Part 1 organic chemistry, Part 2 biology, Part 3 theoretical dental mechanics, dental metallurgy (theoretical and practical). Second Examination: Anatomy, physiology (including biochemistry and biophysics), dental anatomy, and dental histology. Third Examination: Pathology and bacteriology, practical dental mechanics, dental materia medica and therapeutics. Final Examination: Medicine, surgery, dental surgery and pathology, orthodontics, operative dental surgery and dental prosthetics, and anaesthetics.

A candidate before presenting himself for examination is required to furnish certificates of instruction in the required subjects, attended after registration as a dental student at recognized colleges or medical schools.

Degree of Bachelor of Dental Surgery—1—Students taking their complete course of instruction in the university must pass the same matriculation tests as medical students, and the same pre-registration examination in inorganic chemistry and physics. After registration students must spend five years in the university. They must attend the practice of the Newcastle-upon-Tyne Dental Hospital for not less than two and a half years, six months of this time must be devoted to the study of the higher branches of dental science. There are four examinations. The subjects of the examinations are as follows: *First* Biology, organic chemistry, and dental mechanics and metallurgy. *Second* Anatomy, physiology, dental anatomy and histology. *Third* Pathology and bacteriology, dental materia medica and therapeutics, and practical and dental mechanics. *Final* Medicine, surgery, dental surgery and pathology, orthodontics and operative dental surgery. In this subject knowledge of a much higher standard, and more advanced practical work are required than for the Licence in Dental Surgery.

2—Candidates possessing a Licence in Dental Surgery of a British university must study for at least one year in the university. During such year they must (a) attend a course of instruction in pathology and bacteriology and (b) spend at least six months in the Newcastle-upon-Tyne Dental Hospital in the study and practice of the higher branches of dental science. They must also pass the third and final examinations for the degree of Bachelor of Dental Surgery.

Degree of Master of Dental Surgery—Every candidate for this degree must be a Bachelor of Dental Surgery of the university of not less than two years' standing and present an essay embodying original work and research in some subject connected with dentistry. He must also perform to the satisfaction of the examiners a piece of special dental work demanding a high degree of skill and experience.

The examinations are held concurrently with the medical examinations.

The practical examinations in dentistry are conducted at the Newcastle-upon-Tyne Dental Hospital.

FEES

The following fees are payable: Matriculation £2. Examinations, First, Second, and Third M.B., B.S. each £5. Final M.B., B.S. £15. M.D. and M.S., each £5. B.Hy., D.P.H. and D.S., each £10. 10s. and D.Hy. and D.Ch. each £20. First, Second, and Third L.D.S. each £5. 10s. and Final L.D.S. £5. First, Second, and Third B.D.S. each £5. Final B.D.S. £8. and M.D.S. £5. For degrees and diplomas: M.B., B.S., B.Hy., and B.D.S. each £6. 6s. plus

the sum of 10s if it is the initial degree taken in the university M.S. and M.D.S., each £6 6s. M.D., D.Ch. and D.Hy., each £10, D.P.H., D.Psy., and L.D.S., each £3

Further information may be obtained from the Dean of the College, University of Durham College of Medicine, Newcastle-on-Tyne

UNIVERSITY OF LEEDS

The degrees granted in the Medical Faculty of this university are Bachelor of Medicine, Bachelor of Surgery (M.B. and Ch.B.), and Bachelor of Dental Surgery (B.Ch.D.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), and Master of Dental Surgery (M.Ch.D.). It also gives diplomas in public health, in psychology, in dental surgery, and in nursing.

Candidates for the M.B. must have attended courses of instruction approved by the university for not less than five years, two at least of such years having been passed in the university, at least one year being subsequent to the date of passing the first examination. They must also have matriculated by satisfying the examiners in

I Either English Composition and English Literature, or English Composition and History

II Either Mathematics or Latin

III } Three other subjects not already taken under I and II above,
IV } chosen from the following list
V }

- | | |
|---|---------------------------------|
| 1 English Literature | 9 Mathematics |
| 2 History | 10 Mechanics |
| 3 Geography | 11 Physics |
| | 12 Chemistry |
| 4 Greek | 13 General Experimental Science |
| 5 Latin | |
| 6 French | 14 Natural History |
| 7 German | 15 Botany |
| 8 Some one other language approved by the Board | |

Provided that (a) candidates who take Mathematics under II above must include one of the subjects 4-8 (b) candidates who take Latin under II above must include one of the subjects 9-15 In all cases Mathematics is a compulsory subject for admission to the Faculty of Medicine

Exemption from the examination may be granted to applicants holding certificates of having passed examinations of a standard deemed by the Matriculation Board to be at least equal to the Board's examination

PROFESSIONAL EXAMINATIONS

The examinations for the M.B., Ch.B. number three. The first deals with (1) Physics and Chemistry, (2) Biology. In each subject laboratory work is included but the two parts can be taken separately. For neither can the candidate present himself until after matriculation and a period of approved work in the respective subjects.

The Second Examination—The Second Examination consists of Part I, Organic Chemistry, Part II, Materia Medica and Practical Pharmacology, Part III, Anatomy and Physiology, Part IV, Pharmacology. Candidates will be allowed to pass any parts separately.

The Final Examination—The Final Examination consists of Part I, Pathology and Bacteriology, Part II, Medicine, Surgery, Obstetrics, Gynaecology, and Clinical Pathology, Part III, Forensic Medicine, Public Health, and Therapeutics. Part I may be taken at the end of the second clinical year, and must be passed before Parts II and III are taken. Parts II and III may be taken at the end of the third clinical year but not before the completion of the fifth year of medical study. If taken separately Part II must be passed before Part III.

M.D.—A candidate for this degree must be a M.B., Ch.B. of the university, of at least one year's standing. He presents a dissertation embodying the results of personal observation or original research, and, if this is approved, he may be required to write a short extempore essay on some topic connected with medicine, and may be examined orally on the dissertation or other work submitted.

Ch.M.—The candidate for this degree must have been admitted to the M.B., Ch.B. of the university not less than a year previously, and during that time must have held for at least six months a surgical appointment in a public institution affording full opportunity for the study of practical surgery. He must also have attended certain courses,

including one on ophthalmology and one on bacteriology, he is then examined on the subject of surgery in all its branches.

FEES

The matriculation fee is £2 and on readmission £1 10s. For each of the other examinations £6 and £5 on readmission. Ch.M. £10 and same on readmission. M.D. £10. On conferment of the degree of Ch.M. £5 is payable, and £5 for the M.D. degree.

UNIVERSITY OF LIVERPOOL

This university, besides granting degrees in medicine (M.B. and M.D.) and in surgery (Ch.B., M.Ch.Orth., and Ch.M.), gives degrees in dental surgery (B.D.S. and M.D.S.), a degree in hygiene (M.H.), and degrees in veterinary science (B.V.Sc., M.V.Sc., and D.V.Sc.). Diplomas are awarded in dental surgery (L.D.S.), tropical medicine (D.T.M.), tropical hygiene (D.T.H.), public health (D.P.H.), veterinary hygiene (D.V.H.), and medical radiology and electrolgy (D.M.R.E.). The degree of Doctor of Philosophy (Ph.D.) may also be taken in the Faculty of Medicine.

MATRICULATION

The Matriculation Examination is governed by the Joint Matriculation Board, 315, Oxford Road, Manchester which accepts, under certain conditions, the tests of several other bodies as its equivalent. Chemistry and physics are essential pre-registration subjects.

It should be particularly noted that important alterations in regard to Matriculation requirements and the first and second years' courses of study will come into operation in October, 1929. Particulars may be obtained on application to the Dean.

PROFESSIONAL EXAMINATIONS

Candidates for the M.B., Ch.B. degrees have three examinations to pass, the first including (1) chemistry, (2) physics, (3) biology (zoology and botany).

Second M.B.—This test covers (a) (1) anatomy, (2) physiology, including physiological chemistry and histology, and (b) (3) elementary bacteriology, (4) clinical chemistry, (5) general pathology. Candidates may present themselves in (a) and (b) separately.

Final M.B.—The subjects of the Final Examination are (a) (1) special pathology and morbid anatomy, (2) forensic medicine and toxicology, (3) public health, (4) pharmacology and general therapeutics, (b) (5) obstetrics and diseases of women, (6) surgery—systematic, clinical, operative, and practical—including ophthalmology, (7) medicine—systematic and clinical—including therapeutics, mental diseases, and diseases of children. Candidates may take Parts (a) and (b) separately but Part (b) may not be taken until five years of study have been completed.

M.D. and Ch.M.—Candidates for these degrees must have received the M.B. and Ch.B. (Liverpool) at least two years previously. The M.D. candidate submits for approval a thesis covering original work in some branch of medicine or some science directly relative to medicine together with, if desired, copies of published work, if the thesis is not judged to be of special merit an examination in either Medicine or some subject connected with the thesis is required. The Ch.M. candidate undergoes an examination. Other information concerning the diplomas of this university and its medical school will be found on page 399.

FELLOWSHIPS, SCHOLARSHIPS, AND EXHIBITIONS

The university awards Fellowships annually to students of distinguished merit, as follows:

(1) John Rankin Fellowships in Anatomy two each of the value of £120 tenable for two years. (2) Ethel Bovee Fellowship in Gynaecology value £100 and tenable for one year open to fully qualified medical students of either sex. (3) John W. Garrett International Fellowship in Bacteriology, value £100 and tenable for one year. (4) Robert Gee Fellowship in Human Anatomy value £100 and tenable for one year. (5) Holt Fellowships in Physiology and Pathology two in number value £150 each and tenable for one year. (6) Johnston Colonial Fellowship in Biochemistry value £100 and tenable for one year. (7) Thelwall Thomas Fellowship in Surgical Pathology value £150 and tenable for one year. (8) Lady Jones Fellowship in Orthopaedic Surgery etc. value £200 offered every two years.

There are in addition scholarships and exhibitions open to medical students.

VICTORIA UNIVERSITY OF MANCHESTER

This university grants the four ordinary degrees in medicine and surgery—MB and Ch B and M D and Ch M, a degree and diploma in dental surgery, a diploma in public health, a certificate in factory and in school hygiene, a diploma in psychological medicine, and a diploma in bacteriology. Candidates for degrees must pass the special Matriculation Examination prescribed by the Faculty of Medicine (or some equivalent examination accepted in lieu thereof, see the prospectus of the Joint Matriculation Board), and study at the university itself for at least two years of the six years' curriculum, subsequent to the passing of the First M B Examination. The Matriculation Examination comprises (1) Latin, (2) mathematics, (3) the English language, its literature and history, (4) mechanics, (5) one subject at choice as approved by the Joint Board. It is held in July and September.

PROFESSIONAL EXAMINATIONS

M B, Ch B—There are four examinations for this degree. They must be passed in proper order, and before admission to them the candidate must be duly certified as having attended in the subjects involved. The First M B is divided into Part I, chemistry and physics, Part 2, biology—(a) botany, (b) zoology. The parts may be taken separately or together. At the Second M B the candidate is examined in anatomy (including histology) and physiology, at the third in pathology, bacteriology, and pharmacology (including materia medica and practical pharmacy). The Final Examination, under new regulations, is divided into two parts, which may be taken separately. Part I consists of (a) forensic medicine and toxicology, and (b) hygiene and preventive medicine. Part II consists of (a) medicine, including dermatology, diseases of children, and mental diseases, (b) surgery, surgical pathology, and diseases of the eye and of the ear, nose, and throat, (c) obstetrics and gynaecology.

M D—A candidate for this degree must be a Bachelor of Medicine of at least one year's standing. He has a choice between presenting an original dissertation or undergoing a written (as well as practical and clinical) examination in medicine, and a written and practical examination in pathology, and one other subject selected by himself.

Ch M—A candidate must have held, since becoming Ch B, and for not less than twelve months, a post in a public institution affording opportunity for the study of the branch of surgery in which examination is desired. The examination in Branch I comprises the general field of surgery, Branch II, obstetrics and gynaecology, Branch III, ophthalmology, Branch IV, otology, laryngology, and rhinology.

B Sc and M Sc—The ordinary degree of B Sc in the Schools of Anatomy and Physiology may be obtained by students in medicine who in their third year of study for the degree of M B, Ch B complete the additional courses in these subjects prescribed for this degree. Candidates for the Honours degree of B Sc in Anatomy or Physiology who are students in medicine are required to attend courses in advanced anatomy and physiology for four terms after passing the Second Examination for the degrees of M B, Ch B. Graduates in science of this university, of not less than one year's standing from the date of their graduation as Bachelors, may proceed to the degree of M Sc by the presentation of an approved thesis on some subject coming within the scope of the Faculty of Science.

FEES

The following examination fees are payable. Matriculation £2 on readmission, £2. Each M B examination £8 8s on readmission £5 3s. M D including the conferring of the degree £15 15s. Ch M £10 for the examination and £10 10s for conferment of degree. Application for further information should be addressed to the Dean of the Medical School.

UNIVERSITY OF SHEFFIELD

The degrees of this university (M B, Ch B, M D and Ch M, B D S, and M D S), and the diploma of licentiate in dental surgery, are open to candidates of either sex. Candidates for a degree must have matriculated in the university or have passed such other examination as may be recognised for this purpose and have passed the further examination in chemistry and physics.

PROFESSIONAL EXAMINATIONS

A candidate for the degrees of M B, Ch B must produce certificates that he will have attained the age of 22 years by the day of graduation, that he has pursued the courses of study required by the university regulations during not less than five years subsequent to the date of his matriculation or exemption from matriculation, and the passing of the further examination in chemistry and physics, three of such years at least having been passed in the university, one at least being subsequent to the passing of the First Examination. The following examinations must be passed in due order.

First Examination—The subjects are chemistry, physics, and biology. Candidates who have passed the Intermediate Examination of the Faculty of Pure Science in any or all of the subjects of the First M B Examination will, on payment of the fee for the latter examination, be deemed to have passed it when they have passed in such subjects as they did not take for the Intermediate B Sc Examination. Candidates on presenting themselves for this examination are required to furnish certificates of having attended for not less than one year approved courses of instruction, after matriculation, and the passing of the further examination in physics and chemistry, in (i) chemistry, inorganic and organic, (ii) physics, (iii) biology.

Second Examination—The subjects are anatomy and physiology. The candidate must have completed the second year of professional study, must have passed the First Examination, and must have attended (1) courses on anatomy, including lectures and practical anatomy, during one year, (2) courses on physiology, including lectures and practical physiology during one year.

Third Examination—The subjects are pathology and pharmacology, anatomy, and physiology. Candidates must have completed the Lent term of the fourth year of medical study and the requisite courses in these subjects, including post mortem clerkship for three months.

Final Examination—The subjects are Part I, forensic medicine and public health, Part II, medicine (including mental diseases and diseases of children), surgery, obstetrics (including gynaecology). Candidates for Part I must have completed Michaelmas term of the fifth year of study, candidates for Part II must have completed the fifth year of study.

M D—Candidates for the degree of Doctor of Medicine must have passed the examination for the degrees of M B, Ch B at least one year previously, must present a thesis embodying observations in some subject approved by the Professor of Medicine, and must pass an examination in the principles and practice of medicine.

Ch M—Candidates for the degree of Master of Surgery must have passed the examination for the degrees of M B, Ch B at least one year previously, and must, since taking the degrees of M B, Ch B, have held for not less than six months a surgical appointment in a public hospital or other public institution affording full opportunity for the study of practical surgery. The subjects of examination are systematic, clinical, and operative surgery, surgical anatomy, surgical pathology, and bacteriology.

Other information concerning this university will be found in the section devoted to Provincial Medical Schools.

UNIVERSITY OF WALES

The Charter and statutes of the University of Wales provide *inter alia* for a Faculty of Medicine and for the granting of the following degrees: Bachelor in Medicine (M B), Bachelor in Surgery (B Ch), Master in Surgery (M Ch), and Doctor in Medicine (M D).

A candidate for the M B, B Ch is required to pursue a course of study of not less than six academic years subsequent to matriculation in the university, and of these years at least three must have been passed in one of the constituent colleges of the university. These are the University College of Wales, Aberystwyth, University College of North Wales, Bangor, University College of South Wales and Monmouthshire, Cardiff, and University College, Swansea. He must also hold an arts or science degree of the University of Wales, or of some other university approved for this purpose. Certain of the courses of study

pursued for a B.Sc. or a B.A. degree may be counted as courses required for the degrees in the Medical Faculty.

The courses for the M.B., B.Ch. are divided into two sections, of which the first includes the preliminary subjects—physics, chemistry, botany, zoology, and the ancillary subjects—organic chemistry, human anatomy, and physiology. Study of the preliminary subjects and of organic chemistry must extend over at least one academic year, study of physiology and anatomy must extend over at least two academic years, the first section of the course must occupy not less than three years. The second section includes courses in pathology, bacteriology, pharmacology, hygiene and forensic medicine, medicine, surgery, and obstetrics and gynaecology, and cannot be commenced, except in the case of pharmacology until the examinations relating to the preliminary and ancillary courses have been passed. Examinations in all the subjects are held in June of each year, and in medicine, surgery, obstetrics, and gynaecology in December also.

The university also offers courses of study in public health and in tuberculosis. Candidates for the Diploma in Public Health (D.P.H.) and for the Tuberculous Diseases Diploma (T.D.D.) must possess a medical qualification registrable for practice in Great Britain and Ireland, and must have completed courses of study as prescribed by the regulations either at the Welsh National School of Medicine, Cardiff, or at another institution approved by the university.

WELSH NATIONAL SCHOOL OF MEDICINE

Students can complete the whole of their curriculum in the Welsh National School of Medicine, which is an integral part of the University College of South Wales and Monmouthshire, and qualify for the degrees of M.B., B.Ch. in the university.

Further information may be obtained from the Registrar, the University Registry, Cathays Park, Cardiff.

English Medical Corporations.

THERE are in England three medical corporations which grant licences to practise—the Royal College of Physicians of London, the Royal College of Surgeons of England, and the Society of Apothecaries of London. The first two combine for certain purposes to form what is known as the Conjoint Board in England. Details concerning this body, its component Colleges, and the third licensing body here follow.

THE CONJOINT BOARD

THIS body—the Examining Board in England—deals with the qualifications of all candidates for the Licence of the Royal College of Physicians of London and for the Membership of the Royal College of Surgeons of England. It prescribes for them certain periods of study and recommends those who pass the required examinations for the Licence and for the diploma of Member respectively. The successful candidate is then entitled to register as L.R.C.P. Lond. or M.R.C.S. Eng. It performs the same task in connexion with diplomas in public health, tropical diseases, ophthalmic medicine and surgery, psychological medicine and laryngology and otology—jointly issued by the two Colleges in question. Under the new regulations, which apply to all students who did not pass the required preliminary tests of general education before January 1st 1923 every candidate for the L.R.C.P. and M.R.C.S. must (1) complete five years of professional study after passing a recognized preliminary examination and a recognized pre-medical examination in chemistry and physics, (2) comply with the regulations which may be laid from the Secretary Examination Hall, Queen Square, London, W.C.1, and (3) pass the two professional examinations of which particulars appear below. The old regulations for the Conjoint diploma, of which an account was given in the Educational Number of the *British Medical Journal* for 1922 still apply to students who passed their preliminary examination in general education before January 1st 1923.

NEW REGULATIONS FOR THE CONJOINT DIPLOMA

The following is an outline of the regulations applicable to candidates for the L.R.C.P. Lond. and M.R.C.S. Eng. who passed the required Preliminary Examination in general education on or after January 1st, 1923. The full regulations and synopses and forms of certificate may be obtained from the Secretary.

PRE-MEDICAL EXAMINATION

Students are required to pass a Pre-Medical Examination in Chemistry and Physics conducted by the Conjoint Examining Board before commencing the five years curriculum of professional study or some other examination recognized by the Board—namely, the examination in Chemistry and Physics for the degree in Medicine of any university, the Board of the Higher School Certificates of Universities and the Oxford Board of the Higher Certificates of London, Bristol, Durham Universities, the Joint Matriculation Board of the Northern Universities, the Central Welsh Board Higher Certificate or the Pre-Medical Examination in Chemistry and Physics conducted by any of the Qualifying Bodies whose Degrees or Diplomas are registrable on the Medical Register.

A candidate must enter for Chemistry and Physics together and he will not be allowed to pass in one without obtaining at the same time at least half the number of marks required to pass in the other subject. He will be admitted to the examination on producing evidence of having passed the required Preliminary Examination in General Education.

The examination is partly written, partly oral, and partly practical. A candidate rejected in one or both subjects of the examination will not be admitted to re-examination until after the lapse of a period of not less than three months.

PROFESSIONAL EXAMINATIONS

There are two Professional Examinations, called the First and Final Examinations. The courses of study for the First Examination may be commenced before the Pre-Medical Examination in Chemistry and Physics or some equivalent examination has been passed provided three terms of study of anatomy and physiology are completed after passing such examination.

First Professional Examination.—The subjects of this are Section I (a) Anatomy including Histology and Embryology, (b) Physiology including Biochemistry. Section II, Pharmacology, Practical Pharmacy and Materia Medica. A candidate must have attended at a recognized Medical School courses of instruction in Anatomy including Embryology during five terms, during which he must have dissected the whole body courses of instruction in Physiology including General Biology, Biochemistry and Biophysics during five terms courses of instruction in Pharmacology, Practical Pharmacy and Materia Medica. A candidate may present himself for the two sections together or separately but he must take parts (a) and (b) of Section I together until he has passed in one or both parts but a candidate will not be allowed to pass in one part unless he obtains at the same time at least half the number of marks required to pass in the other part. Section II of the examination may be passed at any time before the candidate enters for the Final Professional Examination. A candidate who produces satisfactory evidence of having passed an examination in the subjects of Section I or of either part of Section I and of Section II in the examination for the degree in Medicine conducted at a university recognized by the Board will be exempted from further examination in such subject or subjects.

Final Professional Examination.—The subjects of this are Section I Pathology (including Morbid Anatomy, Morbid Histology, and Clinical Pathology) and Bacteriology. Section II Part I Medicine including Medical Anatomy, Forensic Medicine and Public Health. Part II Surgery including Surgical Anatomy and the use of Surgical Appliances. Part III Midwifery and Gynaecology. The examination is partly written, partly practical, partly clinical and partly oral. A candidate may take Sections I and II and the three parts of Section II of the Final Examination separately or may take the whole examination together. He will be required to produce the certificates prescribed by the regulations before being admitted to the respective parts of the examination. A candidate who produces evidence of having passed an examination for a degree in Medicine in the subjects of Pathology and Bacteriology at a university recognized by the Board is exempted from Section I.

FEES

The fee for the Pre-Medical Examination is three guineas for re-examination in Chemistry two guineas and for re-examination in Physics one guinea. The fee for the First Professional Examination is ten guineas for re-examination after rejection in Section I six guineas for re-examination after rejection in either part of Section I three guineas for re-examination after rejection in Section II three guineas. The fee for admission to Section I of the Final Professional Examination is four guineas for admission to Section II Part I ten guineas Part II ten guineas Part III six guineas and the re-examination fees are respectively three guineas six guineas and four guineas.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

THIS College has three grades—its Licentiates, its Members, and its Fellows. The Licence is now only issued through the Conjoint Board. The Membership is only granted to those who have passed the final examinations for the Licence, or to those who are registered practitioners and graduates of a recognized university, in any case they must

be persons over 23 years of age. Candidates are examined in pathology and the practice of physic, partly in writing and partly viva voce; they are also examined in Latin, Greek, French, and German. The languages are not compulsory, but credit is given to those who show a knowledge of them. The fee for the Membership is £42, or in the case of a Licentiate £21. There is a fee of £8 8s, payable before entrance to the examination, which in the case of successful candidates is reckoned as part of the Membership fee. The body of Fellows is maintained by election from among the Members.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

This College has two grades—Members and Fellows. The Members are admitted as stated in the section dealing with the Conjoint Board. The Fellowship is granted after examination to persons at least 25 years of age who have been engaged in professional studies for six years. There are two examinations for the Fellowship—the first in anatomy and physiology, which may be passed after the third winter session, the second, chiefly directed to surgery, which may be passed after six years of professional study. Candidates must pass the Final Examination of the Examining Board in England and be admitted Members of the College before admission to the Second Examination for the Fellowship, except in the case of graduates in medicine and surgery of not less than four years' standing of universities recognized by the College for the purpose, who are required to attend for one year the surgical practice of a general hospital recognized by the College after obtaining their degrees, which must be registrable in this country.

Fees—At first examination £8 8s, for re-examination £5 5s. At second examination £12 12s. Admission fee £10 10s. for members £31 10s. for non members.

SOCIETY OF APOTHECARIES OF LONDON

This body confers a registrable diploma in medicine, surgery, and midwifery, now known as the L.M.S.S.A. (Licentiate in Medicine and Surgery of the Society of Apothecaries), on those successful at the following examinations.

Pre-medical Examination—Chemistry and chemical physics.

Primary Examination—This includes anatomy, physiology, and histology, and materia medica and pharmacy. Candidates will be excused any or all the subjects of the Primary Examination on producing evidence that they have passed equivalent examinations before an examining body recognized by the Society. Candidates referred in anatomy will be required to produce evidence of further work in the dissecting room before being admitted to re-examination.

Final Examination—This is divided into three parts. Part I includes clinical surgery, the principles and practice of surgery, surgical pathology, operative manipulation, surgical anatomy, instruments and appliances. Part II includes clinical medicine: (a) the principles and practice of medicine (including therapeutics, pharmacology, and prescriptions), pathology, and morbid histology, (b) forensic medicine, hygiene, theory and practice of vaccination, and mental diseases. Part III includes midwifery, gynaecology, and diseases of newborn children, obstetric instruments and appliances.

The fee for the Primary Examination is £5 5s, for the Final £15 15s. The regulations and synopses relating to the several examinations and other information may be obtained from the Secretary, Court of Examiners, Apothecaries' Hall, Blackfriars, EC 4.

Mastery of Midwifery

The Society has recently instituted a Mastery of Midwifery, and proposes to issue a diploma under this title denoting the possession of specialized knowledge of antenatal care, midwifery, and child welfare. The first examination will commence on October 15th, and candidates are required to submit certificates, etc., fourteen days before this date. It is intended to impose a severe test so as to ensure a high standard of professional knowledge, but the diploma will not be registrable under the Medical Acts. Admission is open to all who have been for not less than a

year in possession of a registrable medical qualification, and who have had certain prescribed experience at recognized institutions concerned with obstetrics, antenatal work, and child welfare work. Special conditions apply, until 1932, to practitioners of ten years' standing. The entrance fee for the examination is £5 5s, and a further fee of £5 5s is payable by successful candidates before admission to the Mastery. Copies of the regulations may be obtained from the secretary at the address given in the preceding paragraph.

The Scottish Universities.

There are in Scotland four universities, each possessing a Faculty of Medicine, and having the right to confer degrees which admit the holder to the *Medical Register*. In essential points the regulations in their medical faculties for undergraduates are much alike, so that a general account can be given of all of them together.

The universities are those of Edinburgh, Glasgow, Aberdeen, and St Andrews. The provision each of the cities in which these universities are situated makes for the education of medical students will be found in the section on Medical Schools in Scotland, here it need merely be said that degrees in medicine from Scotland as a whole have always enjoyed a high repute.

The degrees granted in medicine and surgery to candidates of either sex are four in number—Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.). The two former are not obtainable one apart from the other. Besides the degrees a diploma in tropical medicine and hygiene is obtainable from the University of Edinburgh, as also diplomas in psychiatry, public health, and radiology. As for public health, registrable degrees in this subject are granted by the University of Glasgow, while diplomas in public health may be obtained from the universities of St Andrews and Aberdeen.

The conditions for admission of graduating students of medicine are the same as those in the Faculties of Arts or Science (for degrees in pure science).

As from January 1st, 1923, prospective medical students are also required to pass a pre-registration examination in chemistry and physics.

PROFESSIONAL EDUCATION

The regulations comply in all respects with the requirements and recommendations of the General Medical Council, and, in addition, necessitate definite study for stated periods of diseases of children, of the larynx, ear, and nose, of the skin, of ophthalmology, and of mental diseases. In respect of the various courses certificates must be obtained showing that the student has not only attended regularly, but has duly performed the work of the class. Out of the necessary five years of medical study, not less than two must be spent at the university whose degrees the student hopes to obtain, and the balance at any place officially recognized for such purpose. In each academic year there are two sessions—one lasting from the beginning of October to the middle of March, and the other from the middle of April to the beginning of July.

PROFESSIONAL EXAMINATIONS

The distinctive feature of the Scottish curriculum is that though nominally there are only four examinations, each of these may be, and habitually is, split up by the student into sections. Hence, a student may complete some stage of his career during the course of nearly every session. Thus, by the end of the first winter session the student may pass in zoology and chemistry. At the end of the first summer session he can finish with botany and physics, and with anatomy and physiology at the end of the second. Pathology and materia medica he will pass at the end of the third year, and so on, until the final examination in midwifery, surgery, and medicine, and the corresponding clinical subjects, at the end of the fifth year of study. At each examination the candidate may pass "with distinc-

tion," and a record is kept of the merit displayed, so that when the time comes for the candidate to graduate, one who has done well throughout can be declared as graduating with honours. A further point in the system is that the student's own teachers commonly take some part in his examination.

Of the four examinations, the first deals with physics, botany, zoology, and chemistry, the second with anatomy and physiology, the third with materia medica and pathology, the fourth with medicine and surgery (clinical and systematic), midwifery, clinical midwifery, and clinical gynaecology, and forensic medicine and public health. The first three examinations are held three times a year, the final twice a year.

Exemption from the first professional examination can be obtained by candidates who have passed an arts, science, or medical degree examination in its subjects at any recognized university. When a candidate presents himself for an examination in several of its parts, but is not successful in all of them, he is credited at the next examination with those subjects in which he has already been approved.

THE HIGHER DEGREES

It is open to those who are already M.B., Ch.B. to proceed either to the M.D. or the Ch.M. A candidate for the former must have been engaged for not less than one year in work in the medical wards of a hospital, or in scientific research in a recognized laboratory, or in the Naval or Military Medical Service, or have been at least two years in general practice, and he must be 24 years of age. He has to write a thesis on any subject not exclusively surgical, and is examined in clinical medicine and in some one or other of its special departments. The regulations for candidates for the Ch.M. are of a corresponding character, a period of surgical work in a hospital or elsewhere being substituted for medical work, and the thesis being on a surgical rather than a medical subject. He is examined in surgical anatomy, clinical surgery, operative surgery, and in some of the special departments of surgery.

FEES

It is estimated that the class examination and other fees for the M.B., Ch.B. come altogether to about £256, the separate examination fees included in this calculation being as follows:

	£	s	d
First Professional	9	9	0
Second Professional	7	7	0
Third Professional	6	6	0
Final	11	11	0

Re-entry in any subject in which the candidate has failed entails a fresh payment of £1 1s. Candidates for the M.D. and Ch.M. pay £21 and on re-entry £5 5s.

More detailed information with regard to the University of Edinburgh can be obtained from the *Medical Programme*, price 6d, which is published by Mr. Thun, 55, South Bridge, Edinburgh, or on application to the Dean of the Faculty of Medicine. Similar information about Glasgow should be sought from the Assistant Clerk, Matriculation Office, Glasgow. With regard to Aberdeen, application may be made to the Secretary of the Medical Faculty, Marischal College. In respect of St. Andrews information can be obtained either from the Secretary of the University, or, alternatively, the Secretary of the United College, St. Andrews, or the Secretary of University College, Dundee, these being the two constituent colleges of the University of St. Andrews.

Finally it should be mentioned that in connexion with all the Scottish universities there are valuable bursaries and scholarships, some information as to which will be found in the article on Medical Schools.

THE CARNEGIE TRUST

The following is a summary of the regulations made by the Carnegie Trust for the Universities of Scotland for assistance in the payment of class fees in the universities and extra-mural colleges of Scotland.

Applicants must be over 17 years of age, they must be of Scottish birth or extraction or have attended for two years after the age of 14 at a school or institution under inspection of the Scottish Education Department. Applicants so qualified who have been pupils of schools under the Scottish Education Department will be eligible for assistance in the payment of class fees if they have obtained the leaving certificate of the Department, provided

that it bears evidence of such preliminary education as is required by the universities for their graduating curricula, or that it has been supplemented by such passes either in the Scottish Universities Preliminary or other examination as will satisfy the above requirement of the universities. Where applicants have not been pupils of schools under the Scottish Education Department, or whose other good ground for not having obtained the leaving certificate can be shown, the Executive Committee has power to accept instead what it deems equivalent evidence of attainments.

Applicants in the Faculties of Arts and Science must have had their course of study for each academic year approved by the University Adviser of Studies and they must have passed the graduation examinations belonging to the previous stage of their curriculum before becoming eligible for assistance in the payment of fees of classes belonging to a further stage. Beneficiaries must submit to the Executive Committee at the end of each session particulars as to their attendance and work, any distinctions gained and any graduation examinations passed.

The annual allowance towards payment of class fees offered to beneficiaries by the Trust in the Faculty of Medicine is £19 for four years in all £76. Any unexpended part of a grant will be carried forward to the succeeding year. In combinations of Faculties the allowances available for beneficiaries are Arts and Medicine—two Arts grants of £8 and four Medicine grants of £19 in all £92. Science and Medicine—two Science grants of £17 and four Medicine grants of £19 in all £110.

Applicants, in writing for application forms, must name the university and faculty in which they intend to study and state whether they have previously obtained the benefits of the Trust. Applications must be lodged not later than October 25th for the winter session or May 10th for the summer session. Payments are made by means of fee coupons and fees already paid are not refunded.

The Scottish Corporations.

THERE are three medical corporations in Scotland—the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow. Their licences can be separately obtained only by persons who are already in possession of a recognized qualification—in surgery in the case of the College of Physicians, and in medicine in the case of the College of Surgeons and the Faculty of Physicians and Surgeons of Glasgow. All others must submit to the examinations held by the Conjoint Board, which the three corporations have combined to form. Details concerning this Board and its component colleges follow. The conditions on which their higher qualifications are granted will be found set forth separately in connexion with each corporation.

THE CONJOINT BOARD IN SCOTLAND

THIS body has charge of all questions connected with candidates for the Conjoint Licences of the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow. Those finally approved by it are entitled to registration and to the initials denoting the Licences of the three bodies concerned—namely, L.R.C.P. Ed., L.R.C.S. Ed. and L.R.F.P.S. Glas. The Board requires all candidates to comply with the regulations of the General Medical Council. It has an arts examination of its own, but is prepared to accept in its place any of the other educational tests approved by the General Medical Council. All candidates must obtain registration with the General Medical Council.

Professional Curriculum for Candidates registered as Medical Students prior to January 1st, 1923

Subsequent to registration as a medical student the candidate must pass not less than five years in medical study, each comprising a winter and a summer session. The Board does not insist that candidates shall pursue their study at any particular place, and is prepared to accept certificates of having attended the necessary courses from any recognized medical school.

Its examinations are four in number, each of them being held four times every year, and these will fall to be held twice in Edinburgh and twice in Glasgow during the next period, it is open to candidates to present themselves for examination at either place. The first examination deals with physics, chemistry, and elementary biology, the second with anatomy and physiology, including histology, the

third with pathology and *matrimonia medica*, including pharmacy, and the final with (1) *medicina*, including therapeutics, medical anatomy, and clinical medicine, (2) surgery, including surgical anatomy, clinical surgery, and diseases and injuries of the eyes, (3) midwifery and diseases of women and of newborn children, including clinical gynaecology and practical midwifery, and, if it has not been passed previously, (4) medical jurisprudence and hygiene. Candidates will also be examined on diseases of children, diseases of the ear and throat, insanity, vaccination, etc.

These examinations must be passed in due order, and before admission to any of them the candidate must supply certificates showing that he has completed the due periods of study of their subjects. He can present himself in any single subject of the first three examinations. As regards the Final Examination, a candidate can present himself in medical jurisprudence and hygiene at any time after completion of the third examination and of his study of these subjects, but in medicine, surgery, and midwifery he cannot present himself until the completion of five years' study, and he must take them all simultaneously. A candidate who takes up several subjects of an examination or the whole of the subjects at one time, but fails in some of them, is credited at the next examination with those subjects in which he has been approved.

All candidates for the Final Examination must complete the pass in the three portions (medicine, surgery, and midwifery) within a period of nineteen months.

Part or entire exemption from the first three examinations may be granted to those who have already passed before other bodies examinations deemed by the Board equivalent to its own, but all candidates for the Conjoint licence must sit for the Final Examination and at no examination can a candidate present himself within three months of his rejection by some other licensing body.

Professional Curriculum for Candidates registered as Medical Students after January 1st, 1923

The curriculum has been extended to meet the recommendations of the General Medical Council. Candidates, when applying for copies of regulations, should state date of medical registration.

FEES

It is estimated that the total cost of lectures and fees for the Conjoint licence is about £152. The separate examination fees are as follows: First Second and Third Professional £5 each; Final £15. On re-entry for any of the first three examinations £3 and on re-entry for the Final £5. If the re-entry is only in one or two subjects of the First Second or Third Examinations the fees are smaller.

Information concerning this Board should be sought either from Mr D. L. Eadie, 49, Lauriston Place, Edinburgh, or from Mr Walter Hurst, Faculty Hall, 242, St Vincent Street, Glasgow.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

This College has three grades—Licentiate, Membership, and Fellowship—all of which are open to men and women. The regulations applying to candidates for the Licentiate have already been generally indicated. If desirous of receiving it apart from those of the other two corporations they must be holders of a surgical qualification recognized by the College, and must pass an examination corresponding to the medical part of the Final Examination of the Conjoint Board, and conditioned in the same way, and also an examination in *materia medica*. The fee for examination is 15 guineas, a special examination being obtainable on due cause being shown, and on payment of 5 guineas extra. Ordinary examinations take place monthly on the first Wednesday and Thursday except in September and October. Candidates for the Membership must be either Licentiates of a British or Irish College of Physicians, or alternatively graduates of medicine of a university, approved by the Council, and in either case not less than 24 years of age. Candidates are examined in medicine and therapeutics, also on one or more departments of medicine specially professed, and approved by the

Council, in which a high standard of proficiency will be expected. The fee to be paid by a candidate for the Membership is £36 15s. The examination is held quarterly, and application for admission to it must be made a month previous to its date. For the Fellowship the candidate must have been a Member of the College for at least three years, and, if accepted, pay fees, including £25 stamp duty, amounting altogether to £64 18s. Further details can be obtained on application to the Secretary of the College.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

This College has two grades—its Licence and its Fellowship. Licentiates may be of either sex, and for the Fellowship women are eligible also.

Licence

As an original qualification the Licence is only granted after fulfilment of the regulations of the Scottish Conjoint Board, but as an additional qualification it can be obtained by those already possessed of a registrable or equivalent qualification in medicine. In this case the candidate has to pass a written, oral, and clinical examination in surgery and surgical anatomy, and may be asked to operate on the dead body.

The fee is £15 15s. of which £10 10s. is returned to unsuccessful candidates. On due cause being shown a special examination may be granted, the fee being £20 of which £10 is returned to a candidate if he is not approved.

Fellowship

Candidates for the Fellowship must be not less than 25 years of age, and have been in the practice or study of their profession subsequent to registration for at least two years, and must hold either a surgical degree from a university recognized for that purpose by the College, or a registrable diploma obtained as the result of an examination which includes surgery as well as medicine and midwifery. Candidates are examined in (a) the principles and practice of surgery, including surgical anatomy, (b) clinical surgery, and (c) one optional subject, which they may choose from among the following: surgical pathology and operative surgery, ophthalmology, laryngology, otology and rhinology, gynaecology, obstetric surgery, anatomy, and dental surgery and pathology. The examination is written, oral, and clinical or practical. A candidate who desires to be examined must give one month's notice, his application for admission being supported by two Fellows of the College, one of whom must be resident in Edinburgh, or, in default, by testimonials specially obtained for the purpose. Candidates are not allowed to appear more than three times at the examinations.

Licentiates of the College pay £35, and others £50. For further information application should be made to the Clerk of the College, Mr D. L. Eadie, 49, Lauriston Place, Edinburgh, from whom a copy of the *Laws Relating to the Fellowship by Examination* may be obtained.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

This body possesses two classes—Licentiates and Fellows. The regulations applying to the former correspond with those respecting candidates for the Licence of the Royal College of Surgeons of Edinburgh. Candidates for the single Licence are examined in surgery (including clinical surgery and surgical anatomy). The fee is £15 15s. and examinations are held quarterly. Candidates for the Fellowship must be qualified medical men of not less than two years' standing and 24 years of age. Candidates approved at this examination are then eligible for election as Fellows. The Faculty can also elect four Fellows annually without previously submitting them to examination, provided they "have highly distinguished themselves in medical science or practice." They must be of not less than ten years' standing and 40 years of age.

The fee for the Fellowship is £50. Further information can be obtained from Mr Walter Hurst, Faculty Hall, 242, St Vincent Street, Glasgow.

Irish Universities and Corporations.

MEDICAL REGISTRATION IN THE IRISH FREE STATE

THE Medical Practitioners Act, 1927 (Irish Free State), provides for the establishment of a Medical Registration Council for the Irish Free State. The main functions of the Council will be (1) to keep a register of medical practitioners who may desire to practise permanently or temporarily in the Irish Free State, and (2) to exercise disciplinary power with regard to all medical practitioners who are on the register and engaged in practice in the Irish Free State. The first schedule of the Act contains the agreement between Great Britain, the Irish Free State, and Northern Ireland. This agreement provides for the nomination of a member of the General Medical Council, formerly made for Ireland by His Majesty on the advice of the Privy Council, to be made henceforth by His Majesty in Council on the recommendation of the Governor of Northern Ireland. The nominations of members of the General Medical Council by universities and medical corporations in Ireland and the election of a member of the General Medical Council by registered medical practitioners in Ireland will be in all respects the same as heretofore. The constitution of the General Medical Council and of the several Branch Councils as formerly existing under the Medical Acts and the powers of holding qualifying examinations and granting diplomas for the purpose of registration, in the general Register formerly vested in certain universities and medical corporations in Ireland are not affected by the establishment of the Irish Free State or of Northern Ireland, and for the purpose of the preparation and keeping of the general Register the General Medical Council and the Branch Council for Ireland shall have the same powers and jurisdictions under the Medical Acts as they exercised formerly. The agreement provides also that any person who is or shall be registered in the general Register shall be entitled on the payment of a prescribed fee to be registered in the *Irish Free State Register*, but this fee will not be payable by any person who, on the date of the establishment of the *Irish Free State Medical Register*, is registered on the general Register. Then follow provisions with regard to the erasure from the Register of the name of a person on account of misconduct.

The Irish Free State Medical Registration Council fixed May 26th, 1928 as the last day for receiving applications without a fee, for the registration of medical practitioners in the Free State Register, whose names, at that date, were on the general *Medical Register* but whose addresses were outside the Irish Free State area. These medical practitioners are, however, still eligible for registration in the *Irish Free State Medical Register* on the payment of a fee. The names of medical practitioners with the Irish Free State addresses were placed automatically without a fee on the Free State Register. Applications for further information may be made to the Free State Medical Registration Council, Room 123, Custom House, Dublin.

THE IRISH UNIVERSITIES

THERE are three universities in Ireland, each with a medical faculty. These are, in the Irish Free State the University of Dublin (usually known as Trinity College, Dublin) and the National University of Ireland, and, in Northern Ireland, the Queen's University of Belfast.

UNIVERSITY OF DUBLIN TRINITY COLLEGE

THIS university grants two degrees in medicine (M B and M D), two in surgery (B Ch and M Ch), two in midwifery (B A O and M A O), and a post-graduate diploma in public health. It also grants post-graduate diplomas in gynaecology and obstetrics, for which nine months' study is required, and in psychological medicine, for which twelve

months' study is required. The degrees are granted to those who, having passed the Professional Examination, have also graduated in arts.

PROFESSIONAL EXAMINATIONS

A candidate for the Final Examination for the M B, B Ch, and B A O degrees must be a matriculated student of at least five years' standing. The examinations which students must pass are the Preliminary Scientific, the Intermediate Medical, and the Final. Before admission to any of these examinations students must have completed the courses of study in the subjects involved.

Preliminary Scientific—This covers (a) chemistry, (b) physics, (c) botany and zoology, the three divisions may be taken together or at different times.

Intermediate Medical—This is divided into two parts (a) anatomy, physiology, organic chemistry and histology, (b) applied anatomy and applied physiology. The two parts may be taken separately or together.

Final Examination—Part I Hygiene and medical jurisprudence, pathology and bacteriology, materia medica and therapeutics. Part II (a) Midwifery and gynaecology, (b) medicine and mental diseases, (c) surgery in all branches including clinical ophthalmology. The three sections of Part II may be taken separately or together. In either case the full curriculum must have been completed, and the Final Examination cannot be completed before the end of the fifth year.

M D—The candidate must have passed all the qualifying examinations in medicine, surgery, and midwifery, and have taken, or have been qualified to take, the degree of B A three years previously. He must send in a thesis for approval. Subsequently the Regius Professor of Physic and an assessor will discuss with him questions connected with the thesis, and also examine him *viva voce* on other medical subjects of a more general nature.

M Ch—The candidate must be a B Ch of not less than three years' standing and have been engaged in practice for two years.

M A O—The candidate must be a B A O of not less than two years' standing and must produce satisfactory evidence of having been engaged for two years in obstetric science. The examination is specially directed to obstetrics and practical gynaecology.

Further information regarding courses of instruction, etc., may be obtained from the Registrar of the School of Physic, Trinity College, Dublin.

QUEEN'S UNIVERSITY BELFAST

THE degrees granted by the Medical Faculty of this university are as follows: Bachelor of Medicine (M B), Bachelor of Surgery (B Ch), Bachelor of Obstetrics (B A O), Doctor of Medicine (M D), Master of Surgery (M Ch), Master of Obstetrics (M A O). The university also confers a Diploma in Public Health. The first three degrees mentioned serve as a qualification for admission to the *Medical Register*, and are not granted separately. In addition to matriculating and passing his professional examinations, a candidate for these degrees must have passed three of the regulation five years as a student at the Belfast School of Medicine. Degrees in dental surgery (B D S and M D S) are conferred by the university, and also a diploma in dental surgery (L D S).

PROFESSIONAL EXAMINATIONS

The examinations for the M B, B Ch, B A O are four in number. The first deals with (1) inorganic, organic, and practical chemistry, (2) experimental and practical physics, (3) botany and practical botany, (4) zoology and practical zoology. It is divided into two parts, of which botany and zoology form one. The Second Examination covers anatomy and physiology (both theoretical and practical) and may be taken at the end of the second year of the student's career. The Third Examination includes (1) pathology and practical pathology, (2) materia medica, pharmacology, and therapeutics, (3) medical jurisprudence, and (4) hygiene. To be valid a certificate in regard to the

study of the subjects of this examination must show that the work has been done after the Second Examination has been passed.

The Final Examination includes (1) medicine, (2) surgery, (3) midwifery, (4) ophthalmology and otology. The student may pass in all subjects at once at the end of his fifth year, or he may divide the examination into two parts—namely, (1) systematic, (2) clinical, practical, and oral. The first part may be taken at the end of the fourth year, but for the second part the candidate may not present himself until the end of his fifth year, but students invariably take both parts at the end of their course. No certificate in regard to the study of the subjects of this examination will be valid unless the work was done subsequent to passing in all the subjects of the Second Examination.

THE HIGHER DEGREES

Candidates for the degree of Doctor of Medicine must be graduates in medicine of at least three years' standing, unless they hold also a degree of the university in arts or science, in which case a standing of two academic years will suffice. Moreover, candidates must be able to show that the interval has been passed in the pursuit of such courses of study or practical work as may be prescribed. The degree may be conferred either (a) after a formal examination, or (b) in recognition of the merits of a thesis or of some piece of original study or research carried out by the candidate, followed by an oral or other examination in its subject. When an ordinary examination is imposed it will include (1) a written paper on the principles and practice of medicine, (2) a commentary on a selected clinical case, (3) a clinical and viva voce examination, and (4) a written paper and clinical or practical and viva voce examination on a subject chosen from the following list: (a) human anatomy, including embryology, (b) physiology, (c) pathology, (d) pharmacology and therapeutics, (e) sanitary science and public health, (f) forensic medicine and toxicology, (g) mental diseases. The regulations for the degrees of MCh and MAO are of the same general nature.

NATIONAL UNIVERSITY OF IRELAND

The National University of Ireland carries on most of its educational work through three constituent colleges—one in Dublin, one in Cork, and one in Galway. Each of these provides a full medical curriculum, and all candidates for the medical degrees of the university must pass three of their five years of study at one or other of them. These years do not count except after matriculation or recognition as a student of the Medical Faculty obtained in some other fashion. The candidates at each constituent college are examined by the university, and a common standard of education is secured by all courses of instruction and the regulations concerning them having to be approved by the Senate, after considering report thereon from the Board of Studies of the university. In addition to the ordinary degrees in medicine and surgery, the university grants those of Bachelor and Master of Obstetrics, Bachelor and Doctor of Science in Public Health, and Bachelor and Master in Dental Surgery, as well as Diplomas in Public Health, in Mental Diseases, and in Tropical Medicine.

Application for other information may be made to the Registrar, National University of Ireland, 86, St Stephen's Green, Dublin.

THE IRISH CORPORATIONS

There are, in the Irish Free State, three licensing bodies other than the Medical Faculties of the universities, and in Dublin, just as in London, there is a Royal College of Physicians of Ireland, a Royal College of Surgeons in Ireland, and an Apothecaries' Hall in Dublin, as in London and in Edinburgh, the two Colleges have formed an examining Conjoint Board, which is responsible for the recommendation of candidates to the two bodies for their respective licences. The Apothecaries' Hall of Ireland, like the Apothecaries' Society of London, gives its licence separately.

THE CONJOINT BOARD IN IRELAND

This body requires of candidates either the passage of its own preliminary examination in the subjects of general education or proof that the candidate has passed one of the tests accepted by the General Medical Council as well as passing in the Pre-Registration Examinations in chemistry and physics and biology.

PROFESSIONAL EXAMINATIONS

There are three professional examinations, the first of which cannot be passed earlier than the end of the second winter session, nor the final before the conclusion of full five years of medical study. Before being admitted to any of them the candidate must show that he has studied the different subjects in practice and theory for the requisite periods, certificates to this effect being accepted from the authorities of most of the recognized medical schools at home and abroad. The first examination deals with (a) anatomy, and (b) physiology and histology. The second examination deals with (a) pathology, (b) materia medica, pharmacy, and therapeutics and ophthalmology, and may be taken separately.

Final Examination—This is divided into three divisions, which cannot be completed until at least five years have passed in medical studies other than those for the Pre-Registration Examinations, and five years at least since the beginning of the curriculum. The divisions are (a) medicine, including fevers, mental diseases, and diseases of children, (b) surgery, including operative surgery, (c) midwifery, including diseases of women and newborn children, and the theory and practice of vaccination.

Fees—Preliminary Examination £2 2s. Re-examination £2 2s. Pre-Registration Examination £3 3s. Re-examination in Chemistry £2 2s. in Physics £1 1s. First Professional Examination, £26 5s., Second, £15 15s. Final, £8 6s. Re-examination fee is £2 2s. for each division.

Diploma in Psychological Medicine

There are two examinations in connexion with this diploma. Part I consists of (a) anatomy and physiology of the nervous system, (b) psychology. Part II—(a) neurology, including clinical and pathological neurology, (b) psychological medicine, including its legal relationships.

Fees—£8 6s. for each part.

Further information can be obtained from Mr Alfred Miller, Secretary of the Committee of Management, Royal College of Surgeons, St Stephen's Green, Dublin.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND AND ROYAL COLLEGE OF SURGEONS IN IRELAND

The Diploma in Public Health

Every candidate for the Diploma in Public Health must observe the following rules:

Rule 1 A period of not less than two years shall elapse between the attainment by a candidate of a registrable qualification in Medicine, Surgery and Midwifery and his admission to the Final Examination for a Diploma in Public Health.

Rule 2 The curriculum for the Diploma in Public Health shall extend over a period of not less than twelve calendar months subsequent to the attainment of a registrable qualification.

Rule 3 Every candidate shall produce evidence of having attended during a period of not less than five months at an institution approved by the Licensing Body granting the Diploma practical instruction in—

- Bacteriology and Parasitology (including Medical Entomology) especially in their relation to diseases of man, and to those diseases of the lower animals which are transmissible to man.
- Chemistry and Physics in relation to Public Health.
- Meteorology and Climatology in relation to Public Health.

At least 180 hours must be devoted to Course (a) of which not less than 150 hours shall be occupied in practical laboratory work.

At least 90 hours must be devoted to Course (b) of which not less than 70 hours shall be occupied in practical laboratory work.

At least 10 hours must be devoted to Course (c).

Rule 4 Every candidate shall produce evidence of having received during not less than 80 hours at an institution or from a teacher approved by the Licensing Body granting the Diploma instruction in the following subjects:

- The Principles of Public Health and Sanitation (30)
- Epidemiology and Vital Statistics (20)
- Sanitary Law and Administration (including Public Medical Services) (20)
- Sanitary Construction and Planning (10)

[The numbers indicate the normal proportion of time to be given to each subject.]

Rule 5 Every candidate shall produce evidence that he has attended for three months on the clinical practice of a recognized Hospital for Infectious Diseases and has received therein instruction in the methods of administration. At least thirty daily attendances of not less than two hours in each week shall be required.

Rule 6 Every candidate shall produce evidence that he has during a period of not less than six months been engaged in acquiring a practical knowledge of the duties routine and special of Public Health Administration under the supervision of a Medical Officer of Health who shall certify that the candidate has received from this Officer or other competent Medical Officer during not less than three hours on each of sixty working days practical instruction in these duties and also those relating to

- (a) Maternity and Child Welfare Service
- (b) Health Service for Children of School Age
- (c) Venereal Disease Service
- (d) Tuberculosis Service
- (e) Industrial Hygiene
- (f) Inspection and Control of Food including meat and milk.

Certificates of having received the prescribed instruction in Public Health Administration must be given by a Medical Officer of Health who devotes his whole time to Public Health work or by the Medical Officer of Health of a Sanitary Area having a population of not less than 50,000 or in Ireland the Medical Superintendent Officer of Health of a County or County Borough having a population of not less than 50,000.

Rule 7 The examination for the Diploma shall be divided into two parts Part I and Part II.

Rule 8. The examination for Part I shall include the following subjects

- Bacteriology and Parasitology (Including Medical Entomology)
- Chemistry and Physics, and Meteorology and Climatology in relation to Public Health

Rule 9 The examination for Part II shall include the following subjects

- Hygiene and Sanitation (Including Sanitary Construction)
- Epidemiology and Infectious Diseases
- Sanitary Law and Vital Statistics
- Public Health Administration.

The examination shall be written and oral, and shall include practical examinations in Infectious Diseases Food inspection Inspection of premises—dwellings factories workshops schools etc.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

Those whose names already appear on the *Medical Register* can obtain the separate Licence in Medicine of this College and its Licence in Midwifery. In either case an examination has to be passed in the subjects indicated, questions on midwifery, hygiene, and jurisprudence being included in the examination for the Licence in Medicine. For the Licence in Midwifery practitioners of over five years' standing are exempted from examination by printed questions. The other grades of the College are Members and Fellows. The former are admitted after an examination which is open to all university graduates in medicine and Licentiates in medicine of the Royal College of Physicians, and deals with the general subjects of medicine. Fellows are selected, by vote, from among the Members of the College.

Fees—For the Licence in Medicine, 15 guineas. Special Examination £21. For the Licence in Midwifery 8 guineas. Special Examination 16 guineas. For the Membership 20 guineas to a Licentiate of the College 35 guineas to others a special examination costs 10 guineas extra. The Fellowship £35 in addition to stamp duty £25.

Information as to special examinations and other matters can be obtained from the Registrar, the Royal College of Physicians, Kildare Street, Dublin.

ROYAL COLLEGE OF SURGEONS IN IRELAND

This body, besides granting a Licence in Surgery, admits those possessed of registrable surgical qualifications to its Fellowship under certain conditions. Its Licence is usually granted conjointly with that of the College of Physicians, but it is given separately to holders of a registrable qualification in medicine, provided the College is satisfied that adequate courses of study have been pursued, and provided its own provisional examination is passed. This examination is held on its behalf by the Conjoint Board, and is identical with the ordinary surgical portion of the examinations imposed by that body.

The Fellowship—Candidates for the Fellowship must pass two examinations, of which the first is in anatomy (including dissections), physiology, and histology, and the second in surgery (including surgical anatomy) and pathology. Both examinations are partly written, partly practical, and partly *viva voce*, while the final examination includes the performance of operations. All subjects of either examination must be passed at one time, and in neither can a candidate be admitted who has been rejected in any of its subjects by any other licensing body within three months. Candidates are not admitted to the Primary Examination except on evidence that they have already passed an examination in anatomy, physiology, and histology, held by some university or other body whose degrees or licences entitle

the holder to admission to the *Medical Register*, if, however, the candidate's name is on the Colonial or Foreign List in the *Medical Register*, at the discretion of the Council. Candidates for the Final Examination must be over 25 years of age, produce a certificate of general good conduct signed by two or more Fellows of the College, and, if successful, must make a declaration before admission to the effect that they do not conduct dispensing practices, and will not do so as long as they are Fellows.

Fees—Candidates for the Licence pay 5 guineas for examination which sum, if they pass is counted as part of the fee payable on admission to the Licence this being 25 guineas. Candidates for the Fellowship pay 5 guineas for each examination the total of 10 guineas being reckoned as part of the fee payable on admission to the Fellowship. That fee is 25 guineas in the case of those who are already Licentiates, and 40 guineas in the case of others.

APOTHECARIES' HALL OF IRELAND

A DIPLOMA is granted by this Hall which entitles the holder to be registered as a practitioner of medicine, surgery, and midwifery, and confers also the privileges of an apothecary. Women candidates are eligible.

Fees—Primary Examination (Parts I and II) £21. Final Examination, £21. Subjects of examination Primary Part I Anatomy and Physiology. Primary Part II Materia Medica including Pharmacy Medical Jurisprudence and Hygiene. Pathology. Final Examination Medicine Surgery and Midwifery. Candidates must enter for and pass at the same time in Anatomy and Physiology. They are at liberty to enter for the subjects of the Final Examination at separate times but the Final Examination cannot be completed until a period of three years has elapsed from the date of passing Primary Examination Part II.

Application for other information should be made to the Registrar 95 Merrion Square, Dublin.

MEDICAL SCHOOLS AND COLLEGES

LONDON

INFORMATION as to the fees at each of the various metropolitan medical schools, and the scholarships, prizes, and junior appointments which they offer, will be found in the following pages. The courses they provide are fundamentally the same, and in all of them the arrangements made are such as to meet the requirements of students of every class—of those who are aiming at the diplomas of the English Conjoint Board or the Apothecaries' Society, not less than of those who have London or other university degrees in view. At all, too, special facilities are offered to students who have commenced their professional education at Oxford or Cambridge, and are seeking the medical degrees of those universities.

CHARING CROSS HOSPITAL

THIS school, with its hospital, is situated in the centre of London, and is easily accessible. Primary and intermediate students attend lectures and practical work at King's College. The final studies are taken in the school and hospital, where systematic lectures, demonstrations, and tutorial classes are arranged to cover all the subjects necessary for the qualifying examinations. Departments are also available for the other final subjects of bacteriology, clinical pathology, biochemistry, materia medica, public health, operative surgery, and for research work. An Institute of Pathology, with a whole-time staff of scientific workers and fully equipped laboratories, has been established in the school. Students receive their training in preventive medicine, pathology and bacteriology here, and are encouraged to undertake research.

A number of scholarships and exhibitions are awarded to university and other students, particulars of which can be obtained from the Dean.

Fees—The fees are as follows. Entrance Primary and Intermediate 10 guineas, Final 8 guineas. Annual 38 guineas. Further information may be obtained on application to the Dean of the Medical School Charing Cross Hospital London WC2.

GUY'S HOSPITAL

THE hospital contains 642 beds in constant occupation. Twenty-six beds are set apart for diseases of the eye, and 43 for the most urgent and interesting medical cases, which

form the subjects of the weekly clinical lectures. There are special wards of 47 beds for the reception of cases of diseases of women and for cases of difficult labour. Beds are also allotted to the throat and ear departments, the departments of orthopaedics, neurology, and dermatology, the department for the treatment of diseases of the genito-urinary system and the children's department, there are also some special beds for the treatment of syphilis.

The residential college fronts the east gate of the hospital, providing accommodation for resident students. This contains a dining hall, reading rooms, a library of general literature, and a gymnasium for the use of the residents and of the members of the Clubs' Union. The athletic ground at Honor Oak Park is reached from the hospital in fifteen minutes. The Gordon Museum of Pathology, the Wills Library, the departments of chemistry, physics, pathology, and pharmacology, and the school buildings in general, afford opportunities for a liberal education and for research, and provide the full curriculum for all medical degrees and diplomas. New departments of anatomy, physics, and biology have recently been completed. They are equipped on modern lines, and provide ample accommodation for teaching and research. Special classes are held for the First and Second Examinations for medical degrees of the University of London, for the Pre-Medical Examination, and for the First and Final F.R.C.S. Eng. Special teaching is provided to meet the requirements of the Universities of London, Oxford, and Cambridge in general pathology and pharmacology.

Appointments.—All appointments are made according to the merits of the candidates, as determined by a committee of the medical staff. Sixteen out-patient officers, eight house-physicians, twenty assistant house-surgeons, eight house-surgeons, four ophthalmic house-surgeons, two genito-urinary house-surgeons, two house-physicians (children's department), and nine resident obstetric assistants are appointed annually. The house-physicians and house-surgeons, obstetric residents, ophthalmic house-surgeons, and genito-urinary house-surgeons hold office for six months each, and receive free board and lodging in the college. Every student is provided with rooms and commons in the hospital during the period of his "take in" as senior dresser. In addition to the clerkships and dresserships in the medical and surgical wards, students are appointed to the posts of clinical assistant, dresser, or clerk in the special departments of ophthalmology, laryngology, gynaecology, diseases of children, diseases of the nervous system, dermatology, otology, actinotherapeutics, anaesthetics, dentistry, orthopaedics, vaccine, tuberculosis, fractures, and genito-urinary and venereal disease, clinical assistantships in the various special departments are open to post-graduates.

Scholarships, Prizes, etc.—The following scholarships in Arts and Science are awarded: A. Open Junior Scholarships (1) An Arts Scholarship of the value of £100 (2) a Science Scholarship of the value of £100, these are awarded annually in June or July. (3) A War Memorial Scholarship of the value of £200 awarded alternately in Arts and Science. This scholarship is open every other year, the next award will be made in June or July, 1930 (in Science). B. Confined Scholarship in Science. A Junior Science Scholarship of the value of £100 is offered for competition annually in June or July to candidates who have attended the preliminary science classes at this school. Candidates for these scholarships (male students only) must be under 20 years of age on August 1st of the year of the competition. C. Open Senior Science Scholarships (1) A War Memorial Scholarship of the value of £100 (2) an Open Scholarship of the value of £80 both of these are awarded annually in September. Full particulars as to the scholarships may be obtained from the Dean of the Medical School. Junior prizes for general proficiency £20 £15 £10 Hilton Prize for Dissection £5 Michael Harris Prize for Anatomy £10 Sands-Cox Scholarship for Physiology £15 for three years. Wooldridge Memorial Prize for Physiology £10 Beaneey Prize for Pathology £34 Treasurer's Gold Medal in Medicine, Treasurer's Gold Medal in Surgery and the Golding Bird Gold Medal and Scholarship for Bacteriology (£20) are awarded annually after competitive examination. The Gull Studentship in Pathology of the value of £250 per annum the Beaneey Scholarship in Materia Medica of the annual value of about £50 and the Andersou Demonstratorship in Clinical Chemistry value £150 per annum are awarded without examination to enable research to be carried on in these subjects. An Arthur Durham Travelling Scholarship of £100 is awarded triennially. The Griffiths Demonstratorship in Pathology of the value of £320 per annum and the Hilda and Ronald Poulton Fellowship value £150 per annum, are awarded without examination.

An annual composition fee is paid by all students until a registrable qualification is obtained. Further information may be obtained from the Dean of the Medical School, Gny's Hospital, London Bridge, S E 1.

KING'S COLLEGE HOSPITAL

The medical school of this hospital, which is situated at Denmark Hill, deals with the Final Examination subjects of the medical curriculum. The hospital was opened in 1913, and is one of the most modern and best equipped in England. The number of attendances in the casualty and out-patient departments during the year 1927 amounted to 281,620. In the education at the hospital a special feature has always been the individual attention given to each student. The studies are co-ordinated under the direction of senior members of the honorary staff, assisted by medical, surgical, obstetric, and pathological tutors. There are special departments for diseases of women and children, nervous diseases, ophthalmology, otology, laryngology and rhinology, dermatology, radiology, and physical treatment. The laboratory and pathological department are specially noteworthy.

Appointments.—Sixteen resident medical and surgical officers are appointed half-yearly, as well as dressers and clerks in the wards, out-patient departments, post-mortem rooms, and special departments. Each of the special departments has several clinical assistants. There are three registrars and four tutors, all of whom receive salaries. The Clubs and Societies Union combines athletics, music, and other societies connected with the school, and provides also a common room.

Scholarships, etc.—At entrance Science Scholarship £50. At commencement of Final Studies Anatomy and Physiology Scholarship £50 Pathology Scholarship, £75 two Raymond Gooch Scholarships each £60 a year for two years (two Burney Yeo Scholarships each £80 (for Oxford and Cambridge students), Epson College Scholarship, £50 Senior Scholarship £40 Todd Prize Tanner Prize Class Prizes and Medals.

Fees.—The composition fee is 93 guineas if paid in one sum. Entrance fee of 15 guineas includes membership of the Clubs and Societies Union.

New Dental School.—This school was opened in October, 1923, and provides complete courses for dental degrees and diplomas. The director of dental studies is Dr A. Livingston, M.B., Ch.B., M.D.S., L.D.S.

The calendar of the school can be obtained on application to the Dean, H. Willoughby Lyle, M.D., F.R.C.S., or to the Secretary of the Medical School, S. C. Ranner, M.A., King's College Hospital, Denmark Hill S E 5.

THE LONDON HOSPITAL

This hospital, with its medical college and dental school, is situated in the Mile End Road, E 1. The hospital contains 837 beds, which are in constant use. During 1927, 16,840 patients passed through the wards and 114,509 out-patients received treatment. Of the latter number, 41,400 received treatment in the departments for diseases of the ear, nose, throat, eye, skin, and teeth, and in the pediatric, orthopaedic, venereal, radiological, electro- and physico-therapeutic, and inoculation departments. The number of major operations which were performed amounted to 7,823.

The hospital presents, therefore, a large field for clinical instruction, and in its wards and out-patient and special departments exceptional opportunities are afforded for acquiring an extensive and practical experience of all phases of disease.

A clinical unit in medicine, under the charge of a whole-time director, assisted by an assistant director, two assistants, and two house-physicians, provides for the more elaborate methods of diagnosis and treatment, and takes a leading part in the initiation and co-ordination of medical research. To each medical and surgical firm throughout the hospital there is attached a first assistant, who is responsible for instructing the clerks or dressers of the firm in elementary medicine and surgery, and who assists the honorary members of the firm in the preparation of their demonstrations. In the department of obstetrics and gynaecology there are two assistants and two resident accoucheurs. Special courses of lectures and demonstrations are arranged in medicine and surgery and in their ancillary subjects. Opportunities for research are provided under the supervision of the staff.

All the departments are modern and adapted for the teaching of all subjects in the various curricula. Special courses of instruction are held in preparation for the examinations of the University of London, for the Fellowship of the Royal College of Surgeons, and for the Membership of the Royal College of Physicians. Special entries can be made for the medical and surgical practice of the hospital. Two resident hostels are provided for the convenience of students. Recent additions to hospital and college buildings include the Dunn Clinical Laboratories, the Barts Clinical Theatre, the Bernikoff Baron Pathological Institute, and a hostel for resident medical officers providing accommodation for forty residents. The athletic ground, of over thirteen acres, is at Higham's Park, and is open to all members of the Clubs Union.

Appointments.—The salaried appointments open to past students of the hospital are those of assistants to the medical unit, first assistants to the medical and surgical firms, obstetric registrar, assistants to the department of obstetrics and gynaecology, medical, surgical, and obstetric tutors, clinical assistants in the medical, surgical, ophthalmic, aural, light and skin, orthopaedic, and electrical departments, and in the Pathological Institute. There are appointed annually 4 resident accoucheurs, 14 resident house-physicians and 22 resident house-surgeons, 14 resident receiving room officers, 8 resident emergency officers, 8 clinical assistants to the medical out-patient department, and 16 clinical assistants to the surgical out-patient department, also paid and unpaid clinical assistants in the various special departments. In addition, there are numerous assistantships, clerkships, and dresserships in the departments of medicine, surgery, gynaecology, and obstetrics.

Scholarships and Prizes.—The following is a list of scholarships and prizes.—At Entrance: Price Scholarship in Science, £100. Scholarships open to students of Oxford and Cambridge Universities: (1) £75 Anatomy and Physiology, (2) £100 Pathology. Entrance Scholarship in Science, £50. Epsom Scholarship, Free Medical Education. After Entrance: Buxton Prize in Anatomy and Physiology, £40. Letheby Prizes in Organic Chemistry and Chemical Pathology, £25. Prizes in Clinical Medicine, Surgery and Obstetrics and Gynaecology, £20 each. Duckworth Nelson Prize in Practical Medicine and Surgery, £10. Hatchinson Prize in Clinical Surgery, £60. Treves Prize in Clinical Surgery, £15. Sutton Prize in Pathology, £20. K. E. D. Payne Research Scholarship in Pathology, £20. Sir Andrew Clark Prize in Clinical Medicine and Pathology, £14. T. A. M. Ross (prox. acc.) Prize in Clinical Medicine and Pathology, £10. 10s. Anderson Prizes in Elementary Clinical Medicine, £20. Dressers Prizes, £20. Practical Anatomy Prizes, £10. Arnold Thompson Prize in Medical and Surgical Diseases of Children, £15. Liddle Prize, £120. Francis Farmer Scholarship in Dental Surgery, £25. Harold Fink Prize in Dental Surgery, £8 8s. The London Prizes in Dental Surgery and Pathology, £5 5s. and in Dental Prosthetics, £5 5s. Seven class examination prizes each of the value of £3 3s. are offered for competition at the end of the courses of lectures in the dental curricula. Funds to the value of over £90,000 permit of financial assistance being given to students and graduates engaged in medical research.

Fees.—Entrance fee 20 or 15 guineas, according to examinations passed; annual fee 40 guineas.

Full information may be obtained from the Dean at the London Hospital Medical College, Mile End, E.1.

THE MIDDLESEX HOSPITAL

The school and hospital are in Mortimer Street, W.1, close to Oxford Circus, Goodge Street, and Great Portland Street stations. There are a gymnasium, common rooms, and restaurant within the hospital precincts, and an athletic ground within easy reach. The hospital contains over 450 beds, including a wing containing 92 beds for patients suffering from cancer. There are special wards for maternity and gynaecological cases, for mental cases for cases of venereal disease, and for diseases of children and of the skin and eye.

The medical school, which includes the Bland-Sutton Institute of Pathology, the S. A. Courtauld Institute of Biochemistry, and the cancer research laboratories, is completely equipped for teaching the entire medical curriculum, including the pre-medical subjects, chemistry, physics, and biology. The Bland-Sutton Institute under the charge of the Professor of Pathology contains large pathological and public health laboratories, and smaller rooms for original investigation as well as a pathological and anatomical museum. Bacteriological, chemical, and microscopical examinations of material from the wards, operating theatres, and out-patient departments are carried

out in the laboratories, and senior students are eligible for clerkships in connexion with this work. Junior assistants in the pathological and bacteriological laboratories are elected annually from recently qualified students. Every facility is given for original research. The Biochemical Institute is under the charge of the Professor of Biochemistry, and contains teaching and research laboratories in addition to those devoted to the routine clinical work of the hospital. The cancer research laboratories offer unrivalled opportunities for the study of this disease, in both its clinical and pathological aspects.

Appointments.—Twenty-two resident appointments are open annually for competition among students of the hospital. The officers reside and board in the residential college free of expense. Two casualty medical and two casualty surgical officers, and two resident officers to the special departments, are appointed annually. Eight house-surgeons are appointed every year at intervals of two months, after examination, six house-physicians are also appointed annually at similar intervals. An obstetric and gynaecological house-surgeon is appointed every six months. Nine registrars are appointed annually. In the out-patient departments the appointments are clerk and dresser to the physicians and surgeons to out-patients, clerk in the departments for diseases of the skin and nervous diseases, dressers to the department for diseases of women, to the ophthalmic surgeon, to the throat and ear department, and to the dental surgeon. Extern midwifery clerks and *post-mortem* clerks are also appointed. The appointments are so arranged that every student may, during his course, hold all the out-patient and in-patient clerkships and dresserships. Students must have held an out-patient clerkship and dressership before holding in-patient clerkships or dresserships. Non-resident qualified clinical assistants are appointed in the medical, surgical, skin, neurological, ophthalmic, throat and ear, odontological, children's, and electro-therapeutic out-patient departments.

Scholarships.—There are two Entrance Scholarships, value £100 each. Two annual Entrance Scholarships of the value of £90 and £60 respectively are open to students of the universities of Oxford and Cambridge who have completed the curriculum for, or passed the examinations in anatomy and physiology. Students joining the school in the previous April are eligible. The Freer Lucas Scholarship is annually awarded on the nomination of the headmaster to a pupil of Epsom College who has passed the first examination for medical degrees (Preliminary Scientific Examination). There is also a scholarship, value £50, awarded annually to students from New Zealand. In addition to the Entrance Scholarships, there are numerous other valuable scholarships, prizes, and exhibitions open to students of the hospital, including the Brodrip Scholarships, value £90 and £40. Lyell Gold Medal and Scholarship, value £55 5s. Freeman Scholarship, value £30. John Murray Gold Medal and Scholarship, value £25. Hetley Clinical Prize, value £25. Leopold Hudson Prize, value 11 guineas, and the Second Year's Exhibition, value 10 guineas.

The rebuilding of the hospital is being carried out without the loss of a single bed, or any disorganization of its clinics.

Fees.—(a) Pre-medical students. For one year or less, £21. (b) Students who have completed the Preliminary Science course. Entrance fee 25 guineas, payable on joining the medical school, five annual fees of £45. The annual fee for further attendance at the medical school, if a registrable qualification has not been obtained, is £23. (c) Oxford and Cambridge and other students who have completed the Intermediate course. Entrance fee 15 guineas, three annual fees of £45, further annual fees as above. These fees are inclusive and cover the cost of instruction in vaccination, fevers, etc. and also the subscription to the amalgamated clubs and hospital journal.

Further information may be obtained from the Dean or the School Secretary.

ST BARTHOLOMEW'S HOSPITAL

This institution fills one side of Smithfield and Giltspur Street, covering the greater part of a large island of ground separated practically from all other buildings, it is on the edge of the City and easily reached from all parts of London. The hospital contains 757 beds. Extensive buildings opened in July, 1907, occupy part of the ground acquired from the old Bluecoat School, and these materially enhance the attractions of the hospital as a place of medical study. The medical school buildings, including the library, the museum, and the chemical, biological, and anatomical departments, have now at their side a very large building which includes club rooms for the Students' Union, a writing room, luncheon and dining halls, new quarters for the resident staff, and an out-patient depart-

ment and accommodation for special departments of such large size as to be unsurpassed by any hospital in the kingdom. During the year 1909 a second block of new buildings was completed. These form the pathological department, and include, in addition to an extensive *post-mortem* room, large and well-equipped laboratories for clinical pathology, pathological histology, bacteriology, and chemical pathology, altogether forming the most complete pathological department in the country. A further large block in Giltspur Street was acquired in 1923, and has been equipped by the construction of new lecture theatres and extensive laboratories for physics, chemical physiology, experimental physiology, histology, and pharmacology. A new block of surgical wards and operation theatres is in course of construction. The Students' Union owns grounds of some ten acres in extent for recreative purposes at Winchmore Hill, which is easily accessible from the hospital.

Special classes are held for students preparing for the Preliminary Scientific and other examinations, for the M.B., M.D. of the Universities of Oxford, Cambridge, and London, and for the higher surgical degrees at the same universities, including the M.Ch. Oxon., M.Chir. Cantab., M.S. Lond., and F.R.C.S. Eng.

Clinical Units—Special clinical units have been established in medicine and surgery, each under the charge of a professor and director, who devotes the whole of his time to the purpose of hospital practice, teaching, and research. In each unit there are an assistant director and four assistants, for whom special laboratory accommodation has been provided by a gift from the Sir William Dunn Trustees. The appointments of clerks and dressers are open to all students in these departments, and arrangements are made for all students to study in these units during a part of their clinical course.

Appointments—Clinical clerks to the physicians and to the physician-accoucheur, and dressers to the surgeons and in the casualty department, are chosen from the students; clerks and dressers are also selected from the students to attend in the out-patient rooms, in the special departments (ophthalmic, orthopaedic, gynaecological, children's, laryngological, aural dermatological, venereal, electrical, and dental), and in the *post-mortem* room. Chief assistants and clinical assistants are selected from qualified men, appointed yearly to help in the general medical, surgical, and in special departments. Ten house-physicians and ten house-surgeons are appointed annually. During their first six months of office they act as "junior" house-physicians and house-surgeons, and receive a salary of £80 a year. During their second six months they become "senior" house-physicians and house-surgeons, and are provided with rooms by the hospital authorities, and receive a salary of £80 a year. A resident midwifery assistant, an ophthalmic house-surgeon, a house-surgeon to the skin and venereal department, and a house-surgeon for diseases of the throat, nose, and ear are appointed every six months, and are provided with rooms and receive a salary of £80 a year. Three resident administrators of anaesthetics are appointed—the senior for one year at a salary of £150, and two juniors for six months with a salary at the rate of £80 per annum—and all are provided with board and rooms. An extern midwifery assistant is appointed every three months, and receives a salary of £80 a year.

Scholarships—Four Entrance Scholarships are annually awarded after examinations held in September. The subjects of examination and conditions of eligibility for these scholarships are: (1) One scholarship value £75, in not fewer than two and not more than three of the following subjects: chemistry, physics, botany, zoology, physiology, pathology and anatomy, limited to students under 25 years of age who have not entered on the medical or surgical practice of any London medical school. (2) One scholarship value £100 in not fewer than three of the following subjects: chemistry, physics, botany, zoology, and physiology, limited to students under 21 years of age who have not entered on the medical or surgical practice of any London medical school. (3) An entrance scholarship in arts, of the value of £100 in mathematics, Latin or Greek or French or German, a second language or chemistry or physics. (4) The Jefferson Exhibition in the same subjects as No. 3—of the value of £50. Candidates for Nos. 3 and 4 must be under 19 years of age. The total value of the scholarships and prizes is over £1,200 annually.

Further information and a handbook can be obtained on application to the Dean of the Medical College, St. Bartholomew's Hospital E.C.1.

ST GEORGE'S HOSPITAL

THIS school is at Hyde Park Corner, and is carried on in connexion with St. George's Hospital, an institution having a service of 436 beds, of which 100 are at the convalescent hospital at Wimbledon. It provides for the instruction of its students in the preliminary and intermediate subjects of the curriculum at the teaching centre of London University established at King's College. The school at Hyde Park Corner is devoted entirely to the teaching of clinical subjects, great attention being paid by the members of the staff to individual teaching. A number of special courses are given, in which the requirements of university and all other examinations receive careful attention.

The St. George's Hospital Club consists of an amalgamation club, with smoking and luncheon rooms on the hospital premises, and other students' clubs, with an athletic ground at Wimbledon. Students have the advantage of a well filled library of medical and scientific books. A register of accredited apartments and a list of medical men and others willing to receive St. George's men as boarders may be seen on application to the Dean.

Appointments—Two house-physicians, two house-surgeons, and two casualty officers are appointed every two months. The house officers reside and board in the hospital free of expense. The casualty officers are non-resident, and receive salaries at the rate of £100 per annum. After the student has held a house appointment, the following are, among others, open to him: assistant resident physician at £350 per annum, assistant resident surgeon at £350 per annum, medical officer to the Atkinson Morley Convalescent Hospital at £300 per annum, medical registrarship at £200 per annum, surgical registrarship at £200 per annum, medical officer to the biochemical department at £100 per annum, assistant curatorship of the museum, £100 per annum, obstetric assistantship, resident, at £50 per annum, the post of resident anaesthetist at £100 per annum, the posts (three) of junior anaesthetist, each at £30 per annum.

Scholarships—The following Entrance Scholarships and Exhibitions in anatomy and physiology and in general pathology are awarded in July to candidates who have passed the second M.B. London or corresponding examination. Senior William Brown Exhibition of the value of £120, Senior Scholarship of the value of 90 guineas, Junior William Brown Exhibition of the value of £80, Junior Scholarship of the value of £70, Dentist Pendlebury Scholarship of the value of £50 and Exhibitions each of the value of £40 and up to six in number. Other prizes to the value of £200 are awarded annually to the students of the hospital.

Fees—First year (First M.B. or pre-medical course), £36 15s. second and third years £42 each. For the course of clinical study in the fourth and subsequent years entrance fee £10 10s. annual composition fee £42. No entrance fee is payable by St. George's students who have studied at King's College.

Further information may be obtained from the Dean of the Medical School.

ST MARY'S HOSPITAL

THIS hospital and medical school are situated close to Paddington Station (G.W.R.), having on one side a poor district of 500,000 persons, and on the other side the residential district of Kensington and Bayswater. The hospital contains 348 beds, and extensions recently completed have provided two new operating theatres. By a scheme of affiliation, for teaching purposes, of several neighbouring hospitals, the teaching facilities extend over 1,000 beds. By arrangement with the Lock Hospital, students take the courses of instruction in venereal diseases there. The athletic ground (ten acres) is situated at Wembley, and can be reached in twenty minutes by a constant service of trains.

Clinical Facilities—Clinical units in medicine and surgery were established in 1920, and have now been formally recognized by the University Grants Committee. St. Mary's being one of the six medical schools in London which enjoy this privilege. In addition to the lying-in beds at St. Mary's, every student attends a short course at Queen Charlotte's Maternity Hospital (which is situated near to St. Mary's) before holding a post on the maternity district of the hospital.

Institute of Pathology and Research—Students specially interested in pathology and bacteriology have singular advantages at St. Mary's. The Institute comprises seven special departments, the whole being under the personal

direction of Sir Almoth Wright, F.R.S. Research scholarships of £200 each are awarded annually to students working in the departments of the Institute, and research beds are provided. Clerkships in pathology and bacteriology and chemical pathology, lasting for a period of three months, are open to students of the fifth year, and enable them to carry out the pathological and bacteriological investigations of the wards, and learn the necessary technique under supervision. Seventy-two of these posts are available annually. Numerous appointments are open to newly qualified members of the medical school, including ten salaried posts, with salaries varying from £200 to £750 per annum.

Complete Curriculum—The medical school provides complete courses of instruction, and students can join at once on passing a Preliminary Examination in Arts. Terms begin in October, January, and April.

Entrance Scholarships—Two Entrance Scholarships of £210 each and one of £26 5s are awarded annually in July by nomination on the lines of the Rhodes Scholarships. The Geraldine Harnsworth Scholarship (£200) and one or more University Scholarships of £200 are awarded annually in July.

Fees—Composition fees for entire curriculum (6 years) £200 in one sum or £210 by five annual instalments. Composition fee for clinical curriculum (3 years), 90 guineas in one sum or 95 guineas by two annual instalments. As an alternative students may pay an annual fee of 40 guineas with an entrance fee of 10 guineas.

ST THOMAS'S HOSPITAL

This school and hospital are situated in Lambeth, on the south bank of the Thames facing the Houses of Parliament, and form one of the well-known architectural features of London.

The school buildings, which are separated from the hospital by a quadrangle, comprise lecture theatres, laboratories, and classrooms well adapted for the modern teaching of large bodies of students in the subjects of the medical curriculum. A splendid library and reading room and a complete museum are open to all students from 9 a.m. to 5 p.m., on Saturdays to 1 p.m. St Thomas's House, the new Students' Club recently opened, comprises spacious dining and club rooms, etc., and provides accommodation for some sixty resident students. The terrace affords facilities for exercise and recreation. The sports ground, more than nine acres in extent, is at Chiswick. It can be reached in forty minutes from the hospital, it is admirably adapted for football, cricket, lawn tennis, and athletic sports.

The hospital proper contains 644 beds. In addition to the ordinary provisions of a great hospital there are connected with the out-patient department physicians' and surgeons' rooms provided with ample sitting accommodation, so that students are enabled to follow closely the practice and teaching of the out-patient staff. There is a full complement of special departments, and connected with the hospital a special tuberculosis department gives opportunity for instruction of students. There is a clinical theatre, centrally situated, so as to facilitate the illustration of lectures by patients from the wards and out-patient room, it is arranged also for lantern demonstrations. A clinical unit in medicine has been established. The maternity ward, containing 21 beds, gives students full facilities for maternity training, under supervision, within the precincts of the hospital. This obviates any necessity for supplementary instruction elsewhere, and fully prepares the student for the extern maternity practice of the hospital district. The revised regulations of the examining bodies can thus be fully complied with.

Appointments—All hospital appointments are open to students without charge. A resident assistant physician, a resident assistant surgeon, and a resident anaesthetist are appointed annually at a salary of £200 each per annum. Two hospital registrars, medical and surgical, at an annual salary of £250 each, are appointed yearly. The tenure of these offices may be renewed for a term not exceeding two years. A pathological registrar to the department of bacteriology and gynaecology (at an annual salary of £250), an ophthalmic registrar (at an annual salary of £50), and an orthopaedic registrar (unpaid) are appointed yearly. Ten resident casualty officers and anaesthetists (including two senior) are appointed every six months. Seven house-physicians (including two obstetric house-physicians and

two house-physician to the department of diseases of children) and nine house-surgeons (including two ophthalmic house-surgeons, one orthopaedic house-surgeon, and two house-surgeons to the ear, nose, and throat department) are appointed every six months. Thirty-six or more clinical assistants in the special departments are appointed every three months, and hold office for six months if recommended for re-election. Clinical clerkships and dresserships to the in-patient and out-patient departments are available to the number of 400 each year.

Scholarships—There are five Entrance Scholarships: two in arts, giving one year's free tuition one of £150 and one of £60 in chemistry, physics, and biology for students who have not received instruction in anatomy or physiology, one of £100 in any two of the following subjects: anatomy, physiology, chemistry or pathology for students who have completed their examinations in anatomy and physiology for a medical degree in any of the universities of the United Kingdom or the Colonies and have not entered as clinical students in any London medical school. The money value and subjects of examination of the remainder are as follows: (a) William Tite Scholarship for second year students, £25; (b) and (c) Musgrave Scholarship or (alternately) Peacock Scholarship, each for third year students and tenable for two years £35 each; (d) Mead Medal, Medicine, Pathology and Hygiene; (e) Wainwright Prize, Medicine; (f) Toller Prize, Medicine; (g) Cheselden Medal, Surgery and Anatomy; (h) Clutton Memorial Medal in Clinical Surgery, biennially; (i) Beaneby Scholarship £50 biennially, Surgery and Surgical Pathology; (j) Solly Medal and Prize biennially, Reports of Cases; (k) Sutton Sams Prize biennially, Reports of Cases; (l) Bristowe Medal, Pathology and Morbid Anatomy; (m) Hadden Prize, Pathology and Morbid Anatomy; (n) Grainger Testimonial Prize £31 10s., Anatomy and Physiology; (o) Louis Jenner Research Scholarship, tenable for two years £60 annually, Pathology; (p) School Council Research Scholarship, £250 per annum; (q) John and Temple Research Scholarship, value £450 per annum (children).

Fees—The annual fees are: For each year of study £50. These fees cover all tutorial classes but do not include instruction in infectious fever, pharmacy and vaccination. A limited number of qualified practitioners are permitted to attend the hospital practice on terms which may be ascertained from the Medical Secretary.

Special courses of instruction are given for various examinations and a register of lodgings is kept at the school. Further information may be obtained from the Medical Secretary of the School, St Thomas's Hospital, Albert Embankment, S.E.1.

UNIVERSITY COLLEGE HOSPITAL

The school, which forms part of the corporation of University College Hospital, is in immediate proximity to the hospital in University Street, and opposite University College. It comprises departments of medicine, surgery, midwifery and gynaecology, pathology including morbid anatomy, chemical pathology, biochemistry and bacteriology, cardiography, forensic medicine, mental physiology and mental diseases, dental surgery, practical pharmacy, and other departments for the study of special diseases, such as those of the eye, skin, ear and throat, venereal diseases, and for instruction in anaesthetics, electro-therapeutics, and skiagraphy. The hospital and school have acquired the National Dental Hospital and College as their dental departments, thus providing every facility for the study of dental subjects. The Royal Ear Hospital has also been amalgamated as the Ear, Nose, and Throat Department, and a new hospital for in- and out-patients, close to University College Hospital is completed.

The school thus provides the final course of study for the degrees of the Universities of Oxford, Cambridge, London, Durham, and other British universities, and for the diplomas of the Royal Colleges of Physicians and Surgeons in Medicine and in Dental Surgery, and the Licence of the Society of Apothecaries. Special bacteriological classes are also held in preparation for the various diplomas in public health. Each department is also equipped for more advanced work, and provides facilities for research.

Clinical units in medicine, surgery, and obstetric medicine are now in operation. The whole-time directors of the units are concerned with the organization of the teaching generally, but the honorary staff is responsible for the largest share of the teaching in the wards and out-patient department of the hospital.

The new buildings of the obstetric hospital of 74 beds (rendered possible by the Rockefeller benefaction), the new Residents' House (with accommodation for 33 residents and students), the extension of the Nurses' Home, and the new research laboratories for the Medical School, are now finished and in full occupation.

Appointments—The qualified appointments, in addition to a number of posts as house-physicians and house-surgeons and obstetric assistants, include the appointments of resident medical officer, medical registrars, surgical registrar, obstetric registrar, Barker Smith radium registrar, ophthalmic registrar, casualty medical officers, casualty surgical officers, assistants in ear, nose and throat, skin and venereal diseases departments, and house anaesthetists.

Scholarships—The following scholarships and prizes are open to competition. Two Entrance Exhibitions of 112 guineas each, awarded after a competitive examination in any two of the following subjects: Anatomy, Physiology, or General Pathology, Radcliffe Crocker Travelling Scholarship in dermatology for one year value about £280, the Graham Scholarship in pathology of a sum not exceeding £400 per annum, Leslie Pearce Gould Research Scholarship in surgery for one year, value about £200, the Atkinson Morley Scholarship of £45 a year for three years, awarded after examination in the theory and practice of surgery, the Atchison Scholarship of £55 a year for two years for general proficiency in medical studies, the Magrath Clinical Scholarship, value about £150, the Filsher Exhibition in pathology of £30, the Percival Allyn Prize for the advancement of surgery by research value about £75, the Graham Gold Medal for research work four Fellows Medals in clinical medicine, Luston Medals in clinical surgery, the Bruce Medal in pathology and surgery, two Tuko Medals in pathology, and the Erichsen Prize for practical surgery.

Fees—The fee for the full course of final studies at the school is 112 guineas if paid in one sum, or 115 guineas if paid in two instalments. Fees for vaccination, fevers, and pharmacy not included.

Particulars of general and special courses can be obtained on application to the Dean of the Medical School, University College Hospital, University Street W.C.1.

WESTMINSTER HOSPITAL

This school, with its hospital, situate in Broad Sanctuary, opposite Westminster Abbey, provides for the education of its students in the preliminary and intermediate subjects of the University of London at King's College. The rest of the work is done in the school buildings near the hospital. The number of in-patients averages 3,500 and out-patients upwards of 30,000 annually, and the hospital and school afford ample facilities for instruction in all branches of medicine and surgery.

Appointments—A medical and surgical registrar are appointed annually, each with a salary of £150, and an obstetric registrar with a salary of £50. A senior resident and casualty officer, salary £104 per annum and board, appointed for six months, may be extended for a further period of six months. Three house-physicians, three house-surgeons, three assistant house-physicians, three assistant house-surgeons, and a resident obstetric assistant are appointed after examination, and are provided with rooms, commons, and salary of £52 per annum, except the assistant house-physicians and the assistant house-surgeons, who are provided with commons only. The assistant house-physicians, after three months' service, become house-physicians for a further period of six months, and the assistant house-surgeons, after three months' service, become house-surgeons for a further period of six months. Two house-anaesthetists are appointed for three months, non-resident, salary £50 per annum. Clinical assistants to the assistant physicians and assistant surgeons, and to the officers in charge of special departments, are appointed from among the qualified students. Every student must perform the duties of out-patient dresser for three months, and afterwards hold the office of in-patient dresser for three months. He is also required to serve two terms of three months each as medical clinical clerk to the in-patient physician and one term as gynaecological clinical clerk. Two pathological clerks are appointed every three months to assist in the post-mortem room. No student is eligible as an in-patient dresser or clinical clerk until he has passed the Second Examination of the Conjoint Board, or an equivalent examination. Clerks and dressers in the special departments of hospital practice are periodically appointed. So far as vacancies permit, students of other hospitals are admitted to in-patients' dresserships or clerkships.

The governors of the hospital have now completed the extensive improvements and alterations to the hospital, which render it a still more efficient teaching institution, with an increased number of beds.

The athletic ground is situated at Tooting, and can be reached in twenty minutes from the hospital.

Scholarships—The following open scholarships are offered for competition during the year 1928-29. In the winter session two scholarships in anatomy and physiology, £75 each. In the spring two scholarships in anatomy and physiology, £75 each. A certain number of scholarships have been allotted to universities of England, Wales, and the Colonies and to public schools. These scholarships are awarded entirely on the nomination of the Principal of the university or school.

Fees—The annual composition fee is £40. An entrance fee of 10 guineas is payable by all students—namely primary and intermediate students £10 10s, students entering for the final subjects, £8 8s. These fees include subscriptions for membership of the Clubs Union.

Further information and a prospectus can be obtained on application to the Dean at the Westminster Hospital Westminster S.W.1.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN

The school is situated at 8, Hunter Street, Brunswick Square, W.C.1, close to the Royal Free Hospital. It is, like all the other London schools which have so far been mentioned, one of the constituent schools of London University. The laboratories are extensive and well lighted, and are fully equipped for the examination courses of the University of London and the Royal Colleges of Physicians and Surgeons. Research laboratories are attached to all departments. A large, well-equipped library, common room, Union room, and refectory are provided for the use of students. Resident accommodation for 78 students is provided in students' chambers attached to the school.

The Royal Free Hospital, Gray's Inn Road, W.C.1, has 268 beds, all of which are available for clinical instruction. A new block contains the obstetrical and gynaecological unit, which controls 68 beds. A large maternity district is served from the unit with a separate maternity hostel in the Essex Road, Islington. There are separate departments for diseases of the eye, ear, and skin, children and infant welfare, venereal diseases, orthopaedic surgery, massage, light, electrical and x-ray work, dentistry, and casualty. The instruction given covers the full curriculum for the M.B., B.S. degrees of the University of London, including first medical courses. Students attend the practice of one of the fever hospitals of the Metropolitan Asylums Board and receive special instruction in lunacy at Bethlem Hospital, they are also admitted to the practice of a number of special hospitals, and hold clerkships and dresserships at the Elizabeth Garrett Anderson Hospital, the Cancer Hospital, the National Hospital for Nervous Diseases, the South London Hospital, and the Royal Ophthalmic Hospital. The work of the school includes preparation for the Primary Fellowship examination, and also for the Medical School and general hospital course for dental students.

Appointments—Qualified students of the school can obtain appointments as house-physicians and house-surgeons, obstetric assistants, surgical, gynaecological, and medical registrars, assistant pathologists, assistant anaesthetists, medical electrician, skiagrapher, and clinical assistants and demonstrators in various subjects.

Scholarships—The Isabel Thorne Entrance Scholarship value £30, the St Dunstan's Medical Exhibition, value £60 a year for three years which may be extended to five years, the Alfred Langton Scholarship of £50 a year for two years, the Flora Murray Bursary of £50 and the Mahel Sharmar-Crawford Scholarship value £20 a year for four years, are offered for competition in each year. The Sir Owen Roberts Memorial Scholarship of the value of £75 a year for four years, the Mrs George M. Smith Scholarship of the value of £50 a year for three years which may be extended to five years, the Dr Margaret Todd Scholarship of the value of £37 10s a year for four years, and the Sarah Holborn Scholarship of the value of £20 a year for three years which may be extended to five years, are awarded in alternate years. The School Jubilee Bursary of £50 a year for three years is offered every third year. The Bostock Scholarship value £30 a year for two or four years is awarded by the Reid Trustees on the result of an examination held in May by the University of London every fourth year. The holder of the scholarship must enter the London School of Medicine for Women. The Lieutenant Edmund Lewis and Lieutenant Alan Lewis Memorial Scholarship of the value of £25 a year for four years is awarded every fourth year. The John Byron Bursary of £20 a year for two years, the Julia Ann Hornblower Cock Price of £60, the Helen Pridaux Prize of £60, the Mabel Webb Research Scholarship of £30 for two years, the Fanny Rider

Scholarship of £16 a year for four years together with many other scholarships and prizes are offered on sundry conditions. The Dr Edith Peechey Plimpton Post Graduate Scholarship of £100 is awarded annually. Altogether the school offers annually £1 350 in scholarships. Various missionary societies also offer scholarships on certain conditions and assist women who wish to go to India and other countries as medical missionaries.

Fees—Courses for the University of London degrees and the diplomas of the Conjoint Board in England and other qualifications £240 payable in five instalments. These sums include library and laboratory fees.

The Students Union exists to promote corporate action of the students on matters of common interest to promote and maintain athletic and other clubs and to issue a school magazine. All students are required to become members of the Union. The students sports ground which consists of a freehold property of seven and a half acres is situated at Sudbury.

Further information can be obtained from the Warden and Secretary.

KING'S COLLEGE

In the Faculty of Medical Science instruction is given in the preliminary and intermediate subjects of the first and second examinations leading to the degree of M.B., B.S. of the University of London, of the corresponding examinations of other universities, and of the Conjoint Examining Board of the Royal Colleges of Physicians and Surgeons, including the primary examination for the F.R.C.S. Eng. The courses are open to women students on the same terms as to men.

Regular students who have completed their preliminary and intermediate examinations proceed to a hospital to pursue their studies for the final examinations. The hospitals associated with King's College are King's College Hospital, Denmark Hill, S.E.5, Westminster Hospital, S.W.1, St George's Hospital, Hyde Park Corner, S.W.1, and Charing Cross Hospital, Strand, W.C.2.

A course for the degree of the University of London and for the Diploma of the Royal College of Surgeons in dental surgery in conjunction with King's College Hospital Medical School has been arranged.

Scholarships—The entrance scholarships are (1) Two Warneford Scholarships each £30 for four years subjects—selected from mathematics, classics, divinity and science. (2) One Sambrook Scholarship of £30 for three years subjects of examination selected from mathematics, classics and science. The holders of the preceding awards must proceed to King's College Hospital. (3) Worsley, £100 paid in five annual instalments. (4) Rabbeth Scholarships, value £30 and £15, in July for the best student of the first year. (5) Second year's scholarship, value £20, for the best student of the second year. (6) Daniell Scholarship, £30 awarded on the results of the University Honours Examination. (7) The Layton and Berridge Studentships each £150 per annum and (8) numerous prizes.

Full information as to admission fees and scholarships can be obtained from the Dean of the Faculty of Medical Science, King's College, Strand, W.C.2.

UNIVERSITY COLLEGE

This institution, one of the principal component parts of the University of London, possesses a Faculty of Medical Sciences whose work covers all the subjects included in the group commonly known as the preliminary medical sciences—namely, physics, chemistry, botany, and zoology, and also the intermediate medical sciences—namely, anatomy, physiology, and pharmacology. The new anatomy building, provided by the munificent gift of the Rockefeller Foundation of New York, was opened on May 31st, 1923, by His Majesty the King. This building forms part of the block which includes physiology and pharmacology. The department of hygiene and public health prepares for the diplomas in public health of the Royal Colleges and of the various universities. Research work is undertaken in all the above-named departments. The College undertakes the education of students in all the subjects mentioned, leaving them free to complete their education in the strictly professional subjects—medicine, surgery, and the like—at any one of the recognized schools of advanced medical studies. The work is somewhat differently arranged, according to whether the student has in view the degrees of the University of London or the diplomas of the Royal Colleges. In either case the whole work to be done is divided into courses devised to meet the requirements of different examinations, and students can join the College for any of them. Women students are admitted to all courses on the same terms as men. The general arrangements for the benefit of students include membership of the Union Society,

or the Women's Union Society with the College gymnasium and the athletic grounds. There is also a collegiate residence for about fifty-five men students at Faling, and for about seventy women students at Byng Place, Gordon Square.

Scholarships—The scholarships and exhibitions obtainable include the Bucknill Scholarship value 160 guineas in chemistry, physics, botany, and zoology (the successful student must complete his work at University College Hospital Medical School), two entrance exhibitions in the same subjects each of the value of 55 guineas, and a Faculty of Medical Sciences Entrance Scholarship value £30 a year for three years.

Fees—The fees for the courses covering the work of the First Examination for medical degrees of the University of London and in both parts of the Second Examination amount to 115 guineas. The fees for the courses covering the corresponding examinations held by the Conjoint Board in England also amount to 115 guineas. These fees may be divided into payments for the different courses which it may be desired to take out but do not cover tuition for more than a stated period.

A handbook specially relating to this faculty may be obtained on application to the Secretary of University College, Gower Street, London W.C.1.

THE PROVINCES

There are in England and Wales, not counting London, ten medical schools, each supplying instruction in the full medical curriculum. Accounts of them here follow. In several cases information is appended about hospitals other than those directly connected with the school in question. Such hospitals, officially and unofficially, play a part in the education which the students of the school receive, and in any case serve as places of additional or post-graduate study.

OXFORD AND CAMBRIDGE

At both Oxford and Cambridge there are medical schools which furnish unsurpassed opportunities for obtaining a good knowledge of the preliminary sciences and of anatomy, physiology, and pathology. The laboratories are excellently furnished, and the teaching staffs most distinguished. Both schools provide a full medical curriculum, and there is no essential reason why the student should not complete his career at either of them, but this is not commonly done, and is never in the ordinary way advised by the university medical authorities. The local hospitals—the Radcliffe Infirmary at Oxford, and Addenbrooke's Hospital at Cambridge—though well equipped, are comparatively small. Students are therefore encouraged, as soon as they have completed the earlier examinations and taken a degree in arts, to join one of the London medical schools, and thus spend the time of their preparation for the final examinations in a city where the opportunities for gaining clinical knowledge are greater and more varied. A considerable proportion of Oxford and Cambridge medical students take the London Conjoint diplomas before graduating in medicine and surgery at their own university. The experience gained by holding resident hospital appointments is a naturally of much advantage when sitting for the Final M.B. examination and when engaged in composing a thesis.

BIRMINGHAM

The school in this city is carried on by the Medical Faculty of the University of Birmingham, its students having an adequate number of good laboratories, classrooms, and other necessities devoted to their use by the university. The clinical work is done at the General and Queen's Hospitals, which are amalgamated for the purpose. Together they have upwards of 600 beds for medical, surgical, and special cases, with an array of special departments of all kinds, including one for living-in women. Clinical instruction is given in the wards and out-patient and special departments daily and formal clinical lectures are delivered weekly throughout the winter and summer sessions. Special tutorial classes are also held alike for the degrees of Birmingham and some other universities and for the diplomas of corporations.

Appointments—The large number of appointments open to past or other students includes the following.—At the General Hospital: surgical registrar, £200 a year, one resident medical officer, salary £155 a year, one resident surgical officer, salary £180 a year, one assistant resident

surgical officer, salary £100 a year, one resident pathologist, salary £70 a year, two visiting anaesthetists, salary £50 a year, one resident anaesthetist, salary £70 a year, four house-surgeons, office tenable for nine months, £70 a year, one house-surgeon to the gynaecological and one to the special departments, each tenable for six months, £70 a year, four house-physicians, post tenable for six months, £70 a year. At the Queen's Hospital one medical registrar and one surgical registrar, non-resident, tenable for three years, renewable, salary £100 per annum, three house-physicians, three house-surgeons, and one obstetric and ophthalmic house-surgeon, tenable for six months, salary £70 per annum, with board, lodging, and washing, one casualty house-surgeon, tenable for three months, salary £70 per annum, with board, lodging, and washing. At the Maternity Hospital three house-surgeons, salary £50 a year. At the City Workhouse and Workhouse Infirmary five resident medical officers. At the Birmingham General and Branch Dispensaries twelve resident surgeons. At the Birmingham Mental Hospitals five assistant medical officers. At the City Fever Hospitals three assistant medical officers. At the Children's Hospital one resident surgical officer, one resident medical officer. At the Birmingham and Midland Eye Hospital four resident surgeons. At the Orthopaedic and Spinal Hospital two clinical assistants (non-resident). At the Ear and Throat Hospital one house-surgeon, £70 a year, four clinical assistants (non-resident). Four non-resident Poor Law appointments are in the gift of the Board of Guardians.

Scholarships—There are numerous money and other awards for students of sufficient merit, among them being the following: The Walter Myers Travelling Studentship of £300 offered each alternate year for research work and tenable abroad, the Sands Cox Scholarship of £42 (an entrance scholarship to the Faculty of Medicine awarded on Higher School Certificate Examination of the Joint Matriculation Board (July)), four Queen's Scholarships of £10 10s each, awarded annually at the first (Part II) second, third and final university examinations respectively, one or more Sydenham Scholarships allotted on entrance to students who are the sons of deceased medical men, the Ingleby Scholarships (two) of £10 for proficiency in midwifery and diseases of women, the Arthur Foxwell Memorial Gold Medal (Clinical Medicine), the Sampson Gamgee Memorial Medal for Surgery (Final M.B.), and the Peter Thompson Prize in Anatomy (value about £6) for students in their second university year. There is also a scholarship of £37 10s. for students proceeding to a degree in dental surgery. University Clinical Board Prizes are awarded annually as follows: Senior Medical Prize Gold Medal, Senior Surgical Prize Gold Medal, Midwifery Prize Gold Medal, Junior Medical Prize Silver Medal, Junior Surgical Prize Silver Medal.

Fees—The composition fee for university classes is £106 5s. This covers all the work required for the degrees of Birmingham and some other universities and for the ordinary qualifications of licensing corporations but not the additional courses required for the Fellowship of the Royal College of Surgeons of England the diploma and degrees of the university in State medicine, and some other special work. The total cost for the five years' curriculum including hospital and examination fees is estimated at £221 4s. 6d. Other information should be sought from the Dean of the Medical Faculty, University Edmund Street Birmingham.

BRISTOL

The school is carried on by the Faculty of Medicine of the university, and provides full instruction for all its degrees and for the diploma in dental surgery.

Clinical Instruction—The allied hospitals (Bristol Royal Infirmary and Bristol General Hospital) have between them 628 beds and extensive out-patient departments, special clinics for diseases of women and children, and those of the eye, throat, and ear, in addition to large and well-equipped departments for dental work and large outdoor maternity departments. At each of these institutions there are well-arranged pathological museums, post-mortem rooms, and laboratories for morbid anatomy. There are also laboratories for work in clinical pathology, bacteriology, and cytology, in which special instruction is given in these subjects. Departments are provided and well equipped for x-ray work, both for diagnosis and treatment, the various forms of electrical treatment, including high-frequency currents, electric baths, Finson light treatment, and massage. The students of the school also attend the practice of the Royal Hospital for Sick Children and Women, containing 100 beds, and that of the Bristol Eye Hospital, with 40 beds. In addition, by the kind permission of the Bristol Board of Guardians, students may attend the

clinical practice at Southmead Hospital, which has 556 beds. The total number of beds available for clinical instruction is therefore 1,324.

Appointments—(1) Undergraduate Clinical clerkships, dresserships, also ophthalmic, obstetric, pathological, ear, nose, and throat clerkships, are tenable at the Bristol Royal Infirmary and the Bristol General Hospital. In these institutions the dressers reside in rotation free of charge. (2) Post-graduate. At the Bristol Royal Infirmary four house-surgeons, one casualty house-surgeon, two house-physicians, one house-physician for cancer research wards, one resident obstetric officer, one ophthalmic and gynaecological house-surgeon, one ear, nose, and throat house-surgeon, one assistant to the senior resident medical officer, who also acts as house-surgeon and house-surgeon to the skin department, and one dental house-surgeon. All these appointments are for six months. Salary in each case at the rate of £80 per annum, with board, apartments, and laundry, unless the candidate appointed has previously held a resident appointment in the infirmary, when the salary will be at the rate of £100 per annum, with board, apartments, and laundry. From the resident medical officers a senior resident medical officer is appointed at a salary of £200 per annum. At the Bristol General Hospital senior resident medical officer, £250 per annum, casualty house-surgeon, £80 per annum, two house-physicians, £80 per annum, house-surgeon, £80 per annum, resident obstetric officer, £80 per annum, house-surgeon to special departments, £80 per annum, dental house-surgeon (non-resident), £300 per annum. The appointment of resident anaesthetist is also being created. All these appointments are for six months, except that of senior resident medical officer, which is for two years.

Scholarships—The following are among the scholarships and other awards open to students of the school: The Ashworth Hallett Scholarship value £40 open to women only two Martin Memorial Pathological Scholarships of £30 each the Tibbitts Memorial Prize, value 7 guineas for proficiency in practical surgery the Committee's Gold and Silver Medals for fifth-year students for general proficiency, the Augustin Prechard Prize, value about 6 guineas for proficiency in anatomy the Henry Clark Prize value 11 guineas, for proficiency in gynaecology; the Crosby Leonard Prize value 6 guineas, for proficiency in surgery the Supple Surgical Prize a gold medal and 7 guineas the Supple Medical Prize a gold medal and 7 guineas the Henry Marshall Prize value £12, for dressers, the H. M. Clarke Scholarship, value £15 for proficiency in surgery the Sanders Scholarship, value £22 10s. for general proficiency, the Barrett-Routé Scholarship for proficiency in diseases of the nose, throat, and ear or skin value £17 Lady Habersfield Scholarship, value about 25 guineas, Phyllis Stepmar Prize for proficiency in diseases of children, value £25 Bristol City Senior Scholarships and the Senior Scholarships offered by the counties of Gloucestershire Somerset Wilts Devon etc., are tenable to the university. Some of the Fellowships awarded by the Colston Research Society for research in the university are allotted to the Faculty of Medicine.

Fees—The fee for all the courses required for the medical curriculum including hospital practice, is 205 guineas paid by annual instalments.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.

This, the Medical School of the Faculty of Medicine of the University of Durham, is in the neighbouring city, New castle-upon-Tyne. Its classes and lectures are arranged to meet the requirements of the university in all the degrees which the latter grants, and also those of the other examining bodies. The students do their work in the preliminary sciences at Armstrong College, also part of the university; Hospital practice is carried out at the Royal Victoria Infirmary, a general hospital containing more than 550 beds, where there are facilities for the study of the various special subjects. Students do their practical midwifery at the Princess Mary Maternity Hospital, which contains 90 beds, is thoroughly up to date, and has an annual indoor and outdoor attendance on 3,000 cases. In a Heath wing of the school itself there is the department of physiology. There are also in this wing a gymnasium and a set of rooms for the separate use of the students. A new bacteriological department has been erected adjacent to Armstrong College.

Post-Graduate Instruction—A comprehensive series of post-graduate courses has been arranged to enable practitioners to take advantage of the facilities for laboratory work and clinical study which are afforded by the College,

the Royal Victoria Infirmary, and other associated hospitals, and in order to meet the varied requirements of practitioners there are general and special courses in the winter and summer session as well as an intensive course in the summer vacation.

Students' Union—A Students' Union has been erected and furnished at a cost of over £40,000, and is in daily use. Separate accommodation (non-residential) is provided for men and women students.

Appointments—Pathological assistants, and assistants in the oyo department, throat and ear department, and department for skin diseases, are elected periodically. Clinical clerks and dressers are appointed every three months.

Scholarships—University of Durham Entrance Scholarship £25 a year for four years. Pears Entrance Scholarship £40 a year for three years (awarded every third year). Heath Entrance Scholarship (from Kipper Grammar School), £60 (renewable). Province of Durham Ansonic (Entrance) Scholarship, £60 (renewable). Heath Scholarship for surgery £200 available every second year. Rutherford Morrison Surgical Scholarship, £180, available every third year.

The following scholarships are tenable for one year—namely, Tulloch Scholarship for elementary biology and organic chemistry, £20. Dickinson Scholarship for medicine surgery, midwifery and pathology. Gold Medal and £20. Charlton Scholarship for medicine, £25. Gibb Scholarship for pathology £28. Luke Armstrong Scholarship for comparative pathology £25. Stephen Scott Scholarship for surgery, £40. Philipson Scholarships for highest marks in Final M.B. B.S. Examination, two of £48 each. Goyder Memorial Scholarship for clinical medicine and clinical surgery, interest on £325. Gibson Prize for midwifery and diseases of women and children £10. Turnbull Prize and Silver Medal for surface anatomy. Outtersen Wood Prize for psychological medicine £10, and Sewell Memorial Prize and Silver Medal for clinical pathology. At the end of each session a prize of books is awarded in each of the regular classes.

Fees—The composition fee for lectures at the college is £140. Composition fee for hospital practice, £46 plus £2 2s yearly for three years payable to the Committee of the Royal Victoria Infirmary. Other information should be sought from the Dean of the College. University of Durham College of Medicine Newcastle-upon-Tyne.

LEEDS

The School of Medicine—which is open to both male and female students—in this city forms the teaching centre of the Medical Faculty of the University of Leeds, and is situated in immediate proximity to the General Infirmary, where students sufficiently advanced receive their clinical instruction. The buildings were opened in 1894, and contain excellent dissecting rooms, well arranged laboratories for physiology, pathology, and bacteriology, three lecture theatres, and several similar classrooms. In addition, there are a library and reading room and two museums, one being devoted to pathology and the other to anatomy. The comfort of the students is secured by common rooms and a refectory in which they can take meals. The General Infirmary has 632 beds, and includes gynaecological and ophthalmic wards, a special children's ward, and a large out-patient department. The Ida and Robert Arthington Semi-convalescent Hospitals, Cookridge, attached to the infirmary, have 88 beds. The West Riding Mental Hospital at Wakefield is open for the study of mental diseases. Students can, in addition, attend the practice of the Leeds Public Dispensary, the Hospital for Women and Children, and the Leeds Maternity Hospital, where the obstetric work is done.

Appointments—Surgical dressers are appointed every six months, physicians' clerks, clerks in the children's department, orthopaedic dressers, ophthalmic and anal dressers, gynaecological ward clerks, maternity clerks, assistant physicians' clerk, dermatological clerks, assistant surgeons dressers, dressers in the casualty room, *post-mortem* clerks, laboratory assistants and dressers in the venereal clinic every three months. After graduation a considerable number of residential and other appointments become available in the Leeds General Infirmary, Leeds Public Dispensary, Hospital for Women and Children, West Riding Mental Hospital, etc., occupying periods of from six to twelve months at rates varying from £20 to £150 per annum.

Scholarships—The university awards annually a scholarship in the form of a free admission to the lectures and classes given in the university which are covered by the composition fee. The university also awards a scholarship on the results of the first

examination of the value of £68, in the form of a free admission to the clinical teaching of the infirmary.

Fees—It is estimated by the authorities that the approximate cost of medical education to a student in this university is £324, plus of course, the expenses of living during the five and a half years covered by the curriculum. The composition fee for the course for the first second and third examinations, and for the clinical work at the infirmary is £237. The composition and clinical fee for those who have passed the second examination is £150.

Further information can be obtained from the Academic Subdean or Clinical Subdean, School of Medicine Leeds.

LIVERPOOL

The Medical School of this city is part of the university, and, owing to the enlightened liberality of several men of wealth, is exceptionally well provided with special laboratories, as well as with ordinary spacious and well-equipped classrooms and laboratories for the instruction of students proceeding to medical degrees and diplomas in special and ordinary subjects. All the laboratory and other rooms are situated close to one another and intercommunicate, together forming large blocks of buildings. The work of students throughout all stages of their career is arranged upon very satisfactory lines, and the teaching hospitals, of which a list is given below, have amalgamated to form the clinical school of the university.

Appointments—The nature of the appointments open to past and other students at this school will be gathered from the account which follows of the hospitals forming its clinical department.

Scholarships—The awards made each year to successful students total over £1,500. They include the following: Two Holt Fellowships, one in Pathology the other in Physiology, a Robert Gee Fellowship in Anatomy, two John Rankin Fellowships in Anatomy, a John W. Garrett International Fellowship in Bacteriology, a Johnston Colonial Fellowship in Biochemistry, an Ethel Boyce Fellowship in Gynaecology, and a Thelwall Thomas Fellowship in Surgical Pathology, one Lady Jones Fellowship in Orthopaedic Surgery (value of fellowships: one at £200, three at £150, two at £120, four at £100). A University Scholarship of £50 awarded on the results of the Final M.B. (Part A) Examinations, a Scholarship in Mechanical Dentistry of £20, two Lyon Jones Scholarships of the annual value of £21 each for two years, one for the junior and the other for the senior students, the Derby Exhibition of £15, the Clinical School Exhibition of £15, the Owen T. Williams Prize, the Torr Gold Medal in Anatomy, John Rankin Exhibition in Practical Anatomy £25, the George Holt Medal in Physiology, the Kantback Medal in Pathology, Mitchell Banks Medal in Anatomy, the Robert Gee Prize of £5 5s in Children's Diseases, Mary Birrell Davies Memorial Scholarship (women) £60 per annum for four years, Robert Gee Entrance Scholarship (men) value of £42 10s per annum for four years, Dental Operating Prizes (four), Orthodontia Prizes (two), Samuels Memorial Scholarships three at £20 each, one Thomas H. Bickerton Prize in Anatomy, Dr N. E. Robert Prize in Zymotic Diseases, Asha Prize in Dental Surgery, value £2 2s, Gilmour Medal and other entrance scholarships. In addition a number of gold and silver medals have recently been instituted in the following subjects: Pharmacology, Surgery, Forensic Medicine and Toxicology, Public Health, Medicine, Obstetrics and Gynaecology, Orthopaedic Surgery and Laryngology and Otolaryngology.

Fees—Information as to the fees for the courses of instruction provided by the schools should be sought from the Dean of the Medical Faculty.

The Clinical School

As many as nine hospitals have combined to form the clinical school of the university, these being: The Royal Infirmary, the David Lewis Northern Hospital, the Royal Southern Hospital, the Stanley Hospital, the Royal Liverpool Children's Hospital, the Hospital for Women (with the Samaritan Hospital), the Liverpool Maternity Hospital, the Eve and Ear Infirmary, and St. Paul's Eye Hospital. Between them they provide over 1,445 beds.

MANCHESTER

The staff of the Medical School in this city constitutes the Medical Faculty of the Victoria University, all the arrangements for the instruction of students, both in their earlier and their later studies, being of an elaborate nature. The clinical work of the undergraduates is done chiefly in connexion with the Royal Infirmary, an institution which itself contains 614 beds, and has associated with it a large convalescent home (132 beds) and a Central Branch Hospital (54 beds). The courses in mental diseases are partly taken in the County Mental Hospitals at Prestwich and Macclesfield. Instruction in practical gynaecology and midwifery is given at the Royal Infirmary and the St. Mary's Hospitals.

Appointments—The following are among the appointments open to past and present students of this school in connexion with its arrangements for clinical tuition. Two surgical registrars, at £150 per annum, two pathological registrars, at £100 and £50 per annum, one medical registrar, at £150 per annum, a cardiographic registrar, at £150 per annum, a surgical tutor, at £30 per annum, a director of the clinical laboratory, at £400 per annum, and two assistants, at £350 and £300, three assistant medical officers and three assistant surgical officers, each at £35 per annum, assistant surgical officers, aural department, at £35 per annum, seven anaesthetists, from £75 to £125 per annum each, one resident medical officer, one year, £200 per annum, one resident surgical officer, one year, £200 per annum, three resident medical officers for Central Branch, one at £200 and two at £100 per annum, one assistant resident surgical officer, £150 per annum, one resident medical officer at the Convalescent Hospital at Cheadle, £250 per annum, two assistant medical officers to radiological department, £150 and £105 per annum, medical officer, physio-therapeutic department, £150 per annum, assistant surgical officer, gynaecological department, £35 per annum, assistant to the dermatologist, £20 per annum, and three assistant surgical officers for Central Branch, £75 per annum, ten senior and ten junior house-surgeons and ten house-physicians, appointed during the year for periods of six months, at a salary of £50 for the first six months, and £100 for the second six months. Resident officers are appointed to the gynaecological, the eye, and the ear and throat departments every three months. Clinical clerks and surgical dressers are appointed to the various departments of the hospital every three months. Non-resident clinical assistantships for qualified medical women, tenable for six months, at an honorarium of £35.

Entrance and other Scholarships—The following are among the scholarships obtainable by students of the school. Rogers and Seaton Scholarships in Arts (in alternate years), £40 per annum tenable for two years. Three Hulme Scholarships tenable for three years, of £35, one being awarded annually for proficiency in subjects of general education. Two James Gaskill Scholarships of £35 tenable for two years, one being awarded annually for proficiency in the branches of mechanics and chemistry. A Dora Muir Scholarship, £30 per annum tenable for three years and open to the competition of women students only. This is awarded triennially. Sir J. P. Kay-Shuttleworth Scholarship, £30 per annum tenable for three years, awarded triennially open to the competition of scholars from Sedburgh School, Giggleswick School and Burnley Grammar School subjects—mathematics, chemistry, and mechanics. Drieschfeld Memorial Scholarship value £20 tenable for two years and awarded triennially on the result of the Entrance Examination. John Russell Medical Entrance Scholarship, awarded annually value £45. Two Dauntsey Junior Medical Scholarships value £50 each tenable for one year, for candidates who have not commenced the second year of study leading to a medical qualification subjects—zoology, botany and chemistry. One Dauntsey Senior Medical Scholarship £50 for one year awarded on results of Second M.B. Examination. Two Entrance Scholarships in Medicine value 100 guineas, awarded annually for proficiency in arts or science respectively. Tom Jones Exhibition in Anatomy £25 offered annually. A Robert Platt Physiological Scholarship of £30 tenable for one year. A Leech Fellowship of £100 for original research after graduation. Graduate Prize in Medicine £5 annually. A Graduate Research Scholarship in Medicine value £70 tenable for one year awarded annually for proficiency shown at Final M.B. Examination, open to Graduate Prizemen. A Dumville Surgical Prize value £15 awarded annually at graduation. The Tom Jones Memorial Surgical Fellowship value £105 tenable for one year, usually awarded annually. The Turner Medical Prize value £20 awarded annually for proficiency in certain subjects of the Final M.B. Ch.B. Examination. The John Henry Agnew Prize of £30 awarded annually for proficiency in the Diseases of Children. The Asby Memorial Scholarship tenable for one year (£100), for research in the Diseases of Children, offered triennially. Sidney Renshaw Prize in Physiology one offered annually (£15). Wild Prize in Pharmacology. The John Henry Agnew Fellowship in Diseases of Children £120, offered triennially. Eliza Warple Holt Post Graduate Medical Scholarship for Women £60 for one year offered biennially. The details and regulations of the Dickinson Scholarships—(1) for Anatomy, (2) for Pathology, (3) Research Scholarship in Surgery and (4) Traveling Scholarship in Medicine—may be obtained from the Secretary to the Trustees. The Morrison Watson Fellowship for research in Anatomy is offered annually value £150. Also the Sheridan Delapine Fellowship in Preventive Medicine value £300 is offered biennially. The Sam Gamble Scholarships—the trustees are prepared to award four scholarships of not less than £40 per annum tenable for not more than four years to women students who have passed the First M.B. Examination, the conditions can be obtained from the Registrar. The Knight Prize of £50 for original research in the psychological factors in the causation of mental disorder—open to holders of the Diploma in Psychological Medicine or

medical practitioners who have been registered in the university as candidates for that diploma.

Fees—The composition fee for the university course in medicine is 110 guineas, payable in four instalments of 27½ guineas, but this sum does not include the fee to cover the work required for the First M.B. Examination. This is £42, payable in one sum. Hospital fees are additional, and usually amount to about 77 guineas.

A prospectus and further information about the school and scholarships may be obtained from the Registrar.

Clinical Work—The Royal Eye Hospital, the Hospital for Diseases of the Skin, the Manchester Northern Hospital for Women and Children, the well-known Hospitals for Children at Pendlebury, and St Mary's Hospitals for Women and Children, the Manchester Hospital for Diseases of the Ear, Monsall Fever Hospital, the Christie Cancer Hospital, the Hospital for Consumption and Diseases of the Throat and Chest, the Ancoats Hospital, and the Salford Royal Hospital, all make arrangements for the instruction of students.

SHEFFIELD

In this city the medical school is one of the departments of the university, being conducted and controlled by its Medical Faculty, and occupying practically the entire north wing of the quadrangle of the university buildings overlooking Weston Park. The laboratories and lecture rooms connected with the subjects of the first and second examinations—namely, chemistry, physics, biology, anatomy, and physiology—are, both as regards structural arrangement and scientific equipment, on the most modern and complete lines.

For students of pathology and bacteriology there are laboratories replete with everything necessary for the most advanced work, and a large pathological museum, which is open daily. In addition, there is a large library and reading room. There are a number of recreation, athletic, and other societies, all under the management of an annually elected students' representative council, and large and comfortable common rooms both for men and women students. There are also two student unions—one for men and one for women students. In the university buildings there is a refectory open to all students of the school, and a university journal is published each term. The ordinary clinical work of the school is done at the Royal Infirmary and Royal Hospital, which have amalgamated for the purpose of clinical instruction, and provide over 800 beds for medical, surgical, and special cases, including diseases of the eye.

In addition, the Royal Infirmary has special departments for the treatment of diseases of the skin and ear, with beds assigned to them, whilst at the Royal Hospital there are special out-patient departments for diseases of the throat, ear, skin, orthopaedics, and mental diseases. The medical and surgical staffs attend daily, and give clinical instruction in the wards and out-patient rooms. Clinical lectures in medicine and surgery are given weekly. Instruction in the practical administration of anaesthetics is given at other institution by the anaesthetists, and the *post mortem* examinations at both institutions are in charge of the Professor of Pathology, and afford ample material for study of this subject. Students are able to attend the practice of the Jessop Hospital for Diseases of Women and the Hospital for Sick Children, while special courses on fever are given at the City Fever Hospital, and on mental diseases at the South Yorkshire Mental Hospital.

Appointments—The following appointments are open to all students who have passed their examinations in anatomy and physiology: (1) casualty dresserships, (2) surgical dresserships, (3) medical clerkships, (4) pathological clerkships, (5) ophthalmic clerkships, (6) clerk to the skin department, etc. These appointments are made for three months, commencing on the first day of October, January, April, and July.

Scholarships—Entrance Medical Scholarship value about £190 open to both sexes. Sir Edgar Allen Scholarships of £125 a year for three years may be held by students taking the degree course in medicine. Two Town Trustees Scholarships each of the value of £50 tenable for three years for boys or girls under the age of 19 years who have been educated in a Sheffield secondary school for a period not less than two years immediately preceding the examination. Four Town Trustees Scholarships value £50 for

boys or girls under 19 years of age educated in any school in Sheffield, secondary or otherwise. Town Trustees Fellowship, value £75, tenable for one year. Mechanics Institute Fellowship, value £50 (with remission of fees), tenable for one year, and renewable for a second year. The Frederick Clifford Scholarship, value about £50 tenable for two years. Kaye Scholarship for proficiency in anatomy and physiology. Gold and bronze medals are also awarded for proficiency in various subjects.

Fees—Students in the Faculty taking their complete medical course in the university pay an inclusive composition fee of £38 for each of the five years. The composition fees for the dental courses are as follows: for B.D.S. first and third years £75, second fourth and fifth years £25 for L.D.S. first and second years £75, third and fourth years £25. The fees for special courses taken separately can be ascertained by inquiry of the Dean.

UNIVERSITY COLLEGE OF SOUTH WALES AND MONMOUTHSHIRE

THE WELSH NATIONAL SCHOOL OF MEDICINE

The next session opens on October 2nd. All classes are open to both men and women students. Particulars relating to the admission of students as from October 1st, 1928, can be obtained on application to the Dean of the Faculty of Medicine, or to the Secretary, Welsh National School of Medicine, Newport Road, Cardiff.

The following is a list of heads of departments: Physics, Professor H. R. Robinson, Chemistry, Professor W. J. Jones, Zoology, Professor W. M. Tattersall, Botany, Professor R. C. McLean, Anatomy, Professor C. McLaren West, Physiology, Professor T. Graham Brown, Materia Medica and Pharmacology, Dr. W. Mitchell Stevens, Pathology and Bacteriology, Professor J. H. Dible, Medicine, Professor A. H. Kennedy, Surgery, Professor A. W. Sheen, Obstetrics and Gynaecology, Sir Ewen J. Maclean, Preventive Medicine, Professor Edgar L. Collis, Tuberculosis, Professor S. Lyle Cummins.

SCOTLAND

As will be gathered from the following paragraphs, the facilities for acquiring a medical education in Scotland are very ample, whether the student be proceeding to a university degree or to a diploma. To the descriptions of the different Scottish medical centres is in some cases added an account of hospitals which either play an official part in the education given to students as yet unqualified, or offer valuable opportunities for post-graduation work.

ABERDEEN

The school is conducted by the Faculty of Medicine. This comprises thirteen chairs, from which instruction is given in all the main branches of medical science—namely, botany, zoology, physics (ordinary and preparatory), chemistry (ordinary and preparatory), anatomy, physiology, materia medica, pathology, bacteriology, forensic medicine, surgery, medicine, and midwifery. Courses of instruction in public health and infectious diseases, tropical medicine, medical ethics, tuberculosis, and clinical methods are conducted by lecturers appointed by the University Court. Special opportunities for practical instruction are afforded in the laboratories and museums attached to the departments.

Clinical instruction is obtained in the Royal Infirmary (accommodating 370 patients), the Royal Mental Hospital (800 patients), the Sick Children's Hospital (85 patients), the City Fever Hospital (350 patients), the General Dispensary, Maternity, and Vaccine Institution (10,000 out-patients annually), and the Ophthalmic Institution (3,000 patients annually). Courses of practical instruction are given in diseases of children at the Sick Children's Hospital, in fevers at the City Fever Hospital, in mental diseases at the Royal Mental Hospital, in diseases of the ear, nose, and throat at the Infirmary and Dispensary, in diseases of the eye at the Infirmary and Eye Institution, in venereal diseases and diseases of the skin at the Royal Infirmary.

The degrees granted in medicine are: Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), Bachelor of Medicine and Bachelor of Surgery (M.B., Ch.B.). A Diploma in Public Health is conferred after examination on graduates in medicine of any university of the United Kingdom.

The degree of Ph.D. is also granted in this faculty.

Bursaries, scholarships, and fellowships, to the number of fifty and of the annual value of £1,200, may be held by students of medicine in this university. They range from £8 to £150 per annum, and are tenable in most cases for two or three years. The winter session begins on October 9th, 1928, the summer session on April 17th, 1929.

Fees—An inclusive fee of 126 guineas is payable for instruction within the university, and the fee for the degrees of M.B. Ch.B. is 33 guineas. The total cost including hospital fees, class and matriculation fees and degree fees is about £236.

EDINBURGH

There are two Schools of Medicine: the School of the University, and the School of Medicine of the Royal Colleges of Physicians and Surgeons of Edinburgh.

THE UNIVERSITY SCHOOL—This school, in addition to other resources of the university, has the following means of affording practical instruction: Royal Botanic Garden, Herbarium, and Museum, Zoological Laboratory and Museum of Science and Art, Physical Laboratory, Chemical Laboratories, Dissecting Room, Bone Room, and Anatomical Museum, Physiological Laboratory, Medical Jurisprudence Laboratories, John Usher Institute of Public Health, Materia Medica Museum and Laboratory, *Post-mortem* Department of the Royal Infirmary and University Pathological and Bacteriological Laboratory, Tutorial Classes of Practice of Physics, of Clinical Medicine, and Clinical Surgery, Surgery and Midwifery, and the practice of certain other hospitals.

Fees—The seasonal fee for chemistry, anatomy, lectures, physiology, pathology, materia medica, surgery, medicine, and midwifery is £8 6s each. Physics, botany, zoology, forensic medicine, and public health £5 5s. Practical zoology, practical anatomy (summer), morbid anatomy, practical materia medica, mental diseases, practical pathology, clinical midwifery and medical entomology and parasitology, £1 4s. Experimental physiology, diseases of tropical climates, practical botany, histology, operative surgery, clinical surgery (per term), clinical medicine (per term), and experimental pharmacology £3 3s. Practical anatomy (winter) £6 16s 6d. Practical chemistry £4 14s 6d. Regional anatomy, chemical physiology, surgical pathology, and infectious diseases £1 11s 6d. Tuberculosis, diseases of children, diseases of the eye, diseases of the larynx, ear, and nose, diseases of the skin and venereal diseases £2 12s 6d. Advanced bacteriology £7 17s 6d. Clinical gynaecology and applied anatomy £2 2s.

Scholarships—There are many funds for the assistance of students by means of bursaries, scholarships, exhibitions, and money awards from the beginning to the end of their undergraduate career. In addition there are funds which help those who have taken a first degree in medicine and surgery to continue at work as research students. The value of these awards and the conditions attaching to them are so varied that those interested should consult the prospectus of the school itself. No other university is in a better even if as good position to smooth the financial path of earnest students.

THE SCHOOL OF MEDICINE OF THE ROYAL COLLEGES—This school is composed of lecturers licensed by the Royal College of Physicians and the Royal College of Surgeons, and also recognized by the university through their *licentia docendi*, for the sake of convenience they lecture in separate buildings near to the Royal Infirmary, but form a single corporate body governed by a board consisting of five members elected by the Royal College of Surgeons, and five members elected by the lecturers in the school. This board, with the assistance of the standing committees of the school, supervises the whole management and especially the maintenance of the efficiency and discipline of the school. The different buildings at present utilized for the purposes of lecturing are the following: (1) Surgeons' Hall, Nicolson Street, (2) New School, Bristo Street, (3) Nicolson Square, (4) Marshall Street, and other places. The teaching is similar to that of the Scottish universities, and the students receive similar certificates at the close of each session. The courses on the special subjects not included in the curriculum of the Examining Boards are also conducted by teachers specially qualified in each branch, and have for the last quarter of a century formed a special feature of the school. The fees payable for class and other instruction, and including the sums payable on admission to the examination of the Conjoint Board for the triple qualification, amount to about £180. The Calendar, giving full information regarding classes and fees, can be obtained (price 6d) on application to the Dean of the School, Surgeons' Hall, Edinburgh.

WOMEN STUDENTS IN EDINBURGH—Until the close of the summer session of 1916 women students intending to proceed to graduation in the University of Edinburgh, as well as those entering for the triple qualification of the Royal Colleges of Edinburgh and Glasgow, received their training in the Edinburgh School of Medicine for Women. Now women students study under the same conditions as men, and may obtain either the university degree or the diploma of the Royal Colleges. In the university systematic lectures are given to them by the professors in the ordinary classes, which are therefore mixed. In clinical medicine and clinical surgery, however, while the lectures are attended by mixed classes, the women students are restricted to the wards of one charge. The particular wards are changed every six months, each of the physicians and surgeons to the infirmary taking the women students in rotation. With few exceptions, prizes, scholarships, bursaries, and similar distinctions are open to women under the same conditions as for men. The women students also have the same privileges as in the past have been given to the men of attending a certain proportion of the extra-mural classes taught by the lecturers of the School of Medicine of the Royal Colleges. Most of the Students' Societies are open to women, with the exception of the University Union and the Royal Medical Society. Their place is taken by the Women Students' Union and the Women's Medical Society. There is also a Women's Athletic Club, with playing fields gifted to it by the university. The membership of the Royal College of Physicians and Fellowships of the two Royal Colleges are also open to women. Information on matters connected with women's studies may be obtained from the Lady Warden, University New Buildings, Edinburgh.

GLASGOW

THE UNIVERSITY SCHOOL FOR MEN—The whole course of study required for graduation (M.B., Ch.B.) at the University of Glasgow can be taken here. Besides ample provision for lectures there is practical and clinical work at the hospitals, and practical courses are conducted in the laboratories of the following departments: Pathology, Public Health, Pharmacology, Physiology, Surgery, Anatomy, Chemistry, Zoology, Physics, and Botany. The Botanic Garden and the Hunterian Museum (Pathology) are also open to students. Well-equipped new buildings have been provided for botany, zoology, practical anatomy, and operative surgery, as well as for pathology, the very large additions made a number of years ago to the chemical laboratory render it one of the most extensive in Scotland. The classrooms and laboratories for the departments of Physics, Physiology, Pharmacology, Materia Medica, Medical Jurisprudence, and Public Health are also of recent erection, and are elaborately equipped. Four additional chairs of Medicine, Surgery, Obstetrics, and Pathology have been recently established, the professors being specially attached to the Royal Infirmary, and a number of university lectureships in Clinical Medicine, Clinical Surgery, Venereal Diseases, Laryngology, Dermatology, Otolaryngology, Psychological Medicine, Tuberculosis, and Electrical Diagnosis and Treatment have been founded there. Other chairs have been founded at the university in Bacteriology, Organic Chemistry, Physiological Chemistry, Applied Physics, Public Health, and Pediatrics. There are also lectureships on the Surgical and Medical Diseases of Children and on Electrical Diagnosis and Therapeutics. The university, in short, has made great and successful efforts to extend and improve the accommodation of the medical departments, to strengthen the teaching staff, and to encourage post-graduation and research work. A Diploma in Public Health is now also granted. Three very extensive general hospitals in the city afford exceptional opportunities for clinical instruction—namely, the Western Infirmary (600 beds), near the university, to which the Regius Professors are attached, the Royal Infirmary (688 beds), and the Victoria Infirmary (380 beds), while the Royal Mental Hospital, Gartnavel (500 beds), the Royal Hospital for Sick Children (275 beds), the Royal Maternity and Women's Hospital (114 beds), the Glasgow Eye Infirmary (100 beds), the Ophthalmic Institution (35) beds, the

fever hospitals at Belvidere (680 beds) and Ruchill (540 beds), and other institutions afford facilities for the practical study of special branches. The large general hospitals of the parish council are now also available for clinical instruction in medicine and surgery. Information regarding post-graduate study will be found at page 410.

Bursaries—Bursaries confined to the Medical Faculty amount in annual value to about £1,000, while bursaries in any faculty, amounting to about the same annual sum, may be held by students of medicine a number of both sets being open to women. Several valuable scholarships may be held by medical students who have graduated in arts.

The following bursaries are open to undergraduates of both sexes. The Gibson Bursary, annual value £36, tenable for four years. This is open to medical students who are preparing for service as medical missionaries in connexion with the Church of Scotland, and will be awarded to the eligible candidate who has gained the highest number of marks in the First Professional Examination. The Arbroath Bursary, annual value £40 tenable for three years, is awarded by the Senate on the recommendation of the Faculty of Medicine, to the student who is of the highest merit among the candidates, as shown by their class records and their performances in the First and Second Professional Examinations. One Logan Bursary, annual value £16, tenable for four years appointment by the Senate. Six Lorimer Bursaries (each £20 and tenable for one year) are awarded to the best students in each of the following classes: botany, zoology, physics, chemistry, anatomy, physiology. The Macintosh Mental Science Bursary in medicine of the value of £31, is awarded annually to the student (of either sex) attending the class of insanity who stands first in an examination in that subject, the bursar to continue the practical study of the subject to the satisfaction of the Faculty of Medicine. The Gardner Bursary, annual value £14 tenable for two years will be awarded after the autumn professional examination to the candidate who has passed in physiology at the Second Professional Examination and whose aggregate of marks in that subject and in chemistry and physics of the First Professional Examination is the highest. Of the eight James A. Paterson Bursaries two are awarded each year, they are of the value of £30 and £20 respectively and are tenable for four years, examination in mathematics and natural philosophy in June for students entering the first and second years of medical study. The following are tenable in any faculty. Four Nicolson Bursaries (each £75 and tenable for four years). Two Pratt Bursaries (each £20 and tenable for four years) and two Taylor Bursaries (each £10 and tenable for four years). Andrew and Bethna Stewart Bursaries (£50 each tenable for three years), candidates must have taken the M.A. degree of Glasgow. There is a special examination. Nine Glasgow Highland Society's Bursaries for students of Highland descent of the annual value of £25 and tenable for five years two vacant each year.

The Carnegie Trust for the Universities of Scotland is empowered to pay the whole or part of the university ordinary class fees of students of Scottish birth or extraction under conditions given in the *University Calendar*, and summarized at page 387 of this issue. The Dobbie Smith Gold Medal is awarded for the best essay on a prescribed subject within the science of botany. The Bruntton Memorial Prize of £20 is awarded annually to the most distinguished graduate in medicine of the year and the West of Scotland R.A.M.C. Memorial Prize to the candidate for the degrees of M.B., Ch.B. who obtains the highest aggregate marks in medicine, surgery, and midwifery in the Final Examinations. The University Commissioners have issued an ordinance to make regulations for the admission of women to certain bursaries, scholarships and fellowships. Scholarships and fellowships are offered by the Carnegie Trust in science and medicine for post-graduation study. There are also four McCunn Medical Research Scholarships (two of £200 and two of £400) for graduates in medicine of the Scottish universities, one Faulds Fellowship for Research in Medical Science of approximately £200 for three years, and one Strang Steel Scholarship value £160, for one year. There is, in addition, 'The Captain H. S. Rankin V.C. Memorial Prize in Pathology.

Fees—The matriculation fee for each year is £2 2s. In most cases the fee for each university class is £8 6s. but in some cases it is £4 4s. For hospital attendance at the Western Infirmary students pay £12 12s. for a perpetual ticket, or £1 11s. 6d. for a single term ticket with an additional fee of £5 5s. for each winter and £2 12s. 6d. per term for each clinical course. The fees are the same at the Royal Infirmary. The university fees for the four professional examinations total £34 13s. For the whole curriculum the fees for matriculation, class attendance, hospital attendance, and professional examinations amount to about £250.

For further information apply to the Registrar, Glasgow University.

QUEEN MARGARET COLLEGE—In this, the Women's Medical School of the University of Glasgow, the courses of study, degrees, regulations, fees, etc., are the same as for men. Women students have their own buildings, with classrooms, reading rooms, library, etc. They are taught in some classes apart from male students, in others together with them, but in either case have all the rights and privileges of university students. Their clinical studies are taken in the Royal Infirmary, the Western Infirmary, and the Victoria Infirmary, also *inter alia* in the Royal Hospital for Sick Children, the Glasgow Ear Hospital, the Royal

Asylum, Gartnavel, Halkhead Asylum, the Ophthalmic Institution, the City of Glasgow Fever Hospitals, Belvidero and Ruchill, and the Glasgow Royal Maternity and Women's Hospital

Scholarships—The Arthur Scholarship, annual value £20, tenable for three years. Open to competition by medical students of first year at the First Professional Examination in October, 1928. This scholarship is restricted to women medical students.

Full information can be obtained from the Mistress, Queen Margaret College, Glasgow.

Board for Students—University houses of residence for women students, Queen Margaret Hall and Robertson Hall, are situated near the college. The cost of board and residence is from 32s 6d to 42s a week, according to accommodation. Applications to be made to the Wardens. Another hostel near the college is South Park House, Ann Street, belonging to the Student Christian Movement, and open to women students of all colleges in Glasgow. Cost of board is from 28s to 30s weekly. Applications to be made to the Warden.

St Mungo's College—This is the Medical School of the Royal Infirmary, which is the largest general hospital in Glasgow. The Infirmary is situated in Cathedral Square, Castle Street, and has communication with every part of the city. St Mungo's College is in the Infirmary grounds, and affords full courses in all the subjects of the medical curriculum, and in all the medical subjects of the dental curriculum.

The Infirmary has (including the ophthalmic department) over 700 beds. There are special beds and wards for diseases of women, of the throat, nose, and ear, venereal diseases, burns, and septic cases. In the out-patient department in 1926 over 58,000 patients were treated. In addition to the large medical and surgical departments, there are departments for special diseases—namely, diseases of women, of the throat and nose, of the ear, of the eye, of the skin, and of the teeth. There is also a fully equipped electrical pavilion, with the latest and most improved apparatus for diagnosis and treatment.

Appointments—Five house-physicians and eleven house-surgeons, who must be fully qualified, are appointed every six months, and board in the hospital free of charge. Clerks and dressers are appointed by the physicians and surgeons. As many cases of acute diseases and accidents of a varied character are received, these appointments are very valuable.

Fees—The average class fee is £3 3s for summer classes and £4 4s for winter classes. The fees for all the lectures, practical classes, and hospital attendance necessary for candidates for the diplomas of the English or Scottish Colleges of Physicians and Surgeons amount to about £120. The classes are open to male and female students.

A syllabus of classes can be obtained on application to the Secretary to the Medical Faculty, St Mungo's College, 86, Castle Street.

THE ANDERSON COLLEGE OF MEDICINE—This school provides education in all subjects of the curriculum for both medical and dental students. The school buildings are situated in Dumbarton Road, immediately to the west of the University and Western Infirmary. The hospital practice and clinical lectures are provided in the Western or Royal Infirmary, pathology in the Western or Royal Infirmary, vaccination and dispensary practice in the Western or Royal Infirmary Dispensary. These classes are recognized by all the licensing corporations in the United Kingdom, also by the Universities of London, Durham, Glasgow, and Edinburgh (the latter two under certain conditions stated in the school Calendar). The courses (lectures and laboratory) in public health are recognized by the Scottish Licensing Board, the Universities of Oxford, Cambridge, and London, and the London and Irish Colleges.

Fees—The fees for the lectures and practical work required by ordinary students range between 2 and 5 guineas a session. In the Public Health Department the fee for a six months course is £14 14s. The Carnegie Trust pays the fees of students at Anderson College on conditions regarding which particulars may be obtained from the Secretary, Carnegie Trust Offices, Edinburgh.

A Calendar will be sent on receipt of a postcard by the Secretary to the Medical Faculty, the Anderson College of Medicine, Glasgow W., who will forward any further information which may be desired.

The Royal Samaritan Hospital for Women, Glasgow, with 160 beds, offers facilities for clinical instruction in the diseases peculiar to women. A university lectureship, the Royal Samaritan Lectureship in Gynaecology, is associated with the hospital. The lecturer is Dr David Shannon. Particulars may be obtained from Mr T. Mason Macquaker, M.A., Secretary, 149, St Vincent Street, Glasgow.

ST ANDREWS AND DUNDEE

The medical departments in these two teaching centres cater specially for students proceeding to the degrees of the University of St Andrews, but admit other students as well. In the former city the United College provides education in all subjects for the first two years. In Dundee, University College provides for the needs of students from the beginning to the end of the five years' curriculum. Its buildings are modern, and contain fully equipped laboratories. The clinical work of the school is facilitated by various institutions. The class fees are from £6 6s to £5 12s 6d for systematic classes, and from £4 14s 6d to £4 4s for practical classes. The hospital ticket is £1 8s for three months, £4 4s a year, or perpetual, £13 6s 8d in one sum. The inclusive or composition fee for the curriculum is £182. In connexion with both institutions there are bursaries and scholarships of considerable value, which are awarded after competitive examination. Information as to these can be obtained from the Secretary of the University of St Andrews. Information regarding the clinical facilities may be obtained from the Dean of the Medical Faculty, Medical School, Dundee.

Clinical Work

Good opportunities for clinical work are afforded by the Dundee Royal Infirmary, the instruction given there being recognized for purposes of graduation by all the Scottish universities, the University of Cambridge, the University of London, the National University of Ireland, and by the Royal Colleges of England and Scotland.

IRELAND

THERE is a choice of six schools for those pursuing their medical studies in Ireland. For clinical instruction the choice is equally wide and varied, though the hospitals themselves are comparatively small. Some account of the schools follows.

DUBLIN

School of Physic

This school is in Trinity College, Dublin, and is carried on under the joint auspices of the University of Dublin and of the Royal College of Physicians of Ireland, the King's professors of institutes of medicine (physiology), practice of medicine, materia medica, and midwifery being appointed by the latter. Clinical instruction is given at Sir Patrick Dun's Hospital, and some twelve other metropolitan hospitals and asylums are recognized by the Board of Trinity College. The courses of instruction are open to all medical students, whether they belong to the university or not.

The Schools of Surgery

These are schools carried on in Dublin under the supervision and control of the Council of the Royal College of Surgeons. They are formed of the college's own school, combined with two famous old medical schools—Carmichael and Ledwich, they are attached to the college by charter. The buildings contain spacious dissecting rooms, special pathological, bacteriological, public health, chemical, and pharmaceutical laboratories. Advantage can be taken of the lectures and instruction afforded by students otherwise unconnected with the college.

Prizes—Among the prizes annually awarded are The Barker Anatomical Prize (£25 5s), the Carmichael Scholarship (£15), the Mayne Scholarship (£8), the Gold Medal in Surgery (the Honorary Memorial Gold Medal in Anatomy the H. Macnaughton Jones Gold Medal for Midwifery and Gynaecology) class prizes accompanied by silver medals will also be given in each subject. At intervals a prize of £150 is awarded called the R. Dancer Purfoy Memorial.

A prospectus can be obtained post free on application to the Registrar, Royal College of Surgeons, Dublin.

University College, Dublin

This is one of the constituent colleges of the National University of Ireland. The arrangements for the teaching of medical students from beginning to end of the curriculum are adequate. Applications for information may be addressed to the Secretary and Bursar, University College, Dublin.

Clinical Work

There are numerous well-arranged hospitals in and around the city and almost all of these are recognized for teaching purposes by the Conjoint Board of Ireland, the University of Dublin, the National University of Ireland, and by like bodies elsewhere in the British Isles. Among them are the Mater Misericordiae Hospital, with 345 beds, Dr Steevens's Hospital at Kingsbridge, with 150, Meath Hospital and County Dublin Infirmary, with 160, Mercer's Hospital, close to Trinity College, with 120, the Royal City of Dublin Hospital, with 124, the Adelaide Hospital, with 140, the Royal Victoria Eye and Ear Hospital, with 100 beds, St Patrick Dun's, which has a direct connexion with the School of Physic, and the combined institutions formed by the Hardwick Fever Hospital, the Richmond Surgical Hospital, and the Whitworth Medical Hospital, with an aggregate of 230 beds.

As for the famous Dublin medical institution known as the Rotunda Hospital, this practically consists of two distinct hospitals, and is believed to be the largest combined maternity and gynaecological hospital in the British Isles. It receives nearly 3,000 patients every year, and apart from ordinary out-patient work of a gynaecological order, annually attends some 2,000 women in their own homes during their confinement. It possesses residential quarters for students, and, taken as a whole, offers exceptional opportunities for study both to ordinary students and to medical graduates of any nationality.

Two other important obstetric and gynaecological hospitals in Dublin are the Coombe Lying-in Hospital and the National Maternity Hospital. During the year ending December 31st, 1927, the number of cases dealt with in the Coombe Lying-in Hospital were as follows: Intern maternity department, total admissions, 1,042, intern maternity department, total deliveries, 950, extern maternity department, total cases treated, 1,494, gynaecological department, number of operations, 462.

At the National Maternity Hospital, Holles Street, Dublin, during the year ending March 31st, 1928, there were admitted to the maternity department 941 patients, and to the gynaecological department 402, 709 calls were received in the extern obstetrical service, 866 patients were delivered in the hospital, and 628 in their homes, 378 operations were performed.

The practice of these hospitals is attended by large numbers of students, post-graduates, and nurses.

BELFAST

THE Medical School is part of the Faculty of Medicine of Queen's University, Belfast, and provides a complete medical curriculum for all purposes. The laboratories in connexion with the departments of bacteriology, biochemistry, biology, chemistry, physiology, pathology, anatomy, physics, and materia medica are all excellent, and there is a students' union which gives students the advantages of dining rooms, reading rooms, a library, and various recreation rooms. Women are eligible as students. Clinical instruction is given at the Royal Victoria Hospital, which was rebuilt a few years ago and has 300 beds, and the Mater Infirmorum Hospital, which has 150 beds. Other hospitals open to the students of the university are the Maternity Hospital, the Ulster Hospital for Women and Children, the Hospital for Sick Children, the Ophthalmic Hospital, the Bunn Ulster Eye, Ear and Throat Hospital, the Union Infirmary and Fever Hospital, the Fever Hospital, Paradesburn, the District Lunatic Asylum, the Samaritan Hospital, Forster Green Hospital for Diseases of the Chest, and the Belfast Hospital for Skin Diseases.

Scholarships—(1) Eight of the value of £40 each are assigned as Entrance Scholarships in the Faculties of Arts Science and Medicine tenable for one year. (2) fourteen Professional Scholarships, value from £15 to £40 each. (3) one Hutchison on Stewart

Scholarship, £12 in mental diseases. (4) one Mackay Wilson Travelling Scholarship, £100 awarded triennially. (5) Isabella Tod Memorial Scholarship tenable for three years, awarded triennially to a woman student. (6) Magrath Clinical Scholarship awarded annually value about £112. (7) two Musgrave Studentships of £200 in Physiology and Pathology. There is also a post-graduate research fund, open to all graduates of not more than three years standing. Gold medals are awarded at the M.D. examination.

Fees—The cost of the curriculum intended for students proceeding to the degrees of the Queen's University of Belfast is, approximately £200. This includes examination fees and a perpetual ticket for attendance at the Royal Victoria Hospital or the Mater Infirmorum Hospital and fees for the special hospitals. The course for the Conjoint Board costs about the same amount.

The Regulations of the Medical Faculty containing full information, can be obtained on application to the Secretary, Queen's University, Belfast, price 4d.

UNIVERSITY COLLEGE, CORK

THIS institution, formerly known as Queen's College, Cork, is one of the constituent colleges of the National University. It holds examinations for all the faculties of that university, in addition to continuing the work which it has hitherto performed—namely, that of providing education adapted to the needs of medical students at all stages of their career. Its first aim is to fit students for the degrees of the National University, but students proceeding for the examinations of the Conjoint Board of England, Scotland, or Ireland, the Society of Apothecaries of London, or the Apothecaries' Hall of Ireland, or London University, can arrange the courses of lectures which they attend, and the order in which they attend them, to meet the requirements of those bodies. Certificates of attendance at the college courses are also accepted by the University of Cambridge. Clinical instruction is given at the North and South Infirmaries (each 100 beds) and at the Cork Union Hospital (1,200 beds). Students can also attend the Mercy Hospital (130 beds), the County and City of Cork Lying-in Hospital, the Hospital for Diseases of Women and Children, the Fever Hospital, the Ophthalmic and Aural Hospital, and the Eglington Lunatic Asylum. The session extends from October to June.

There is a Dental School in which the degree of Bachelor of Dental Surgery of the National University of Ireland can be obtained. There is a large well-equipped dental hospital in connexion with the school.

Scholarships—About £3,000 is available annually for scholarships in the college. Particulars as to each of them can be obtained on application to the Registrar.

Fees—The fees for the lectures and hospital attendances required by the National University of Ireland course including examination fees, come to about £170.

Further information can be found in the Calendar or obtained on application to the Registrar.

UNIVERSITY COLLEGE, GALWAY

THIS institution is one of the constituent colleges of the National University of Ireland, and includes Faculties of Art, Science, Law, Celtic, Engineering, Commerce, and Medicine. The college buildings are well lighted and well ventilated, and contain dissecting rooms, an anatomical theatre, and laboratories for the study of physiology, chemistry, physics, and other departments of medical science. For pathology and chemistry new laboratories are now provided. It has good grounds surrounding it, and there are many arrangements, such as a library, a college union, and an athletic union, for the benefit of those belonging to the Medical Faculty, as well as for students in other departments of the college. The clinical teaching, which is recognized as qualifying not only for the degrees of the National University, but for those of the London University and the diplomas of the various colleges in the three kingdoms, is carried on at the Galway Central Hospital and the Galway Tuberculosis Hospital. The Galway Central Hospital is a general hospital and at the two hospitals students have ample opportunities of studying zymotic and chronic diseases. The Central Hospital has a special ward for diseases of children. Each year the governing body offers about £2,500, and the County Councils of Connemara offer about £3,500, in scholarships. These scholarships are tenable in any faculty. Additional information regarding these scholarships can be obtained on application to the Registrar, and to the Secretaries of the Connemara County Councils.

CLINICAL HOSPITALS IN ENGLAND

MANY hospitals in Great Britain and Ireland, though not connected with any medical school, open their doors either to those who have yet to be qualified, to those who are doing post graduation work, or to both. The facilities they offer for gaining practical clinical experience are very great, and should not be overlooked. Then honorary staffs commonly make a point of giving such instruction as opportunity offers, and at those situated in the larger towns there are often appointments as clinical assistants to be obtained. In addition, they all have to offer, at shorter or longer intervals, appointments for resident medical officers, house-physicians, and house surgeons. These are usually paid offices, which may be held for periods varying from six months to a year, or even longer. Some of those situated in the great medical centres in the provinces, and in Scotland and Ireland, have already been mentioned in speaking of the medical schools in those localities, but it should be added that there are many other provincial hospitals where admirable work is done, and in which much valuable experience can be gained by both senior and junior students, and by those already qualified. Cases in point are the Royal Infirmary, Bradford, the Royal Sussex County Hospital, Brighton, the Royal United Hospital, Bath, the Kent and Canterbury Hospital, the Derbyshire Royal Infirmary, South Devon and East Cornwall Hospital, Plymouth, the Royal Albert Hospital and Eye Infirmary, Devonport, the Royal Devon and Exeter Hospital, the West of England Eye Infirmary, Exeter, the Gloucestershire Royal Infirmary and Eye Institution, the Royal Infirmary, Leicester, the County Hospital, Lincoln, the General Hospital, Northampton, the Norfolk and Norwich Hospital, the General Hospital, Nottingham, the Royal Portsmouth Hospital, the Royal Berks Hospital, Reading, the Royal South Hants and Southampton Hospital, the Staffordshire General Infirmary, Stafford, the North Staffordshire Infirmary at Hartshill, the Royal Hants County Hospital, Winchester, the Wolverhampton and Staffordshire General Hospital, the County Hospital, York, and the Coventry and Warwickshire Hospital.

London Clinical Hospitals

As for the hospitals in the metropolis, so many of these take a share in the giving of clinical instruction that it is worth while to classify them.

Children's Hospitals.—There are at least seven of these the leader among them being the Hospital for Sick Children, Great Ormond Street, which has 263 beds. There are also the East London Hospital for Children, Shadwell, with 136 the Queen's Hospital for Children, Bethnal Green, with 134 the Victoria Hospital for Children, Chelsea, with 130 the Belgrave Hospital for Children, which has a considerable out-patient department and in-patient accommodation for 74 children, the Paddington Green Children's Hospital, and the Evelina Hospital for Sick Children, Southwark Bridge Road, with 76 beds. The largest and the oldest of the hospitals for both women and children is the Royal Waterloo Hospital for Children and Women, Waterloo Road, S.E.1.

Hospitals for Women.—Queen Charlotte's Maternity Hospital, Marylebone Road, with 75 beds and a residential college for medical students and practitioners, specializes in the teaching of midwifery. The City of London Maternity Hospital, City Road, with 71 beds, also admits medical students and graduates to its practice. The Samaritan Hospital for Women, Marylebone Road, admits qualified practitioners as clinical assistants in both the in-patient and out-patient departments; demonstrations are given daily in both departments, the fees—payable in advance—being £3 3s for three months. Full particulars may be obtained from the secretary. In addition may be mentioned the Hospital for Women, Soho Square, whose teaching is confined to post-graduates in limited numbers; the Chelsea Hospital for Women, Arthur Street, Chelsea, and the Elizabeth Garrett Anderson Hospital for Women, Euston Road, the latter being in the nature of a general hospital so far as concerns the class of case treated.

Eye Hospitals.—The largest of these is the Royal London Ophthalmic Hospital (Moorfields), City Road, E.C.1, 138 beds, 2,438 in patients, 51,841 out-patients in 1927. At this hospital two complete courses of instruction are given during the year—October to February, and March to July—comprising the following subjects: (1) anatomy (including histology and embryology), (2) physiology, (3) optics (including physiological optics), (4) refraction, (5) methods of examination and use of the ophthalmoscope, (6) pathology and bacteriology, (7) ophthalmic medicine and surgery, (8) ophthalmoscopic conditions, (9) operative surgery, (10) practical pathology, (11) practical bacteriology, (12) radiology, (13) physiotherapy (including ultra-violet light, diathermy and ionization), (14) slit lamp microscopy. A fee of 31 guineas will admit the holder once to all the lectures and classes except those on physiotherapy and slit lamp microscopy. The fee for a perpetual ticket to attend the practice of the hospital is £5 5s for three or six months, £3 3s for two months, £2 2s

for one month, £1 1s. Registered medical practitioners and medical students are eligible under certain conditions for the posts of chief clinical assistant, clinical assistant, and junior assistant. There are also a number of salaried posts, an annual Clinical Research Scholarship of £50, and a biennial Gifford Edmonds Prize of £100. Clinical work begins each morning at 9 and operations at 10 o'clock. The course of instruction is specially adapted to meet the requirements of those reading for the D.O.M.s and similar diplomas and degrees in ophthalmology. Further particulars may be obtained from the Dean of the Medical School. Other eye hospitals are the Royal Westminster Ophthalmic Hospital, the Royal Eye Hospital, Southwark, and the Central London Ophthalmic Hospital, Judd Street, W.C.1, each with about 40 beds, and the Western Ophthalmic Hospital with 18 beds.

Fever Hospitals.—The Metropolitan Asylums Board has under its control a good many institutions in and around London for the treatment of the more serious zymotic disorders. It makes special arrangements for the instruction of students in this subject and grants certificates at the end of the courses. Detailed information should be sought from the Clerk to the Board, Victoria Embankment, E.C.4.

Chest Hospitals.—The largest of these is the Brompton Hospital for Consumption, which has 333 beds and a large sanatorium at Framley with 150 beds. There is also the City of London Hospital for Diseases of the Chest, Victoria Park, with 185 beds, and the Royal Hospital for Diseases of the Chest, City Road, with 85 beds now amalgamated with the Royal Northern Hospital, Holloway Road.

Nose, Throat, and Ear Hospitals.—The institutions which confine their work to disorders of the throat, nose, and ear all make special arrangements for the benefit of senior and post-graduate students. They are the Metropolitan Ear, Nose, and Throat Hospital, Fitzroy Square, the Royal Ear Hospital, Dean Street, the Central London Throat, Nose, and Ear Hospital, Gray's Inn Road, and the Hospital for Diseases of the Throat, Golden Square—the last which possesses 75 beds being the largest of the four institutions.

Miscellaneous Special Hospitals.—Among these are the Bethlem Royal Hospital, St. George's Fields, S.E.1, which (like the Maudsley Hospital) confines its work to the treatment of mental diseases, and includes a department for nervous and early mental disorders; the Royal National Orthopaedic Hospital, Great Portland Street; St. Peter's Hospital for Stone and Urinary Diseases, Henrietta Street, Covent Garden; St. Mark's Hospital, City Road, which devotes itself to the treatment of diseases of the rectum, including cancer and fistula; the National Hospital for Diseases of the Heart in Westmoreland Street, W.1; St. John's Hospital for Diseases of the Skin in Leicester Square; the Hospital for Diseases of the Skin, Stamford Street, Blackfriars; the National Hospital, Queen Square, W.C.1, an institution possessing 200 beds for neurological cases and a world-wide reputation; and the West End Hospital for Nervous Diseases, 73 Welbeck Street, W.1.

Detailed information as to the teaching arrangements of all these institutions may be obtained on application to their secretaries.

WOMEN IN MEDICINE

The regulations of the General Medical Council and of the various universities and colleges set out in previous sections apply to women as to men.

EXAMINATIONS

Women are admitted to all the medical examinations of the following qualifying bodies: all the universities of Great Britain and Ireland, the Royal College of Physicians, London, the Royal College of Surgeons of England, the Society of Apothecaries of London and the Conjoint Boards in Scotland and in Ireland. In addition, women are eligible for election as Fellows to the Royal College of Physicians, England, and the Royal College of Physicians, Edinburgh, and the first woman has recently been elected by the latter.

MEDICAL EDUCATION

The general tendency during the years since the war has been to admit women to train in medicine at the same schools and under very much the same conditions as men. In this country at the present time co-education is the general rule. The schools of the London hospitals have, however, so far shown themselves more conservative in this respect than the rest of the country.

In England the colleges connected with the universities of Birmingham, Bristol, Cardiff, Leeds, Liverpool, Manchester, Newcastle, and Sheffield admit women students as well as men, whilst in Scotland the universities of Aberdeen, St. Andrews, Edinburgh, and Glasgow also admit women. In Ireland all universities and colleges are open to them.

In London several of the old-established hospitals opened their doors to women students during the war, but are

showing a tendency at the present time to revert to their previous status of schools for men only. This is an unsatisfactory state of affairs, which it appears can only be temporary, no unsatisfactory results of co-education having been brought forward by any of the schools so closing their doors to women.

At the present time the only co-education hospital in London is that of University College—the number of women entrants is restricted to twelve a year, but these twelve (making between thirty-six and forty-eight training at any one time for the three to four years' clinical course) are given excellent opportunities whilst students, and also, in fair proportion, are given opportunities of post-graduate experience as residents—house-surgeons, house-physicians, and obstetrical assistants.

THE LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN

The London (Royal Free Hospital) School was started for the training of women in medicine in the days before there were any co-education facilities for them, and it still remains by far the largest school for women. In addition to the clinical work at the Royal Free Hospital arrangements are made for students of the school to obtain clinical instruction at the National Hospital for Nervous Diseases, Queen Square, the Royal London Ophthalmic Hospital, Moorfields, the Great Ormond Street Hospital for Children, the Elizabeth Garrett Anderson Hospital, the South London Hospital for Women, and the Cancer Hospital. Its importance for women in medicine can hardly be overestimated, not merely because it was the pioneer which made the way possible, but also because it is still the only general hospital in Britain which offers all its post-graduate appointments, higher and lower, to open competition by women as well as men, thus giving unique opportunity of gaining experience. Not only are all the resident appointments at the Royal Free Hospital, of which there are twenty-seven yearly, eligible for women, but, in addition, higher posts may be obtained in all the various branches of a general hospital, from those of registrar and anaesthetist to those of visiting physician or surgeon and those in charge of special departments. There is a special unit in gynaecology under a woman professor, and entirely staffed by medical women. This policy has so far not been fully adopted in its entirety by any other hospital, and it may be of interest to note in this connection that the Royal Free Hospital has many women on its general committee and weekly board of management.

OPENINGS FOR MEDICAL WOMEN

There are at the present time the names of over three thousand medical women on the *Medical Register*. Owing to the artificially stimulated demand for women to enter medicine during the latter part of the war, there was, for a short time, a greater number of women qualifying than could be readily absorbed in the various branches of medical work. This was, however, purely transitory, and the demand now is approximately as great as the supply. There is an increasing demand by the public for the services of women doctors in all branches of medicine, and statistics show that the number of those who make good is as high, if not somewhat higher, than that of their men colleagues.

OPENINGS AT HOME

House Appointments—The valuable post-graduate experience obtained in these posts is eagerly sought by both men and women, and it is therefore only to be expected that the increase in the number available to women should be gradual. In addition to the Royal Free Hospital, where by far the greatest number are available, the co-education hospitals show an increasing tendency to admit their women graduates in due proportion to these posts, and in addition women are appointed as residents in many of the non-teaching general hospitals, hospitals for women and children, sanatoriums, infirmaries, fever hospitals, and asylums.

General Practice—There are good openings as assistants or, better still, as assistants with a view to admission as

partners in general practice. Medical women also do very well when starting in new districts, and there is considerable scope for them in midwifery work.

Specialist and Consulting Practice—This naturally only becomes possible as hospitals admit women as physicians on their honorary staffs, in this respect the Elizabeth Garrett Anderson Hospital and the South London Hospital for Women have rendered invaluable service to women in medicine. As has been mentioned, the Royal Free Hospital also has a considerable number of women on the staff, whilst in the provinces women are making satisfactory progress in this direction. To mention a few—at Bath, Bristol, Edinburgh, Glasgow, Hereford, Liverpool, and Manchester—there are women on the honorary visiting staffs of general hospitals and special hospitals as general physicians, surgeons, gynaecologists, orthopaedic surgeons, children's specialists, and infants' specialists. It is interesting to note that there are already women in successful practice as consulting physicians, surgeons, gynaecologists, ophthalmologists, ear, nose, and throat specialists, urologists, dermatologists, anaesthetists, tuberculosis specialists, venereal disease specialists, x-ray and light treatment specialists, psychologists, specialists in orthopaedic work, children's diseases, bacteriology and pathology, and spa treatment, etc. Research work also provides interesting openings, as, for example, in dealing with the special problems concerning cancer, nutrition, puerperal morbidity and mortality, statistical work, etc., and for some of these research scholarships and grants are available.

Teaching Posts—Women hold professorships and lectureships at various universities.

Industrial Medicine—In this branch there is much interesting work available, and it is undergoing considerable development at the present time. Several women already hold such posts.

Administrative Work—A certain number of these important posts are admirably filled by medical women. The chief medical officer for maternity and child welfare is a medical woman and has a staff of medical women to assist her.

The Public Health Service—This service provides numerous openings for medical women. It has many departments, and its rapid growth in recent years has provided much interesting work in preventive medicine. For maternity and child welfare work women have been found to be peculiarly suited, but, by a curious economic limitation, married women, who would appear to be the most suitable of all, are, by many public authorities, excluded from service. This exclusion not only prevents married women from taking part in this work, but also prevents many of the best women from specializing in this branch of medicine, as it is obviously uneconomical to specialize in a branch of public service from which one may be excluded in a few years.

Medical Inspection, etc.—Under the Board of Education there are women serving as medical advisers and school medical inspectors. The London County Council and other important councils in the country have medical women on their permanent medical staffs, both in the senior and junior grades. The London County Council has two of its senior medical women appointed to serve as district medical inspectors. In addition, they have a large number of women medical inspectors of school children, and also women are serving as experts in the departments dealing with mental deficiency, tuberculosis, and venereal disease. Some medical women also serve as examiners of the candidates entering the public services, as, for example, the civil service. The services of medical women are extensively enlisted by public authorities in dealing with employees of their own sex. In several instances women serve as assistant medical officers to prisons, and in one instance at least a woman has recently been appointed as the medical officer for the police women of a large city. The services of medical women are also enlisted as lecturers and examiners on first aid, home nursing, health, and infant care.

PAY AND STATUS

It is interesting to note that medical women, backed by the powerful assistance of the British Medical Association, have been on the whole successful in resisting the attempt to accept a lower salary for the same work as their men colleagues, thereby not only greatly benefiting themselves, but also maintaining the standard for the whole profession. They realize that over since the admission of women to the medical profession exactly the same sacrifices for principle have been made by their predecessors as are now demanded from them. With the inauguration of the School Medical Service in 1908, and later when maternity and child welfare posts were created, persistent efforts were made by local authorities to pay their assistant medical officers below the minimum arranged by the representatives of the public authorities and the British Medical Association, and to secure women at a lower rate than men. With rare exceptions these efforts were a failure. Women realize as clearly as men that lowered pay invariably implies a lowered status and prestige, and that the woman who stamps herself as belonging to an inferior grade of doctor cannot complain if she is taken at her own valuation, and that a minimum always tends to become a maximum. Attempts to evade the scale and split the ranks of the profession by offering a post to a man at the agreed rate and a similar post to a woman slightly below that rate are particularly to be deprecated. Where the rule of equal pay for equal work is violated there is no limit to the extent to which women may be exploited and sweated.

An interesting extension of public health work has recently occurred by which a temporary exchange of posts has been arranged for one year between a woman assistant school medical officer to the London County Council and a woman medical officer attached to the health department of Western Australia.

OPENINGS ABROAD

Colonial Office—To those to whom overseas service appeals it offers the possibility of useful, interesting, and adequately paid work. At present there are only posts for women in Malaya and West Africa, and the work is almost entirely hospital and maternity and child welfare work, there have been one or two specialist appointments, such as bacteriologists, and more may follow. Women have, so far, only been appointed to the lower grade posts, but their pay is the same as that of the men in similar grades. When placed on the permanent staff they are eligible for pension.

Egypt—Several posts are held under the education authority, chiefly in school medical inspection.

India—See note on the Women's Medical Service for India in the next column.

Mission Field—Missionary societies offer employment to medical women, chiefly in India, China, and the Near East.

PUBLIC ACTIVITIES

Medical women have always shown considerable interest in medico-political affairs, and take an active part in the work of the British Medical Association, and with the various other societies dealing with medicine as it affects the community in general. With this end in view they also have a Medical Women's Federation, which enables them to voice a collective expression of opinion. This might otherwise be difficult to ascertain as women are so widely scattered, both as regards their geographical distribution and their varied activities. This collective opinion of medical women has been found of great assistance by the British Medical Association and other allied societies with which it works in cordial co-operation and by whom it is frequently approached, both for information and also as a convenient means of approaching medical women as a whole.

It may be added, with regard to contributions to medical literature, that this is a branch of work in which women are more and more taking their share, and scientific and other works are frequently published by them.

WOMEN'S MEDICAL SERVICE FOR INDIA

THIS service is open to properly qualified medical women of British or Indian nationality who desire to carry on work in India. It was founded in 1913 by the Countess of Dufferin's Fund, the committee of which was granted a subsidy of 1½ lakhs (£10,000) by the Government of India for this purpose.

Medical women proceeding to India to join the Women's Medical Service receive a sufficient sum for a first class passage to India. On landing they are posted to one of the larger women's hospitals to gain Indian experience and to learn the language. During this period (from six months to two years) private practice is not allowed. For a further period they are appointed to act temporarily for medical women on furlough, during which time private practice is allowed. They are then definitely appointed to the charge of hospitals.

Private practice is always allowed after the first two years provided it does not interfere with official duties. The only exception is in administrative posts, when an allowance in lieu of practice is given. The amount obtained by practice varies according to the station, but in most cases it forms a fair addition to the salary, varying from £150 to £1,000 a year. Excellent opportunities for surgery—especially gynaecological—are found in the Women's Medical Service. The prevalence of osteomalacia in some parts of the country leads to the necessity for frequent Caesarean section, while uterine fibroids, ovarian tumours, and diseased tubes swell the number of abdominal operations. The number of large operations performed will vary with the surgical reputation of the medical woman, but in some cases it is considerable.

To those who are not keen surgeons opportunities are likely to open in the future in connexion with maternity and child welfare. The high infant mortality and the suffering of women in childbirth owing to the ignorance of the not-trained hereditary midwives provide a great field for such workers. Medical women with administrative ability are also needed for the inspection of women's hospitals and other medical institutions.

Years of Service		Rates of Pay per mensem	Annual Salary
1-3	..	Rs. 450	£360
4-6		Rs. 500	£400
7-8	..	Rs. 550	£440
10-12	..	Rs. 600	£480
13-15	..	Rs. 650	£520
16-18	..	Rs. 700	£560
19-21	..	Rs. 750	£600
22-24	..	Rs. 800	£640
Over 24		Rs. 850	£680

Furnished quarters are provided also an overseas allowance of Rs.100 per annum the rupee value being taken at 1s 4d.

The above rates of pay are not so high as in the Indian Medical Service. The fact however that furnished quarters are provided (these are not provided in the Indian Medical Service) represents an additional Rs 150 per mensem. It must be remembered too, that the official duties of the members of the Women's Medical Service are lighter than those of the Indian Medical Service, who while in civil employ, in addition to work in the Civil Hospital, have charge of the medico-legal work of the district give much gratuitous attendance, and form a reserve to be drawn on in time of war.

The cost of living in India is much higher than formally, but even now it is possible to live more cheaply than in England for the same measure of comfort. The cost of all goods brought from Europe is very high but the cost of country produce is much less than in Europe. Meat poultry milk, eggs, etc., are sold at about half the price now demanded in England. It should be possible for a medical woman (with house provided) to meet actual household expenses for about Rs 200 per mensem, leaving the remainder of her salary for dress and personal expenses. To this must be added the necessary saving to meet additional expenses for furlough and leave spent in the hills.

One month's privilege leave on full pay is granted each year. Furlough on half pay at the rate of two months for every year of service is granted after every three years.

Study leave on furlough pay and lodging allowance at the rate of 12s per day may be granted to the extent of twelve months in the total service.

There is a Provident Fund to which members of the service contribute 10 per cent of their pay. The service contributes another 10 per cent which accumulates at interest and is repaid on retirement.

Admission to the service is made by selection. Candidates in the United Kingdom should apply to the Honorary Secretary, U.K. Branch of the Countess of Dufferin's Fund c/o Major General J. B. Smith, India Office, Whitehall, S.W.1.

POST-GRADUATE STUDY

In the matter of facilities for post-graduate medical study little change has taken place since last year, when the Minister of Health, Mr. Neville Chamberlain, made it clear that in his own mind it was practically settled that the West London Hospital at Hammersmith would be organized as the centre of post-graduate medical education in London. No report, however, has yet been issued by the committee appointed by the Minister of Health some three years ago to inquire into the matter. Thus it is that only one of the two recommendations made by the committee appointed by Dr. Christopher Addison, when Minister of Health, and presided over by the Earl of Athlone, has materialized. The building of the School of Hygiene and Tropical Medicine in Bloomsbury, made possible by the generous contributions of the Rockefeller Foundation, is now approaching completion, and is likely soon to be available for teaching under Dr. Andrew Balfour, the Director, and the professorial staff associated with him. Particulars of this school are given on page 411.

The "hospital centrally situated in London, devoted solely to post-graduate medical education as a school of the University," is not yet organized. There are, however, several institutions both in London and elsewhere which seek to provide for the wants of graduates, whether desirous of refresher courses, of instruction in special subjects with a view to obtaining one of the special diplomas, or of preparation for examination for promotion in one or other of the Services. Thus the Fellowship of Medicine, founded in 1918, and amalgamated with the Post-Graduate Medical Association in 1919, has an office generously placed at its disposal by the Royal Society of Medicine at 1, Wimpole Street, W.1. A list of hospitals, special and general, to which post-graduates may resort, with or without fee, is kept, and the names of the teachers at each hospital are available. From time to time courses in special subjects are arranged. The West London Hospital at Hammersmith, and the Prince of Wales's General Hospital at Tottenham, have for many years past had post-graduate colleges attached to them. Several special hospitals provide post-graduate courses during the year, while many of the undergraduate schools give facilities for attending classes and demonstrations, though mostly to their own old students.

In the provinces the Universities of Oxford, Cambridge, Birmingham, Bristol, Liverpool, Manchester, and Sheffield have organized courses. Edinburgh receives graduates from many schools in the Dominions as well as in this country. In Glasgow and Aberdeen courses are available, and in relation with the University of St. Andrews courses are given by the staff of the James Mackenzie Institute for Clinical Research. At many of these centres the teaching is provided by way of whole-time intensive courses, by part-time courses, or by means of clinical assistantships. The Joint Tuberculosis Council has provided nomadic courses in its own special subject.

There is evidence, therefore, of considerable post-graduate activity in this country, although it lacks the cohesion and concentration displayed in such a centre as Vienna. This is accounted for, no doubt, by the multiplicity of hospitals engaged in the task, and the lack of any central body responsible for post-graduate education as a whole. This view was put forward very strongly in the article on "Australia and New Zealand and our duty thereto," by Mr. Victor Bonner, which was published in the *British Medical Journal* of July 21st last. It was reiterated with at least equal emphasis by several representatives from Overseas Dominions during the recent Annual Meeting of the Representative Body of the British Medical Association at Cardiff. Mr. Bonner asserted that the need to improve our post-graduate facilities was very great. In his opinion

the prime requirement was a large central hospital devoted solely to post-graduate work. But pending the development of such a hospital he thought that a great deal more could be done in promoting post-graduate study by concerted effort, and that both for professional and for national reasons the urgent need for such effort should be realized.

The following passage from the Presidential Address to the British Medical Association this summer seems very much to the point:

"There is an impression abroad—and it is not, perhaps, ill founded—that in the British Isles we do not sufficiently organize and utilize the wealth of clinical material at our disposal for post-graduate demonstration in the interests of our home profession and of visitors from other countries. Good work has been and is being done in the various metropolitan centres, but these do not claim a monopoly of skill and clinical facilities. I have long felt that, with its wonderfully ramified machinery to link up the provinces and the capital, the rural areas and the towns, no body is so well adapted as our Association to organize a post-graduate system embracing existing institutions and developing many new centres, on a scale worthy of this country."

Meanwhile, in the absence of any comprehensive co-ordinating schemes, opportunities are fairly numerous and varied for the would-be student who troubles to seek out the course which he requires. Short particulars about post-graduate study in Great Britain and Ireland are given in Section VI of the *Handbook for Recently Qualified Practitioners* published by the British Medical Association (price 3s. 6d.).

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION

The Fellowship of Medicine has arranged regular courses in general medicine and surgery, including special departments, each lasting two weeks, the fee for each course is 3 to 5 guineas. Courses in diseases of the chest, children, ante-natal, heart, nervous system, throat, nose, and ear, dermatology, electrotherapy, gynaecology, proctology, psychological medicine, tropical medicine, urology, and venereal diseases are given from time to time at the special hospitals in association with the Fellowship of Medicine. The Fellowship Programme contains a diary of the arrangements available for post-graduates in various general and special hospitals in London. The programme for the immediate future includes a two weeks' course in general medicine and surgery, from September 17th to 29th, at the Westminster Hospital. There will also be special courses in diseases of children at the Queen's Hospital from September 17th to 29th, in ophthalmology at the Royal Eye Hospital from September 17th to 29th, in psychological medicine at the Bethlem Royal Hospital from September 4th to 29th, and a course in orthopaedics at the Royal National Orthopaedic Hospital from September 17th to 29th. The offices of the Fellowship are, by kind permission of the Royal Society of Medicine, at No. 1, Wimpole Street, W.1 (telephone, Mayfair 2236). The secretary is in attendance daily from 10 a.m. to 5 p.m., excepting Saturday. The annual subscription for membership of the Fellowship of Medicine and Post-Graduate Medical Association has been fixed at a minimum of 10s., which includes the subscription to the *Post Graduate Medical Journal*.

The Fellowship arranges, during the autumn and winter sessions, a series of lectures. Special clinical demonstrations in medicine, in surgery, and in ophthalmology are arranged also weekly from October onwards. Syllabuses will be sent regularly on application.

WEST LONDON POST GRADUATE COLLEGE

The work of this institution is carried on at the West London Hospital, the first in London to devote its clinical material solely to the instruction of qualified medical men. The college started in 1895, it is provided with lecture reading writing, and class rooms, and accommodation of all sorts for the convenience of post-graduate students. The work of the college is eminently suitable for men in

General practice and officers in the services who wish to revise their general clinical knowledge.

As for ward work, the students accompany the senior staff on their visits to the wards at 2.30 p.m. daily, and also go round with the resident medical officers in the morning. Out-patient work begins at 2 p.m. This department is large, and affords ample facilities for post-graduates to see and examine patients. There are the usual special departments. Post-graduates are appointed to act as clinical assistants for three or six months, no charge being made. Special practical classes are held in medicine, general practical surgery, gastro-intestinal surgery, medical and surgical diseases of children, analysis of blood and urine, cystoscopy, venereal diseases, tropical diseases, retinoscopy, ophthalmic operative surgery, and, when material is available, in operative surgery. The size of the classes is limited. A special clinic for the treatment of venereal diseases (male and female) is held every evening (Saturdays included) at 5.30. Graduates are admitted to the work of the clinic free, and certificates of satisfactory attendance and work are given.

Operations take place at 2 p.m. daily, the surgeons often availing themselves of the assistance of the graduates, and in any case making arrangements so that they can readily see what is going on. The anaesthetists give instruction in the administration of anaesthetics, including spinal analgesia, on the operating days, students being allowed to administer them under supervision, while special classes are held in each session. The pathological laboratory is in charge of a pathologist, who attends every day.

Demonstrations are ordinarily given in the morning by the assistant physicians and surgeons, and by the medical and surgical registrars.

Fees—Hospital practice, including all ordinary demonstrations and lectures £1 11s. 6d. for one week £4 4s. for one month £7 7s. for two months £9 9s. for three months, £15 15s. for six months, £23 12s. 6d. for one year and £45 for a life ticket. Instruction in the administration of anaesthetics is given at the rate of £3 3s. a month.

The certificates of the school are recognized by the Admiralty, the War Office, the Colonial Office, the India Office, and the University of London (for higher degrees). A prospectus can be obtained on application to the Dean.

NORTH-EAST LONDON POST-GRADUATE COLLEGE.

The headquarters of this post-graduate school are situated at the Prince of Wales's General Hospital, Tottenham, N. 15, in the midst of this densely populated North London district. It contains 200 beds, and is within a few minutes' walk of South Tottenham Station on the London Midland and Scottish Railway and Seven Sisters and Tottenham Hale Stations on the London and North-Eastern Railway. It is readily accessible by electric tram from Finsbury Park and Hackney, and from Dalston, Edmonton, and other parts of North London.

The college is in association with the Fellowship of Medicine and Post-Graduate Medical Association, and is recognized by the Admiralty and India Office for the purpose of study leave, and by the University of London as a place for advanced study for the M.D. and M.S. degrees, the course of practical teaching of bacteriology is approved by the University of Cambridge for its Diploma in Public Health, and there are ample arrangements for the convenience of men who are thus working, or who, being in active practice, are desirous of getting themselves into touch with modern methods. The hospital as a whole affords excellent facilities for qualified medical practitioners who wish to take part for a time in the work of an active general hospital, or to obtain special instruction in the several branches of medicine and surgery, since it is open to them to study diseases of the eye, ear, throat, nose, skin, fevers, children's diseases, psychological medicine, dental surgery, radiography, the application of electricity in disease, and the administration of anaesthetics. Throughout the sessions, into which the year's work is divided, clinics, lectures, and demonstrations are given by members of the teaching staff. Operations are performed every afternoon of the week except Saturday. Special vacation or intensive courses are held at intervals throughout the year, each lasting two weeks, clinical instruction being arranged for each hour of each day.

Fees—Two guineas for three months attendance in any one department which may be begun at any time, a fee of 5 guineas admits to the whole practice of the hospital for a similar term (one month 2 guineas, and one year 10 guineas), and a perpetual ticket for the practice of the hospital may be obtained for 15 guineas.

The winter session will be opened about the middle of September as regards clinical teaching.

Additional information can be obtained from the Dean of the Post-Graduate College, of the hospital.

MANCHESTER POST-GRADUATE COURSES

The Faculty of Medicine of the University of Manchester has arranged courses in preparation for the diplomas in psychological medicine, in public health, bacteriology, and veterinary State medicine. There are classes also for certificates in factory and school hygiene and in venereal diseases. The Faculty of Medicine has also instituted courses to meet the requirements of graduates desiring to refresh their knowledge or to pursue further their studies in various special branches. The arrangements are in the hands of a committee consisting of certain members of the faculty, of representatives of hospitals, and of the medical officer of health for Manchester. Full particulars can be obtained from the Dean of the Medical School, the University, Manchester. A whole-time intensive course in general medicine and surgery will begin on September 10th and continue until September 29th, and an intensive course in obstetrics and gynaecology will be given from September 29th to October 6th. Part-time courses in certain subjects have also been arranged, including diseases of the eye, diseases of the skin, the application of radiology to medicine in diagnosis and treatment, and clinical pathology. A limited number of clinical assistantships are offered in the medical, surgical, and special departments of the Manchester Royal Infirmary, the Ancoats Hospital, and certain special hospitals for one, two, or three months, or longer.

COURSES FOR MEDICAL GRADUATES AT BRISTOL

The University of Bristol provides courses of post-graduate study for practitioners. Details of set courses at the Royal Infirmary and General Hospital are announced locally. In addition, practitioners may become clinical assistants in medicine, surgery, or special subjects for periods of a month or more.

Daily Post-Graduate Study—For those who are able to devote several hours each day to hospital practice the university offers special facilities for post-graduate work. Qualified medical practitioners may be appointed as clinical assistants for a period of one or more months. They may act as assistants, if times permit, in more than one department and in any of the hospitals during their period of study. They will be entitled to the use of the clinical laboratories and medical library, and have the right to attend in all departments, including operations, post-graduate and ordinary clinical demonstrations, and *post-mortem* examinations.

Post-Graduate Clinical Work—Demonstration courses with weekly lectures are held during May, June, and July. All inquiries and applications for admission should be addressed to the Director of Post-Graduate Studies (Clinical Section), Pathological Department, University of Bristol, who can be seen on any day by appointment at the Pathological Department.

Further information as to scholarships, curricula, and fees can be obtained from the Dean of the Faculty of Medicine, or the Registrar of the University, Bristol.

NEWCASTLE-ON-TYNE

For the year 1928-29 the following post-graduate courses have been arranged by the College of Medicine, Newcastle-on-Tyne (University of Durham).

1. General courses in clinical medicine, surgery and pathology at the Royal Victoria Infirmary meeting once weekly for ten weeks. One course will be held from October to December, and one from April to June.

2. Special courses of clinical instruction meeting once weekly for ten weeks in the following subjects: Gynaecology, diseases of the eye, diseases of the throat, nose and ear, diseases of the skin, venereal diseases, neurology.

Special courses in midwifery will be held at the Princess Mary Maternity Hospital.

3 An intensive course of fourteen days duration in the early part of the summer vacation, 1929

4 In addition to the regular post-graduate courses practitioners may attend the ordinary medical and surgical practice of the Royal Victoria Infirmary and also at the Princess Mary Maternity Hospital, for specified periods

EDINBURGH POST-GRADUATE COURSES

In connexion with the University and Royal Colleges post-graduate courses are arranged every year, from about the middle of July to about the middle of September, comprising (a) A course in obstetrics and gynaecology, generally held from about the middle of July, (b) a general practitioners' course, (c) a general surgical course. Courses (b) and (c) extended for four weeks from August 13th to September 15th. Similar courses are held each year.

The course in obstetrics and gynaecology comprises instruction in clinical midwifery and clinical gynaecology, obstetrics and gynaecological pathology, child welfare and ante-natal clinics, etc.

The general practitioners' course includes lecture demonstrations, and, where possible, practical instruction on medical anatomy, medical sideroom work, examination of the blood, x-ray and electrical therapy, morbid anatomy, and post-mortem examination, clinical instruction in medicine, surgery, gynaecology, diseases of children, diseases of the skin, and infectious diseases, and special instruction in the diseases and methods of examination of the nervous, circulatory, respiratory, alimentary, and renal systems, and in diseases of the ductless glands. The general surgical course includes lecture demonstrations on surgical anatomy, surgical pathology, and surgical x-ray diagnosis, clinical instruction in surgery at the Royal Infirmary and Royal Hospital for Sick Children, clinical instruction in venereal diseases, surgical out-patients, surgical and gynaecological operations and special instruction in abdominal and genito-urinary and other branches of surgery.

A series of special lectures, open to all graduates, is delivered on subjects of general medical and surgical interest, including recent advances in treatment. Among the special courses also arranged are examination of the blood, vaccine therapy, clinical chemistry, diseases of the ear, nose, and throat, and venereal diseases.

Particulars regarding the courses, dates of commencing, fees, etc., may be had on application to the Honorary Secretary, Post-Graduate Courses in Medicine, University New Buildings, Edinburgh.

POST-GRADUATE MEDICAL TEACHING IN GLASGOW

Organized post-graduate medical teaching is available in Glasgow under the auspices of the Post-Graduate Medical Association. This association is composed of practically all the teaching institutions in Glasgow and the various teachers giving post-graduate instruction, and its business is managed by a board elected periodically by them. The chairman of the board is Principal Sir Donald MacAlister, Bt., and the vice-chairman Sir Hector C. Cameron. During the winter months special courses in various subjects are conducted, and from November till May there is a series of weekly demonstrations specially designed for local practitioners. A comprehensive scheme of clinical courses is carried out during the summer months, from June till October, and arrangements have also been made whereby a limited number of graduates may become attached to wards or out-patient departments nominally as clinical assistants for definite periods throughout the year. As such they work under the direct supervision of the physician or surgeon in charge, and carry out such detailed investigations as directed.

A general medical and surgical course is now held each year during the last two weeks of August and the first two weeks of September, which is arranged to include most of the subjects of interest to the general practitioner. This year the course is being conducted from August 20th to September 15th. The forenoons are occupied with general medicine and surgical diagnosis and minor surgery, in the Royal Infirmary and in the Victoria Infirmary. In the afternoons special subjects are dealt with in the special hospitals and in the special departments of the General Hospitals, two subjects being considered most after-

noons. On the four Saturday forenoons psychological medicine will be demonstrated at Duke Street Hospital and at Gartnavel Mental Hospital.

Further information may be had on application to Dr James Carslaw, Secretary, Post-Graduate Medical Association, 9, Woodside Terrace, Glasgow, C 3.

AUSTRALIAN AND NEW ZEALAND MEDICAL ASSOCIATION

The Australian and New Zealand Medical Association gives information and advice to medical visitors from the Commonwealth and Dominions with regard especially to attendance at special clinics, post-graduate work, and facilities for preparing for examinations such as the M.R.C.P., F.R.C.S. (England and Edinburgh), and the D.P.H., and also as to house appointments and clinical assistantships in London and the provinces. Information will also be given as to lodgings, sports, and social opportunities. Two dinners are held annually. All medical graduates or undergraduates born in Australia or New Zealand and resident in or visiting England are eligible to become members. The fee is one payment of 5s. Further information can be obtained from the joint honorary secretaries, Mr E. T. C. Milligan, F.R.C.S., and Mr Philip J. Jory, F.R.C.S., 86, Harley Street, London, W.1.

TROPICAL MEDICINE

THERE are large and important schools of Tropical Medicine in London and Liverpool, and several universities and other examining bodies have instituted diplomas or degrees in the subject. The Colonial Office now expects all nominees for the Colonial Medical Service to pass through one or other of the two schools mentioned before their appointments are confirmed, and commercial firms engaged in tropical enterprise commonly demand from medical applicants for employment corresponding evidence of special knowledge. Information with regard to these schools and diplomas and degrees is given in the paragraphs printed below. Further particulars will be found in the *Guide to Regulations, Courses, and Qualifications in Public Health and Tropical Medicine and Hygiene*, compiled by Dr Andrew Balfour, Director of the London School of Hygiene and Tropical Medicine, and published by the British Medical Association (price 3s.). This useful handbook contains, among other matter, a list of the teaching centres and examining bodies, with the qualifications obtainable from them. The University of London alone gives a degree (M.D.) in Tropical Medicine, and this, being an "internal degree," can only be taken by students who are medical graduates of that university. Diplomas in Tropical Medicine or Hygiene are granted by the universities of Cambridge, Edinburgh, and Liverpool, and by the Conjoint Board of the Royal College of Physicians of London and the Royal College of Surgeons of England.

DIPLOMAS AND DEGREES

LONDON UNIVERSITY—Tropical medicine is one of the six branches in which the M.D. degree may be obtained. The regulations relating to the curriculum and examination correspond to those applying to the other branches.

THE EXAMINING BOARD IN ENGLAND—This body grants a diploma in tropical medicine and hygiene to candidates after an examination held in the months of February and July. Candidates must present evidence of having attended, subsequently to obtaining a registrable qualification in medicine, surgery, and midwifery, (1) practical instruction in pathology, protozoology, helminthology, entomology, bacteriology, and hygiene in relation to tropical medicine, in an institution recognized for this purpose, during not less than five months, (2) the clinical practice of a hospital recognized for the study of tropical diseases during not less than five months. These conditions may be modified in the case of candidates who have had practical experience in tropical countries. The fee for admission to the examination is £9 9s. The Board also grants diplomas in public health, in psychological medicine, in ophthalmic medicine and surgery, and in laryngology and otology. Candidates must hold a medical qualification registrable in the United

Kingdom or be graduates in medicine of a recognized Indian, Colonial, or foreign university. Particulars and conditions of admission to these examinations, fees, etc., may be obtained from the Secretary of the Examining Board, Examination Hall, Queen Square, London, W C 1.

UNIVERSITY OF LIVERPOOL—A diploma in tropical medicine is given by this university to students who have attended the courses provided by the Liverpool School of Tropical Medicine and have passed the examination held twice yearly by the university examiners. The subjects of examination are (a) tropical pathology and parasitology, (b) entomology, (c) tropical medicine, including etiology, symptoms, diagnosis, and treatment of tropical diseases. Fee for the course, £21. A diploma in tropical hygiene (D T H), open to the holders of the D T M, has recently been established. The subjects of examination are bacteriology, chemistry (including meteorology and climatology), zoology, tropical sanitation (including practical sanitation, sanitary engineering, statistics. Fee for the course, £10 10s. Further information can be obtained from the Dean of the Faculty of Medicine, University of Liverpool.

UNIVERSITY OF CAMBRIDGE—This university grants a diploma in tropical medicine and hygiene to any person whose name has been on the *Medical Register* for not less than a year provided that he passes the examinations of the university in this subject. Candidates for Part I are examined in the same subjects as candidates for Part II. The Diploma in Public Health. Before admission to Part II, the subjects for which are medicine, surgery, and hygiene in their relation to tropical diseases, candidates must have passed Part I. An examination for Part I is held in April and for Part II in July. The fee for each part of the examination is 10 guineas. Application for further information should be made to Mr J. L. Purvis, Public Health Chemical Laboratory, Medical School, Cambridge.

UNIVERSITY OF EDINBURGH—Candidates for the Diploma in Tropical Medicine and Hygiene granted by the University of Edinburgh must be graduates in medicine and surgery of that university, or hold corresponding registrable degrees or qualifications of some other licensing body. The course of instruction extends over two terms, and may be taken either from October to March or from April to June and January to March. The examinations are written, oral, and practical, and are held at the end of the courses. Candidates are required on the first occasion of presenting themselves for examination to appear for all the subjects. Those who fail to pass the entire examination within a period of twelve months after first appearance are required to reappear for all the subjects. The university is included in the list of institutions whose courses of instruction in Tropical Medicine may be taken by officers on appointment to the Colonial Medical Services or during study leave. Full particulars can be obtained from the Dean of the Faculty of Medicine, Edinburgh.

SCHOOLS

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE (UNIVERSITY OF LONDON)

The London School of Hygiene and Tropical Medicine is a school of the university in so far as its active departments are concerned—namely, the Department of Bacteriology and Immunology, the Department of Epidemiology and Vital Statistics and the Departments concerned with the teaching of Tropical Medicine and Hygiene. An advanced course of study for the Diploma in Bacteriology intended for a limited number of post-graduate students and lasting for one academic year, will commence on October 9th 1928 and courses of instruction (minimum period three months) in the application of statistical methods to the problems of Epidemiology and Public Health Administration will also be given, commencing in October. The work which prior to August 1st, 1924 was carried on by the London School of Tropical Medicine continues for the present in the building occupied by the Hospital for Tropical Diseases at Eadsleigh Gardens, W C 1, where the specially equipped laboratories, museum, library,

and clinical facilities afford excellent opportunities to those who may be desirous of studying diseases incidental to tropical climates before entering the services or going abroad. In the wards of the Hospital for Tropical Diseases are to be found cases such as may be met with in actual practice in the tropics. There are two courses in the year, each lasting twenty weeks, beginning October 1st, 1928 and March 11th, 1929 respectively. The course is so arranged as to equip men for the D T M and H of the Conjoint Board. There are advanced courses in the several subjects and a special course in parasitology for D P H students and for the first part of the D T M and H Camb. Clinical instruction is also provided for the second part of the D T M and H Camb. Tropical medicine is a sixth alternative subject for the M D of the University of London, and the school curriculum is adapted to afford facilities for candidates desirous of taking the M D in this subject. The course in Tropical Hygiene may be taken separately, if desired. Research studentships and scholarships are available. The new building in which the school will be housed is approaching completion, and the formal opening and the commencement of the new courses of study—in particular, that for the D P H—will probably be in the summer or autumn of next year. Further information may be obtained from the Secretary, London School of Hygiene and Tropical Medicine, Malet Street, London, W C 1.

THE UNIVERSITY OF EDINBURGH

A course of instruction for the diploma comprising a primary and a second course is given during the autumn and spring terms (October to March), and includes tropical hygiene, bacteriology, entomology, and parasitology, diseases of tropical climates (systematic and clinical), tuberculosis, and venereal diseases. The primary course alone is also given during the summer term, April to June. The university is included in the list of institutions whose courses of instruction in tropical medicine may be taken by officers on appointment to the Colonial Medical Services or during study leave. Full particulars can be obtained from the Dean of the Faculty of Medicine.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE

This school is affiliated with the University of Liverpool. The university now grants diplomas in tropical medicine (D T M) and in tropical hygiene (D T H).

Two full courses of instruction, each lasting about eleven weeks, are given every year for the D T M, commencing respectively October 1st (autumn term) and January 7th (lent term), and two courses for the D T H, beginning on January 7th and April 22nd (summer term). The D T H can only be taken by those who have obtained the D T M. Students who do not desire to take the diploma examinations held by the university at the end of each term are given a certificate if attendance has been satisfactory.

Fees—(1) For the D T M course 20 guineas for the D T H course 10 guineas. (2) For the diploma examinations 5 guineas. An extra charge of one guinea is made for the use of a microscope if required.

The new laboratories of the school adjoin the university and the tropical ward of the Royal Infirmary. The dimensions of the building are 162 feet in maximum length by 84 feet in width. In addition to the basement, in which are accommodated the photographic department and large storage rooms, there are four floors. The ground floor has (1) lecture theatre, with accommodation for about seventy students; (2) library; (3) a spacious museum with preparation room adjoining. The first floor has twelve rooms, in which are housed the Departments of Tropical Medicine and Entomology. The second floor has the main class laboratory, 69 feet by 58 feet, excellently lighted and three other rooms devoted to the Department of Parasitology. The third floor has a large research laboratory and two research rooms. On the roof is an insectarium, a mosquito-proof house and other accommodation.

Since its foundation the school has dispatched to the tropics thirty-two scientific expeditions, many of the workers having been taken from among its students. The work done by the staff has been published in twenty-one special memoirs—in the *Annals of Tropical Medicine and*

Parasitology, issued by the school, and in numerous articles in the scientific press

The school has also two laboratories in the tropics: the Manáes Research Laboratory in Brazil, and the Sir Alfred Lewis Jones Tropical Laboratory in Sierra Leone, which was opened on January 10th, 1922, and is staffed by the school. Further information may be obtained from the Honorary Dean, School of Tropical Medicine, Pembroke Place, Liverpool

PSYCHOLOGICAL MEDICINE

It cannot be impressed too strongly upon the medical student that a knowledge of mental disorder is just as essential as a knowledge of the other forms of disease which he will be called upon to treat in the routine of general practice. It must be understood that by the term "mental disorder" is not only meant those severe forms which are to be found in mental hospitals, but the term also includes mental defectives of all grades, nervous, difficult, and backward children, the mild and often unrecognized psychoses, and also the various types of psychoneurosis. Such disorders provide the general practitioner with a large proportion of his most difficult cases, and he will find a good knowledge of mental disorder invaluable in his work. Apart from general practice, the student who proposes to take up a career in the prison service or, still more importantly, the school medical service, will find a knowledge of psychological medicine an almost essential part of his equipment.

Instruction

"It is more than a little surprising that despite the greatly increased interest in psychology that has developed in recent years, especially in the decade since the war, no corresponding change is evident in the curriculum laid down for the psychiatric training of medical students in this country."

Though at the present time the instruction given to the student is far from adequate to supply the knowledge of mental disorder requisite for the needs of the general practitioner, the facilities for the study of psychological medicine in the general hospitals are now much greater than in former years. Thus many of the teaching hospitals have out-patient departments for the treatment of mental cases, and in some of these hospitals special lectures are given on psychopathology. These facilities need not be utilized by the student, however, and (as indicated in the passage quoted above) the compulsory part of the curriculum is confined to formal lectures and a few attendances at some mental hospital. Here the student is apt to see mainly the terminal states of mental disease, and he is also apt to gain the impression that mental disorder is necessarily related to segregation and custody. We would therefore impress upon him the importance of attending the out-patient department for mental disorders, where he will be able to observe the mild and early cases such as he will hereafter meet with in general practice.

A scheme is now in actual operation at the Middlesex Hospital in which a small number of mental cases are treated in the hospital as in-patients. This is an important move from the teaching point of view, because the student will gain true insight into the relation between mental disorder and medicine as a whole, and he will realize that it is a form of illness to be studied with other diseases and to be treated along similar lines.

In London post-graduate courses of instruction of a comprehensive kind are given at the Maudsley Hospital and at Bethlem Hospital, and at the National Hospital, Queen Square, courses are arranged to meet the requirements for the diploma in psychological medicine in regard to nervous diseases. Courses in mental deficiency are arranged by the University of London. There are also at the Universities of Glasgow, Birmingham, Leeds, Manchester, Durham, and elsewhere.

Diplomas

Those who are taking up psychiatry as a career will find it desirable to obtain a diploma in psychological medicine. Such a diploma is not at present compulsory for a permanent position on the staff of all mental hospitals, but it will probably become so in course of time, just as it is now essential to obtain the D.P.H. if a career in public health is contemplated. Psychiatry is one of the branches of medicine which candidates for the M.D. degree of the Universities of London and Edinburgh can take up, and, in addition, diplomas in psychological medicine (D.P.M.), to which reference has been made, can be obtained from the Universities of Cambridge, London, Edinburgh, Durham, Leeds, Manchester, Dublin, and the National University of Ireland, and from the Conjoint Board in England. The Royal Medico-Psychological Association of Great Britain and Ireland also grants certificates of proficiency after examination, and encourages the study of psychiatry by the offer of prizes for original and research work.

The requirements for a diploma differ to some extent in the various universities and colleges, but the following model scheme suggested by the Royal Medico-Psychological Association, and already adopted by the Royal College of Physicians of Ireland, will give an indication of the scope of the examination for a diploma.

Model Scheme for a Diploma in Psychological Medicine

- 1 The candidate must be already a registered medical practitioner.
- 2 The candidate may present himself for examination on the subjects detailed under Part I of the curriculum (see para 4) immediately he has concluded the prescribed course of instruction or can produce such other evidence of diligent study of the subjects to be examined upon as may be demanded. Part I must be passed save by special permission at least three months prior to entering for examination on Part II of the curriculum.
- 3 The candidate may not present himself for examination on the subjects detailed under Part II of the curriculum (see para 4) until he has been a registered medical practitioner for not less than two years. He must subsequently to qualification have been in the practice of an approved mental hospital for not less than two years or have attended for six months at a hospital, mental or general for clinical instruction in psychological medicine and subsequently held a resident appointment at an approved mental institution or mental wards of a general hospital for not less than six months. In both cases he must produce a certificate from a recognized source that he can apply his theoretical knowledge, and has practical acquaintance with, and is well and adequately versed in the current clinical methods of examination and treatment of nervous and mental disorders. In the case of mental deficiency the certificate should include a practical knowledge of the various intelligence tests and other methods of ascertaining the degree of mental defect. He must also produce evidence of having attended subsequently to qualification courses of lectures, demonstrations or other evidence of diligent study of the subjects upon which he presents himself for Part II of the examination, as may be demanded.
- 4 Curriculum. Part I—(a) Anatomy, histology and physiology of the nervous system including the autonomic system, anatomy and physiology of the endocrine glands, chemistry and cytology of the cerebro-spinal fluid. (b) Psychology, systematic and experimental. Part II—(a) Morbid anatomy, histology and pathology of the systems mentioned under Part I. (a) *post mortem* and laboratory technique. (b) neurology and clinical neurology. (c) psychiatry (including the psychoneuroses), clinical psychiatry and the medico-legal relationships of mental disorders and mental deficiency. In addition the candidate for Part II will need to show special knowledge of any one subject to be selected by him from the subjects comprising Part I or Part II or may choose to be examined in any one of the following subjects: (d) Mental deficiency and the mental disorders of childhood and adolescence and the duties of school medical officers in relation thereto. (e) Bacteriology as applied to mental and nervous disease. (f) Psychopathology and psychotherapy. (g) The principles of diet, vitamins and basal metabolism, and their application. (h) Eugenics and vital statistics. (i) Criminology and the juris prudence of criminal responsibility.
- 5 The diploma, by request may be endorsed that special knowledge has been shown in the subject selected.
- 6 It is suggested that any compulsory attendance at lectures or demonstrations and clinical courses should be limited to the subjects detailed for Part II and that the course for Part I or Part II should not exceed eight weeks.

Mental Hospital Appointments

Those who take up psychiatry as a career work as medical officers of public or private mental hospitals or similar institutions. Except in the larger institutions such as those under the control of the London County Council where a number of the medical officers are allowed to live out if married, the medical staff are resident officers, having board, lodging, etc., either in the hospital itself.

or a residence in the grounds. Junior assistant medical officers receive about £300 to £400 per annum, and senior assistant medical officers about £500 to £700, in both cases with board, lodging, laundry, etc., in addition, if married, the board, etc., is commuted for cash. As the mental hospitals are under local control the salaries vary much in different asylums. Medical superintendents, whose pay commonly ranges between £800 and £1,500 per annum, are provided with a house in the grounds of the hospital and draw various allowances.

Since the passing of the Asylum Officers' Superannuation Act of 1909, all officers and others of the established staff of a public (county or borough asylum) mental hospital may retire at the age of 55 on a pension varying from one-half to two-thirds of the value of their pay and emoluments, or one-fiftieth for every year served, paying as contribution 3 per cent of the value of their appointments annually. This very favourable prospect may not appeal to junior practitioners joining the services, but will eventually prove to be a valuable asset.

Prospects in the Public Service

Appointments to the public mental hospitals are made by the visiting committees, and in most cases only the junior posts are open to those who have not had previous experience in psychiatry. Since the public mental hospital service is a local and, except indirectly, not an imperial one, the promotion tends to be slow and uncertain, and the higher positions are not always advertised and thus thrown open to competition. For this and other reasons mental hospital work has undoubtedly not been in favour with newly qualified men in years past, but the general conditions of service have tended to show a progressive improvement and will in all probability continue to do so in the future.

Both the British Medical Association and the Royal Medico-Psychological Association are working separately and together to improve present conditions of service, and have, for example, already removed the "climax" objection to the service. The salaries have also been considerably increased, especially in the junior ranks, and contrast favourably with those which were paid before the war. During the last few years considerable progress has been made in the conditions under which the insane are treated. The mental hospitals are developing an atmosphere approximating more closely to that of the general hospitals. As a result of these developments the mental hospital service is becoming more attractive, and now affords greater opportunities for the medical graduate who proposes to specialize in psychiatry.

While routine, administrative, and clerical work bulk largely in mental hospital duties, as they do in other public medical services, there is ample material, time, and scope for purely medical work and research—difficult as the subject may be—in psychiatry as one of the branches of medicine open to young graduates. Most mental hospitals are now equipped with efficient clinical laboratories, moreover, those who wish to undertake research are afforded every opportunity of doing so in the pathological department of the Maudsley Hospital and also in various other centres in England and Scotland. A change in the law, in which power was given to local authorities to make provision for the treatment of early and acute cases of mental disorder without certification, would do much to make psychiatric work more attractive to medical men. If this alteration in the law were made, hospitals, either in the precincts or the grounds of the county or borough mental hospitals, or in adjacent towns, would be erected in the course of time, or wards in general hospitals might be utilized for the same purpose. Such clinics would render appointments in mental hospitals more attractive because the work would be entirely free from the custodial aspects of mental disorder, and attention could be given by the physician to purely medical problems without irksome legal restrictions.

MAUDSLEY HOSPITAL, DENMARK HILL

A course of instruction for the Diploma in Psychological Medicine is given annually at the Maudsley Hospital from January to May inclusive, the details of the last course

being as follows. The course consisted of two parts. In the first part lectures on the anatomy of the nervous system were given by Professor Elliot Smith, with practical instruction by Mr C. Geary. A course of lectures on the physiology of the nervous system, with demonstrations in physiological psychology, was given by Dr F. Golla, a series of lectures and demonstrations on the biochemical aspects of mental disorders, and laboratory methods, by Captain S. A. Mann, and on theoretical and practical psychology by Dr Henry Devine. For the second part of the course lectures on morbid psychology and psychiatry were given by Dr Mapother, on the neuroses by Dr Bernard Hart, on therapeutics by Dr Petrie, on general pathology by Dr Golla and Mr C. Geary, and on pathological chemistry by Captain Mann. Dr Boud lectured on the legal relationships of insanity, Dr Shrubbsall on mental deficiency, and Dr East on criminal insanity. Dr Golla and Dr Walsh gave instruction on clinical neurology, and Mr Foster Moore on eva changes as applied to psychiatry. The fee for the whole course (Part I and Part II) was 15 guineas, or for either part separately 10 guineas, for one single series of lectures in Part I the fee was 4 guineas and in Part II 2 guineas. Inquiries as to lectures, etc., should be addressed to the Director of the Central Pathological Laboratory, Maudsley Hospital, Denmark Hill, S E 5.

BETHLEM ROYAL HOSPITAL

A course will be held at Bethlem Royal Hospital, commencing on September 24th, of lectures and practical instruction for the Diploma in Psychological Medicine. It is proposed in future to give two courses each year—an autumn session of intensive character, commencing in September, and completed in early December, and a spring session, commencing in the middle of January and completed in the middle of April. Each course consists of two parts. Part A includes lectures and demonstrations on the anatomy, histology, and physiology of the nervous system, with lectures on psychology and demonstrations in experimental psychology, Part B comprises lectures and clinical demonstrations in psychology, including lectures and demonstrations in the morbid anatomy of the nervous system, a series of lectures, with clinical demonstrations, on different branches of psychological medicine, and lectures, with clinical demonstrations, on mental deficiency. Entrants for the course who pay a composition fee of 15 guineas max, if due notice is given, attend either Part A or Part B of one course and postpone the other part until the next session. An entrant who wishes to attend one part only pays a fee of 10 guineas. An entrant who takes the complete course can attend the general clinical practice of the hospital on payment of 5 guineas for six months or 10 guineas for one year, but an entrant who does not take either part of the course and desires to attend the clinical practice of the hospital must pay a fee of 5 guineas for each three months of attendance. To enable post-graduates to obtain special experience in this branch of medicine clinical assistants are appointed from time to time. Further particulars may be obtained from the Physician-Superintendent, Bethlem Royal Hospital, S E 1.

NATIONAL HOSPITAL, QUEEN'S SQUARE

Post graduate courses which fulfil the requirements of the regulations for the Diploma in Psychological Medicine in regard to instruction in nervous diseases are held at the National Hospital, Queen's Square, Bloomsbury, W C 1, three annually, usually during February to March, May to June, and October to November. Lectures on the pathology of the nervous system and various clinical lectures are delivered and demonstrations are given. Out-patient clinics are held at the hospital on the afternoons of Mondays, Tuesdays, Thursdays and Fridays. An entrance fee of 9 guineas is charged for the whole course, but any part of the course can be taken separately at a special fee. A special arrangement is made for those unable to attend the whole course and for details applications should be made to the dean of the medical school. Fees are payable to the secretary of the hospital on entering for the course.

TAVISTOCK SQUARE CLINIC FOR FUNCTIONAL NERVOUS DISORDERS

Courses in the theory and practice of modern psychotherapy are held at this clinic about twice a year. Each course lasts a fortnight, and consists of about twenty lectures and ten seminars. These courses are intended for general practitioners interested in the subject and as an introduction for those who mean to specialize. They are open to senior students of medicine as well as to graduates. The subjects dealt with include the various schools of analytical psychology, treatment by persuasion and suggestion, differential diagnosis, and physical factors. Syllabus and particulars of dates and fees may be obtained from the Honorary Lecturo Secretary at 51, Tavistock Square, London, W C 1. Clinical assistantships are from time to time available for graduates who have attended such a course. The director of the clinic is Dr H Crichton Miller, the deputy director Dr J R Rees, and there is a children's department under the directorship of Dr W A Potts.

THE PUBLIC HEALTH MEDICAL SERVICES

The central authority to secure the adoption, effective carrying out, and co-ordination of measures conducive to the health of the people, and to promote research work and the proper training of persons for health services, is the Ministry of Health.

For the purpose of local public health administration the whole of England and Wales is divided into counties, county boroughs, boroughs, and urban and rural sanitary districts. The administrative County of London, exclusive of the City of London, is divided into twenty-eight metropolitan boroughs.

The public health medical services for Great Britain embrace between three and four thousand medical men and women who give whole-time services, and, in addition, a large number who give part-time services. The medical officers appointed for these services may be either medical officers of the Ministry of Health for England or of the corresponding Boards of Health for Scotland and Wales, or—and these form the large majority—there may be medical officers appointed by the many local public health authorities. These latter appointments include medical officers of health, tuberculosis medical officers, maternity and child welfare medical officers, venereal diseases medical officers, and school medical officers—who must be regarded as working in the health interests of the school child. By the larger public health authorities assistant medical officers are also appointed, and these posts often serve as stepping-stones to the higher offices as vacancies, which are required to be advertised, occur.

THE MEDICAL SERVICES OF THE CENTRAL AUTHORITY

The Medical Department of the Ministry of Health for England has been organized under the control of a chief medical officer. It contains six sections, with a senior medical officer at the head of each, and about fifty medical officers. The sections deal with general health and epidemiology, maternity and child welfare, tuberculosis and venereal diseases, the supervision of food supplies, and sanitary administration in relation to infectious diseases. There is, in addition, a section concerned with insurance practitioners. Appointments to these posts are not as a rule open to public competition, they are made by the Minister of Health. They are civil service appointments, and come under the civil service superannuation scheme. Medical officers are also employed by the corresponding Boards of Health for Scotland and Wales.

MEDICAL OFFICERS OF HEALTH

The duties of the medical officer of health is to inform himself upon all influences affecting, or threatening to affect, injuriously the public health within his district, to advise his sanitary authority upon all matters relating to health, and to perform all the duties imposed upon him by statutes, by-laws, and regulations. He must prepare and submit to his local authority special and annual reports,

give in immediate information to the Ministry of Health of any serious outbreak of disease, and, subject to the instruction of his sanitary authority, he shall direct or superintend the work of sanitary inspection.

By the Sanitary Officers Order, 1926, no person is qualified to be hereafter appointed or reappointed as a medical officer of health of any district or combination of districts unless, in addition to the qualifications prescribed by any statute, he is also either registered in the *Medical Register* as the holder of a Diploma in Public Health, Sanitary Science, or State Medicine, or has had not less than three years' previous experience of the duties of a medical officer of health.

The Public Health (Officers) Act, 1921, which was promoted by the British Medical Association, provides that a whole-time medical officer of health of a county borough or urban and rural district in England and Wales, a part of whose salary is contributed by the Exchequer, shall not be appointed for a limited period, and shall not be removed from his office except by or with the consent of the Minister of Health. A similar security of tenure also applies to the medical officers of health of county councils and of London boroughs.

Under the Sanitary Officers Order, 1926, a medical officer of health who does not devote his whole time to the duties of his office, but a portion of whose salary is obtained from a reliever grant, may be appointed without limit of time, in which case he cannot be removed from office without the consent of the Minister. If he is appointed for a specified term, say one year, he continues to hold office from year to year unless the Minister consents to his removal. Where the electing body pays the whole of the salary of a medical officer of health he may be dismissed from office without reference to the Minister of Health.

A considerable number of authorities have now adopted the Local Government and Other Officers Superannuation Act, 1922. Under this Act if an officer is incapacitated by ill health after ten years of service, or if he has reached 65 years of age, he is entitled to superannuation on the following scale after ten years' service, 10/60 of the average salary which he received during the last five years of employment, after eleven years, 11/60, and so on up to a maximum of 40/60 after forty years or more of service. This Act, however, remains permissive, and it fails to make due allowance, in computing service for purposes of superannuation, for the more advanced age, as compared with other officers, at which the medical officer of health can enter the public service. In these two respects the position reached falls short of that for which the British Medical Association has been working for many years.

In Scotland the position is different in some respects. The central authority is the Board of Health, with a staff of medical officers for insurance work. Under the Public Health (Scotland) Act, 1897, no one can be appointed as medical officer of health for any area unless he possesses the Diploma in Public Health. No medical officer can be removed from office except with the sanction of the Board of Health. A "proper" salary must be paid, and the local authority may not bring about the resignation of the officer by indirect means, such as reducing the salary or attaching conditions to the appointment. The Act says nothing about superannuation or the age of retirement.

SCHOOL MEDICAL OFFICERS

School medical officers are appointed by local education authorities. Primarily their duty is to detect among the children attending the public elementary schools any physical or mental defect which may retard education, and to inform their parents of its existence. Most approved schemes of medical inspection include arrangements which facilitate the task of parents in obtaining for their children the necessary treatment, check the results of this treatment, and keep each defective child under skilled observation both at home and at school until it has passed altogether out of the education authorities' hands. Indeed, it is now the practice for the education authorities themselves to provide for certain ameliorative work, notably the prescription of glasses where necessary, dental treatment, the removal of adenoids and tonsils, and treatment in

connexion with certain diseases of the skin, and some physical and mental defects. The general object of all schemes alike is to make the inspection imposed by law of benefit, not merely to the individual child, but to the community at large, by preventing the development of conditions which lead to the existence of a large proportion of inefficient citizens among the adult population. The work is so related to that of medical officers of health that, as a rule, the senior school medical officer fills both appointments, his work, when necessary, being supplemented by that of whole- or part-time assistants. A Diploma in Public Health is almost always required of those entering the school medical service.

In Scotland, while the statutory authority for the work of the school medical service is different, the scheme of work is broadly the same.

TUBERCULOSIS MEDICAL OFFICERS

A tuberculosis medical officer is a whole-time officer with special training and experience in tuberculosis work, and of a suitable age and attainments to command general confidence. In England and Wales such officers are appointed by county councils and county borough councils, and their duties are to carry out the work of diagnosis of tuberculosis, to advise as to treatment, and to take charge of the work of tuberculosis dispensaries and sanatoriums where these are in operation. The work under tuberculosis schemes is co-ordinated with the general public health work of local authorities, and so the medical officer of health is often appointed as the chief tuberculosis officer when a special tuberculosis officer is on the staff of the local authority. The arrangements in Scotland are very similar.

MATERNITY AND CHILD WELFARE MEDICAL OFFICERS

Any public health local authority, however small, may make arrangements for maternity and child welfare work within its area, although very generally the smaller local authorities are embraced in county council schemes. For the schemes of the smaller local authorities the services of a part-time medical officer are obtained when the medical officer of health does not himself undertake the duties, but for the larger schemes special whole-time appointments are made. The maternity and child welfare medical officer is responsible for the work at the centres provided and for directing the home visitations, and the whole of this work is closely co-ordinated with the other branches of public health work directed by the medical officer of health.

Much of this work was commenced in different parts of the country by voluntary organizations, some of it still remains in their hands, and is only loosely linked up with the public health local authority, but the tendency is for the whole of it to be undertaken by the local authorities. A large number of women medical officers have been appointed to these posts during recent years.

VENEREAL DISEASES

Schemes for the diagnosis and treatment of venereal diseases are provided and administered by county councils and county borough councils. In some cases the officer is on the whole-time public health staff, and in others he is a part-time official. Special knowledge and practical experience in the treatment of venereal diseases are essential. The officer appointed for either whole-time or part-time service works at one or more clinics, and also gives instructions and assistance in the treatment of venereal diseases to general practitioners, who are allowed to attend the clinics.

REMUNERATION FOR SERVICES

In order to ensure that public health authorities may obtain skilled and highly trained medical officers, it is essential that such officers should receive salaries commensurate with their attainments, bearing a reasonable relationship to the time and money expended in fitting them for their important and responsible duties, and comparing well with the income which might be secured in other lines of medical work. With this end in view the Association and the Society of Medical Officers of Health, in November, 1918, commenced the preparation of a scale of minimum commencing salaries for whole-time public health medical officers.

The scale, which was put into operation in 1925, has the approval of the Ministry of Health, and is now applied to England and in Northern Ireland and in Scotland (with modifications). The salaries laid down in this scale are briefly as follows:

Resident Medical Officers at hospitals, sanatoriums etc. without responsibility for the work of other medical officers £350 a year *plus* emoluments.

Medical Officers employed in departments, working under a senior medical officer and without responsibility for the work of other medical officers £600 a year.

Senior Medical Officers (not medical officers of health) in charge of services or departments £750 to £1100 according to responsibility and scope of department.

Deputy or Chief Assistant Medical Officers (hospitals, sanatoriums etc.) A salary equal to 60 per cent of the salary of the medical superintendent or senior medical officer in charge.

Medical Officers of Health. The salaries are graded according to population from £800 to £1,800.

During the three years this scale has been in operation it has been adopted in respect of a steadily increasing number of appointments made. During the last twelve months it has been adopted in respect of 87 per cent of the whole-time public health appointments which have been filled.

For the right class of practitioners with leanings in the direction of public health work the service offers a successful career, but it must always be remembered that there are comparatively few posts which carry the higher salaries.

THE REGULATIONS FOR THE DIPLOMA IN PUBLIC HEALTH

The Examination

By the Regulations or Rules of the General Medical Council, which came into force on January 1st, 1924, the examination for the D.P.H. is divided into two parts, and no candidate is allowed to sit for the final part of the examination until two years have elapsed since a registrable qualification was obtained. The object of this two years' interval is "to provide opportunity for candidates for the Diploma or Degree in Sanitary Science, Public Health, or State Medicine to pass from the state of pupilage to that of responsible practitioners, to give mature consideration to the obligations and duties involved in the work of the Public Health Service, and to acquire direct experience of medical work in a responsible capacity either in practice or in hospital or laboratory appointments."

The examination is both written and oral and must include practical examination in bacteriology and chemistry (Part I) and in infectious diseases, food inspection, inspection of premises, dwellings, factories, workshops, schools, etc. (Part II).

Any candidate from the Dominions who possesses qualifications registrable in this country is eligible as a candidate for the examination, given that he has received such a course of training as that defined by the Regulations, at an institution which is approved by the General Medical Council.

The Curriculum for the Diploma in Public Health

The curriculum must extend over a period of twelve months, and a candidate is admitted to either part of the examination after he has completed the prescribed course of instruction in the subjects thereof. At least five months must be given to practical laboratory instruction in an institution approved by the licensing body in the subjects:

- (1) Bacteriology and parasitology including entomology especially in relation to diseases of man and to those diseases transmissible to man from the lower animals (180 hours of such instruction is required).
- (2) Chemistry and physics in relation to public health (90 hours of such instruction is required).
- (3) Microbiology and climatology (10 hours of such instruction is required).

Therefore at least 280 hours of practical instruction, extending over a period of at least five months, is demanded before a candidate is eligible for Part I of the examination.

For a candidate to become eligible for Part II of the examination he must first receive instruction in:

- (1) Principles of public health and sanitation (for approximately 30 hours).
- (2) Epidemiology and vital statistics (approximately 20 hours).
- (3) Sanitary law and administration including public medical services (approximately 20 hours).
- (4) Sanitary construction and planning (approximately 10 hours).
- (5) Every candidate must also have made thirty attendances of

not less than two hours in each week of a three months period at the clinical practice of a recognized hospital for infectious diseases and he must have received instruction in methods of administration

(6) Every candidate must produce evidence that he has during a period of not less than six months been engaged in acquiring a practical knowledge of the duties routine and special of public health administration under the supervision of a medical officer of health, who shall certify that the candidate has received, from this officer or other competent medical officer during not less than three hours on each of sixty working days practical instruction in these duties and those relating to

- (a) Maternity and child welfare service
- (b) Health service for children of school age,
- (c) Venereal diseases service,
- (d) Tuberculosis service
- (e) Industrial hygiene
- (f) Inspection and control of food including meat and milk

Certificates of having received the prescribed instruction in public health administration must be given by a medical officer of health who devotes his whole time to public health work or by the medical officer of health of a sanitary area having a population of not less than 50,000 or in Ireland by the medical superintendent officer of health of a county or county borough having a population of not less than 50,000

TRAINING AND EXAMINING CENTRES FOR PUBLIC HEALTH QUALIFICATIONS

Degrees in Sanitary Science are conferred, in England, by the Universities of London, Durham, Liverpool, and Birmingham, in Scotland, by the Universities of Glasgow and Edinburgh, and in Ireland, by the University Colleges of Dublin and Cork. In most cases these degrees are conferred only upon medical graduates of the universities granting them.

Whereas for the Diploma of Public Health the requirements of the General Medical Council are strictly conforming to, these requirements are extended, as a rule, as to both the period and the scope of special studies demanded, before Degrees in Sanitary Science are granted.

Almost all the universities of Great Britain and Ireland grant a D.P.H. and provide for the necessary training. The English and Scottish Conjoint Boards and the Irish Colleges also grant these diplomas.

In London at the present time there are fewer training centres for the D.P.H. than formerly, but candidates who desire to train in London can do so at University College and the Royal Institute of Public Health, and also at the Medical Schools of St George's and Middlesex Hospitals when a sufficient number of candidates apply for the training. It is expected that by October of next year all the post-graduate teaching and training in public health, in London, will be provided at one centre only—the London School of Hygiene and Tropical Medicine, which is in process of erection.

The Royal Naval Medical College and the Royal Army Medical College provide courses of training to the medical officers of these two services.

Degrees and Diplomas in Public Health are registrable qualifications, but not so those in Tropical Medicine and Hygiene.

QUALIFICATIONS IN TROPICAL MEDICINE AND HYGIENE

The University of London grants a degree (M.D. in Tropical Medicine) to their medical graduates, and the course of training required must extend over at least one academic year.

Diplomas in Tropical Medicine and Hygiene are granted, in England, by the Universities of Cambridge and Liverpool, and by the English Conjoint Board, and, in Scotland, by the University of Edinburgh. Among the institutions which provide qualifying courses are the London School of Hygiene and Tropical Medicine, the Liverpool School of Tropical Medicine, and the Royal Army Medical College. In the last-mentioned institution the training provided is restricted to army medical officers. The training period for these diplomas is about six months. Graduates of medicine and surgery of recognized universities whose degrees are not registrable in this country may enter for the examination of the English Conjoint Board, and the conditions of study may be modified on the grounds of previous work in the tropics or of original investigations undertaken.

The Colonial Office has decreed recently that the holder of a D.T.M. and H., or of a D.T.H., is eligible for appointment as a medical officer of health in places and districts other than those with large populations. In the latter cases a D.P.H. is required.

Those wishing for the details of syllabus of study, fees, date of commencement of the training courses, and the dates of examinations, etc., of any particular training course or examining body, will find these fully and clearly set out, with notes and comments, in the *Guide to the Regulations, Courses and Examinations for Qualifications in Public Health and Tropical Medicine and Hygiene in Great Britain and Ireland*, which has been prepared recently by Dr. Andrew Balfour, C.B., C.M.G., D.P.H., and published by the British Medical Association (Tavistock Square, W.C.1). The price is 3s. net.

The University of Manchester has a well-equipped department of bacteriology and preventive medicine, where candidates preparing for the examinations of the various university and examining boards for the Diploma in Public Health can obtain instruction. It also prepares candidates for the Diploma in Bacteriology and in Veterinary State Medicine, granted by the university, and for its Certificates in Factory Hygiene and School Hygiene. Full particulars can be obtained from the Dean of the Medical School, the University, Manchester.

The University of Edinburgh grants a Diploma in Public Health. The course, which extends over a period of twelve calendar months, can be commenced in October only, and provision is made by the university for instruction in all the subjects. Candidates for the diploma must be graduates in medicine and surgery of the University of Edinburgh, or must hold corresponding degrees or registrable medical qualifications, which must be registered before a candidate is admitted to examination. The course for the diploma is divided into two parts, for each of which examinations are held twice annually—in March and July for Part I, and in October and March for Part II. In each part the candidate must pass in all the specified subjects at one examination. Admission to the examinations is contingent upon the candidate having complied with the following conditions:

PART I—(a) Completion subsequent to obtaining a registrable medical qualification of the course of instruction prescribed for Part I.

PART II—(b) Completion subsequent to obtaining a registrable medical qualification of the course of instruction prescribed for Part II. (c) A lapse of two years after obtaining a registrable medical qualification. (d) Previous passage of examination in all subjects of Part I.

Further particulars can be obtained from the Dean of the Faculty of Medicine, Edinburgh.

THE NAVY, ARMY, AIR FORCE, AND INDIAN MEDICAL SERVICES

THE Medical Departments of the Royal Navy, of the Army, and the Indian Government normally employed between them before the war some 3,000 medical men and vacancies in the ranks of these services were filled by offering commissions for competition once or more each year. In the abnormal circumstances arising out of the war and the period following it the usual regulations for recruiting the permanent medical staff of these services were, for the most part, in abeyance, and the newly formed Royal Air Force Medical Service also has depended largely upon short service commissions for the maintenance of its medical personnel.

Meanwhile recruitment for the Royal Naval Medical Service and for the Royal Army Medical Corps was seriously prejudiced by disadvantageous terms and conditions of service. Continued representations were made by the British Medical Association, and, largely as a result of its action, substantial increases in the rates of pay and retiring gratuities, and improved conditions of retirement for officers of the Royal Army Medical Corps were embodied in a Royal Warrant issued by the War Office on June 29th, 1926. In securing these improved terms the Association gained a very notable success.

Simultaneously the Air Ministry announced improvements in the conditions of service and the emoluments of medical officers of the Royal Air Force. The Admiralty also issued an Admiralty Fleet Order prescribing improved terms and conditions of service for medical officers R N. The changes, generally, took effect from July 1st, 1926.

The British Medical Association, after examination of the revised terms, is satisfied with the new rates of pay and conditions of service for the R N M S, the R A M C, and the R A F M S, and in fulfilment of its desire to assist in recruiting these services we publish below full particulars.

There still appears to be considerable difficulty in getting a sufficient number of young medical officers to enter any of these services, and the Association desires to point out that in its opinion the prospects in them are both financially and professionally good, and that there is no reason why young men recently qualified should not enter them. In the case of the R A M C the prospects of rapid promotion are particularly good, owing to the prolonged shortage of candidates since the war. Another important point should be noted—namely, the concession by which a newly qualified medical man can hold a hospital appointment for one year before entering the services, counting it as a year of service towards promotion and retirement.

Indian Medical Service

The Indian Medical Service at one time afforded exceptional prospects, but great changes have now ensued following upon the reforms in India. Recently the Secretary of State announced the terms on which the I M S would be reorganized, and particulars of these changes will be found at page 421. The British Medical Association is convinced that the new proposals will not attract an adequate number of European medical men so long as

(a) the posts of Chief Administrative Medical Officers of Local Governments are not specifically included in the list of appointments reserved for officers of the I M S, and

(b) the prospect of employment on the civil side, which was one of the strong inducements to young graduates to enter the service, is as indefinite as it is at present,

and has so informed the India Office.

ROYAL NAVAL MEDICAL SERVICE

An Admiralty Fleet Order, issued in July, 1926, announced changes in the terms and conditions of service for naval medical officers. The improvements include an increase in the establishment of Surgeon Captains from 16 to 20, and also in the number and remuneration of specialist appointments open to medical officers. The total number of these appointments is 60. They comprise specialist posts in medicine, surgery, radiology, and hygiene, and the allowance payable to holders of them has been raised from 2s 6d to 5s a day.

Courses of instruction in clinical medicine, surgery, and allied subjects are normally provided once in every four years for all officers below the rank of Surgeon Captain, and on completion of the courses officers will be appointed to a large naval hospital unless and until they receive appointments elsewhere. Courses in connexion with civil hospitals in London or other teaching centres are also arranged at intervals for those selected to hold specialist appointments.

Medical officers entering the Navy will be eligible, at the discretion of the Admiralty, to have their seniority antedated up to a limit of one year if they have held previously a resident appointment in a civil hospital for not less than this period. Such an appointment must be one recognized by the Admiralty for this purpose, and must not have terminated more than six months before entry into the service.

Examinations for direct entry into the Medical Service are at present in abeyance. Entries are made by means of the short-service scheme.

General Conditions as to the Short Service Scheme

A candidate must be registered, must be under 30 years of age, and must be recommended by the dean of his school, if however,

the candidate intends to apply for transfer to the permanent list, he must have been under 28 years of age at the time of his entry. He must be a British subject of pure European descent. Unmarried candidates will be preferred. A candidate will be interviewed by the Medical Director-General R N and will undergo a physical examination. If considered eligible by the Medical Director-General his name will be submitted to the Board of Admiralty, and he may be appointed surgeon lieutenant for short service. A candidate must engage for three years, with the option of continuing for a further period of twelve months if his services are still required. The present rate of pay is £1 4s 10d a day or £453 4s 2d a year, with the same allowances as are payable to permanent officers of their rank. Lodging money at the rate of £20 a year is usually allowed when employed on shore, without quarters in the United Kingdom and £56 10s a year in lieu of rations when not victualled in kind. On joining an allowance of £50 for uniform is made.

An officer engaged for three years is entitled to receive two months' notice of his services being no longer required. A gratuity of £8 6s 8d will be payable to officers for each completed month of service on completion of their period of service or to any who are invalided for causes not within their own control before the completion of the prescribed period.

Transfer to Permanent Service

A short-service surgeon lieutenant, after six months' service, may be considered, on application to the Secretary of the Admiralty for transfer to the permanent service and would be permitted to count his seniority from the date of entry for short service for purposes of promotion, increment of full pay and for retired pay, but for purposes of retiring gratuity on the permanent officers' scale his service will reckon only from the date of transfer to the permanent list.

Officers entered for short service who are eligible for the grant of increased seniority in respect of time served in civil hospital appointments will only be allowed the antedate of seniority if they apply to transfer to the permanent list within eighteen months of their date of entry.

Rates of Pay

The current rates of full pay and retired pay are set out below. They represent a deduction of 6 per cent from the standard rates which were fixed in 1920 when the cost of living was high. 20 per cent of the standard rate is regarded as variable as the cost of living rises or falls. The next revision will be on July 1st, 1930.

Full Pay

	Current Rate per annum.
Surgeon Lieutenant on entry	£ 410 12 6
After 3 years	438 15 8
(Surgeon Lieutenants usually receive promotion after 6 years' service)	
Surgeon Lieutenant Commander on promotion	599 4 2
After 3 years	635 14 2
(Surgeon Lieutenant Commanders usually receive promotion after 12 years' total service)	
Surgeon Commander on promotion	772 11 8
After 3 years	839 10 0
After 6 years	909 9 2
After 9 years	976 7 6
Surgeon Captain on promotion (promotion is by selection)	1,116 5 10
After 3 years	1,201 9 2
After 6 years	1,285 12 6
Surgeon Rear Admiral (promotion is by selection)	1,780 13 0
Medical Director-General (Surgeon Vice-Admiral)	2,350 0 0

There are also allowances which form a substantial addition to the rates of pay.

Medical officers in charge of naval hospitals and sick quarters receive charge pay on the following scale:

Surgeon Rear Admirals and Surgeon Captains	10s a day
Surgeon Commanders	5s a day

Maximum Retired Pay (Approximate current rates)

	£	Age for compulsory retirement
Surgeon Vice Admiral	1,125	On vacating office
Surgeon Rear Admiral	950	60
Surgeon Captain	836	55
Surgeon Commander	554	50
Surgeon Lieutenant Commander and Surgeon Lieutenant	423	45

Thus an officer who is not promoted above the rank of Surgeon Commander would be compulsorily retired at the age of 50.

Gratuities on Retirement

The following gratuities are payable if an officer of the permanent list is permitted to retire voluntarily.

	£
After 4 years full pay service	500
8	1,000
12	1,500
16	2,250

Surgeon Lieutenants for short service transferred to the permanent list will only be allowed to retire with a gratuity after four years' full pay service from the date of such transfer.

Further Particulars

Full particulars and a form of declaration can be obtained from the Medical Director-General, Admiralty, Queen Anne's Chambers, Tothill Street, London, S W 1.

ARMY MEDICAL SERVICE

ENTRANCE to the Royal Army Medical Corps, either by competitive examination or by selection, as decided by the Army Council, will take place half-yearly, in January and July. The examinations in medicine and surgery are entirely of a clinical and practical character, partly written and partly oral. The regulations for admission, giving full details, can be obtained from the Under Secretary of State (A M D 1) War Office, Whitehall, London, S W 1. A personal interview with a representative of the Director-General, Army Medical Services, is readily obtainable. The rates of pay and allowances are good, the opportunities of post-graduate study are generous, and the work is varied, responsible, and interesting. The gratuities after certain periods of service enable an officer, should he so desire, to leave the service with a capital sum large enough to go a long way towards re-establishing himself in civil life, and, further, the knowledge of the world and the comradeship of his fellow officers that he has gained in the army will be of no small value to him.

New entrants who must be 22 and not over 28 years of age are commissioned in the rank of lieutenant and the first six months of service are spent on probation during which time they undergo in addition to their military training at the Royal Army Medical Corps School of Instruction at Aldershot a probationary course at the Royal Army Medical College in London in hygiene pathology tropical medicine military surgery organization of military hospitals and principles governing medical charge of troops. At the end of this course and after qualifying at the necessary examinations their commissions are confirmed and they take their places in seniority according to the total marks obtained at all examinations up to that date. Officers Training Corps service with possession of certificate A or B (medical) carry a definite value in marks in this total.

An entrant who is holding or about to hold at the time of the entrance examination a resident house appointment at an approved civil hospital may be seconded while holding such an appointment up to a maximum period of twelve months. A candidate who has held such an appointment within six months of entry may be granted an antedate up to twelve months in respect of the period the appointment was held. This secondment and antedate counts in all respects as commissioned service, except that pay will not be issued for that period.

After a total period of one year's service at home the young officer goes abroad probably to India for his first tour of foreign service. Here he gains his first practical experience of tropical disease and tropical hygiene. His tour abroad lasts five years with probably six months leave home during that time. On returning home the R A M C officer has the opportunity to decide whether he will remain in the corps or accept the gratuity of £1,000 after seven years' service and try his fortune in civil life. If he elects to remain he will between his eighth and twelfth year of service undergo a course of post-graduate study at the Royal Army Medical College and the London hospitals of five months' duration, followed by a course of study of a special subject selected by himself provided he has shown special aptitude

in the post-graduate course or during his previous service. During this period of study he remains on full pay and the fees of the courses are paid by the State. When qualified in his special subject the officer is eligible for a specialist appointment. The total number of these appointments is 104 and the additional rate of pay 4s 8d a day. After this post-graduate course the officer probably proceeds abroad again and promotion to major rapidly ensues and from that time onward he receives regular successive increases of pay and is eligible for additional and charge pay as well. The directorates of hygiene and pathology and the appointment of two serving officers as consultants in medicine and surgery have been instituted, and have proved a marked success. All these appointments are of the rank of colonel or major-general, and were devised to permit specially selected officers to rise through all ranks to that of major-general on the strength of their professional or purely scientific work.

Under these conditions the possibilities for good workers are very great in the Royal Army Medical Corps. There is scope for original research in tropical disease, in preventive medicine, and in bacteriology, as well as in the large clinical field open to the specialist in medicine, surgery, or gynaecology, in venereal disease, and in ophthalmology. Child welfare is also undertaken systematically by officers of the Royal Army Medical Corps. At the same time, instruction in administration is continuous. There are also many appointments carrying administrative responsibility to those officers who display capacity for this duty.

Promotion

Promotion takes place automatically to captain after three and a half years' and to major after twelve years' service, provided the officer is qualified and recommended for promotion. Promotion to the higher ranks is by selection from those senior in the rank below, but special promotion by brevet or otherwise is open to officers of the Royal Army Medical Corps.

Pay and Allowances

The rates of pay and allowances are given in the accompanying table (see below). In addition an officer at home in charge of a hospital receives charge pay, the daily amounts being from 2s 6d to 10s, according to the number of beds. There are other appointments for which charge pay is given from 5s to 10s daily.

Retirement and Retired Pay

Retired pay will consist of two parts: (a) a service element based on the officer's total service; (b) a rank element for the rank from which the officer retires. An officer with less than twenty complete years' service will not be eligible for retired pay. The scale subject to the reduction of 6 per cent. referred

Pay and Allowances at Home

Rank	Pay per Diem *	Rations †	Servant	Married			Unmarried.		Total per annum	
				Lodging	Fuel and Light (Average)	Furniture Allowance	Lodging	Fuel and Light (Average)	Married	Unmarried
Lieutenant	£ s. d. 1 0 8	s. d. 1 7	s. d. 2 0	s. d. 3 6	s. d. 1 5	s. d. 2 0	s. d. 2 3	s. d. 1 2	£ s. d. 569 0 0	£ s. d. 506 0 0
Captain	1 5 4	1 7	2 0	4 6	3 0	2 0	3 0	1 8	701 0 0	612 0 0
Captain after 8 years' service	1 8 2	1 7	2 0	4 6	3 0	2 0	3 0	1 8	752 0 0	664 0 0
Captain after 10 years' service	1 10 6	1 7	2 0	4 6	3 0	2 0	3 0	1 8	795 0 0	707 0 0
Major	1 15 4	1 7	2 0	4 6	3 0	2 0	4 0	2 3	833 0 0	821 0 0
Major after 15 years' service	2 0 0	1 7	2 0	4 6	3 0	2 0	4 0	2 3	978 0 0	909 0 0
Major after 18 years' service	2 2 4	1 7	2 0	4 6	3 0	2 0	4 0	2 3	1011 0 0	952 0 0
Major after 20 years' service	2 7 0	1 7	2 0	4 6	3 0	2 0	4 0	2 3	1093 0 0	1037 0 0
Lieutenant-Colonel	2 14 0	1 7	2 0	4 6	3 0	2 0	4 6	2 3	1224 0 0	1174 0 0
Lieutenant-Colonel after 3 years' commissioned service as such	2 18 10	1 7	2 0	4 6	3 0	2 0	4 6	2 3	1312 0 0	1252 0 0
Colonel	3 5 10	1 7	2 0	5 6	4 1	4 0	5 6	2 9	1478 0 0	1419 0 0
Major-General	4 9 4	1 7	4 0	11 0	5 2	2 0	11 0	3 8	2064 0 0	2000 0 0

Pay Warrant rates less 6 per cent. from July 1st 1927. The Pay Warrant rates are subject to revision to an extent not exceeding 20 per cent. according to variation in the cost of living. The next revision may take place with effect from July 1st 1930.

† Rates of Allowances vary from time to time.

Rates of Pay for Officers Serving in India

Rank.	Rates of Pay per Month						
	Unmarried			Married			
	Pay of Rank	Unmarried Rates of Lodging Allowance	Total	Pay of Rank	Married Rates of Lodging Allowance	Marriage Allowance	Total
	Rupees	Rupees	Rupees	Rupees	Rupees	Rupees	Rupees
Lieutenant	625	25	£50	625	50	65	*740
Captain	755	45	£60	755	90	100	*945
Captain after 8 years service ...	850	45	£65	860	90	100	£1050
Captain after 10 years service ..	930	45	975	930	90	100	1120
Major	1070	55	1125	1070	110	90	1270
Major after 15 years service ..	1170	55	1225	1170	110	90	1370
Major after 18 years service ..	1370	55	1375	1320	110	90	573
Major after 20 years service ..	1420	55	1475	1420	110	90	1610
Lieutenant-Colonel	1575	75	1650	1575	150	75	1800
Lieutenant-Colonel after 3 years service	1750	75	1825	1750	150	75	575

* Married rate of pay is not admissible to officers whose age is under 33

to below is, for the service element, £15 a year for each completed year of service as a medical officer. For the rank element the scale is as follows:

Rank from which Retired	After Completing 1 Year's Service in the Rank.	After Completing each Additional Year's Service	Maximum Rank
Major	£12	£12	£120
Lieutenant-Colonel	150	30	240
Colonel	290	50	390
Major-General	440	50	540
Lieutenant-General	590	50	690

The retired pay of an officer retiring with less than one complete year's service in the rank from which he retires will be assessed as though he had retired from the rank below.

The maximum rates of retired pay are as follows:

Captain and Subaltern	£300
Major	£450
Lieutenant-Colonel	1600
Colonel	1800
Major-General	£1,000
Lieutenant-General	£1,200

The above rates are those laid down in the Pay Warrant. They have been reduced by 6 per cent. as from July 1st 1927. Further revision may take place triennially to an extent not exceeding 20 per cent. according to variation in the cost of living.

Officers with seven and less than twenty years' service as medical officers may be permitted to retire with a gratuity in accordance with the following scale:

After 7 years' service as a medical officer	£1,000
After 3 years' service as a medical officer in the rank of major	£2,800
After 6 years' service as a medical officer in the rank of major	£3,600

Seconded Service

An officer may be permitted to accept employment in the Foreign or Colonial Offices when so seconded he is not eligible for pay or allowances from army funds but his service continues to reckon towards promotion and under certain conditions towards increase of pay, pension, or gratuity.

Service on the West Coast of Africa

Officers for service in West Africa are usually taken from a list of volunteers for such service. An officer at present receives, while actually serving in West Africa (which service may include ordinary leave not exceeding sixty-one days in a year, and any time spent at Madeira or the Canary Islands on sick leave), additional pay at the following daily rates: Lieutenant-colonel 12s., major 9s., captain 7s. 6d., lieutenant 6s. Service on the West Coast of Africa also counts double towards voluntary retirement and the service element of retired pay under certain conditions, and also entitles to leave at home of one day for every two days' service after twelve months' continuous service on the coast. Continuous service includes the ordinary sixty-one days' leave and any time spent in Madeira or the Canary Islands on sick leave for this purpose.

THE ARMY DENTAL CORPS.

The corps is administered by the Director-General, Army Medical Services. It is a joint service for the Army and Royal Air Force, and the personnel is required to serve under either force and be interchangeable. The regulations for admission to the Army Dental Corps should be obtained from the Under-Secretary of State, War Office.

ROYAL AIR FORCE MEDICAL BRANCH

THE Air Council attaches great importance to attracting into the R.A.F.M.S. the best type of medical man, since on the capacity of the medical service depends in a peculiar degree the safety and efficiency of the Royal Air Force. The duties of these medical officers include, not only the prevention and treatment of those ordinary diseases to which the personnel of any fighting service are liable, but the special study of the mental and physical stresses imposed on the airman in diverse circumstances and climates—a new branch of medicine which still provides considerable scope for research.

As promotion to the higher ranks of the service is by selection from officers who are eligible by reason of length of service, and as a certain proportion of the higher ranks will be reserved for purely scientific as opposed to administrative appointments, it will be seen that there are excellent prospects for the young medical officer who exhibits ability and energy in scientific research, as well as for those who develop a talent for administration. The work to be done, therefore, has a high professional interest which, combined with good rates of pay and allowances, offers a career for medical men which should prove both attractive and interesting. The life is one which is certain to appeal to the man of wide outlook, who desires opportunities for travel, sport, and games, and can find interest and enjoyment in aviation. His duties will be a matter of course, give him flying experience as a passenger which is necessary for the proper study of the medical problems of aviation and for gaining first-hand knowledge of the conditions under which his comrades serve.

Commissions

The establishment will consist partly of permanent and partly of short service officers.

An officer will, on first entry, be granted a short service commission for a period of three years on the active list (which may be extended to five years at the discretion of the Air Council, if the officer so wishes on the recommendation of the Director of Medical Services) and of four years in the Reserve of Air Force Officers. Selections for permanent commissions will be made from officers holding short service commissions, and those who are not selected will be transferred to the Reserve at the expiration of their period of service on the active list.

For those entrants who desire it, the prospect of obtaining a permanent commission is approximately an even one. Experience has so far shown that the officers selected have included the great majority of those desirous of and suitable for retention in the service, owing to the fact that the short service commission with its gratuity after three or five years is in itself an attraction to many entrants who desire to enlarge their experience and outlook from the point of view of subsequently entering private practice, or who, on entry, have not made up their minds to the adoption of a permanent career in the service and subsequently find that they would prefer to return to civil life.

Medical officers may be allowed to count as service their time spent in resident appointments in civil hospitals under the following conditions:

(1) An officer granted a short-service commission who at the time of application for the commission holds, or is about to hold, a resident appointment in a recognized civil hospital, may be seconded for the period not exceeding one year from the date when the commission is granted, during which the appointment is held. If the applicant already holds the appointment when the commission is granted the commission may be antedated to the date on which the appointment was first held, provided (a) that the appointment is held for not less than one year, (b) that the period of secondment and the period of antedate shall not together exceed one year and (c) that the antedate shall not be made until the officer has joined for actual R.A.F. duty.

(2) An officer granted a short-service commission who has previously held a resident appointment in a recognized civil hospital for a period not less than one year may provided the commission is granted not more than six months after the termination of the hospital appointment, be granted an antedate of the commission equal to the period of the appointment up to a maximum of one year.

(3) The term "resident appointment" as used at (1) and (2) may be held to include a period of not more than six months in a non-resident appointment immediately preceding or following a resident appointment, provided the interval between the two appointments does not exceed three months.

(4) If necessary, the ordinary maximum age for appointment to a commission may be increased by a period equal to any antedate granted under (1) and (2).

(5) An officer who has been seconded or whose commission has been antedated as above will be required to serve for a minimum period of three years on the active list from the date of joining for actual R.A.F. duty.

(6) Pay and allowances for periods of secondment or antedate will not be allowable and such periods will not be reckoned in the assessment of gratuities payable to short-service officers. Subject to (5) however such periods will be reckoned as commissioned service in the Royal Air Force for purposes of seniority and promotion and in the case of permanent officers of retirement retired pay and retirement gratuities.

Officers who have been selected for permanent commissions

may be permitted to attend for a period not exceeding nine months a post graduate course in general medicine and surgery, tropical and preventive medicine, and other special subjects. Such permission may be granted at any time when the exigencies of the service permit during the first sixteen years of service, and when attending these courses officers will receive full pay and allowances.

New entrants into the R.A.F.M.S. will be commissioned as Flying Officers (Medical), and will be eligible for promotion to the rank of Flight Lieutenant (Medical) after two years service. Officers selected for permanent commissions will normally be promoted to the rank of Squadron Leader after ten years total service. Accelerated promotion may be granted in a limited number of cases to officers who show exceptional ability after the completion of eight years service. Promotion within establishment to the rank of Wing Commander will be by selection at any period after sixteen years total service, and to that of Group Captain by selection at any period after twenty-two years service.

There will be no competitive examination on entry, candidates must be under 28 years of age, be British subjects, the sons of British subjects, and of pure European descent, and will be interviewed by a Selection Board at the Air Ministry, London, presided over by the Director of Medical Services, Royal Air Force, before acceptance. Each candidate must produce

- 1 Birth certificate
- 2 Medical registration certificate
- 3 A declaration containing the following information:
 - (a) Age and place of birth.
 - (b) That he is a British subject the son of British subjects and of pure European descent.
 - (c) That he is ready to engage for general service at home or abroad as required.
 - (d) The qualifications he is possessed of and what medical or other appointments he has held (if any).
 - (e) That he is willing to fly as a passenger whenever called upon to do so.

Each candidate will be required, before acceptance, to pass a medical examination to ensure that he labours under no constitutional or mental disease or diseases or weakness, nor any imperfection or disability which may interfere with the efficient discharge of the duties of a medical officer in any climate, in peace or war.

On appointment entrants will undergo an initial course, during which they will be given instruction in the special medical aspects of aviation, the organization and administration of the Royal Air Force, and the general and special duties to be performed by officers in the Medical Branch. In order to avoid the necessity for further examinations the position of entrants in order of seniority in the Air Force List will be determined at the end of the initial course by a system of marking and reports on the actual work done during their instruction.

Royal Air Force Medical Branch Rates of Pay and Allowances

Rank	Pay *			Cash Allowances at Home Rates in lieu of Quarters Rations and Servant, if not available in kind (per annum) †		Pay plus Allowances (per annum)	
	Daily Rates		Per Annum (Current Rates)	Married.	Unmarried.	Married.	Unmarried.
	Standard	Current					
	£ s d.	£ s d.	£ s d.	£ s d.	£ s d.	£ s d.	£ s d.
Flying Officer	1 4 0	1 2 6	410 12 6	154 12 1	141 18 9	565 4 7	552 11 3
Flight Lieutenant	1 6 0	1 4 6	447 2 6	201 14 8	160 3 9	648 17 2	607 6 3
Ditto after 2 years as such	1 8 0	1 6 4	480 11 8	201 14 8	160 3 9	682 6 4	640 15 5
Ditto after 4 years as such	1 10 0	1 8 2	514 0 10	201 14 8	160 3 9	715 15 6	674 4 7
Squadron Leader	1 14 0	1 12 0	584 0 0	201 14 8	170 6 7	785 14 8	754 16 7
Ditto after 2 years as such	1 18 0	1 15 8	650 18 4	201 14 8	170 16 7	852 13 0	821 14 11
Ditto after 4 years as such	2 0 0	1 17 8	687 8 4	201 14 8	170 16 7	889 3 0	858 4 11
Ditto after 6 years as such	2 4 0	2 1 4	754 6 8	201 14 8	170 16 7	956 1 4	925 3 3
Ditto after 8 years as such	2 8 0	2 5 2	824 6 10	201 14 8	170 16 7	1020 0 6	995 2 5
Ditto after 10 years as such	2 10 0	2 7 0	857 15 0	201 14 8	170 16 7	1059 9 8	1028 11 7
Wing Commander	2 15 0	2 11 8	942 18 4	201 14 8	181 9 4	1144 13 0	1124 7 8
Ditto after 2 years as such	2 17 0	2 13 6	976 7 6	201 14 8	181 9 4	1178 2 2	1157 16 10
Ditto after 4 years as such	3 3 0	2 19 2	1079 15 10	201 14 8	181 9 4	1281 10 6	1261 5 2
Group Captain	3 10 0	3 5 10	1201 9 2	277 5 2	251 18 6	1478 14 4	1453 7 8
Air Commodore	4 0 0	3 15 2	1371 15 10	332 0 2	306 13 6	1703 16 0	1678 9 4
Air Vice Marshal	5 0 0	4 14 0	1715 10 0	393 17 9	370 0 8	2112 7 9	2085 10 8

* Except for periods of service under Indian administration. For such periods officers receive pay and allowances at rates and subject to conditions authorized from time to time by the Government of India.

† These allowances are issued only when accommodation, fuel and light, rations and personal attendances are not available in kind. Normally provision in kind is available for junior officers. Married rates of allowances are payable only to married officers who have reached the age of 35 or the rank of squadron leader. A colonial allowance is granted in certain commands abroad.

The rates and general scheme of allowances are liable to revision as circumstances may require.

Uniform and Equipment

Medical officers are required to provide themselves with the uniform, service dress, and mess dress of their rank, and with the distinguishing badges of the Royal Air Force Medical Branch. The provision of full dress is entirely optional at present. An allowance of £50 towards the cost of uniform is made on joining to candidates who have not had previous commissioned service in H M Forces.

Pay and Allowances

The emoluments of medical officers of the Royal Air Force are given in outline on page 420. The standard rates of pay and retired pay were drawn up on the basis of the high cost of living in 1919, and 20 per cent of each of the standard rates is detachable and subject to alteration, either upwards or downwards, as the cost of living rises or falls. Under this provision the current rates now in force represent a reduction of approximately 6 per cent on the standard rates. The next revision will take effect from July 1st, 1930, and subsequent revisions will be made at intervals of three years.

Retired Pay

The minimum period of service qualifying for retirement on retired pay is twenty years. Standard rates of retired pay are as follows:

Air Officer—Air Vice Marshal, £790 to £1,010 per annum, Air Commodore, £650 to £950 per annum.

RETIRED PAY (PERMANENT OFFICERS) Officers Below Air Rank

Age on Retirement	Standard Yearly Rate of Retired Pay	Years of Service	Addition for each Extra Year of Service *	Deduction for each Deficient Year of Service *
40	£ 300	17	£ 15	£ 15
41	337	17	15	15
42	375	18	15	15
43	412	18	15	15
44	450	19	15	15
45	487	19	15	15
46	525	20	15	15
47	562	20	15	15
48	600	21	15	15
49	637	21	15	15
50	675	22	15	15
51	697	22	22	15
52	720	23	22	15
53	742	23	22	15
54	765	24	22	15
55	790	24	22	15

Limited to five years

The maximum standard rates of retired pay and the compulsory retiring ages for the several ranks are

Rank.	Yearly Rate of Retired Pay	Compulsory Retiring Age
Air Vice-Marshal	£ 1010	60
Air Commodore	950	57
Group Captain	900	55
Wing Commander	600	51
Squadron Leader	500	48

Gratuities

A permanent officer allowed to retire before having qualified for retired pay may be granted a gratuity provided he has not less than ten years' commissioned service—namely, £1,500 if he has ten but less than fifteen years' commissioned service, £2,500 after fifteen or more than fifteen years.

Short service officers will be eligible on passing to the Reserve for gratuities on the following scale: £100 for each of the first two complete years of service; £150 for each of the third and fourth complete years, and £200 for the fifth complete year, that is, for three years' service on the active list £350, for five years £700.

These gratuities will not be payable to officers granted permanent commissions, but their service on a short service commission will count towards retired pay.

Further particulars may be obtained on application to the Secretary, Air Ministry (D M S.), Adastral House, Kingsway, W. C. 2.

INDIAN MEDICAL SERVICE

In May, 1928, the Secretary of State for India issued a communiqué announcing the terms on which the Indian Medical Service would in future be constituted. The communiqué was to the effect:

(i) That the I M S. constituted on the same broad lines as at present will be retained primarily to meet the needs of the Indian Army, the Local Governments being required to employ a stated number of I M S. officers in order to maintain the necessary minimum war reserve and to provide for European medical attendance for European officers of the I C S. and their families.

(ii) That the total number of I M S. officers required for civil employment is calculated at 302 of which 212 will be Europeans and 90 Indians.

(iii) That there will be 237 posts for these officers after allowing for leave and study reserve 178 of which will be in the provinces and 59 under the Government of India.

These posts will be filled as follows:

Under Provincial Governments 178 posts, of which 112 must be held by European officers, the remaining 66 to be open to Europeans or Indians.

Under Government of India 59 posts, of which 28 will be open to Europeans or Indians, the remaining 31 being open to Europeans only.

(iv) That the medical requirements of European members of the Superior Civil Services are based on data which will change from year to year as the proportion of European to Indian officers gradually diminishes and will be subject therefore to periodical revision.

(v) That certain rules will come into force as an integral portion of the scheme. These rules deal with the question of employment on the military and civil side and provide *inter alia* that liability to serve on either the military or civil side will be a definite condition of service for all future entrants to the Service.

The civil appointments which are reserved for officers of the I M S., and which exclude the posts of Chief Administrative Medical Officers of Local Governments, are scheduled in the communiqué.

European candidates for admission to the I M S. must be British subjects under 32 years of age, and must be registered under the Medical Acts in Great Britain and Northern Ireland. A gratuity of £1,000 on retirement after six years' service, or £2,500 after twelve years' service, together with free return passages, is offered.

The Indian Medical Service offers wide opportunities of medical experience, including clinical preventive, specialist, and research work. At the beginning of his career an officer is employed on the military side, which has medical charge of the Indian Army. Promotion is on a time scale up to the rank of Lieutenant-Colonel, and by selection to the ranks of Colonel and Major General. After two years' Indian service an officer may apply for transfer to the civil side, from which appointments are made to Civil Surgeoncies, which are established at the principal civil centres to provide for the medical needs of civil officials and for general medical administrative purposes, to specialist (for example, public health and bacteriological) services, to research posts, and to professorships at the Medical Schools. It must be understood, however, that opportunities for employment on the civil side are indefinite.

The monthly rates of pay for European officers in the Service who have a "non Asiatic" domicile are as follows:

Rank.	Service in Rank	Basic Pay	Overseas Pay	Year of Total Service
1	2	3	4	5
Lieutenant		Rs 500	Rs 150	1st
Captain	(i) During first 3 years service as Captain	650	150	2nd
	(ii) With more than 3 and less than 6 years service as Captain	750	150	3rd
	(iii) With more than 6 years service as Captain	850	150	4th
Major	(i) During first 3 years service as Major	950	150	5th
	(ii) With more than 3 and less than 6 years service as Major	1100	150	6th
	(iii) With more than 6 years service as Major	1250	150	7th
Lieut.-Col.	(i) Until completion of 23 years total service	1500	150	8th
	(ii) During 24th and 25th years total service	1600	150	9th
	(iii) After completion of 25 years total service	1700	150	10th
	(iv) When selected for increased pay	1850	150	11th
				12th

Extras—In addition to the above rates various allowances are admissible for a large number of special appointments on both the military and the civil side which may be held by members of the Indian Medical Service. Special high rates of pay are also attached to the numerous administrative appointments open to officers in both branches of the Service.

Officers on appointment will receive an outfit allowance of £50. With the exception of Administrative Officers military or civil and officers holding certain special appointments officers are not debarred from taking private practice, so long as it does not interfere with their proper duties.

The rates of pension are as follows.

	Per annum.
After 17 years service for pension	£400
" 18 " " "	430
" 19 " " "	460
" 20 " " "	500
" 21 " " "	540
" 22 " " "	580
" 23 " " "	620
" 24 " " "	660
" 25 " " "	700
" 26 " " "	750
" 27 " " "	800

These rates are subject to alteration on account of a rise or fall in the cost of living as compared with the year 1919 to an extent not exceeding 20 per cent in all, the revision being undertaken triennially with effect from July 1st, 1927. A reduction of 4½ per cent. has been made on this account from the amounts shown.

There are additional pensions ranging from £65 to £350 per annum for officers who have held administrative appointments.

An officer on appointment is provided with a free passage to India. The wives and families of officers who are married prior to the date of the officers' embarkation on first appointment will also be provided with free passage to India.

Officers and their families are also eligible for passage concessions under which they are granted a certain number of return passages home at Government expense during their service.

Officers are required to undergo courses of instruction at the Royal Army Medical College and at Aldershot lasting approximately six months, prior to their embarkation for India on first appointment.

Further particulars may be obtained from the Under Secretary of State for India, Military Department, India Office, London, S W 1

PRISON MEDICAL SERVICE

CANDIDATES for the prison medical staff are approved by the Secretary of State for the Home Office on the recommendation of the Prison Commissioners. The Chairman of the Board is Mr. M. L. Waller, C.B. Application for employment may be made to the Board on a special form, which can be obtained from the Secretary, Prison Commission, Home Office, London, S W 1.

In the smaller prisons the medical officer is usually a local practitioner, but in the larger the members of the medical staff are required to devote their whole time to the service. In the case of those required to give their whole time to the service the appointment in the first instance is to the post of medical officer Class II, and from the seniors of this rank the medical officers Class I are selected as vacancies occur.

In February, 1923, the then Home Secretary appointed a committee to report on what changes, if any, should be made in the remuneration or other conditions of service of officers at the prisons and Borstal institutions in England and Scotland and at Broadmoor Criminal Lunatic Asylum. Evidence was given on behalf of the British Medical Association by the Medical Secretary, who pointed out that the salary offered to Class II medical officers—namely, a basic salary of £300 rising by annual increments—was, even when the allowances and bonus were reckoned in, less than the £500 a year the Association looked upon as the minimum commencing salary which should be given to a whole-time medical man holding such a responsible office. Following the report of the committee, which was issued in November, 1923, the salaries of whole-time prison medical officers were increased to Medical officer Class II, £350, rising by annual increments of £20 to £600, medical officer Class I, £650, rising by annual increments of £25 to £800. Unfurnished quarters are provided, or an allowance in lieu is made. The civil service bonus is paid on the salary. There are 15 medical officers Class II, 12 medical officers Class I, and 23 part-time medical officers.

The service is a small one, and therefore vacancies are comparatively rare and promotion is very slow.

POOR LAW MEDICAL SERVICES

A NUMBER of whole-time appointments exist under the various Poor Law authorities in Great Britain, certain of which, notably in the metropolis and the chief provincial cities, maintain large well-equipped hospitals organized under purely medical administration. Posts are available to medical practitioners as superintendents and assis-

tant officers in hospitals and infirmaries, and as resident officers in other institutions, such as poorhouses, workhouses, etc. Conditions and salaries show considerable variation, salaries for resident assistant medical officers in Poor Law infirmaries usually range from £200 to £450 a year, with full board, the duties being much the same as, but as a whole more responsible than, those of a house-physician or house surgeon in a general hospital. Medical superintendents are paid from £600 to £1,600 a year, with house, light, coal, laundry, etc., and in some cases the first assistant is termed deputy medical superintendent and receives £450 to £750 a year, with similar emoluments. This service, therefore, offers openings for young practitioners and the prospect of a reasonable degree of progress for those who may choose to make it their career, with security of tenure, and provision for superannuation. It should be added that the attractiveness or otherwise of any particular post is affected considerably by the policy adopted by the authority under whose jurisdiction it falls. In the more advanced areas there is a high degree of differentiation in treatment between the sick and mentally affected, and the purely pauper class (between the hospital and the workhouse), the tendency in such areas has been to develop the hospital services on lines approximating to those ruling in the voluntary hospitals. In the smaller unions, however, lay control, through the administration by a workhouse master of the whole organization, has been preserved, and medical appointments in such circumstances are less attractive. A considerable change in administrative conditions in the Poor Law in England and Wales may be expected in the near future, as it is the intention of the present Government to introduce legislation which will involve, among other things, the abolition of the boards of guardians, and the transfer of their functions to larger units. This should result in greater uniformity in conditions, and probably in a higher degree of specialization in Poor Law work, particularly on the medical side, and a closer assimilation to other public health services. In addition to the full-time appointments of the character mentioned, the Poor Law service offers numerous part-time posts, such as those of district medical officer, parish medical officer, public vaccinator, etc., which are practically all held by general practitioners.

MEDICAL PRACTICE IN BRITISH DOMINIONS AND FOREIGN COUNTRIES

MEDICAL Acts have now been passed in almost all places forming part of the British Empire beyond the seas, and registers of duly qualified practitioners are consequently maintained. To these registers medical men educated in the United Kingdom are generally admissible merely on payment of a registration fee, providing they produce evidence that they are of good reputation and are either registered or eligible for registration in the United Kingdom, as the local requirement may be. The only exception to this statement that need be made relates to the Dominion of Canada. Each of its provinces acts in medical matters as an independent State. The result has been that reciprocity of practice has in the past been established between this country and all the provinces of Canada except British Columbia, where certain obstacles were never overcome. It has, however, to be recorded that reciprocity with Saskatchewan, New Brunswick, Ontario, and Quebec has recently been brought to an end by those provinces. We would advise any medical man proposing to practise in Canada first to communicate with the Provincial Registrar, stating what degrees or diplomas he holds, and asking for information as to the precise steps he must take in order to obtain admission to the Provincial Register. The Licence of the Dominion Council, which can only be obtained after examination, entitles its holder to practise in any of the provinces of Canada, though in regard to Quebec there is a proviso that "he must have been registered in the province five years prior to the application for the recognition of the Dominion Licence." In order to sit for the examination for the Dominion Licence, it is necessary to obtain a licence from one of the provinces, but this can be obtained from one of those with whom reciprocity has been established.

Italy and Japan are the only two foreign States with which complete medical reciprocity has been established, though there are other countries which grant a limited recognition to British qualifications. Generally speaking, in Continental countries (with the exception of the kingdom of Italy) a British medical man desiring to exercise his profession therein must pass practically the same examinations as those imposed on natives of the country. The same observation applies to all foreign States in the South American continent. Each of the United States of North America has its own laws and regulations governing medical practice, and all of them require the holder of a British qualification to submit to an examination. The States of New York and Indiana require naturalization.

A pamphlet showing the conditions under which medical and dental practitioners legally qualified in their own country may practise abroad can be obtained from the office of the General Medical Council, 44, Hallam Street, Portland Place, London, W.1, price 2s 6d, or 2s 9d post free in the United Kingdom. Practitioners who think of going abroad to practise will find therein much useful information, including the name of the official in each country to whom requests for further particulars should be addressed. A new edition was published last year.

MEDICAL APPOINTMENTS IN THE COLONIES AND MANDATED TERRITORIES

MEDICAL appointments in the self governing Dominions and the territories under their control, and in Southern Rhodesia, are made by the Governments concerned, and are not in general open to candidates in the United Kingdom. Appointments to the medical services of the colonies and other territories under the administrative direction of the Colonial Office are, apart from those in Ceylon, Mauritius, Jamaica, Barbados, the Bahamas, Bermuda, and Malta, which are filled locally, made by the Secretary of State for the Colonies in this country. Such appointments are to a given colony or colonies, for there is no unified service directly administered from the Colonial Office. It follows that conditions of service and superannuation are in the main determined by the economic resources and general public health policy of the individual colony and its local Government, and vary almost as widely as do conditions of climate. Moreover, the extent of the control exercised by the Colonial Office varies according to the constitutional status of the particular colony, and the detailed information available centrally is not always either up to date or complete. The intending candidate, therefore, should make comprehensive inquiries as to local conditions, and particularly as to facilities for private practice where this is included in the terms of appointment. He will also do well to supplement official information by reference to the central office of the British Medical Association, where reports obtained from time to time from the local Branches are available. This is the more necessary because facilities for transfer from the Medical Service of one colony to that of another are as yet practically non-existent, except in connexion with a few specialist and senior appointments, thus sets strict limits upon the opportunities for promotion.

To those physically and mentally suited for the climatic and social conditions peculiar to the various colonies the Colonial Medical Services should, and in some cases do, offer a field of professional activity rich in interest and in opportunity for pioneer work. The scope for research is wide, and facilities for its prosecution are beginning, however tardily to be provided. An increasing number of specialist posts is becoming available in the larger services, and the general policy is to fill them by promotion of suitably qualified junior officers. The potentialities of sanitation are beginning to be appreciated by local administrations, however vaguely. But, when all is said, it cannot be contended that conditions in the Colonial Medical Services are generally satisfactory. In some instances indeed, they can only be characterized as intolerable. Hence the necessity for very full inquiry before accepting appointment. It is true that the post-war economic straits to which the delay of essential reform was usually attributed is giving place to more favourable conditions. There are also signs of increasing parliamentary and departmental interest in

the development of a sound health policy. Amongst these the most significant is perhaps the recent appointment by the Secretary of State, in consultation with the Medical Research Council, of a Committee "to advise the Secretary of State and the Medical Research Council upon the initiation and promotion of medical research in the interests of the Colonial Empire, upon the recruitment and conditions of service of the necessary personnel, and upon the management and allocation of any funds available for these purposes." The appointment of a chief medical adviser to the Secretary of State for the Colonies has also had its effect. We are confident that the work of this officer will contribute greatly to the establishment of conditions making for efficiency and well being in the Colonial Medical Services. Meanwhile, those services are too often hampered by conditions which make efficiency unattainable. At the worst they are in some colonies starved of material resources in the name of economy, understaffed, and underpaid, with inadequate facilities for study leave and at the mercy of an administration in which the nominal head of the service has no effective voice. Hence the urgent necessity for making careful and sufficient inquiry as to the position in any given service before appointment is accepted.

The medical services recruited in this country by the Secretary of State for the Colonies include those of West Africa, East Africa, Malaya, Hong Kong, the West Indies, Fiji, and Western Pacific territories, and Palestine, besides a number of small services offering individually one or two appointments at an inadequate remuneration and with no prospects of promotion. The recent revision of the conditions of the Fiji Medical Service shows a distinct improvement in this colony. The basic salary of the district medical officers is £500 by £25 to £725, and although this is below the £600 minimum recommended as adequate by the British Medical Association this fact is offset by the concession of allowances of from £175 to £275 in five of the districts, the value of private practice in the remaining seven being estimated at from £200 to £600 a year. During the last twelve months improvements have been effected in the conditions of service in Hong-Kong, the Western Pacific, and the Bahamas. The services in the West Indies and some of the smaller colonies have not yet conceded the £600 minimum commencing salary, and whilst facilities for remunerative private practice, general conditions of service, and a relatively low cost of living must in some instances be taken into consideration, these compensations are by no means universal. The services in the Leeward and Windward Islands are in a condition which requires special notice by way of warning.

In general candidates for these services must be between the ages of 23 and 35, although these limits are not for the moment absolute. A candidate over 35 years of age, if accepted for appointment, may be required to serve on a temporary and non-pensionable footing, regular appointments are, subject to a varying period of probation, for the most part classed as permanent and pensionable. There is no entrance examination, but practitioners selected for appointment must obtain a certificate of physical fitness from one of the Consulting Physicians to the Colonial Office. Post-graduate experience in hospital appointments is desirable and in some cases special allowances are conceded to the holders of a D.P.H. Successful candidates for the West African Medical Staff, the East African Medical Service, and the Malayan Services are normally required to undergo an approved course of instruction in tropical medicine, the fees for their tuition being defrayed by the Government and an allowance being paid during their instruction.

The bulk of the appointments made by the Secretary of State in this country are to the West African Medical Staff, the East African Medical Service, and the Medical Services in Malaya. These are the strongest individual services numerically, and therefore offer more frequent vacancies, better prospects of promotion, and better chances of specialist appointments than the smaller services.

WEST AFRICAN MEDICAL STAFF

This is amongst the best organized and best paid of the Colonial Services though at present it appears to be understaffed. The territories covered by the service include

Nigeria, the Gold Coast, Sierra Leone, and the Gambia. Climatic conditions vary considerably over this area but they are in general admittedly trying. This fact is at present recognized by the provision of more frequent leave periods than are usual elsewhere.

The rate of pay for a medical officer is £660 on appointment, rising by annual increments to £860, together with a seniority allowance of £72 a year after reaching £720. There are a considerable number of specialist and administrative posts carrying relatively high salaries, varying from £1,300, with duty allowance of £250, to £1,800, with duty allowance of £360. All appointments in the staff are pensionable. Officers may retire voluntarily on reaching 50 years of age, and may be called upon to retire at 55. Pensions are calculated at the rate of 1/480th of the officer's pensionable emoluments (salary and house allowance) in respect of each complete month of service. Alternatively a gratuity and reduced pension may be granted, if desired, under certain conditions. Gratuities of £1,000 or £1,250 may be drawn on retirement after nine or twelve years' service. Members of the West African Medical Staff are not usually permitted to take their wives or young children to the West Coast until they have acquired experience of the conditions of life and have obtained the sanction of the Governor. In the case of young children this is only exceptionally given.

African Medical Officers

In addition to members of the West African Medical Staff which is limited to British subjects of European parentage there are a number of Government appointments for African medical officers in the West African Colonies. These appointments carry salary on the scale £500-£25-£600 and there is a higher scale £600-£250-£720. In addition in Nigeria and the Gold Coast arrangements have been made for the employment of a few young African medical men temporarily on the hospital staffs, with a view to appointment to the Government service later if suitable. In such cases a salary of £400 a year is paid.

EAST AFRICAN MEDICAL SERVICE

This service includes Kenya, Uganda, Tanganyika Territory, Nyasaland, Zanzibar, and British Somaliland. In East Africa there is a very wide scope for clinical work, both medical and surgical, as well as for research and for preventive medicine and sanitation. The service as a whole is fully alive to its responsibilities and opportunities. Individual initiative is encouraged, and the career of a medical officer depends, not on seniority alone, but to a large extent on his own capability. As a rule it is preferable that medical officers on first appointment should not be married although in all but a few stations conditions allow a medical officer's wife to accompany him. The service includes a medical and a sanitary division. The former is open to those holding ordinary medical and surgical qualifications, post graduate experience in a hospital appointment being an advantage, posts in the sanitary division will as far as possible be filled by those holding a Diploma in Public Health. Climatic conditions vary considerably. In a considerable part of Kenya they approximate more to the temperate than the tropical zone, but there are some areas in the East African Dependencies where conditions more closely resemble those in West Africa. The rate of pay for a medical officer is from £600 on appointment rising by annual increments of £30 to £840, and thereafter, subject to an efficiency bar at this point, by £40 to £920. Holders of the D.P.H. receive a special concession of two increments on appointment, thus reaching the maximum of the grade two years earlier than they would otherwise do. Private practice may be permitted in certain circumstances, but there is no right to it even in stations where opportunities may exist.

Whilst a candidate can only apply for appointment to the East African Medical Service in general and is liable to transfer between the several dependencies, he may express his preference for any particular colony and his wishes will be met as far as possible. As a rule transfer only takes place on promotion or at an officer's own request. The gratuities available on retirement after nine or twelve years' service are similar to those for the West African Medical Staff. Officers may elect or may be required to retire on pension on reaching the age of 50 years. Pensions are calculated at the rate of

1/480th of emoluments (including value of free quarters) for each completed month of service.

MEDICAL SERVICES IN MALAYA

These services cover the Straits Settlements, the Federated Malay States, and some of the unfederated States. Certain reforms have recently been effected in the Malayan Services, and whilst that in the Federated Malay States still suffers from the inclusion of the Medical Department in the general decentralization of administration carried out since the war, the new commencing salary of 500 dollars a month plus an allowance of 10 per cent for single and 20 per cent for married officers, is generally considered adequate. A non-pensionable allowance of 100 dollars a month is paid to officers holding the Diploma in Public Health. The service should now offer considerable scope to suitable candidates.

SUDAN MEDICAL SERVICE

This service is a department of the Sudan Government, and includes a number of Syrian medical officers and a number of assistant medical officers who are natives of the Sudan. The British medical inspectors are from the outset senior to all other medical officers. The Sudan is entering on a period of rapid development and expansion, to which the medical services of the country must necessarily make an important contribution. The service offers ample opportunities for specialization and for research, as well as for general medical and surgical work. The ordinary duties of a medical inspector may be summarized as follows:

- (1) To act as a consulting surgeon and obstetrician in all cases submitted to him by his medical staff. This necessitates considerable surgical experience.
- (2) To initiate, organize, and supervise all medical and sanitary work in his province. This includes extensive antimalarial work and often the supervision of large irrigated areas.
- (3) To carry out the medical supervision of schools and the examination of candidates for Government service and pension.
- (4) To train assistant medical officers and native sanitary overseers, and to advise and direct medical officers in the carrying out of their duties.
- (5) Probably, at a later date, to take part in teaching at the School of Medicine at Khartoum.

The climate varies, but is not in general unfavourable, though hot. In the northern desert the nights are cool even in the summer, in the central there is a rainy season of about four months, during which large areas become malarious. The southern area is more tropical in character, and mosquito-protected houses, nets, and protective quinine are essential during the greater part of the year, though the winter months are cool and pleasant. It is not considered desirable for medical inspectors to be accompanied by their wives until they have gained some knowledge of the language and the general conditions of life.

The commencing pay of a medical inspector is £E 720*. On confirmation of appointment and success in the requisite examinations in Arabic the salary is increased by periodic increments to £E 1,200. There are four senior administrative posts carrying higher salaries. There is a compulsory contribution of 5 per cent of pay towards pension, which, for a medical inspector, amounts, after twenty years' service to £E 500 a year.

PALESTINE

A few of the senior posts in the Health Department of the Government of Palestine are recruited in this country. The scales of pay vary between £P 550-£25-£750+ with expatriation allowance of £P 100 for an assistant senior medical officer and £P 1,200 with an expatriation allowance of £P 200 for the director.

OFFICIAL SOURCES OF INFORMATION

All inquiries in connexion with medical appointments in the self-governing Dominions and their dependencies should be addressed to the High Commissioners or Agents-General.

£E = £1 0s 6d sterling. This figure represents exchange value not purchasing power.
£P = £1 0s 6d sterling. This figure represents exchange value not purchasing power.

for the Dominions. Intending applicants are also recommended to consult the Colonial Office List, which may be seen at the Colonial Office Library or at the central office of the British Medical Association if not otherwise available, and the Professional Handbook (price 9d) issued by the Overseas Settlement Office, Caxton House, Tothill Street, London, S W 1.

Recent developments seem to suggest the possibility of a few appointments becoming available under the Egyptian Government. Questions about any such appointments should be addressed to the Director-General, Public Health Department, Cairo.

Inquiries as to vacancies and conditions in the Sudan Medical Service should be addressed in the first instance to Dr T D Acland, 19, Bryanston Square, London, W 1.

All inquiries in connexion with Colonial medical appointments made by the Secretary of State for the Colonies, or such vacancies as may occur in Iraq or Palestine, should be addressed to the Private Secretary (Appointments), Colonial Office, 2, Richmond Terrace, Whitehall, London, S W 1.

There remain a number of medical appointments made by mining companies and other commercial undertakings in various parts of the tropics. Much caution should be exercised in accepting such posts, and the form of contract should be subjected to very careful scrutiny. Advice in this connexion should always be sought from the Medical Secretary's Department of the British Medical Association, British Medical Association House, Tavistock Square, London, W C 1.

DEGREES FOR PRACTITIONERS

At one time it was the almost universal custom for medical students educated in London and aiming at general practice not to seek a university degree, and as that custom still prevails to a considerable extent a large proportion of medical men in England possess diplomas or licences to practise but not degrees in medicine. This is a fact which they sometimes find reason to regret, and to such practitioners the following paragraphs may be of interest. It should be noted that the M D Brux diploma, if obtained subsequently to June, 1886, is not registrable, and that the University of Brussels no longer holds special examinations for foreign medical practitioners.

UNIVERSITY OF DURHAM

The degree of M D is granted by the University of Durham to registered practitioners of not less than fifteen years' standing, who have been qualified and in practice for that period, upon the following conditions, without residence. The candidate must be 40 years of age, and must produce a certificate of moral character from three registered medical practitioners. Should he not have passed an examination in arts previous to the professional examination in virtue of which his name was placed on the Register, he is examined in classics and mathematics, if otherwise, he is required to translate into English passages from any one of the following Latin authors: Caesar, *De Bello Gallico* (first three books), Virgil, *Aeneid* (first three books), or Celsus (first three books). Natives of India or the British Colonies are placed on the same footing as natives of Great Britain, and must be registered on the books of the General Medical Council of the United Kingdom.

Professional Examination.—The candidate must pass an examination in the following subjects: (i) Principles and practice of medicine, including psychological medicine, hygiene, and therapeutics, (ii) principles and practice of surgery, (iii) midwifery and diseases of women and children, (iv) pathology, medical and surgical, (v) anatomy, medical and surgical, (vi) medical jurisprudence and toxicology. Candidates are examined by means of written papers, clinically, and *viva voce* at the College of Medicine, Northumberland Road, Newcastle, and in the Royal Victoria Infirmary. The classical part of the examination may be taken separately from the professional on payment of a portion (£10 10s) of the full fee.

The examinations are held twice a year, in June and December. Notice, accompanied by the fee and certificates,

must be sent to the Secretary of Examinations, at the University of Durham College of Medicine, Newcastle-on-Tyne, at least twenty-eight days before the commencement of the examination.

Fees.—The fee is 50 guineas which includes the degree fee if a candidate fail to pass, 20 guineas are retained, but if he present himself again 40 guineas only are required.

THE SWISS UNIVERSITIES

The Universities of Lausanne and Berne have arrangements which permit British practitioners to proceed to the M D degree, but this alone does not confer the right to practise in Switzerland, for which the possession of the State or Federal Diploma is necessary. Neither degree is registrable in this country.

At Lausanne the British practitioner has to produce (1) a certificate of matriculation in a British university or of having passed a preliminary examination recognized by the General Medical Council for the purposes of registration as a medical student, (2) a certificate of a degree or diploma qualifying for practice in the United Kingdom and the certificate of registration as a medical practitioner in the United Kingdom. He must then undergo a *viva voce* examination in three subjects of the final medical examination. Next he must present a thesis for the doctorate prepared and completed in one of the Lausanne clinics under the direction of one of the professors of the Faculty of Medicine. Residence for a semester (October to March or April to July) is obligatory. The fees are on matriculation 20 francs on inscription for the *viva voce* examination 50 francs on presentation of thesis 200 francs for diploma and graduation 25 francs for courses of lectures and laboratory instruction 80 francs the printing of the thesis costs from £7 to £12. Applications for admission should be made to the Dean of the Medical Faculty Ecole de Médecine Place de l'Our Lausanne. An official publication (*Guide de l'Étudiant*) is issued in October and April and may be obtained (price 50 centimes) from M. F. Haeskel Dufey 3 Rue Centrale Lausanne. Dr C A H Franklin (58 Southborough Road Bickley Kent) honorary secretary of the Lausanne Medical Graduates, will supply further information.

MEDICAL RADIOLOGY AND ELECTROLOGY

THE CAMBRIDGE DIPLOMA

A DIPLOMA in Medical Radiology and Electrology is granted by the University of Cambridge. The primary object is to provide adequate training in a branch of medical work which is becoming increasingly important and difficult, and which is outside the ordinary medical curriculum. The diploma is open only to those who hold a medical qualification approved by the Diploma Committee.

Under the new regulations, which come into operation in October, 1928, the course has been extended from six to nine months. The first three months (October to December), which may be spent either in Cambridge or in London, are occupied with lectures and practical work in physics and electrotechnics, together with an introductory course in medical radiology and electrology. The work for the second three months (January to March) can be done in London only, and comprises lectures and clinical instruction in radiology and electrology given by lecturers appointed by the Educational Committee of the British Institute of Radiology, together with clinical experience in the radiological department of a hospital recognized for that purpose by the Diploma Committee. During the last three months a candidate is required to hold a clinical clerkship, or other similar appointment, in the radiological department of a recognized hospital. Hospitals at a number of provincial centres, as well as in London have been recognized by the Committee for this purpose. In exceptional circumstances exemption from this regulation may be granted by the Committee.

The examination for Part I (physics and electrotechnics) is normally taken at the end of the first three months, and the examination for Part II at the end of six months. At the conclusion of the nine months' course a candidate is required to present a thesis composed by himself. This thesis is to be in the form of a critical report with notes upon six cases either in radiology or electrology or in both these subjects and must illustrate various methods of diagnosis or treatment.

Further particulars of the courses and examinations can be obtained from G. Stead M A, Cavendish Laboratory, Cambridge, or from the Director, British Institute of Radiology, 32, Welbeck Street, London, W 1.

THE EDINBURGH DIPLOMA

Candidates for the diploma must be graduates in medicine and surgery of the University of Edinburgh, or hold corresponding registrable degrees or qualification from some other licensing body. Candidates are not admitted to the examination for the diploma until after the lapse of not less than one year from obtaining a registrable qualification, which qualification must be registered before admission to the examination.

The course of study begins in October and extends over a period of not less than three terms. The examination, which is written, oral, and practical, is in two parts: (a) physics, and (b) radiology. The examination is held twice yearly—namely, July and October. Full particulars may be obtained from the Dean of the Faculty of Medicine.

THE LIVERPOOL DIPLOMA

The University of Liverpool grants a Diploma in Medicine, Radiology and Electrology. Candidates before admission to the examination for the diploma must possess a registrable qualification approved by the university in medicine and surgery, and must have attended courses of instruction in (a) physics (two terms), (b) (1) radiology and (2) electrology, during six months in the x-ray and electro-therapeutic departments of a hospital or hospitals. An examination is held in March each year, the subjects being (a) physics, (b) radiology and electrology. Examination in either part may be taken separately. Fees: tuition, £24 5s., examination and diploma, £6 5s. These courses commence during the first week in October. Application should be made to the Dean, Faculty of Medicine, the University of Liverpool.

MEDICAL MISSIONARIES

Missionary societies are in constant need of qualified men and women to fill vacancies as they occur in their hospitals and also to enable them to take advantage of fresh openings. To those suitably endowed the mission field offers unique opportunities for interesting work, and the development of native medical schools as training institutions in connexion with some of the larger mission hospitals, affords excellent scope for valuable work to medical men and women who are qualified to teach. It is not usually expected that medical missionaries should take a position such as would otherwise be occupied by an ordained clergyman or minister, but it is essential that they should be prepared to exert their influence in any hospital to which they may be sent so that a Christian atmosphere may be maintained and the work of evangelization be carried on through the ministry of healing.

As for scientific and other qualifications for the work, medical missionaries, in addition to being physically capable of sustaining a life which makes a great demand upon their strength, should be thoroughly well trained physicians and surgeons. It is very desirable that they should have held a resident appointment at a general hospital, and have a good knowledge of practical surgery, gynaecology, tropical medicine, and the treatment of eye diseases. Useful information can be obtained from the secretaries of the various Missionary Societies, or from Thomas Cochran, M.B., C.M., Honorary Secretary, British Advisory Board on Medical Missions, 1, Tudor Street, London E.C.4.

Dental Surgery.

UNTIL the passing of the Dentists Act, 1921, the profession of dentistry in this country was regulated by enactments corresponding very closely with those relating to the practice of medicine—that is to say, there was no direct prohibition of the act of practice and the Dentists Act of 1878 gave the same degree of protection to legally qualified and registered dentists as was accorded to registered medical practitioners—namely the reservation of the use of certain titles. This Act provided also (1) that no person should take or use the name or title of "dentist" (either alone or in combination with any other word or words) or of "dental practitioner" or any other name, title, or

description expressed in words or by letters implying that he was specially qualified to practise dentistry, unless he was registered, under a penalty of £20, and (2) that an unregistered person could not recover any fee or charge in respect of any dental operation, attendance, or advice. But, in the case of the practice of medicine by unqualified and unregistered persons, certain deterrent factors came into play—such as the inability to give a death certificate—and these did not operate to the same extent in the case of dentistry; hence, unqualified practice was far more prevalent in dentistry than in medicine, and increased after a decision of the House of Lords placing a narrow interpretation upon the words "specially qualified to practise dentistry," by defining the word "qualified" as not referring to competence but to the possession of a recognized diploma.

THE DENTISTS ACT, 1921

This unsatisfactory position was remedied by the passing into law of the Dentists Act, 1921, its provisions are based largely on the recommendations of a departmental committee appointed in 1917 by the Privy Council "to investigate the extent and gravity of the evils connected with the practice of dentistry and dental surgery by persons not qualified under the Dentists Act." Since November 30th, 1922, no person has been permitted by law to practise or hold himself out, whether directly or by implication, as practising or as being prepared to practise dentistry unless he is on the *Dentists Register* provided for by the Dentists Act, 1878. The practice of dentistry is defined as including "the performance of any such operation and the giving of any such treatment, advice, or attendance, as is usually performed or given by dentists," and the performing of any operation or the giving of any "treatment, advice, or attendance on or to any person as preparatory to or for the purpose of or in connexion with the fitting, insertion, or fixing of artificial teeth." The maximum penalty incurred by an unregistered dentist is £100 for each offence. There are, however, certain important exceptions to the requirement of registration. A registered medical practitioner may practise dentistry without being on the *Dentists Register*, and a registered pharmaceutical chemist or chemist and druggist may extract a tooth where the case is urgent and where no doctor or dentist is available, but the operation must be performed without any kind of anaesthetic, further, any person may carry out minor dental work in a public dental service under the personal supervision of a registered dentist provided it is in accordance with conditions approved by the Minister of Health after consultation with the Dental Board.

Certain persons other than those qualified by examination were entitled to be registered under the new Act. They had to be of good personal character and 23 years of age before July 28th 1921 (the commencement of the Act) and to have been engaged for five of the seven years preceding that date as their principal means of livelihood in the practice of dentistry in the British Isles or have been admitted to membership of the Incorporated Dental Society not less than one year before the commencement of the Act. The passing of the prescribed examination in dentistry within two years of the commencement of the Act was considered as equivalent to practising for five years and a registered pharmaceutical chemist or a chemist and druggist who immediately before the commencement of the Act had a substantial practice as a dentist including all dental operations was treated as though he had practised for five years. A dental mechanic who for the five years had been carrying on his work as such and has secured the entry of his name on the list of candidates for examination can be registered provided within ten years of the commencement of the Act he passes the prescribed examination. The Board however has no power now to consider any further applications under this Act.

Dentistry may be carried on by a corporate body provided the majority of the directors and all the operating staff are registered dentists and that no business other than dentistry or only some business ancillary to dentistry is carried on by the company. Companies carrying on the business of dentistry at the present time are permitted to continue to do so with certain restrictions provided that the name of the company as well as the names of the directors have been entered in a list kept by the Registrar for that purpose. Every director or manager of a company convicted of an offence under the Act will be held to be guilty of the offence unless he proves that the offence was committed without his knowledge and the court may in addition to a fine, order that the name of any director convicted shall be removed from the list of directors aforesaid.

A subsequent Act passed in 1923 made provision for the registration of persons who were 21 in November 1921 who had served during the late war in His Majesty's Forces, and were on that

date engaged as their principal means of livelihood in the practice of dentistry in the British Isles. The Board, however, has no power now to consider any further applications under this Act.

THE DENTAL BOARD

On the establishment of the Dental Board in 1921 certain powers and duties of the General Medical Council were transferred to it, including the duty of erasing from the *Dentists Register* any entry which has been incorrectly or fraudulently made. An inquiry into the case of a person alleged to be liable to have his name erased from the *Register* is made by the Board, which reports its findings to the General Medical Council, the order directing the erasure being made by the Council. A name erased from the *Register* can only be restored by the Council upon a report made by the Board. An appeal to the High Court may be made by any person aggrieved either by refusal of the Board to register his name or by the removal of his name from the *Register*. The administrative expenses of the Board are defrayed from the registration fees and annual retention fees, but any surplus may be allocated to purposes connected with dental education and research or to any public purpose connected with dentistry. The office of the Dental Board is at 44, Hallam Street, London, W 1.

DENTAL EDUCATION AND EXAMINATION

The preliminary examination in arts is the same for medical and dental students, and the early stages of their education embrace much the same subjects¹, and, as the dental student is required to obtain a knowledge of the broad principles of medicine and surgery, it is necessary for him to pursue some portion of his studies at a medical school as well as at a special dental school, the latter not undertaking the teaching of these subjects. Registration as a dental student is not in all cases compulsory, though it is to be advised as convenient as affording proof of the commencement of professional education, and it is required by most of the licensing bodies, all of whom insist upon a curriculum covering four academic years.

Degrees in dentistry are granted by the Universities of Bristol, Durham, Leeds, Liverpool, London, Sheffield, Queen's University, Belfast, and the National University of Ireland, as will be found stated in the articles on these universities. Licences in dentistry entitling the holder to be registered on the *Dentists Register* are granted by the Universities of Birmingham, Bristol, Durham, Leeds, and Belfast and by the Royal Colleges of Surgeons of England, of Edinburgh, and of Ireland, and by the Royal Faculty of Physicians and Surgeons of Glasgow.

Recognized dental schools are numerous. In London there are those connected with the Royal Dental Hospital, Leicester Square, the National Dental Hospital (now the University College Hospital Dental School), Great Portland Street, Guy's Hospital, King's College Hospital, and the London Hospital. In the provinces there are the Birmingham Dental Hospital, the Royal Infirmary and the General Hospital, Bristol, the Dental Hospital and the Public Dispensary, Leeds, the Dental Hospital, Liverpool, the Dental Hospital, Manchester, the Dental Hospital and School, Newcastle-on-Tyne, the Royal Hospital, Sheffield. In Scotland there are the Dental Hospital, Dundee, the Incorporated Dental Hospital and School, Edinburgh, and the Incorporated Dental Hospital, Glasgow, and in Ireland, the Incorporated Dental Hospital of Ireland and the Royal College of Surgeons in Ireland.

A list of dental schools and their officials will be found in the article on the General Medical Council at page 377.

All who think of becoming dentists may be advised to study a Memorandum, lately drawn up for their guidance by the Registrar of the Dental Board, setting out in convenient form and in untechnical language information for which request is frequently made to the Board.² It will be seen from this pamphlet that in order to assist suitable students the Dental Board has instituted a system of bursaries to pay the fees of those who have not the financial means to qualify, and in some cases maintenance is given as well.

Recommendations of the General Medical Council

The *Dentists Act* still leaves to the General Medical Council the duty of controlling the course of study and examinations required for dental qualifications.

The following recommendations as to the course of study and examinations to be required of candidates for degrees or licences in dentistry or dental surgery were adopted by the Council on May 27th, 1922.

¹ See the Registrar's Memorandum on Students' Registration printed in the article on the General Medical Council at page 376.

² Memorandum by the Registrar on the Procedure to be Adopted by Those who Desire to Enter the Profession of Dentistry with Notes on Costs and Prospects. 1927. Dental Board of the United Kingdom. 44 Hallam Street, W 1. Price 1s. post free.

Preliminary Examination and Registration

1 That every dental student shall, at the commencement of his student ship, be registered in the manner and under the conditions prescribed for medical students.

2 That before registration in the *Dental Students Register* every applicant shall be required to have passed, in addition to the examination in general education which shall be the same as that required for medical students, an examination in Elementary Physics and Elementary Chemistry, conducted or recognized by one of the licensing bodies which shall also be the same as that required for medical students.

3 That before registration as a dental student every applicant shall produce evidence that he has attained the age of 17 years.

Professional Study

4 That every candidate for a degree or licence in dentistry or dental surgery shall be required before admission to the final or qualifying examination to produce certificates showing—

- (i) That he is at least 21 years of age.
- (ii) That he has been registered as a dental student.
- (iii) That he has subsequently to the date of registration as a dental student been engaged in professional study for at least four years of which three years at least shall be spent at a school or schools recognized for professional study by one of the licensing bodies.
- (iv) That, subsequently to the date of registration as a dental student, he has attended at a recognized medical school courses of instruction which shall be the same as those required for medical students in the following subjects: (a) Chemistry, and (b) Physics in their application to medicine; (c) Elementary Biology. That he has attended at a recognized medical school courses of instruction in the following subjects: (d) Human Anatomy (with dissections and demonstrations) for three academic terms; (e) Physiology (with laboratory instruction including Practical Histology) for two academic terms; (f) General Pathology (including Bacteriology) for two academic terms; (g) Medicine for two academic terms; (h) Surgery for two academic terms; (i) the practice of a recognized general hospital or hospitals of not less than eighty beds, with certified instruction in Clinical Medicine and Clinical Surgery for four academic terms.
- (v) That he has attended at a recognized dental school courses of instruction in the following special subjects: (a) Dental Anatomy and Physiology human and comparative. The course should comprise a minimum of twenty meetings of the class; (b) Practical Dental Histology and Morbid Histology. The course should comprise a minimum of sixteen meetings of the class; (c) Dental Pathology and Surgery. The course should comprise a minimum of twenty meetings of the class; (d) Dental Medicine and Therapeutics. The course should comprise a minimum of sixteen meetings of the class; (e) Dental Metallurgy (with practical work and demonstration). The course should comprise a minimum of twenty meetings of the class; (f) Dental Mechanics (with practical work and demonstration). The course should comprise a minimum of twenty meetings and twenty demonstrations; (g) A course of instruction in the use of Anaesthetics, general and local, employed in dental practice; (h) A course of instruction in Radiology as applied to dentistry.
- (vi) That he has for at least twenty-four calendar months attended, during the ordinary academic terms, the practice of a recognized dental hospital or of the recognized dental department of a general hospital.
- (vii) That he has received for not less than twenty-four calendar months or for 2,000 hours practical instruction in dental mechanics.

Professional Examinations

5 That the examination for a degree or licence in dentistry or dental surgery shall be partly written, partly oral, and partly practical, and shall include the following subjects: (a) Chemistry, Physics, and Biology in their bearing on Medicine and Dentistry; (b) Human Anatomy and Physiology; (c) General Path and Surgery; (d) Dental A. Pathology, Medicine and Surgery (including Therapeutics and Dental Mechanics and Metallurgy); (e) Anaesthetics, general and local, employed in dental practice.

6 That the prescribed subjects of examination may be combined or distributed at the discretion of the licensing bodies, and may be taken at two or more successive stages during the course of professional study, provided that no candidate shall be admitted to any final examination in dental surgery and dental mechanics until he shall have completed the required four years' course of study.

ACKNOWLEDGEMENT

THE detailed information published in this Educational Number of the *British Medical Journal* for the benefit of intending students of medicine and newly qualified practitioners has been revised throughout with the co-operation of the deans and secretaries of the medical schools and kindred institutions and of officials in the several public services, to all of whom we wish to acknowledge our indebtedness.

MEMBERSHIP of the Guild of St Luke is open to all students and practitioners of medicine—both men and women—who are members of the Church of England, the clergy of which are eligible as clerical associates. The Guild was started in London by a few medical students over sixty years ago, and there are also now in London a Women's Ward and a Students Branch, as well as a Midland Counties Ward and a Cambridge Ward. The Chapter of the Guild meets in each month of the academic year and a festival service is held annually at St Luke's tide, either at St Paul's or Westminster Abbey. This year the service will be at the Abbey. Particulars of the objects and activities of the Guild and forms of application for membership can be obtained from the Secretary of the Guild of St Luke, Room B B, King's College Strand, W C 2.

[The present issue being the Annual Educational Number, much current material is held over, and neither the Supplement nor the Epitome of Current Medical Literature is published this week.]

The British Medical Association:

ITS AIMS, WORK, AND CONSTITUTION

THE British Medical Association, as stated in our introductory article on the Profession of Medicine, was founded in 1832 to promote the medical and allied sciences, to maintain the honour and interests of the profession, and to foster a feeling of friendship among its members. To attain these objects it holds periodical meetings for the discussion both of medical and scientific subjects and of professional affairs; it publishes the *British Medical Journal*, it maintains a reference and lending library, it has instituted lectures, and scholarships and grants for research. It thus concerns itself with every side of medical work—science, clinical medicine, public health, and the material interests of professional life. The British Medical Association, with a membership now of more than 34,000, is the oldest, largest, and most powerful British organization devoted to the welfare of the medical profession. It has recently acquired a fine building in Tavistock Square, London, for its headquarters, providing ample accommodation for immediate needs and space for future developments. These premises, designed by Sir Edwin Lutyens, R.A., were formally opened in 1925 by His Majesty the King, Patron of the Association, and the beautiful wrought-iron gates erected as a memorial to the 574 members who fell in the war, by which the quadrangle is at present completed, were dedicated on that occasion by the Archbishop of Canterbury. The need for larger accommodation had become insistent owing to the remarkable growth in the central work of the Association during recent years, which had far outstripped the capacity of the premises in the Strand. Further extensions to the building in Tavistock Square are now in progress.



The British Medical Association House, Tavistock Square, London.

Constitution and Administration

The Association has Branches and Divisions throughout Great Britain and Ireland, and also in the Dominions, Colonies, and Dependencies. The Divisions are arranged territorially, and number, in all, 286. For certain purposes of administration or of scientific and clinical work, the Divisions are combined into 25 Branches. Members of Divisions elect representatives on the Branch Councils and also a member or members of the Representative Body, which is the governing body of the Association and determines its policy.

The Council is the executive of the Association. It is elected partly by the Divisions and Branches and partly by the Representative Body, and includes representatives of the Navy, Air Force, Army, and Indian Medical Services elected by the Representative Body. The Representative Body and Council elect standing committees to take charge of different subjects. Among these may be mentioned the Science Medico-Political, Ethical Hospitals, Public Health, and Naval and Military Committees. There are Committees also for the Dominions, Scotland, Ireland, and Wales, and for the working machinery of the Association such as the Organization Finance, and Journal Committees. The Insurance Acts Committee, elected partly by the Association and partly by insurance medical practitioners, is financed by the Association; it is the recognized executive and mouthpiece of the insurance practitioners of Great Britain.

Privileges of Members

A member of the Association has the right—

- 1 To attend the annual and other general meetings of the Association and the meetings of the Division and Branch to which he or she belongs
- 2 To take part by personal vote (or in some Divisions by voting paper) in the election of the representative of his or her Division in the Representative Body, and also in the election of members of the Council
- 3 To receive by post the *British Medical Journal* published weekly, which gives a full record with commentary of progress in clinical and scientific medicine and of medico-political affairs throughout the British Empire
- 4 To receive the help and advice of the central office in any professional difficulty
- 5 To use the Library as a reading room and to borrow current medical or scientific books on payment of postage. Besides modern works and periodical medical literature—foreign as well as English—the library contains many books of historic interest.

The full benefits of the Association can only be secured by the co-operation of large numbers of the medical profession, for the greater the membership and the funds the more

efficient and influential the organization. The Association during the past ninety-six years has been the direct means of benefiting every class of medical men and medical women. In asking for new members it looks not only to the older practitioners but also and especially to those recently qualified. To these a generous concession is made as regards subscription, and there is a special claim to their recognition of the work of the Association in improving the conditions under which they may hold appointments in the public services or in civil life. The Association's work for the Services is well known.

It feels a special responsibility towards those members of the profession who by reason of their position are precluded from taking common action, and recent events have proved again its capacity to further their interests.

Subscriptions and Applications for Membership

The ordinary subscription to the British Medical Association is 3 guineas a year for members resident in the British Isles, but this is subject to various exceptions. Thus, newly qualified practitioners elected within two years of registration pay half this sum up to the end of the fourth year after registration, medical officers on the active list of the R.N., R.A.F., R.A.M.C. (Regular), and I.M.S. pay 2 guineas. Concessions are made also to members (in the British Isles) of forty years' standing to members of ten years' standing who have retired from practice, to medical married couples residing together, and to whole-time teachers and research workers. The ordinary subscription for members living abroad is 1½ guineas, but some Branches have special local subscriptions. A member elected after June 30th pays half the subscription for that year.

All duly qualified British medical practitioners are eligible for election. Full particulars can be obtained from the Medical Secretary, British Medical Association House, Tavistock Square, London W.C.1, the Scottish Medical Secretary, 7, Drumshugh Gardens, Edinburgh, or the Irish Medical Secretary, 16, South Frederick Street, Dublin.

A Paper

OF

THE DIAGNOSIS AND TREATMENT OF SPINAL CORD TUMOURS

BY

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In this discussion on the diagnosis and treatment of spinal cord tumours I will limit myself to the strict meaning of the term—namely, those tumours arising from the cord, from the nerve roots, or from the spinal meninges—and exclude those arising, primarily or secondarily, from the vertebral column and the soft tissues surrounding it. Exception will be made in the case of chondromata growing from an intervertebral disc.

Clinically, spinal cord tumours may be said to cause a paraplegia by compression, the nature of which cannot be revealed by x rays. It should be remembered, however, that tumours arising from nerves or nerve roots outside the spinal canal may extend into it through an intervertebral foramen, and, vice versa, one originating in the spinal canal may extend in the same way into the soft tissues surrounding the vertebral column. Moreover, a tumour may be both intradural and extradural, without any clear evidence as to its point of origin. More than three-fourths of spinal cord tumours are extramedullary, and less than one-fourth intramedullary. Of the extramedullary tumours, the intradural are more frequent than the extradural by three to one. Of intradural tumours, about two-thirds occupy a dorsal or dorso-lateral position and one-third a ventral or ventro-lateral position—a matter for rejoicing on the part of the surgeon.

SYMPTOMS

In the majority of cases of spinal cord tumour the onset of symptoms is slowly progressive, the course of the disease being slow and chronic. From the clinical standpoint it may be divided into three stages: (1) of root symptoms, usually unilateral, (2) of Brown Sequard paralysis, (3) of complete compression paraplegia, or bilateral paralysis. According to Starr, "a certain order is commonly observed in the symptoms"—namely: (1) Pain referred to the periphery, (2) Increase of reflex activity below the point of compression, (3) Paralysis—spastic paraplegia in extension, (4) Loss of sensibility, (5) Loss of reflex activity with flaccid paralysis.

The first symptom complained of by the patient is usually sensory, either pain or some form of paraesthesia. There are exceptions to this, but though at the onset some cases have no sensory symptoms, they usually appear later in the course of the disease. A few cases run a completely painless course. These were formerly supposed to be cases of medullary tumour, but it is now known that some are extramedullary.

Root pain, due to irritation—"the neuralgic stage"—is the most frequent early symptom. "There is no other disease which causes such definitely localized recurring and persistent pain" (Starr). It may be paroxysmal and remittent, showing marked variations in its severity, and is frequently aggravated by coughing and sneezing or by movements of the spine. The pain may appear suddenly, may persist for months or years, disappearing as symptoms of cord compression appear, or it may continue throughout the whole duration of the disease. The pain is referred to the course of the nerve involved, and may be thought to be due to innumerable conditions in various parts of the body or limbs.

Pain in the back may be an early symptom in spinal cord tumour, and may be the only one complained of for a very long period. This is especially true of lumbosacral and cauda equina tumours. Various postures may be assumed by the patient to get relief from the pain.

Bennett¹ has called attention to the fact that orthopaedic surgeons are frequently consulted by patients com-

plaining of local and referred pains in the region of the spine who have no bone lesion but a lesion of the cord. He records four cases of spinal cord tumour, all having shown symptoms that suggested osseous, muscular, and ligamentous changes rather than any neurological condition. They showed (1) variable pain in the spine and nerve roots, (2) extreme spasm of the erector spinae muscles, followed by lateral deformity of the spine, (3) extreme bilateral spasm of the hamstring group—all appearing long before any motor or sensory changes had occurred.

Pain, not radicular in character or distribution, may be complained of in a part of the body not supplied by the roots involved in the tumour. This pain is due to pressure on the sensory tracts of the cord. It may antedate any discoverable sensory or motor changes.

Paraesthesiae of various kinds—"pins and needles," numbness, a feeling of weight, tingling, cold—may be complained of. They may occur at the level of the tumour, due to root irritation, or above the level of the tumour, due to pressure from the held up cerebro-spinal fluid or to sympathetic involvement (Barre and Schrapf) or below the tumour level, due to irritation of sensory tracts in the cord. Elsberg says that a complaint of a feeling of coldness in the extremities is a regular symptom of high cervical tumours.

In the early stages of spinal tumour objective sensory changes are usually absent, though areas of hyperaesthesia may be found on careful search. Later, the cutaneous sensory disturbances will depend upon the amount of compression or destruction of the spinal tracts, and will vary with the site of the tumour and its relation to the cord. Elsberg calls attention to the frequent occurrence in extramedullary tumours of a certain amount of dissociation of sensations below the level of the tumour, while in intramedullary tumours, on the other hand, he frequently found that all types of sensation were equally involved, while typical dissociation was rarely seen. He points out, however, that unless there is a loss of all sensation below the segmental level, there is a striking difference between the sensory disturbances in extramedullary and intramedullary tumours. It is this that in extramedullary growths the maximum of sensory disturbance is in the most peripheral dermatomes and the minimum nearest the level of the lesion while in intramedullary growths the maximum of sensory disturbance is often at and below the segmental level.

Unless all cutaneous sensation has been lost, tactile sensation is usually less affected than pain and temperature, which are often equally diminished. But many variants of this occur. In tumours of the conus and cauda equina the sensory disturbances are usually bilateral and symmetrical, affecting all types of sensation to an equal degree.

Subjective motor disturbance, consisting of a complaint of weakness followed by stiffness, usually follows subjective sensory symptoms though very rarely the reverse occurs. These symptoms of weakness and stiffness are usually progressive, though cases are reported in which they have been remittent. In high tumours the order of limb involvement is almost always in regular sequence—namely homolateral upper limb, homolateral lower limb, contralateral lower limb, contralateral upper limb.

During the first or irritative stage, if the tumour involves an anterior root there should be motor excitement as shown by tremor, muscular tension, spasms or general tonic spasms. But by the time the patient comes under observation these are generally absent or soon masked or suppressed by a degenerative paralysis of the corresponding muscles, together with a diminished tendon reflex. Obvious wasting of the muscles concerned usually follows, and this whether the root or the anterior horn cells are suffering from pressure.

At first as the tumour lies on one side of the cord it pressure may cause a spinal hemiparesis the so-called Brown Sequard syndrome characterized by motor disturbances on the same side as the lesion and sensory changes on the opposite side. This is rarely seen however, in its complete form in tumour compression and soon passes into a paraparesis or paraplegia. Elsberg has described what

¹Read in opening a discussion in the Section of Surgery of the Annual Meeting of the British Medical Association Cardiff 1923.

he calls a "reversed" Brown-Séquard syndrome, in which the motor and sensory disturbances are opposite to those described. The explanation of this would appear to be the pushing of the cord over against the opposite side of the canal by the growing tumour.

As soon as the tumour begins to exert further pressure on the cord two sets of spinal symptoms begin to appear—namely, (1) direct spinal symptoms, due to compression or destruction of the segments on which or in which the tumour lies, (2) indirect spinal symptoms, due to pressure upon the long tracts traversing the segment affected. Thus the atrophy and paralysis of muscles, often with fibrillary twitchings, the segmental supply being known, with reaction of degeneration and loss of reflex activity in the muscle tendons, combined with muscular weakness and rigidity and increased reflex activity below the lesion, an extensor plantar response, with anaesthesia up to the level of the lesion, and probably loss of bladder and rectum control, constitute a condition of great diagnostic value.

In those cases not only does a minimal stimulus produce the corresponding reflex, but very often a number of other reflex contractions—the so-called "mass reflexes" described by Riddoch, and called by Babinski "defence reflexes." Usually sphincter disturbances do not appear until motor and sensory symptoms are well advanced, though they may be early in onset in intramedullary tumours. Bladder loss is usually the first to appear, and precedes the rectal loss by some time. Very often "imperative micturition" appears first, or hesitancy passes into retention, and retention into incontinence.

It is interesting to remember here that it has been shown by Riddoch and Puives-Stewart that the pathological effect of the actual pressure on the cord elements are extraordinarily limited, the neural processes of inflammation, softening, and degeneration being confined to the immediate site of the tumour, and that the widespread interference with cord function is due to vascular changes, setting up what they call anoxaemia. That this must be true is shown by the recovery which follows, often rapidly, upon the removal of a tumour which has caused very great narrowing and distortion of the cord.

Paraplegia in Flexion

This condition has been very fully worked out and described by Walshe. It follows most frequently upon paraplegia in extension, but in a certain number of cases the extension stage is very short and the paraplegia in flexion may appear to be the original condition. It is characterized by (1) Flexion of the different segments of the lower limbs upon each other (dorsal flexion of the foot, flexion of the leg on the thigh, and the thigh on the pelvis) (2) Absence of the usual exaggeration of tendon reflexes, which may be diminished, and in some cases even abolished (3) A well-marked exaggeration of the "flexion reflexes" (Sherrington) (4) The almost constant presence of involuntary muscular contractions. There are also found objective sensory disturbances with a definite fixed upper limit, but the dominant clinical feature is the very obvious exaggeration of the flexion reflexes.

The condition indicates a severe and localized compression of the cord, and, in cases of tumour, is an indication for immediate operation.

Varying Clinical Picture at Different Levels

At different levels of the cord certain additional symptoms may be added to the usual clinical picture, and may be of great localizing value. In high cervical tumours nystagmus is occasionally present, probably due to alterations in the cerebro-spinal fluid pressure. Bulbar symptoms are occasionally seen, due, according to Schlesinger, to oedema of the medulla. Cranial nerve symptoms are very rare indeed. Intense pain may radiate up the back of the neck and head, giving rise to the stiffly held head suggestive of caries, or to an appearance of spasmodic torticollis.

The involvement of the roots of the phrenic nerve in tumour cases may result in paralysis of one or other side of the diaphragm, which can be verified by a ray screening. C. P. Symonds has had recently under his care a most interesting case of tumour at the level of the third cervical segment, which commenced with persistent hiccup, lasting

for a long time before the gradual onset of a quadriplegia. I have not been able to find a similar case reported in the literature, and therefore, with Dr Symonds's permission, I will describe the symptoms very briefly.

The patient, a man aged 45, was admitted under Dr Symonds's care in December, 1927, on account of spastic quadriplegia and attacks of hiccup. Two years previously he had begun to suffer from attacks of hiccup lasting three or four days at a time and so severe that they disabled him for the time being. Shortly after this he experienced pains in the back of the neck and across both shoulders. Six months later he began to notice weakness of his lower limbs, and at the end of a further six months was helpless, invalid with weakness in all four extremities.

On admission the Wassermann reaction was negative both in blood and cerebro-spinal fluid. The lumbar fluid showed a moderate excess of protein with no cells. Examination showed a spastic weakness of all four extremities with a defect to temperature and pinprick extending up to the clavicles and including the upper limbs. The lower limbs showed increased tendon jerks and extensor planar responses. The abdominal reflexes were absent. The reflexes in the upper limbs were increased and on scratching the skin on the anterior or posterior surface of the trunk at the level of either axilla a brisk reflex contraction of the muscles of the appropriate shoulder girdle ensued, leading to retraction of the upper limb—the reflex described by Buzzard and Riddoch (*Brain* 1923, 397) as occurring in spastic quadriplegia.

Whilst under observation the patient had a severe attack of hiccup lasting for three or four days and nights, and leading to great exhaustion.

In the lower cervical lesions four root syndromes may occur—namely, (1) the upper, or Duchenne-Erb type (C5, C6, C7), (2) the middle type (C7), with paralysis and atrophy of the triceps, (3) the lower, or Aran-Duchenne type (C8, D1), (4) the combination of the last with oculopupillary symptoms, Dejerine-Klumpke type (C8, D1, D2). The oculopupillary symptoms (Claude Bernard-Horner syndrome) are myosis, ptosis, enophthalmos, with narrowing of the palpebral fissure, together with vasomotor effects, as shown by redness or pallor of the skin, with hyperidrosis or anidrosis. It is in tumours of the cervical region that one sees the picture of a true spinal hemiplegia, which, however, soon passes into a quadriplegia. Paralysis of the upper limb may be of a spastic or atrophic nature, or may combine these characteristics. The radicular type of degenerative paralysis may be very clearly marked.

Tumours situated in the lower dorsal region of the cord may give rise primarily to pain simulating intra-abdominal disease, and every conceivable abdominal operation has been performed in such cases, in the erroneous belief that one or other abdominal organ was at fault.

Tumours of the lumbar cord may show multiple root signs with atrophic paralysis, but in other cases pressure on the cord may cause the outstanding symptoms.

Tumours of the cauda equina give rise to intense pain which may be widespread, in the small of the back or over the sacrum, and which radiates down the back of the legs, into the region of the anus, bladder, perineum, and genitalia. These are cases which are usually treated for "sciatica" over long periods. Anaesthesia over the anogenital region, extending down over the tendo Achillis, with loss of the anal reflex and Achilles jerk, with bladder and rectal disturbances, make a very distinctive clinical picture. Trophic sores are peculiarly frequent in lumbosacral and cauda equina tumours, in marked contrast to those at higher levels of the cord.

A brief reference should be made to the so-called "atypical" clinical forms, or those cases which do not conform to the usual clinical picture produced by the presence of a spinal cord tumour. These are (1) those with purely medullary symptoms, (2) those with purely root symptoms, (3) those with multiple tumours, (4) those with symptoms referred chiefly to the vertebral column and the paravertebral muscles—"forme rachialgique" or "pseudo-pottique" of French neurologists.

In the purely medullary form there is found a paraplegia without any signs of root involvement, either subjective or objective. According to Frazier and Ellis this form occurs once in every fourteen cases, and to Foerster in more than one-half of the cases. It is undoubtedly of frequent occurrence. It is explained upon the assumption that the tumour occupies an interradianal position, or lies on the anterior aspect of the cord, is of small size, and attached to the dural sheath. According to Oppenheim it occurs with extradural tumours occupying an anterior position and of very soft consistence.

In the purely root form the symptoms are those of an ordinary neuralgia of varying distribution according to the site of the tumour. Attention should be directed to the obvious root limitation of the painful phenomena, to their persistence and long duration, and to the interference with the tendon or cutaneous reflexes at the corresponding level. In cases of neuralgia of long standing with recessions, and which resist all forms of medication lumbar puncture should be performed and the cerebrospinal fluid examined, and if confirmatory evidence is necessary, followed by the injection of lipiodol.

The diagnosis of multiple tumours—diffuse sarcomatosis, neurofibromatosis, diffuse gliomatosis—sometimes offers very great difficulties. They are to be suspected by the presence of two root syndromes clearly superimposed, which are accompanied by other symptoms of compression of the cord. There may be symptoms of a high compression with a root syndrome lower down, or the reverse, in which the root syndromes are very much higher than those of the cord compression. Clinically a diagnosis with localization of the highest tumour is usually made. Help may be obtained in these cases from the use of lipiodol.

The vertebral form is met with especially in tumours of root origin compressing the lower end of the cord or the roots of the cauda equina. It is marked by the intensity and diffuseness of the pain, which is referred to the paravertebral muscles and down the lower limbs. In an attempt to relieve the vertebral pain a secondary contracture—localized or diffuse—of the affected muscles is induced. It is when it is localized that a diagnosis of Pott's disease is so often made. In the case of tumour the pain has an intermittent evolution, often with prolonged remissions and the appearance of objective neurological signs is often slow. Again, the rigidity of the spine is not absolute, some slight movement of the spinous processes upon one another being obtained, and it is much more diffuse than that of Pott's disease. Moreover, the contracted muscles are excessively painful, and are tender to pressure.

DIFFERENTIAL DIAGNOSIS OF TUMOURS OF THE SPINAL CORD

There is no symptom which occurs exclusively with any one form of spinal tumour. The individual symptoms are essentially the same, and differ in sequence, duration and time of appearance according to the localization of the tumour.

As between extramedullary tumours the intradural occur more frequently than the extradural in the proportion of three to one. The extradural tumours grow, as a rule more quickly than the intradural, and hence with them, the course of the symptoms is often more rapid so that a short history is in favour of an extradural tumour rather than an intradural one.

Bony changes, as shown by the x rays are frequent in association with extradural tumours while they are rarely seen with intradural, except in the so-called giant tumours of the cauda equina, which may cause an enlargement of the vertebral canal. Sensitiveness to pressure over the vertebral column is more frequent with extradural tumours. Root pain is more often absent with extradural tumours, and the spinal cord symptoms associated with them tend at first to be vague and indefinite.

It is especially with extradural tumours that lumbar puncture may produce a sudden and marked increase in the subjective and objective symptoms though this is also true of intradural tumours attached to the dura. The cerebrospinal fluid does not show xanthochromia so often with extradural tumours, nor is its protein content ever so high. Greenfield says that a great excess of protein in the lumbar fluid, combined with a completely normal cisternal fluid, is in favour of an extradural rather than an intradural tumour. Moreover, with an osteoma or chordoma there may be no evidence of any subarachnoid block. According to Elsberg the so-called "reversed" Brown-Séquard syndrome—contralateral motor and homolateral sensory disturbances—are often seen with extradural tumours.

It is often difficult clinically to differentiate an intramedullary from an extramedullary tumour; the differences between the two are often misleading, and the diagnosis

of an intramedullary tumour may be one of probability rather than of certainty. As a rule, in intramedullary tumours the root pains are less frequent, though they may be present, the Brown-Séquard syndrome is rarer, and the paraplegia is less spastic. Moreover, nutritive phenomena are more frequent and may be of localizing value. A typical and clearly shown dissociated anaesthesia is greatly in favour of intramedullary tumour, although a more marked alteration in painful and thermal sensibility, as compared with other sensory disturbances, is not rare in extramedullary tumours.

In favour of a tumour being *extramedullary* rather than intramedullary, one may set forth the following points:

- 1 A prehistory stage of root pain the signs of irritation preceding those of destruction.
- 2 The slow but continuous development of symptoms showing alterations in motor and sensory function.
- 3 The motor and sensory symptoms while increasing in intensity, show a tendency to maintain a stationary localization. In other words the growth of the tumour tends to be in breadth rather than in length.
- 4 The persistence of a Brown-Séquard syndrome for a fairly long time.
- 5 A marked degree of spasticity which persists after the appearance of a complete paraplegia together with early and pronounced development of the reflexes of defence in the whole of the lower extremity, with Babinski's sign well marked.
- 6 Symptoms of motor root irritation—cramps, spasms, tremor, muscular tension—and absence, or only slight development of signs of atrophic degenerative paralysis.
- 7 Absence of trophic troubles in the soft tissues.
- 8 Changes in the cerebrospinal fluid included in the term localisation syndrome.

AIDS TO DIAGNOSIS AND A LEVEL LOCALIZATION

These may be considered under the following headings: (1) Combined cisternal and lumbar puncture. (2) Evidence of a different chemical composition of the two cerebrospinal fluids (cisternal and lumbar). (3) Pneumomycelography. (4) Cisternal injection of lipiodol.

The method of combined cisternal and lumbar puncture has been elaborated by Aver as a means of determining the presence or absence of spinal subarachnoid block. Queckenstedt in 1916 using lumbar puncture alone, showed that the pressure in the lumbar canal rose on compression of the jugular veins when there was no spinal block, but did not do so in the presence of an obstruction. This obstruction must however, be complete. Aver's method is based upon the facts that in the normal individual the cisternal and lumbar fluids are practically identical, their pressures are the same and oscillations due to coughing, sneezing, holding the breath, or to compression of the jugular veins are of similar range. Although diminished pressure below the block is usual, normal pressures are not uncommonly found with tumours causing only a partial block, and occasionally an increased pressure may be found. This last may be due to a valvular action of a tumour, extramedullary in position, allowing a downward but preventing an upward flow of the fluid. Exudation of serum from the distended spinal veins may be also a contributory factor.

Normally the total amount of protein in the cerebrospinal fluid is approximately 25 mg per 100 c.c. of fluid. In cases of spinal block this figure may be increased a hundredfold in the stagnant fluid below the block. In addition, there also accumulates an excess of other substances, such as mineral salts and glucose, while the engorgement of the spinal vessels leading to a state of increased meningeal permeability causes the spinal fluid gradually to approximate in chemical composition to the blood plasma. Consequently in the fluid we find elements derived from the blood stream which are normally absent—altered blood for example producing the characteristic yellow coloration known as xanthochromia whilst the presence of fibrinogen may cause the fluid to clot spontaneously in the test tube.

The outstanding features in the cerebrospinal fluid below an area of spinal compression are therefore: (1) xanthochromia (2) increase in the amount of protein, and (3) occasional spontaneous coagulation. These three conditions are sometimes spoken of collectively as the "localization syndrome." Occasionally a condition of spinal fluid stagnation is encountered in the fluid lying immediately above a block, as shown by increased protein

content, with or without xanthochromia. This is to be explained by a transudation into the fluid from engorged veins in the spinal canal. As between demonstrable block and increased protein content, there is no doubt that the latter is a more delicate indication of cord compression or meningeal involvement.

The replacement of the cerebro-spinal fluid by air by means of lumbar puncture was devised independently by Dandy, Bingle, and Wideroc. The procedure is briefly as follows. With the patient recumbent but at an angle of 50 to 60 degrees, 10 c.c.m. of cerebro-spinal fluid are withdrawn by lumbar puncture and an equal amount of air injected. In the absence of any spinal block the air passes at once into the cranial subarachnoid space, causing a fairly sharp pain, successively localized by the patient in different parts of the head. According to Dandy, so constant and characteristic is this pain that it can be taken as positive evidence of the absence of a complete spinal block. To the pain are sometimes added nausea and vomiting, a rise in temperature, and collapse. In the presence of a spinal block no such pain is complained of, and Dandy then advises the injection of as much air as the spinal canal will hold, in order to obtain the maximum effect of the air shadow for the x-ray localization of the site of the block. He finds a single stereoscopic plate, with the patient lying on the back and the rays passing straight through, gives the best result. The method is valueless in the cervical region when shadows, due to the tracheal air, obscure the picture.

The cisternal injection of lipiodol was introduced by Sicard and Forestier of Paris. Its technique is too well known to require description here. Passing over the symptoms which may arise as a result of the injection of the lipiodol, the question is how much reliance can be placed upon lipiodol localization. Can medullary compression be excluded with a negative lipiodol result? Assuredly not. There is no doubt that with small tumours, or in rare cases where narrowing of the cord results from destructive new growths, such negative results will occur. Again, cases occur in which the neurological and lipiodol levels do not correspond. In other words, there is a sensory lipiodol dissociation. In some cases the sensory level is the higher, and in others the lipiodol. In the one case the sensory lipiodol dissociation may be explained on the assumption that the higher sensory level is due to the pressure of the stagnant fluid above the tumour and a localized ischaemia of the cord. In the other the lipiodol may be held up by meningeal adhesions above a tumour, or, in meningitis serosa circumscripta, at the level higher than the place where actual compression of the cord begins.

Given a sharply marked sensory level, I much prefer to depend upon it alone and to operate without the use of lipiodol. It is in cases in which the sensory level is not sharp and well defined, but gradually fades away as one passes upwards, that the lipiodol has its greatest field of usefulness.

May I quote here from my Lettsoman Lectures the rules which I formulated regarding the use of lipiodol in the diagnosis and localization of spinal compression.

1 Its use should in no way usurp the place of careful and repeated systematic clinical examinations of the patient, especially with reference to a sensory level, combined with laboratory tests of the cerebro-spinal fluid. Recourse to it as a labour-saving device and a short cut to diagnosis and localization cannot be too strongly deprecated.

2 It should only be used after a subarachnoid block has been first demonstrated by the combined cisternal lumbar puncture method introduced by Ayer.

3 It should not be used unless the possible dangers and complications are outweighed by the more exact localization likely to be obtained.

4 Finally, in properly selected cases we have in lipiodol a definite aid in the study of spinal cord compression which, if used intelligently, will increase definitely our successful removal of spinal cord tumours at an earlier stage in the course of the disease, and thereby increase our percentage of cures and reduce our operative mortality.

TREATMENT

There is only one treatment for spinal cord tumours—namely, their removal by operation. This demands both a correct diagnosis and a precise level localization. These

can only be arrived at by a careful history and by repeated systematic clinical examinations of the patient, especially with reference to a sensory level, combined with laboratory tests of the cerebro-spinal fluid. In doubtful cases may be added such subsidiary aids as have been already alluded to.

The determination and locating of the spinous processes and their relation to the segments of the cord is all important. It is well known that the segments of the cord do not correspond to the similarly named vertebrae, and there is considerable variation in the relation between the two. A serviceable rule is that the lower cervical segments are each two vertebrae higher, the upper six dorsal three, and the lower six dorsal four, than the corresponding vertebrae. The lumbar segments correspond to the tenth and eleventh dorsal spines and the sacral to the twelfth dorsal and first lumbar. In order to locate a spinous process commence counting from some easily recognized landmark—for example, the seventh cervical or first dorsal spine—and count downwards to the desired spinous process, and then confirm this by counting upwards from the fourth lumbar spine, an easily recognized one. In very stout individuals it may be necessary to mark one spine with a small lead plate and then have the entire spine x-rayed in order to localize it accurately.

I have no experience of osteoplastic laminectomy, nor of hemilaminar or unilateral laminectomy. Apart from the fact that osteoplastic operations are more difficult and take a longer time, they all interfere with free access to the cord, and have no advantages. They were devised on the erroneous supposition that removal of the spinous processes and laminae weakened the spine and interfered with its free movement. The same objections hold good against unilateral laminectomy. The best type of operation is the one most rapidly done and which gives the best possible exposure of the tumour, thus enabling it to be more easily removed with the least danger of any damage to the cord.

In my opinion, the operation of laminectomy as devised and developed by Victor Horsley, and which is still carried out at the National Hospital, Queen Square, represents the simplest and best procedure for the exposure and removal of spinal cord tumours. The anaesthetic is ether given by the intratracheal method. If a general anaesthetic is contraindicated, local anaesthesia, either by Trazier's or by Heidenhain's method, may be used. The position of the patient may be prone, or semiprone, or lateral. I prefer the latter; it interferes less with respiration, opens out the arches of the laminae at the site of the operation, and allows of better drainage of fluid during the operation, thus doing away with the necessity of frequent sponging, which, however, may be obviated by the use of a suction apparatus.

The skin incision is made in the middle line directly over the spinous processes which are to be removed, and carried down at once to their tips, which are exposed. The fascia and muscular attachments are then freed from the spinous processes by cutting against the bone, and reflected on either side. With a broad raspator the muscles and periosteum are cleared cleanly off the laminae on one side, deeper and deeper retraction being used as the procedure is carried out. Any bleeding is stopped by packing gauze into the cavity, and it is rarely necessary to use artery forceps. The same procedure is carried out on the other side. With the muscles well retracted, the spinous processes are removed by cutting through their bases with strong bone-cutting forceps. The laminae are then removed from below upwards by cutting through on either side with bone forceps. A chisel and hammer should never be used, and a saw is quite unnecessary. The epidural fat is now exposed, and when removed the dura is laid bare. Close inspection should now be made to see if the dura pulsates, or whether any extradural tumour is visible or is distorting the shape or position of the dural sac from pressure on its ventral surface. Any manipulations of the dural sac must be of the gentlest. A large size malleable probe may be passed very carefully upwards and downwards, first on the dorsal and then on the ventral surface of the dura, to see if there is any obstruction beyond the limits of the exposed area of dura.

Having decided to open the dura, it is seized and steadied by a pair of fine-toothed forceps and a small opening is made in a vertical direction with a fine knife. The opening is then enlarged to the full extent of the exposed dura, the cut edges of the dura being seized and retracted with fine long artery forceps, or by traction sutures passed with a fine round bodied curved needle. To absorb any slight oozing of blood it is advisable to place small pieces of gauze ("cigarettes" or pieces of dental roll) on each side of the dural sac against the cut edges of the laminae. This keeps the operation field clear and prevents blood escaping into the thecal canal.

If the tumour lies in its most frequent situation—that is, on the postero-lateral aspect of the cord—it is at once visible. If it lies on the ventral aspect of the cord, the latter will be pushed backwards and to one side. Should no tumour be discovered, close inspection should be made as to the presence or absence of cardiac and respiratory pulsations in the cord, the condition of the posterior veins, and as to whether cerebro-spinal fluid continues to escape or not.

The presence of pulsation, the combined escape of cerebro-spinal fluid, and a normal condition of the veins is strong evidence that the exposure is too high, the contrary conditions, that it is too low. Careful exploration on both aspects of the cord with a large knob-ended probe, bent at an appropriate angle, in either an upward or downward direction as indicated, may give evidence of a definite block beyond the exposed area. Elsberg advises also the compression of the jugular veins (Queckenstedt's phenomenon) as being very useful in determining whether one is above or below the tumour level. If a free gush follows the compression it is presumptive evidence that one is above the tumour, and vice versa. In either case the laminectomy is extended in the direction indicated.

After removal of the tumour the dura is closed by an interrupted or continuous suture of fine catgut. The gauze rolls on either side of the dural sac are removed, the muscles are united, layer by layer, with interrupted sutures of strong catgut, and the fascia covering them in like manner. The skin incision is closed with interrupted silk-worm-gut sutures. If an extensive laminectomy has been performed in the cervical region, it is as well to incorporate a well padded long light splint, extending from the mid-dorsal region to beyond the head, in the dressing.

Technique for the Removal of the Tumour

The most important point in the removal of spinal cord tumours is the avoidance of any injury to the spinal cord. Their removal should always be attempted by working away from the cord. If possible, the cord itself should never be handled with fingers or instruments and any sponging necessary must be of the very gentlest. Any nerve roots implicated should be gently disengaged from the tumour, care being taken not to make traction on them away from the cord.

Should one or more posterior roots be incorporated in the tumour they should be divided. It is better to do this than to incise the tumour in an attempt to free the roots. If an anterior root is involved every endeavour should be made to preserve it, but occasionally this is impossible and it has to be divided. One should endeavour always to remove the tumour in one piece with its capsule.

If the tumour is meningeal in origin (the so-called dural endothelioma), and dorsal or dorso-lateral in situation, it will usually be lifted clear of the cord on retraction of the incised dura. It is very seldom adherent to the cord itself, though it may be to the posterior root or a slip of the dentate ligament. The dura is incised around the attachment of the tumour and removed with it. Before doing this it is well first to separate the tumour from any attachments it may have to cord, root, or ligament.

If the tumour lies on the ventral or ventro-lateral aspect of the cord its removal is one of greater difficulty. This may be lessened by a more extensive removal of the bone on the same side as the tumour. To displace the cord lying over the tumour a slip of the dentate ligament is seized in fine forceps and cut from its dural insertion. By traction on this the cord is rotated and drawn to the opposite side. Additional ease of approach, if required,

can be obtained by also cutting one posterior root above and below the severed dentate ligament. It is better to do this than to risk damage to the cord by forcible displacement of it by instruments.

A tumour lying among the roots forming the cauda equina may give rise to great difficulty in its removal owing to several, or even many, of the roots being incorporated in the tumour growth. In may therefore result in only so much tumour being removed as can be accomplished without doing irretrievable damage to a large number of roots, or, as advised by Elsberg, the operation may be done in two stages, the dura being opened and the tumour exposed at the first, and ten days to a fortnight later the wound reopened. It may then be found that the tumour has freed itself from many of the roots previously involved, and can be more safely removed, either in whole or in part.

Removal of Intramedullary Tumours

This is best attempted by the "extrusion" method introduced by Elsberg. Its basic principle is a decompression operation with exposure of the tumour, followed by an interval of time to allow the increased pressure within the cord to extrude the tumour, in whole or in part. Having satisfied oneself that the tumour is intramedullary the swelling is first aspirated with a fine hypodermic needle to exclude the possibility of its being due to fluid. If no fluid is obtained, an incision is made very carefully and slowly by means of a fine von Graefe knife into the cord, just to one side of the postero-median septum to avoid the series of small median arterial branches which enter the posterior fissure. As soon as the tumour is exposed it will begin to extrude itself, but no attempt is made to remove it. A piece of Cargile membrane is placed over the cord and the wound closed, leaving the dura unsutured. A week later the wound is reopened when it will be found that, if the tumour is localized, it will have been almost entirely extruded from the cord, and can be easily removed. If it is an infiltrating growth, the extruded portion can be removed and the remainder left undisturbed. Should no extrusion of the tumour take place, however, it is wiser to be content with the decompression only, rather than risk damaging the cord by attempting to remove the tumour. Good results have followed such a procedure at my hands.

Benign extradural growths, as a rule, offer no great difficulty in their removal, unless they extend all around the dura or lie on its ventral surface. It is a *sine qua non* in these cases that the bone be widely removed on one or both sides, as may be necessary, to obtain easier approach. Several posterior roots may have to be sacrificed in order to allow of displacement of the dural sac sufficiently to gain access to the tumour. In cases of osteoma or chondroma growing backwards from a vertebra or intervertebral disc it is easier to open the dura, rotate and displace the cord as previously described for intradural growths, and then cut through the dura lying over the tumour and remove it through this opening.

The discussion of the treatment of spinal cord tumours would not be complete without the inevitable reference to x rays and radium therapy.

Elsberg has never seen any permanent good results from x rays or radium in irremovable intramedullary growths, but in some irremovable extradural tumours he says that the progress of the disease seemed to be checked for a time. Frazier says that it is incumbent upon the surgeon, in the presence of an inoperable growth to resort to the use of one or other of these agencies the selection to be left to the x ray specialist. Peiper is of opinion that it is a mistake to attempt to replace operation by irradiation in the treatment of spinal tumours.

French authorities are more enthusiastic though cautious. Sicard, Calk, Hagneman and Wallach consider that radiotherapy is efficacious in all types of tumour, but only in a small number of them. As a sequel to operation they advise its use only in gliomata and endotheliomata, four or five weeks subsequently if the symptoms persist but not in benign growths. They attach great importance to the cerebro-spinal fluid below the lesion. If it is normal, in a case in which the paraplegia has become

stationary after post-operative improvement, radiotherapy is useless. They end up with a warning against exaggerating the definite curative value of radiotherapy, and call upon the pathologists to adopt a universal terminology for the different types of tumours, and at the same time to group them according to their radio-sensibility or their radio-resistance.

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THE CONTROL OF DIPHTHERIA AND SCARLET FEVER *

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DIPHTHERIA

I ANTICIPATE that those who join with me in opening the discussion will agree that with swabbing, testing for virulence to detect the true diphtheria bacillus, Schick-testing, active immunization with prophylactic, and, in emergencies, passive immunization with serum, we can control an outbreak or prevent outbreaks—if the population concerned is disposed to take full advantage of these measures. Just as surely as Pasteur and his hostile critics, when they saw in the dawn on the farm at Pouilly-le-Fort the vaccinated sheep quite well while the unvaccinated lay dying of anthrax, know that complete control of that disease was available to those who wished, so the medical administrators of the large fever hospitals and residential schools know that they can promise the almost complete abolition of diphtheria amongst the nurses or pupils. Applied to the general population the problem passes out of the narrow field of experimental observation on small groups of people with complete controls, and other considerations, economic, social, and political, play a part.

THE PRACTITIONER'S PART IN CONTROL

The control of any infectious disease rests upon the joint work of the general practitioner and the public health authorities. From communications with general practitioners I would with considerable trepidation suggest that perhaps the busy practitioner, faced with the call for quick decision in daily practice, would welcome a short didactic statement by the Association somewhat on the following lines.

Patient—If a patient has the smallest amount of membrane in the throat or nose, or any sudden difficulty in breathing, and any suspicion of diphtheria arises, take a swab if you wish, but give antitoxin at once. The risk to life from the act of giving serum is probably 1 in 60,000, whereas the average risk to life from diphtheria is 3 to 10 per cent, every hour's delay in giving serum increases the risk.

Contacts—The ideal course is to test all contacts by Schick's method and, after separating the Schick-negative reactors—amongst whom will be found any dangerous "carriers" of virulent bacilli—concentrate attention on those giving a positive reaction. See them daily (in order to detect cases of diphtheria at the earliest moment and give serum immediately), or, if that is not possible, consider protecting this group with serum. After the emergency is over, protect them by active immunization. If the Schick test cannot be done the general line of action is the same—that is, inspect daily, or, if necessary, protect with antitoxin.

RESPONSIBILITY FOR DEATHS FROM DIPHTHERIA

In the *Weekly Bulletin* of the City of New York Department of Health for February 5th, 1927, occurs the following statement:

In diphtheria there were 56 such deaths. The parent delayed in calling a doctor from one to five days in 46 cases, usually because "home remedies" were considered sufficient. The doctor delayed the administration of antitoxin for a period of from one to fourteen days in 29 out of the 56 cases. In 14 cases the

doctor's first diagnosis was wrong and in 13 cases he was doubtful. The wrong diagnoses were usually colds and tonsillitis, pneumonia, indigestion, and in one case tetanus.

In 1920 Carey¹ published a valuable analysis of 1,000 deaths from diphtheria in the State of Massachusetts. He points out the difficulty of obtaining positive cultures in the early stages of laryngeal diphtheria and also that the nasal type had been frequently "missed."

With regard to the parents' responsibility, 23 per cent of the children were ill a week, and 4 per cent ill from one to two weeks, before a doctor was called in.

An alarming percentage of 118 of our cases were found moribund upon visitation by the physician. In some instances it was noted that physicians waited for a laboratory report from their cultures before administering antitoxin. In 29 instances it was found that less than 3,000 units of antitoxin were administered. The usual doses, however, seem to have been from 6,000 to 9,000 units. In no instance did we find antitoxin given intravenously. It is most earnestly recommended that this procedure be used in those cases which are seen late in the disease.

I have been unable to find any English official figures of the kind, but probably a medical officer of health with long experience in any large English city could produce somewhat similar records. A confidential "inquest" into every death from diphtheria by a tactful medical officer of health who has the complete confidence of the practitioners in his area would probably yield information of value. The ascertainment of the "parents' responsibility" for late summoning of the doctor would give data of use for public propaganda, and any information relating to delayed medical diagnosis or too small dosage with antitoxin would obviously be of value to the medical men concerned.

GAPS IN OUR KNOWLEDGE

There do not seem to be readily available any large groups of figures indicating how long the Schick-negative condition lasts. Parish and Okell have recently completed a valuable survey which will shortly be published. I am indebted to them for permission to quote some of the figures. In approximately 1,000 children re-tested from one to seven years after giving a negative response, 87 per cent gave a completely negative Schick reaction. Any reaction not clearly negative was read as "positive." About 500 of the children had originally been "naturally" negative to the Schick reaction, of these 89 per cent remained negative, 4 of those read as "positive" were potentially immune, and rapidly developed antitoxin as the result of the Schick re-test, only 2 were definitely positive with no circulating antitoxin and required re-immunization. Amongst about 450 who had been originally immunized until they showed a negative reaction, 85 per cent remained negative, 5 per cent were positive or "faintly positive," and became negative as the result of the first re-test, while again 2 "immunologically obstinate" children, brother and sister, required re-immunization.

Degree of Immunity Represented by a Schick-negative Condition

Another gap concerns the degree of immunity represented by a Schick-negative or "immune" condition.

Immunity is relative and not absolute. From the point of view of immunity against diphtheria the population of an ordinary town cannot be divided into sharply defined groups of "white" (or "immune") and "black" (or "non-immune")—there are a few of varying shades of grey. In large groups immunized long ago there are some what more in the "grey" section.

When the diphtheria bacillus attempts to attack the "white immune" its attack fails, it prevails against the non immune, and clinical diphtheria occurs. In the case of the "grey," whether the attack succeeds or not depends on the weight of the attack and on the amount of white (or grade of immunity) in the grey—that is, whether the attacked has available a store of antitoxin in his blood, and, probably more important, whether his cells are trained and alert so that they can produce speedily and abundantly the needed antitoxin. Fortunately this potential immunity remains even when the circulating antitoxin has, long after a successful course of immunization leading to the production of a Schick-negative condition, fallen to a very small amount—that is, less than one two-thousandth of a unit of antitoxin per cubic centimetre. The indi-

* Read in a discussion in the Section of Preventive Medicine of the Annual Meeting of the British Medical Association, Cardiff, 1928.

vidual in question, as shown by Glenn some years ago for rabbits and guinea-pigs, and recently by Parish and Okell in their observations on children, will respond very rapidly to an assault by toxin. Whether this assault be in the form of a Schick test, or a dose of prophylactic, or the growth of true diphtheria bacilli during an attack of sore throat caused by some other organism, the individual will at once make large quantities of antitoxin, enabling him to throw off the attack with very little disturbance, and with no danger of subsequent paralysis or other sequels.

Possible Improvements in Testing and Immunization

The test is on a reasonably firm basis. We may some day succeed in making a toxin so pure that a control injection of heated toxin will not be necessary, but so far no one has succeeded in doing this. We may also, if we wish, combine the first test and an immunization dose. W. H. Park does this in young children by giving the first dose of his toxin-antitoxin mixture subcutaneously. A week later the reaction in a Schick-positive reactor can be easily read. The mixture commonly used in England—toxoid antitoxin—will not give a Schick reaction because toxoid is used and not toxin in making the mixture. A. T. Glenn has made a mixture, called D P I M, which on intradermal injection into guinea pigs gives excellent results. It indicates the condition of immunity by giving a positive or negative Schick reaction, and it simultaneously immunizes. The mixture has not been widely used in human beings, in adults a considerable amount of "pseudo-reaction" is produced, and the Schick response cannot be read until some days later, there is no reason to doubt that the immunizing effect in children would be as satisfactory as in animals, but observations have not been done on a sufficiently large scale to warrant any statement. We are not quite convinced that this is the most promising line to pursue, and have for the moment given up this work.

With regard to prophylactic injections, the three materials which at present hold the field are toxin-antitoxin (U. S. A., 0.1 L+), toxoid-antitoxin (Britain), and toxoid ("anatoxine," France, etc.). The possibility of undesirable sensitization by the minute amount of antitoxin present in the first-named two mixtures has attracted some attention during the past two years. Gordon² writes:

'As the result of a recent active campaign in Detroit for toxin-antitoxin prophylaxis against diphtheria it became evident that a considerable proportion of the patients admitted were hypersensitive to horse serum.'

Dr. Stewart of Minneapolis³ describes serum reactions in seven children who had been previously immunized. Dr. Stewart courteously informed me that these seven were the only children previously immunized against diphtheria into whom he had subsequently injected serum, and all seven had reacted. (See also Lathrop⁴ and Gatewood and Baldrige⁵ in favour of sensitization, and Park⁶ and Backer,⁷ experience refuting serious sensitization.)

It would appear from the experiences of the eastern States of the United States of America and England that immunization with the New York or the English mixtures containing antitoxin rarely if ever produces a condition of "sensitization" sufficient to give rise to serious serum sickness following the injection of serum at a later date. Dr. Sophie Spicer⁸ has recently published a series of observations. Her group of 28 children given scarlet fever or other antitoxin some time after a toxin-antitoxin injection showed a 14.3 per centage of serum reactions. This reveals no sensitization through prophylactic injections, for of 164 control children who had not been immunized, 13.4 per cent gave reactions.

In England inquiries have so far revealed no instance of "sensitization" in this sense. The experience of Gordon and Stewart therefore appears to be exceptional. However, it is possible to-day to make a prophylactic "toxoid" of high value containing no antitoxin, and this toxoid is available in almost all countries. During the past year or two the immunizing properties of the floccules produced in the Ramon test have been much worked with, since the discovery by Hartley in 1923 that they were antigenic. It was hoped that, being more or less insoluble, the floccules might keep up a continuous stimulus and that in this way one injection might be sufficient for immuniza-

tion. It is doubtful, however, if one injection will be sufficient, and further experience must show whether this antigen has any real advantages over the ordinary ones. Glenn and Pope⁹ found that toxoid antitoxin floccules also have high immunizing value.

Glenn and Waddington emphasize the importance, in estimating the value of prophylactic, of dose and interval. These two authors kindly permit me to quote the following conclusions from some work yet unpublished:

I. Guinea pigs (approximately one hundredth the weight of a child) can be immunized by a single injection of 1 c. cm. of toxoid or toxoid antitoxin mixture.

II. The fact that a single dose of 1 c. cm. of prophylactic fails to immunize human beings suggests that dose depends to some extent on weight.

III. Because two or more doses must be given, the value of the prophylactic must depend on the power of the initial injection to produce potential immunity.

IV. Antigens should be judged by the immunity produced in guinea pigs after two injections of 0.01 c. cm. (one hundredth of the human dose) given at an interval of three to four weeks (the interval that should be observed in human immunization).

V. With this minute dose of T A F (toxoid antitoxin floccules) and this interval, 21 of 25 guinea pigs became negative to the Schick test ten days after the second injection, whereas with toxoid or toxoid antitoxin mixture only 5 of 21 became negative. A comparison of these three antigens by the ordinary methods of test, which rest upon judging the value of antigen by the immunity produced by one large injection into guinea pigs, fails to bring out this important difference.

The suspension, in addition, seems to be free from liability to cause local reaction in human beings. In a recent series Okell and Parish found that 45 of 56 subjects became Schick negative when tested from one to five months after one, two, or three doses of T A F. This promising work is being continued.

Carriers.—Much interesting work has been done in connection with the detection of virulent diphtheria bacilli in the throat and nose of the convalescent before discharge, and of the "carrier," and the limited value of this swabbing has been emphasized because the "intermittent carrier" may only at times yield diphtheria bacilli in the subculture. This is true, but in the course of examination of large numbers of subcultures we have occasionally been impressed by finding a smear from a carrier which is practically a pure culture of Klebs-Loeffler bacilli, and under the microscope resembles in every respect a culture smear from a diphtheritic throat. We have been in the habit of calling such people "profuse" carriers, as opposed to the "sparse" carrier who may yield only one or two colonies of Klebs-Loeffler bacilli in a large blood plate, and we cannot avoid the conviction that such "profuse" carriers are as dangerous to those in the neighbourhood as an acute early case of diphtheria. McCartney¹⁰ points out that a "sparse" carrier to-day may be "profuse" to-morrow.

SCARLET FEVER

So far as scarlet fever is concerned the story is much the same as for diphtheria, save that we must here be less dogmatic, our ground is not so firm.

The patient admitted with frank clinical diphtheria who has not received serum is practically invariably a "Schick-positive reactor", the Dick test is usually, but not always positive in the patient admitted during the early stage of scarlet fever. (The variations in the statistics dealing with this point in different parts of the world will probably lessen or disappear when there has been international agreement on the strength of Dick toxin to be used for testing.) Whether the suggestion arising out of the very interesting work in America by Dochez¹¹ and colleagues, that the Dick test is a purely allergic response to the protein or other constituent of the streptococcus and is not a response to true toxin as in the Schick test is true or not we do not at present know. As opposed to this hypothesis it appears to be reasonably certain that if only nurses who react negatively to the Dick test are allowed to take duty in scarlet fever wards it will be found that these nurses do not catch scarlet fever. Further we can consistently convert the reaction of 'Dick positive' children who have been in contact with scarlet fever to negative in twenty-four to forty-eight hours by giving 5 c. cm. of concentrated scarlet fever antitoxin. These children remain negative for

some days, and do not develop scarlet fever. The hypothesis that the reaction is a pseudo reaction to toxin similar to the Schick response is in accordance with these observations, and is the simpler one to hold for the moment while further research is proceeding.

It is a matter for regret that the important questions of optimum dosage of prophylactic, and interval between injections, have not been more widely investigated in England. When more detailed knowledge is available it will be easier to progress rapidly with "double" or simultaneous immunization against diphtheria and scarlet fever.

Schultz-Charlton Test—This test is being used in diagnosis. Its value and its limitations are being more clearly ascertained.

ACTIVE IMMUNIZATION

The average patient suffering from moderate uncomplicated scarlet fever will lose his rash and be on the way to recovery by about the fifth to the seventh day. At this time the Dick-positive percentage among patients begins to drop. The immunological phenomena seem clear—the patient will lose his rash promptly if given sufficient antitoxin to make him negative to the Dick test, if untreated with serum he cures himself by the development of antitoxin, at first hidden in his cells, then rapidly produced in abundance and easily detectable in the blood. It is probable that if we could choose a dose of toxin which, when given to the average Dick-positive reactor, would produce an amount of constitutional disturbance, rash, vomiting, temperature, etc., for five days, comparable to that produced by an average attack of scarlet fever we would achieve a similarly rapid immunity. Inasmuch as the dose of toxin is a self-limited one—and not as in true scarlet fever a possibly unlimited quantity produced by the growing streptococci in the throat—the patient would be almost certainly safe from any real harm. One could thus probably immunize against scarlet fever in seven to fourteen days a patient willing to put up with the inconvenience outlined above. It is known as the result of early experiments, some unintentional, some not, that a dose of toxin sufficient to cause "scarlatinoid syndrome" produces rapid immunity. This is, of course, impracticable as a general means of immunization.

In immunization with toxin the tendency is towards large dosage. Dr. W. H. Park kindly informed me recently that he is giving 30,000 to 40,000 doses in five injections. Among 10,000 children in institutions there have been no instances of scarlet fever attacking those immunized. Of the children strongly positive to the Dick test before immunization about 20 per cent changed to positive within two years. I am indebted to the courtesy of Dr. G. L. Kiefer, Commissioner, Department of Health, Michigan, for the information that the present practice in that State is to give three injections, two weeks apart, of 500, 3,500, and 30,000 skin doses. This course is yielding a high immunization rate. On the other hand, it is of interest that Kinloch, Smith, and Taylor,¹² with much smaller dosage—that is, weekly injections of 500, 1,000, and 3,000 skin doses—record a Dick-negative percentage of 75 four months later.

Some work has been done with toxin treated with formalin and sodium ricinoleate. Immunologists do not seem to have been very successful in producing a satisfactory formalinized toxoid. We have ourselves tried, without success. Professor Perkins¹³ records the treatment of 8,000 children with ricinoleated toxoid. When only one dose had been given the incidence per 1,000 was two and a half times greater in the untreated, and when two doses had been given it was more than six and a half times. It is possible that equally favourable results have not been obtained elsewhere, or that controlled experiments have not been made in the United States of America on a sufficiently large scale, for this immunization with ricinoleate toxoid has not yet come into general use. Korschun and Spirina¹⁴ in Moscow record considerable success with moderate dosage both of toxin alone and of toxin plus vaccine.

SERUM TREATMENT

The dosage of antitoxin in ordinary attacks of scarlet fever has become more or less standardized, and ranges from 10 c.c.m. intramuscularly in the mild case to 50 or

more c.c.m. in the severe attack, the antitoxin being given intravenously, at least in grave cases. Dosage waits to some extent on more accurate methods of titration. Of the methods of titration in which human volunteers are necessary the determination of the minimum efficient prophylactic dose (that is, from 2.5 to 5 c.c.m. of a good concentrated serum) is probably the most accurate, the Dick skin neutralization method next, and the Schultz-Charlton dilution method last. The Parish-Okell rabbit method is probably at least as accurate as any of the others, and has the great advantage that it does not require human volunteers. Serum is efficient in cutting short temperature, malaise, and rash, and shortening convalescence, and when given early apparently reduces the chance of the occurrence of complications, but if septic complications, such as otitis, mastoiditis, or septic adenitis, do make their appearance, no serum yet produced seems to promise a certain cure or amelioration. Cases are from time to time reported in which the injection of serum during this septic stage has been followed by rapid improvement, many clinicians will probably, therefore, feel it their duty to try serum even in septic cases until a more efficient means of treatment is discovered.

CONVALESCENTS

With regard to the formidable question of the discharge of convalescents after scarlet fever without danger to the fellow members of the family and to schoolmates, little progress has been made. It is certain that many convalescents are discharged with haemolytic streptococci present in the throat indistinguishable from true scarlet fever streptococci by any test we possess. Since the streptococci may persist for many months in a considerable number of children, a rigid policy of incarceration of these children until the throat is clear is impracticable. The medical officer of health at present faced with this difficult situation can merely adhere to the safe rule that as soon as a convalescent is restored to completely normal health with no discharge from any mucous membrane, etc., he can be released, but as long as he has any discharge he should not be released without grave consideration of demand for "negative cultures" before release would at present probably quickly clog administrative measures.

An interesting method of trying to abolish "return" cases has been tried by American workers and by Kinloch and colleagues (loc cit.). All contacts are Dick-tested and the positive reactors given three or four doses of toxin—for example, 500, 1,000, 3,000 skin doses at five-day intervals. The latter authors reported that by this method they were able to make a reasonable percentage of contacts negative before the patient returned from hospital.

SUMMARY AND CONCLUSIONS

Diphtheria

- 1 Modern methods of detection and prophylaxis, where the population concerned will allow the medical officer full scope, give practically complete control of diphtheria.
- 2 Attempts to make and introduce improved prophylactics—for example, toxoid and floccides—are described.
- 3 The rare instances of "diphtheritic tonsillitis" or "modified diphtheria" in people who have been negative to the Schick test are discussed.
- 4 The "profuse" carrier probably spreads as much diphtheria as an early case of the disease.

Scarlet Fever

- 1 Further knowledge has been gained of the value and limitations of the Dick test, Schultz-Charlton test, passive immunization of contacts, active immunization, and of treatment with antitoxic serum.
- 2 Further work is necessary to determine the optimum method of immunization against scarlet fever alone, and also by "double" or simultaneous inoculation against diphtheria and scarlet fever.

REFERENCES

- ¹ *Boston Med and Surg Journ* 1919 cxxxv 67. ² *Journ Amer Med Assoc.* 1927 20 p 1506. ³ *Ibid* 1925 85 p 113. ⁴ *Lathrop* *Ibid* 1927 89 p 1692. ⁵ *Catewood and Haldridge* *Ibid* 1927 88 p 1068. ⁶ *Park* *Journ Immunol* 1924 9 p 17. ⁷ *Bäcker* *Centrbl f Bakt* 1927 104 p 150. ⁸ *Journ Amer Med Assoc.* 1926 90 p 1778. ⁹ *Journ Path and Bact.* 1927 xxx p 507. ¹⁰ *Journ Roy Soc Med.* 1928 p 828. ¹¹ *Journ Exper Med* 1927 xlv 487. ¹² *Journ Hyg* 1927 xxx 339. ¹³ *Journ Amer Med Assoc* 1927 89 p 1239. ¹⁴ *Zeit f Immunittat* 1928 55 p 288.

OCCUPATIONAL CANCER OF MULE-SPINNERS^{*}

BY

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The peculiar liability to skin cancer of workmen in certain trades, as a result of their occupation, has been recognized for over a hundred years. It was only in 1922, however, that we first drew attention¹ to the occurrence of epithelioma of the scrotum amongst mule-spinners in South Lancashire as the result of the soiling of the clothes in the region of the scrotum by the lubricating oil used in the cotton spinning machinery.

The experience gained since that time and the clinical observations made of a large number of cases have enabled certain definite conclusions to be drawn as to the earliest signs, clinical features, and treatment of this type of skin cancer.

INCIDENCE OF MULE-SPINNERS' CANCER

Epitheliomatous ulceration occurring in mule-spinners is usually found in operatives over the age of 50 years, though cases may be met with in younger men. It is only seen in those who have worked in the mill for long periods—rarely less than ten years.

The most common situation for the lesion is on the left side of the scrotum, but about 25 per cent occur on other sites—namely, the forearm, face, and neck. The skin of the leg appears to be remarkably resistant to the action of mineral oil and is an infrequent site for spinners' cancer.

Over fifty cases of scrotal cancer occur in spinners each year, and the incidence of the disease is very much higher among persons employed in mule spinning than in any other class of worker. Approximately 2.5 per 1,000 mule-spinners develop this disease. It is probable that idiosyncrasy plays a part in the development of these epitheliomata, and that a dry skin is an important etiological factor in carcinoma of the skin.

CLINICAL FEATURES

The first clinical evidence of an epithelioma is a localized hyperplasia of the keratin producing a layer of the skin, clinically suggesting a warty plaque. This is followed by a secondary round-celled infiltration of the underlying corium, the demarcation of the epithelial layer from the subcutaneous tissue remaining sharp. Within a widely varying period of time epithelial cells appear to break through the dividing line and a true prickle-cell carcinoma develops. At this stage the lesion is about the size of a pea, is freely movable, and is relatively benign, though it must always be regarded as potentially malignant. It is covered with scales which the man may remove by scratching, leaving a small bleeding surface over which a scab forms. Such lesions may be present for months or years in a benign form before they show any of the characteristics of malignancy. In some cases the condition appears on a chronically inflamed skin secondary, no doubt, to the prolonged contact with oil, and this condition is apparent before any wart formation.

Although frequently single, these lesions may be multiple, developing over a period of years. Sooner or later localized sloughing occurs and signs of inflammation around the lesion, due to secondary infection, follow. Definite ulceration ensues and the growth may then appear as a tumour, the size of a small cherry, raised above the skin, with a moist and red-coloured base. The growth extends peripherally and has now all the characteristics of malignancy and bleeds easily when touched. At this stage the disease is entirely local and the lymphatic glands are not yet involved, though they may be enlarged as the result of inflammatory infection. Malignant invasion of the glands is, however, bound to occur sooner or later, the length of time varying according to the situation of the growth and the extent of the underlying round-celled infiltration.

The glands are affected much earlier when the lesion is situated on the scrotum than when the primary lesion is situated elsewhere, these latter tumours being of relatively

low malignancy. As the disease progresses the glands tend to break down, and death ultimately occurs from septic absorption, exhaustion, or haemorrhage from the underlying vessels. Metastases in distant organs are only seldom found.

The occurrence of cancer of the skin amongst female cotton operatives is uncommon, but a case of epithelioma of the forearm has recently been observed in a female cardroom worker. This case was of interest in that the patient showed, in addition, a marked atrophy and dryness of the skin of both hands, forearms, and arms up to the level protected by clothing, and a similar condition of less severe degree occurred on the exposed areas of the face and neck.

TREATMENT

Mule-spinners' cancer is a most favourable type of malignant growth for surgical treatment as it can be detected at a very early stage and complete removal is then a comparatively simple matter. The most malignant type of growth is that which occurs on the scrotum, and when in this situation it is very liable to be followed by secondary deposits in the lymphatic glands, and therefore requires a more radical operation for its complete removal. It is essential that all warts and papillomata seen on the skin in mule-spinners should be regarded as potentially malignant, for when malignant degeneration supervenes it always arises in one of these warty hypertrophies.

I am strongly of the opinion that excision of these growths is the only treatment to be considered, as, in my experience, treatment by radium or x rays does not appear to give such satisfactory results. In the early stages, before ulceration has occurred, the growth is relatively benign, and local removal is sufficient to eradicate the disease, as malignant invasion of the glands has not usually taken place.

When a definite ulcer is present an extensive operation, involving removal of the growth with an area of surrounding skin and excision of the lymph-bearing areas, must be carried out. This is especially important in scrotal cases and removal of all the glands in both groins must be practised, since, although the growth may be found on the left side, the glands in both groins are often invaded owing to the free anastomosis of the superficial lymphatics across the mid line of the scrotum.

The excision of the lymphatic nodes in the inguinal regions must be complete, and the operation must include all the fat and glands in this region and the upper part of the saphenous vein. No lymph channels appear to pass the inguinal glands to reach the iliac glands direct, and primary infection is found only in the former. Prophylactic application of x rays may be given for twelve months after operation.

PROGNOSIS

The prognosis in this disease, as already stated, is good, as in other types of skin epitheliomata, when the lesion is detected in the early stages. Cases of scrotal cancer have been under observation for varying periods up to ten years that have remained free from recurrence after operation. But when the glands are invaded the outlook is serious and recurrence is very liable to take place. In 13 cases of scrotal cancer with involvement of the lymphatic glands, treated during a period of two years, recurrence or death followed in 9 cases (70 per cent), and only 4 patients (30 per cent) remained alive and well at the end of this period. Prophylactic applications of x rays had been given to these patients, but appeared of little value in preventing glandular or local recurrence of the disease.

This tendency to local recrudescence is well illustrated by the case of a man aged 32, who had worked as a mule spinner for twelve years. In 1925 he underwent a radical operation for epithelioma of the scrotum and removal of the glands in both groins. Since then I have removed four further epitheliomata from the scrotum (all confirmed by microscopic examination)—in October, 1926, June, 1927, December, 1927 and July, 1928.

Such cases as this are not uncommon in my experience, and emphasize the importance of frequent medical examination particularly amongst operatives who show a tendency towards this condition.

* Read before the International Cancer Conference held in London on July 18th 1928.

The disease, when it occurs on other sites of the body, is much less serious, and involvement of the lymphatic glands is a considerably later phenomenon, but in these cases also, when neglected, death from ulceration, secondary infection, and hæmorrhage follows as in scrotal cases.

MULTIPLE PRIMARY MALIGNANT NEW GROWTHS

An interesting feature occasionally met with is the development of a carcinoma of the skin and a second malignant new growth elsewhere in the body. This phenomenon has received little attention from pathologists, and is of importance from a medico-legal aspect when the second new growth is the actual cause of death.

Cases of epithelioma of the scrotum have been found associated with carcinoma of the stomach, tonsil, and lung, and in these cases an epithelioma of the scrotum had been removed by operation, the second new growth developing subsequently.

A record of such phenomena is of considerable interest, for while it has been assumed that the development of one malignant new growth tends to inhibit the subsequent development of a second, owing to some increased resistance in the individual, it is possible that the conditions may be somewhat different in the case of skin cancer.

CONCLUSION

In conclusion I would emphasize the importance of the diagnosis of mule-spinners' cancer at an early stage, when operative treatment is a simple procedure and is followed by lasting cure.

By educating the workers to pay prompt regard to any warts or small sores on the skin, and the profession to realize the importance of early diagnosis and treatment, the proportion of cures will steadily increase and the number of radical operations progressively diminish.

At the present time there is no safer method of cure than by surgery, and we can secure most satisfactory results. No doubt the time is not far distant when other and better remedies may be discovered or effective preventive methods be adopted, by means of which mule-spinners' cancer as an occupational disease will be totally abolished.

REFERENCE

¹ *British Medical Journal* November 18th 1922.

TELESCOPIC SPECTACLES *

BY

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TELESCOPIC spectacles are low-power wide-angled Galilean binocular telescopes made as compact and as light in weight as possible, so that they may be used constantly as spectacles in the ordinary way without serious disfigurement or discomfort.

Correcting telescopic spectacles were first proposed for highly myopic patients towards the end of the eighteenth century. H. Dixon in 1785 patented a method of making such spectacles (Patent No. 1375, December 14th, 1785). He first started with two spherical mirrors, but later replaced these by spherical lenses. As a matter of curiosity it may be mentioned that Eschmair in 1660 described a similar system suitable for close work. After Dixon many workers occupied themselves with the problem, notably W. Kitchiner, in a book published in London in 1824, but owing to various causes the results were not very good and the method was not much used.

In recent times the problem was raised afresh by Professor Hertel of Strasburg. He was led to consider this problem by the publication of Fukala's papers in 1890 and 1895. In these communications Fukala sought to revive the operation originally suggested by Boerhaave in 1708 and Desmonceaux in 1778 of removing the crystalline lens for the cure of high myopia. This operation was

extensively practised, but the very definite dangers impressed themselves upon Hertel, and he sought to find some optical method of improving the acuity of these patients. The details of the problem, as set out by Hertel, were worked out more or less satisfactorily by Dr. M. von Rohr in the research laboratory of Messrs. Carl Zeiss in Jena (see *Archiv für Ophthalmologie*, 1910, vol. 75, p. 561).

The difficulties of designing telescopic spectacles are many, but I will mention only two: first, the astigmatic deformation of obliquely incident light, and secondly, the chromatic aberration.

The astigmatic deformation can be partly overcome by adopting a series of measures: the most important of which are (1) suitably bending the optical elements in the telescope, (2) by limiting the field of vision so that only tolerable distortions of the images are evident at the edges of the field, and (3) by varying the separation of the two elements. This last factor—separation of the two elements—is only of limited use, since the distance between the elements must be exactly the difference of their focal lengths. The chromatic aberration was a great difficulty because it was impossible to make the object glass achromatic on account of the weight, and it was only simplified when Gullstrand showed that the chromatic correction would be sufficient if the chromatic difference of magnification of the principal rays entering the eye was removed—that is to say, the chromatism would be sufficiently corrected for practical purposes in such a low-power telescope by making the eye lens of a combination of a flat and crown glass.

These telescopic spectacles can be designed to give a magnifying power up to nearly two diameters. The usual magnification selected for emmetropic spectacles is $\times 1.8$, and the resulting improvement of vision is due to the image formed on the retina being nearly twice as large as the image formed with the unaided eye or with ordinary spectacles.

In Fig. 1a is given a diagram showing the general optical construction of the spectacles, and the path of the light for a distant object and relaxed accommodation of an emmetropic patient. The relative position of the patient's

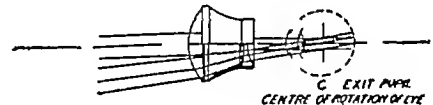


FIG. 1a

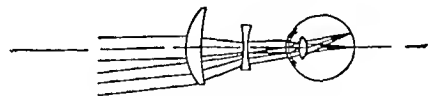


FIG. 1b

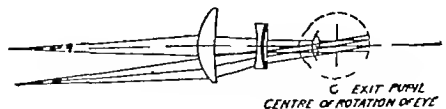


FIG. 1c

eye is shown in broken lines. Fig. 1b shows how the light from the spectacle is refracted by the cornea and crystalline lens of the eye. In Fig. 1c is given a diagram for objects at a finite distance. It will be noticed that only simple lenses are shown for the eye lens, although it is stated earlier in these notes that Gullstrand recommended a cemented eye lens to get rid of chromatic difference of magnification. In recent years it has become possible to secure at a reasonable price optical glasses of such properties that the chromatic trouble referred to can be very substantially reduced by suitable choices of glass of different dispersive powers for the two simple lenses, thus avoiding the additional weight of achromatic lenses. It is improbable that the acuity of vision of patients needing these spectacles would be good enough to appreciate the more precise achromatization which can be obtained by using an achromatic eye lens.

* Read in the Section of Ophthalmology of the Annual Meeting of the British Medical Association, Cardiff 1928.

TELESCOPIC SPECTACLES FOR AMYOTROPIA

Telescopic spectacles are most frequently needed by highly myopic patients. These also are usually made up of two simple lenses of suitable shape and separation, after the style of a Galilean telescope, the rays, instead of emerging parallel from the eye lens, as for an emmetropic spectacle, are made to emerge with the degree of divergence corresponding to the myopia of the patient (see Fig 1d).

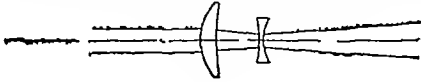


FIG 1d

Spectacles are often made up for three or four degrees of myopia—for example, -10 D, -20 D, -30 D—and suitable positive lenses are then added to the eye lens of the nearest excessively myopic spectacle to suit the patient's need. As will be explained later in the text, in connexion with reading spectacles, the addition of a *plus* lens to the negative eye lens tends to assist rather than detract from the good performance of the spectacles.

TELESCOPIC SPECTACLES FOR READING

One pair of telescopic spectacles cannot be used for both distance and reading, even when the wearer is emmetropic and in possession of a fully active accommodation. This is (1) because the accommodative power of the eye is inadequate to overcome the increased convergence produced by the telescopic spectacles (2) because varying the separation would upset the good definition of the image (3) because of the necessity of accurately angling the frames to suit the working distance. In the ordinary way, with simple spectacles or none at all, the accommodation exerted is just the dioptric power of the working distance—for example, $+4$ D for 10 inches and the angling of the frames is comparatively unimportant. In Fig 2a it will be seen that the angle of convergence of light received by the spectacles is increased roughly in proportion to the magnification they give, consequently an eye using $\times 1.8$ telescopic spectacles and a working distance of 10 inches would have to accommodate $4 \text{ D} \times 1.8 = 7.2 \text{ D}$, or to the extent required with ordinary spectacles for an object at only $5\frac{1}{2}$ inches from the eye. Actually owing to the rapid contraction of the beam between objective and eye lens the accommodation demanded by the telescopic spectacles is

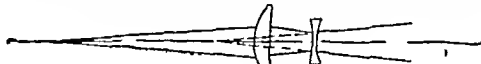


FIG 2a

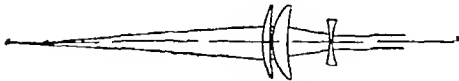


FIG 2b

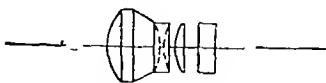


FIG 2c

even greater than already stated, Theodore Hamblin, Ltd, report that $+10$ D is necessary with their design of spectacles for a 10-inch working distance.

It is usual and more restful to the eyes if the spectacles are used as magnifying loupes and binoculars, with relaxed accommodation for all working distances; in which case it is necessary to add a lens of such power as will make the emergent rays parallel and thus replace the accommodation otherwise required.

There are two methods of obtaining this additional power. First, there is the possibility of adding this auxiliary lens for reading to the object glass, as is shown in Fig 2b (Messrs Zeiss followed this plan). In this case only the exact dioptric power of the working distance is required—for example, $+4$ D for 10 inches, this holds good whatever may be the magnification and construction of the telescopic spectacles. From the designing point of view, of

course, this method is much the simpler and more straightforward, but there are several real advantages, from the patient's point of view, in adding the necessary power to the negative eye lens (see Fig 2c). Theodore Hamblin Ltd, employed this method for the following reasons: in the first place, an additional lens in front of the object glass is very conspicuous and likely to be considerably heavier than the one of smaller diameter behind the eye lens, secondly, for lightness the spectacles are frequently composed of simple lenses, and a positive lens of suitable glass added to the negative eye lens tends to improve the general definition.

OPTICAL FACTS OF IMPORTANCE

From Fig 1a it will be seen that all bundles of rays cross at the point C (the "exit pupil") along the axis. This is the ideal position for the centre of rotation of the eye. Evidently the closer this point C is to the negative eye lens the larger will be the visible field. Figs 3a and 3b show the extreme oblique rays for two positions of the exit pupil C.

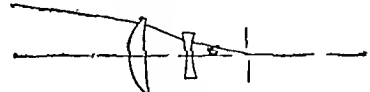


FIG 3a

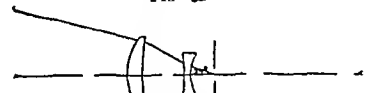


FIG 3b

From the diagrams it will be seen that a ray at a steep angle, corresponding to a larger field, can pass through the lenses when the exit pupil is closer to the eye lens. The position of C affects the quality of image, in particular the flatness of the field, for every design of telescopic spectacles there is a best region for C.

Further, this circular base C, common to all bundles of rays, should be symmetrical about the axis of the system. That is to say, the centre of C should be coincident with the axis. Fig 4a illustrates the effect of a lateral displacement of C (this effect is obtained when the P.D. of the spectacles does not agree with actual P.D. of the wearer). From the diagram of Fig 4a it will be seen that an eccentric exit pupil destroys the symmetry of rays about the optical axis. Additional rays are admitted above the

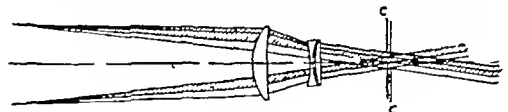


FIG 4a

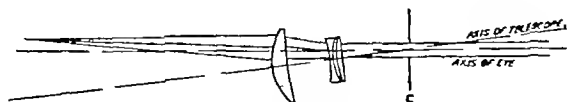


FIG 4b

axis, rays normally entering below the axis are excluded (see Fig 4a red rays). In effect the aperture is increased above the axis and decreased below. In practice this eccentricity spoils the symmetry of the visible field and the good definition of the image, and the wearer may be conscious of a vague sense of discomfort in using such spectacles, but unless optically trained will not be able to appreciate the reasons for the discomfort.

More serious and disturbing trouble arises when the telescopic spectacles are tilted before the wearer's eyes—that is to say when the axis of the spectacles is inclined to the axis of the eye (see Fig 4b), and consequently when the common base C of all bundles of rays entering the eye is not normal to the axis of the spectacles. From Fig 4b it will be clear that when looking as one imagines, straight ahead through the spectacles it is actually an outer part of the field that is being used, and the apparent

centric of the field will consequently suffer from the defects unavoidably present at the extreme edges of a large field in a simply constructed optical system. At the edges of the field, corresponding with the periphery of the retina, these effects are hardly noticeable, but in the centre of the field the eye is very critical and at once detects any distortion of the image. The wearer in these circumstances will most certainly complain that all the black lines in anything he is examining through the spectacles have coloured edges, blue on one side or red on the other. If he complains of seeing yellow on the left of his black lines, for example, it is necessary merely to tilt the telescopic spectacle to the left in order to bring the axis of the eye and spectacle into coincidence, or at least to render them parallel. Other effects of this tilting of the spectacles before the eyes will be a source of discomfort to the wearer, the chief of which will be caused by astigmatism of very appreciable amounts.

Another source of trouble may arise in the addition of auxiliary lenses for reading or ametropia. These auxiliary lenses may be of high power, the separation between the auxiliary lens and the eye lens or objective is a matter of real importance, since variation of the separation causes rapid variation of the power of the combination.

PRECAUTIONS NECESSARY IN PRESCRIBING AND FITTING TELESCOPIC SPECTACLES

From the foregoing discussion it will be realized that the accurate prescribing and fitting of telescopic spectacles is of the greatest importance if they are to be of benefit to the wearers. Seemingly small errors in frame measurements in particular may entirely spoil the possibilities of the spectacles, so much so that they may be judged worse than useless, whereas accurately prescribed and fitted spectacles may prove very useful to the same wearers.

To make the testing simple and straightforward it is really necessary to have a special outfit—trial frame, adaptors, and auxiliary lenses—for reading and ametropia, these parts should exactly correspond in essential design with the spectacles subsequently supplied. Spectacles made by different firms for example, even though considered equally good and nominally the same, will be quite sufficiently different in magnification and other details of design to render it absolutely essential to use the trial outfit supplied by the firm which is ultimately to supply the spectacles.

The following points are of importance in testing:

1 The spectacles should be worn as close to the eyes as lashes, etc., will comfortably allow.

2 Great care should be taken in making all frame measurements to ensure that the spectacles will be

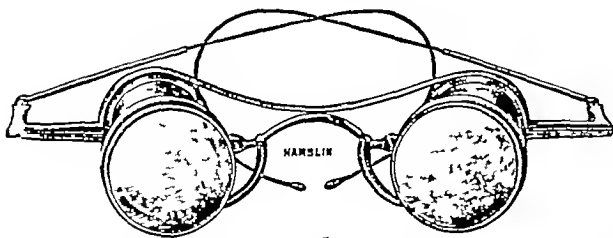


FIG 5

accurately centred in every way over the eyes. This is a very much more important matter when testing for telescopic spectacles than for ordinary spectacles. It rests with the dispensing opticians, of course, to make rigid frames which will bear out and maintain the surgeon's careful prescriptions, but spectacle frames of ordinary design are not suitable, as they have proved to be not sufficiently rigid. Fig 5 shows a spectacle frame specially designed for the purpose. It will be seen how rigid the front of the frame is.

3 It is often a matter of difficulty to determine the working distances with any combination of lenses. It is a fact of universal experience that all, except those with long optical practice, tend to exercise their utmost powers of accommodation when looking through instruments. The only way to induce relaxation of the accommodation when

trying out working distances is to bring the test object up towards the patient from a distance, and take the first point at which he sees a focused image as the true working distance. Even this should be tried several times, as the very effort of consciously looking carefully and perhaps nervously seems to induce accommodation which refuses to relax.

4 The auxiliary lenses added in testing should be used in an exactly similar way to those finally supplied. They should be used with the same surface (plane or convex) towards the eye lens, and should be made of glass of the same refractive index as the lenses in the spectacles which will be supplied.

FINAL FITTING OF THE PRESCRIBED SPECTACLES

If the spectacles and frames have been correctly prescribed and made, the wearer should see one image of a black-and-white object at the intended working distance on the optical axis, well defined and colourless. (A black cross two or three inches long drawn on a white card makes an excellent test object.) If there are errors in the framing of the spectacles the patient may complain of seeing two crosses relatively disposed in some way, and/or of seeing coloured edges at the boundaries of the crossed lines. Suitable bending or readjustment of the frames will remedy these troubles. Each eye must be tried separately for the coloured edges. If the yellow edge is to the right, the spectacles need bending to the right, and vice versa similarly, if the yellow edge appears at the top of the horizontal line a bend upwards is needed. If there is not yet binocular vision, and the P.D. is checked and found to be correct, a little further adjustment is necessary in the angling of the frames. The direction of the adjustment required is always opposite to the direction of the displacement of the image—that is to say, if the image is displaced up and to the right, an adjustment down and to the left is required.

THE LARGE STOMA GASTRO-JEJUNOSTOMY*

BY

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We seldom read the medical journals of to-day without noting the frequency of papers on the surgery of gastric and duodenal ulcers. While it seems that opinions preponderate that gastro-jejunostomy is an operation giving success in the majority of cases of duodenal ulcer it would appear that it is by no means so effective for chronic non-malignant gastric ulcer, in fact in gastric ulcer in which there is no pyloric obstruction, gastro-jejunostomy, as practised to-day, often gives such unsatisfactory results that more elaborate and serious operations, such as sleeve resection and gastrectomy are advocated and undertaken, with, it is claimed, superior results.

Recently J. Abadie¹ describing the results of 300 operations for gastric ulcer concludes that excision of the ulcer alone does not cure the patient, that gastro-jejunostomy gives a good percentage of cures, but that duodenal-gastrectomy is the most certain of all methods of cure. These conclusions coincide closely with those of many other authorities who have specialized in gastric surgery. Some highly skilled surgeons find that the operation of gastrectomy gives a mortality no higher than that of the more simple gastro-jejunostomy, but such favourable experiences cannot be taken as a guide for the majority of us. On the other hand, Mr R. P. Rowlands² states that gastrectomy has a mortality seven times that of the more simple gastro-jejunostomy—a grave objection to this radical operation. An additional argument commonly advanced in favour of the major procedures is that many of these ulcers, which at operation appear simple, are in fact actually cancerous particularly is this so when the ulcer is of large size, but from the published results of

* A paper read at a meeting of the Malayan Branch of the British Medical Association, September 26th 1927.

gastro-jejunostomy alone for "simple" gastric ulcer the rarity of the subsequent development of cancer goes far to disprove this contention. Of course, the presence of definite malignant ulceration would fully justify the most radical operation.

It will be agreed, I think, that in the treatment of all inflammatory lesions there are two main principles—namely, to treat and remove the cause of the disease, and to rest the diseased part.

In the first place, to treat and remove the cause of gastric ulcer is impossible, as it is unknown at the present time. There appears to be evidence that sometimes the cause of peptic and duodenal ulcers may be secondary to dental sepsis, and in this connexion the following figures, compiled by my house-surgeon, Dr. A. M. D'Cotta, are of interest.

Total Admissions into the General Hospital, Singapore, for the six months ending June 30th 1927, showing proportion of cases of Gastric and Duodenal Ulcers

	Total Admissions	Cases of Gastric and Duodenal Ulcers
White races	818	8 = 1.0 per cent
Chinese	2,490	12 = 0.48 "
Indians	2,007	5 = 0.25 "
Malays	216	0 = 0.0 "
Other Eastern races	90	0 = 0.0 "
Total	5,621	25 = 0.44 per cent

It would appear from this table that among the Malays gastric and duodenal ulcers are rare, and we know that they seldom suffer from dental sepsis. With the Indians dental sepsis is not very common, and among them ulcers are rather infrequent. On the other hand, the Chinese suffer largely from dental sepsis, and in them ulcers are twice as common as among the Indians. In the white races, which include British, Americans, Australians, and Eurasians, dental sepsis is almost the rule, and among them ulcers are four times as common as in the Indians and twice as common as in the Chinese. Further, in dogs both dental caries and peptic and duodenal ulcers are almost unknown.

Secondly, to place at rest completely a gastric or duodenal ulcer is nearly as impossible as to give rest to a diseased heart or lung, but it seems probable that much can be effected by partial relaxation of work. Gastro-jejunostomy alone seems to be successful in the treatment of the majority of duodenal ulcers, the percentage of cures ranging from 85 to 95 according to various statistics. This suggests that the partial rest to the duodenum by short-circuiting the stomach and jejunum suffices to bring about a cure in most of these cases. Why, then, cannot similar satisfactory results be obtained in gastric ulcers? May it be that a stoma sufficiently large to cure the majority of duodenal ulcers is not large enough for equal success in gastric ulcers? I am disposed to believe that this is the case. In the treatment of chronic ulcer of the leg rest in bed and cleanliness will bring about a cure in most cases, and I venture to think that no one would advocate amputation of a leg for simple ulceration, except as a last resort, yet when a simple ulcer occurs in the stomach gastrectomy is recommended by an increasing number of advocates. Furthermore, even after gastrectomy recurrence of ulceration is not by any means unknown.

It would be comparatively easy to substantiate my belief were it possible to perform a large stoma gastro-jejunostomy in a number of cases of gastric ulcer and to follow up the patients for some years. Fifteen years ago I advocated for gastro-jejunostomy a stoma of $3\frac{1}{2}$ to $4\frac{1}{2}$ inches in diameter,² but owing to my operations having been performed on a floating population I have been unable to trace the results of my earlier cases except in two instances. Both these patients suffered from gastric ulcers, on one I operated nineteen and on the other twelve years ago, and they have remained cured of their symptoms. Whether these results were due to the large stoma which I made or not, the number is too small from which to draw any conclusion.

From time to time I have had opportunities of watching surgeons in America and in England perform gastro-jejunostomy, but I have never seen this operation practised

except with a small stoma. Sir Berkeley Moynihan³ advocates an opening of $2\frac{1}{2}$ inches, and Messrs Rowlands and Turner⁴ recommend an opening even smaller—namely, of 2 inches in diameter.

In Singapore during the past year I have endeavoured to follow, as far as possible, my cases of large stoma gastro-jejunostomy for simple gastric and duodenal ulcer, and in this connexion I am very grateful to my colleague Dr. J. S. Webster, who has periodically examined these patients by x-rays. He finds that when a barium meal is given about half passes out practically at once through the new stoma into the jejunum, which becomes distended, and the remainder of the meal then slowly passes through the stoma, the stomach finally emptying in from one to two hours, in some cases none, in others very little, opaque meal goes through the pylorus. These examinations were conducted a week or two after operation, and again at intervals of a few weeks, the results so far have remained practically identical, and even after several months there has not been any evidence of the stoma contracting. It is interesting to note that the distension of the efferent loop of the jejunum, which is sometimes shown to be considerable appears to produce neither pain nor discomfort.

Clinically vomiting after operation is seldom encountered and as a rule the patient makes a quick and easy recovery, putting on weight and becoming able after a time, to take ordinary diet without discomfort. Vicious circle vomiting and prolapse of the jejunal mucous membrane through the large stoma into the stomach never seems to occur. Thus it would appear that one of the cardinal principles of treatment—namely, rest—is secured completely to the duodenum and considerably to the stomach.

On the other hand, I have recently come across two patients who undoubtedly had ulceration and on whom the ordinary small sized stoma gastro-jejunostomy had been done with very little relief of symptoms. One patient operated on four years ago, was never properly relieved, having recurring attacks of vomiting in spite of the most careful diet and medical treatment, this patient was x-rayed eighteen months after the operation, and the result showed a stoma through which passed very little of the opaque meal, the bulk going through the pylorus. The second patient was operated upon nine years ago for gastric ulcer soon after which he was x-rayed, the patient still has these old photographs, which clearly show that very little opaque meal then passed through the stoma. The patient was never cured, having to be readmitted into hospital from time to time with relapses, quite recently Dr. Webster x-rayed him and found that the old stoma was practically functionless, although it seemed to have been well placed in the lower part of the stomach. Dr. Webster thinks that there is now evidence of further ulceration near the pylorus. These failures, I venture to suggest, are possibly due to the stomata having been made too small.

I use the following modifications in performing a large stoma gastro-jejunostomy, which differs from the usually described operation.

1. As already stated, the stoma is at least $3\frac{1}{2}$ inches in diameter.

2. The opening in the stomach is made in its long axis or slightly oblique, whichever is the more convenient; the opening is never made in the short transverse axis of the stomach, as in this direction it would seldom be possible to make the stoma large enough.

3. The two ends only of the stomach and jejunum are held in short bladed stomach forceps, leaving the intervening portions free and unclamped. More room is thus obtained for making the stoma large. A second advantage of not clamping the stomach and intestine right across is that when these organs are incised and opened all bleeding points are seen—these are seized in artery forceps and tied with catgut. I regard this as an important detail, it adds a little time to the operation which is more than compensated I feel sure by the absence of any post-operative hæmorrhage from the stoma wounds. In other words, for complete hæmostasis reliance is not placed entirely on the tightness of the stitching. A third advantage of not clamping the stomach and jejunum right across is the

absence of bruising and injury to the mucous membranes which large clamps sometimes undoubtedly produce. Clamps may have more to do with secondary gastric and jejunal ulceration, at or close to the stoma, than is generally realized. Lately I have dispensed altogether with the stomach clamping type of forceps for holding the ends of the stomach and small bowel, using instead grooved black rubber intestine holding forceps, similar to Young's.

While I cannot ask others to share my belief that the large stoma gastro-jejunostomy will prove to be the operation of choice for simple chronic ulcers of the stomach and duodenum in the face of the numerous far more experienced surgeons whose conclusions differ from mine, I hope that my view may receive consideration.

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¹ *Bull. et Mém. Soc. Nat. de Chir. Mar. 7th, 1927* p. 614. ² *Proc. Roy. Soc. Med.*, March, 1927, p. 650. ³ *British Medical Journal*, March 1st 1913 p. 442. ⁴ *Abdominal Operations* 1925. ⁵ *Operations of Surgery* 1927.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

HAEMATURIA DURING TREATMENT WITH INSULIN

The apparent rarity of haematuria occurring in diabetic patients under insulin treatment is noted by Lawrence and Hollins in the *British Medical Journal* of June 9th (p. 977). The following case shows some points of contrast with the cases there detailed.

A boy aged 5 years was admitted to the Children's Hospital, Birmingham, on April 17th 1928. There had been no illness, except chicken pox and measles at 2 years of age, until two months before admission when he became poorly, lost weight, and had polyuria with glycosuria.

On admission he was noted to be moderately wasted and had a strong odour of acetone. The urine contained 17 grams per cent of sugar and gave a strong reaction for ketones. His blood sugar was above normal. There was no albuminuria or other abnormal urinary constituent. There were a few carious teeth, but the tonsils were small and clean. There was no evidence of infection. His progress in hospital was very good, and his diabetic state was well controlled by dieting and insulin. Apart from the first twenty-four hours in hospital when he had 20 units of insulin, he never had more than 10 units of insulin in twenty-four hours. On May 8th he was able to take an adequate diet without insulin. On May 10th his urine remained sugar free, but there was a slight positive Rothera's test. He had commenced to get up.

On May 11th at 8 a.m., whilst in bed, the boy had profuse haematuria, the urine being copious and heavily loaded with bright blood. There were no symptoms or signs otherwise. The temperature (as usual) was quite normal. There was no renal or vesical pain or tenderness. The urine was moderately acid to litmus, contained a cloud of albumin and no sugar. A slight ketosis was present. Microscopically there were very numerous red blood cells but no epithelial or blood casts. Successive specimens of urine passed during the day showed a rapid progressive diminution in the amount of blood in the urine. At 6 p.m. on the same day the specimen was practically normal to the naked eye but a haze of albumin was present together with a few red blood cells. The blood pressure was 105/60.

Two days later the urine was quite free from albumin and no abnormal elements were present microscopically. The boy went home a few weeks later and no further haematuria occurred.

The points of peculiar interest in this case are (a) that the haematuria was extreme but of very short duration, (b) the rapid return of the urine to the normal, (c) the haematuria occurred two days after the last dose of insulin, (d) there was at this time only a slight ketosis.

I do not propose to discuss the true relationship of the haematuria, but I thought perhaps the former writers and their critics might be interested in the case. Clinically the case did not appear to be nephritis. In accordance with Dr Lawrence's remarks the benign nature of the urinary abnormality is apparent also in this case.

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SOMATIC TAENIASIS

DR C. J. HILL AITKEN reported on June 2nd (p. 943) a case of somatic taeniasis which was first thought of as being malaria. A somewhat similar case occurred in St. Giles' Hospital in 1927.

A man aged 26 had been under observation in an institution as an epileptic but was sent to St. Giles' Hospital in October 1927, because he had become drowsy and dazed and the existence of some organic cerebral lesion appeared likely.

He had joined the army in 1920 and went to India where in 1925, he had an attack of malaria from which he recovered but while still in the hospital he developed epilepsy. The fits at first occurred twice a week, but later once in two months. The fits were preceded by a 'queer feeling' in the head during the convulsions and following unconsciousness he bit his tongue, but was not incontinent. The fits occurred by day and also when asleep. Sometimes he had itching in the right palm followed by twitching of the right arm before the onset of unconsciousness.

While in St. Giles' Hospital (about six weeks) there were four fits, one of which was closely observed. It lasted about five minutes, and he had sufficient warning to call a nurse. There was no loss of consciousness, the arms and legs were not involved, there was laboured breathing and profuse salivation but the mouth was not clenched. The left side of the face was twitching, sweating and flushed, the abdominal muscles on the left side were also twitching. When the facial convulsions ceased it was found that the left half of the face was paralytic and remained noticeably so for about ten minutes. The patient was able to laugh symmetrically before he could show his teeth symmetrically when asked to do so, this was demonstrated by chance and repeated as many times as laughing could be induced. There were two other left-sided facial fits, and another reported as involving both sides of the face.

When examining the head a nodule was found in the scalp over the region of the lambda, it was painless and about the size of a large pea. A similar nodule was found in the skin of the left flank, two nodules in the extensor muscles of the left forearm and another in the left gastrocnemius muscle. A nodule was excised and found to be a cyst containing hooklets.

Neurological examination gave very little help, but there was left ankle-clonus, and alternate pronation and supination of the left forearm was not so free as that of the right although the patient was left-handed. There was some papilloedema of the left eye but no abnormality of ocular movements.

Examination of the blood showed 16,000 white cells per cmm with 3 per cent of eosinophil cells. The Wassermann reaction was negative. Radiographic examination of the skull and thoracic organs was negative.

Gradually the cysts became smaller and after six weeks they could not be felt. The only treatment used was potassium iodide by the mouth.

I have to thank the medical superintendent for permission to publish this case.

Camberwell, S.E.5.

T. VIBERT PEARCE, M.B., B.S.

ACUTE PANCREATITIS FOLLOWING THE
INGESTION OF AN EXCESSIVE
AMOUNT OF ATOPHAN

In view of the recent deaths occurring after the ingestion of an excessive amount of atophan, the following case appears to be of much interest, for I do not remember having seen a case recorded where operation has been performed.

This patient developed neuralgia of a very acute type in the region of the left shoulder and arm due presumably to the fact that while passing through the tropics he had an electric fan playing on that part of the body all night. All drugs and treatment failed to relieve the neuralgia except temporarily. He was given atophan, and in despair he took a whole tubeful of ten pastilles in one day.

A few days later he informed me that the pain had passed from the left upper extremity to the pit of his stomach. The epigastrium was very tender on palpation and there was some rigidity of the recti muscles.

In the next few days his condition rapidly became worse. At a consultation it was considered that he was suffering from a mild peritonitis around a perforating type of ulcer in the lesser sac. In spite of treatment the condition continued to get rapidly worse, and I decided to perform a laparotomy. On opening the abdomen all the appearances of pancreatitis with necrosis of fat and haemorrhages in the pancreas were detected. A drainage tube was passed down to the pancreas after the peritoneum had been cut through. No calculi could be detected in any part of the pancreas. The appearance of the liver was normal. That evening the patient evinced great relief from his pain, and an enormous amount of serous fluid came away through the drainage tube.

A few days later when the patient seemed to be convalescent, he had a large haematemesis by the mouth and to all intents and purposes seemed to be dying, indeed he felt so himself, for he made his last will. Nevertheless a transfusion of blood pulled him round and he made a slow but uninterrupted recovery.

After the operation and before the haematemesis he complained of some slight pain in the left upper extremity similar in nature to the old neuralgia which disappeared completely after the haematemesis.

This man was an unusually strong and healthy individual. He had saturated himself without permission with all kinds of drugs, including atophan, and the suggestion is that severe cases which do not respond to ordinary means of treatment should be given the benefit of an exploratory operation.

Two years later a letter was received from this patient stating that he continued in good health.

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British Hospital, Buenos Aires.

THE TREATMENT OF EARLY RODENT ULCER

Reasonably early basal-celled epitheliomata can be treated in a large number of ways with a high percentage of successes, but most methods are open to some objection. Adamson's plan of curetting, followed by a massive dose of x rays, is one of the very best, but it demands apparatus and technique beyond the compass of the general practitioner. The same applies to radium, with the additional drawback that all cases do not respond to it. Diathermy is effective but cannot safely be employed in the near neighbourhood of the eyeball. Surgical excision is good, provided that a wide margin is possible, though even then recurrence in the scar may be seen. In the neighbourhood of the eye excision may have to be on a mutilating scale, followed by plastic work, and as even then no certain promise of cure can be given, such procedures are, in my opinion, quite unjustifiable. I have in the past used many methods, but for over four years have treated all my early cases up to the size of, say, a shilling, by the following simple technique.

The rodent ulcer is ringed with novocain (2 per cent) and then firmly scraped with a sharp spoon. Only the tumour comes away and a clean raw area is left. A pencil of CO snow in a vulcanite applicator is applied with firm pressure for sixty seconds, and then a dry dressing. There is considerable oedema of the part for a day or two, but practically no pain at any time, and the ulcer heals rapidly under boric ointment.

The number of cases thus treated and observed for at least six months (the majority for much longer) is sixty-five. Of these, two showed small recurrences at the edge of the scar, where presumably an outlying nodule had escaped destruction. These recurrences were successfully treated by a repetition of the procedure. Recurrence in the depths has not so far occurred. The resulting scars are always very smooth and fine, and in the case of small rodents about the eyelids, or in the naso-labial furrow, almost invisible. The apparatus required is neither elaborate nor expensive, and the technique exceedingly simple, and there is no reason why practically every basal-celled carcinoma should not be detected and cured by the patient's family doctor. The procedure can be carried out in the consulting room, even on old people who suffer neither from shock nor pain and are perfectly fit to go home immediately afterwards.

No claim for originality in this method is made, as no doubt it or something similar is used by many other workers, but I have been moved to write this account by recent experience of recurrences following radium, x rays, and excision in other hands, and by published accounts of methods which I believe to be inferior to the one here given.

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British Medical Association

CLINICAL AND SCIENTIFIC PROCEEDINGS

ST PANCRAS DIVISION

Home Treatment of Tuberculosis by the General Practitioner

At a meeting of the St. Pancras Division held on July 10th an address on home treatment of tuberculosis by the general practitioner was delivered by Dr. W. CAMAC WILKINSON. He said that the genius of Koch had revealed the nature and origin of tuberculosis although even yet it was not easy to trace the disease to its real source or fix the time of its occurrence. To-day the paramount idea upon which the medical practitioner should deliberate and act was not that tuberculosis was an infectious disease but rather that the infectious form of tuberculosis—commonly called consumption or phthisis—could and should be prevented. Unfortunately the authorities had placed tuberculosis, even though it might not be infectious, among the infectious diseases which could be successfully combated by compulsory notification, the only justification for which lay in

the practical utility of measures of segregation and disinfection. Tuberculosis was a disease that stood by itself and was a law unto itself, it mocked at the measures that succeeded in the other infectious diseases. Infection might not exist, or might be suspended for years, and cause "like a thief in the night." Accordingly compulsory notification was a mere fetish of officialism, costly, irritating to patient and doctor alike, and futile—because such notification could lead to no constant, immediate, rapid, or lasting success. Compulsory notification had a semblance of justification only when the sufferer expelled in the act of coughing droplets or masses of sputum which might be conveyed directly or indirectly to those in the immediate neighbourhood. It could not either quench the infection at its source, or prevent or heal a chronic disease already existing which was quite beyond the reach of measures of segregation and disinfection. The true solution of the tuberculosis problem would be found rather in the treatment of tuberculosis in the early stages by scientific measures which would largely prevent chronic tuberculosis passing on to those stages when the disease became infectious. The treatment of early non-infectious tuberculosis was the key to the prevention of infectious phthisis. Hitherto in tuberculosis medical thought had been devoted too much to ideas of prevention and too little to methods of treatment. If the physician, by treatment, could prevent early non-infectious tuberculosis becoming infectious phthisis or consumption—and Dr. Wilkinson honestly believed he often could—he saved the family from the risks of infection. The infectious form would sometimes develop, and then suitable measures must be adopted. But the physician must continue to treat, because by a proper course of tuberculin treatment it was almost the rule that cough and expectoration ceased, and thus the victims ceased to be a danger to their friends and relations. When the disease became infectious public health authorities must take a hand by providing free examinations of suspected material by properly constituted experts at public institutions. In this way the open or infectious forms of pulmonary or renal tuberculosis would be notified automatically to the public health department, which should do all in its power to help and support the family physician or general practitioner in seeing that measures were taken to prevent constant and repeated infection of the younger members of the family. That was all the notification that was required until the family doctor realized that the victim of infectious phthisis was too ill or too weak to conform to simple rules of cleanliness and decency, when the victim of poverty should be provided with home and shelter where the risk of infection could be rendered negligible. Sanatoriums if devoted to this beneficent work, would quadruple their usefulness. Institutions for the reception of advanced cases of consumption were next in importance to measures for the early diagnosis and treatment of non-infectious and infectious forms of tuberculosis by general practitioners. In tuberculous meningitis, tuberculosis of bones and joints, pleurisy or chronic tuberculous peritonitis, the infective agents were securely imprisoned in the tissues and could not escape or infect the healthy. Even lupus, which was essentially a disease of early life in certain climates and conditions, was only a danger in the family circle where it occurred and then only to the children. Tuberculosis in childhood and even in adult life, existed mainly in the system of lymphatic vessels and glands and tubercle bacilli might circulate in the blood for years before chronic apical tuberculosis began and chronic apical tuberculosis might exist for years before the disease became infectious. The policy of ignoring pulmonary tuberculosis till tubercle bacilli were found in the sputum was both unfair to the victim of the disease and dangerous to the family. Many a doctor who acquiesced in this policy came to think that he need not bother till tubercle bacilli had appeared yet as soon as tubercle bacilli were found he must tell the world that there was infectious disease and at the same time try to persuade some official—either the tuberculosis officer or a medical officer of a hospital for consumption—to favour his patient with prolonged treatment in a sanatorium to the exclusion of nine or ten others equally deserving. There were better ways of treating tuberculosis than the

methods of the sanatorium. The collective opinion of general practitioners would indicate probably that sanatoriums had failed to help those who most needed help—the industrial classes of our great cities. German doctors had done their best to advertise sanatorium methods, but the statistics of Engelmann, Wecker, and Hamel did not justify the policy of sanatorium treatment for the poor as a simple, comprehensive, economical, and effective means of solving the problem of treatment. Outside Germany, Great Britain alone had blindly followed the lead of Germany, the home of bureaucracies. In spite of Germany's lead there was nothing in science or practice to justify the existence of a bureaucracy to deal with the problem of tuberculosis. The scientific methods of Koch furnished the secret key to the early diagnosis and successful treatment of tuberculosis, and early diagnosis and successful treatment were the *métier* of the physician. The indispensable and invaluable auxiliary of the family doctor in the homes of the poor was the district nurse, not the health visitor. Automatically district nurses should be sent to advise and direct the mother how to prevent infection among her children as soon as a case of infectious tuberculosis had been reported to headquarters by the official bacteriologist. Thus an automatic chain connected the infectious victim with the official bacteriologist, who automatically reported to headquarters, and headquarters supplied the district nurse to work in the homes of the poor under the doctor.

The problem for the doctor, said Dr Wilkinson, was to learn the best means of securing the highest degree or titre of immunity and maintaining it. Every plan of treatment demanded a close study of the processes, conditions, and phenomena of immunity, so that we might exploit them in the interest of the patient. The only way of treating tuberculosis was to imitate Nature and to assist the action of tissue cells in defending themselves by means of carefully graduated doses of antigenic substances. By experience we learnt how to improve and maintain an efficient mechanism of immunity and to master the principles and rules that guided us in the selection of the suitable cases for the use of tuberculin and in the plan of treatment. Tuberculin was in no sense a short cut to success. We merely supplemented the ordinary methods of examination and treatment with the weapons science had provided through the genius of Koch. None but experts should give doses of tuberculin for diagnosis or treatment, and not even the best qualified practitioner of medicine should use tuberculin in treatment unless he had had at least three months' training at a tuberculin dispensary.

The Association for the Prevention of Tuberculosis was even now engaged upon a fantastic chimera which was doomed to failure. Rather than waste money in a quixotic effort to teach ignorant people how to prevent tuberculosis when even medical men could not do it, we should design a plan, based on scientific knowledge, for the education of medical men in the difficult task of recognizing and treating this elusive disease, so as to prevent it becoming infectious. We should learn that living tubercle bacilli had been at work in the parts and organs most prone to infection for months and years before physical signs could reveal them. Even x-ray methods could not tell us whether there were living and active tubercle bacilli in the tissues. Every family physician should realize that the disease had certain peculiar and distinctive characters of its own by which it could be detected in its first beginnings. The mysterious secret of tissue energy discovered by Koch, and pronounced by him to be the sole and trustworthy means of discovering tuberculosis in the earliest stages, was called allergy. Tuberculin could reveal serious tuberculosis that could not be detected in any other way.

The borough of St Pancras, said Dr Wilkinson, contained about a quarter of a million souls. The yearly loss of life from tuberculosis would be nearer 300 than 200, if every dead body had been examined by a pathologist and there had been no war. There were besides 2,000 victims still alive, wending their way slowly down into the valley of the shadow of death. Last year, in spite of the vaunted work of the Ministry of Health for sixteen years, £3,150,000 had to be provided by the taxpayer for dealing with consumption. St Pancras's share was about £22,000

a year. The family doctors, provided they had learnt the scientific methods of diagnosis and treatment, had a claim upon most of this money. The sum of £22,000 allowed £10 for the treatment of each patient. At such a cost, by the methods of the tuberculin dispensary, five to ten times as many patients could be treated as sanatoriums could treat, with better results, and the victim of the disease could often go on doing his work and provide for his family. This system would relieve the taxpayer, and would convert weakly or disabled workers into relatively healthy, capable, and efficient producers, often without any disturbance in the labour market, without any sacrifice of work or wage, without any demoralizing doses, without any breaking up of the family unit, and with a good chance of preventing that dislocation in every sort of industrial, commercial, social, or other enterprise which was inevitable when the disease tuberculosis infiltrated, as it did, every grade of society. Sanatorium treatment was a curse to the taxpayer, to the patient, and to the sanatorium doctor. Much money was wasted on expensive buildings, and heavy expenses for doctors, upon nurses, upon travelling, upon upkeep and food. Loss of occupation was an inherent condition of sanatorium treatment. The system was grossly unfair to the majority of sufferers, and was both inadequate and disappointing for the industrial workers, who "ask for bread and are given a stone." The scientific method had not had a fair trial in any country, perhaps because it was highly technical and difficult to learn, difficult to teach, and difficult to put into practice, but chiefly because the evaluation of any method of treating tuberculosis demanded exacting conditions. For such investigation all the cases treated must be recorded, the method on trial must be as far as possible the exclusive method, the diagnosis must be beyond doubt, and all the cases must be controlled by after-examinations at least once a year for four or five years after the beginning of treatment. The reason why leading doctors and authorities had rejected Koch's work and teaching upon the value of tuberculin was that they had never seriously investigated it under these conditions. Wrong doses had been given in the wrong way, at the wrong time, in the wrong cases. Moreover, the false idea existed that large doses and highly active antigens (unchanged tuberculi), which Koch always recommended, were dangerous, and neither the Brompton Hospital physicians who investigated tuberculin, nor Wright, nor Dreyer, realized that the value of any method of treating chronic tuberculosis could not be assessed unless the observations had been controlled by after-examinations made several years after the beginning of treatment. Experiences at the Tuberculin Dispensary in London had shown that in all the patients in Stage 1 and Stage 2 in which tubercle bacilli were found in the phlegm, 68 per cent were alive at the end of eight to ten years, and 70 per cent were able to follow their ordinary avocations. The London County Council results in similar cases under sanatorium treatment were 28 per cent alive at the end of four years. The advocacy of tuberculin, both as a diagnostic and curative agent, rested upon facts that could not be impeached. One could see the healing of lesions in the eye, in the larynx and epiglottis, in the skin, on the palate, on the tongue, in the nose, in the skin, in the digits, in the bladder. Further, one could see tubercle bacilli disappear from the urine in genito-urinary tuberculosis, and at the same time pus cells and morbid elements disappear, implying healing of the genito-urinary tract. One could see tubercle bacilli disappear from the phlegm in chronic infectious phthisis, and at the same time cough lessen and phlegm diminish till it likewise disappeared. One could see sinuses leading from tuberculous foci in bone or joints or from a cascating epididymis slowly healing till a beautiful smooth parchment-like scar was all that was left of the running sore. In all these cases there was evidence of allergy, justifying confidence in tuberculin as an unerring diagnostic agent under control, and as a curative agent when all other remedies had failed.

Dr Camac Wilkinson concluded by inviting members of the St Pancras Division to examine the work carried on at the Tuberculin Dispensary.

Reviews.

RADIOGRAPHY OF THE CHEST

THE second volume of the late Dr WALKER OVEREND'S book entitled *The Radiography of the Chest*,¹ which deals with non-tuberculous affections was finished at the time of the author's death two years ago and has been seen through the press by his son, Dr T D Overend. The first volume, which dealt with pulmonary tuberculosis, was favourably reviewed in these columns in 1920.

The author deals with his subject-matter in a series of eleven chapters, each complete in itself, and each concludes with a reference to the more important papers previously published which bear on the disease under consideration. All the radiographic illustrations are together at the end of the book, this is an arrangement which cannot be commended, as in reading the text it is constantly necessary to turn to the end pages and to sort out the requisite illustrations. Taken as a whole, this book is admirably written and arranged. It has the great advantage over many radiological books and papers which deal with intrathoracic conditions inasmuch as it is the work of one who was an exceedingly well qualified physician with special knowledge of diseases of the chest and Dr Overend also had made for himself a reputation as a radiologist in the days when technique was not so easy as it is now. In the whole field of radiological work there is probably nothing more difficult than the interpretation of "chest radiographs," and every radiologist is aware of the difficulty and danger of attempting to make a correct radiological diagnosis without having a consultation with the physician in charge of the case. When the physician is himself the skilled radiologist, then his individual will, as in the present case, is such that it deserves careful consideration from both physicians and radiologists.

We do not propose to analyse critically the various chapters which deal with practically all the conditions occurring in the thorax which may give rise to x-ray abnormalities. It is sufficient to point out that while it is evident that the author had read largely and had digested his reading the bulk of the written matter is not the quotation of other people's opinions, but the result of his own work and his own opinions. The radiographic illustrations are on the whole sufficient and are reproduced very well. The letterpress is good. This is a book which should be useful to all physicians, general practitioners, radiologists and students who are making a special study of radiology.

OTO-RHINO-LARYNGOLOGY

TEN years have passed since the publication of the fourth edition of Lamb's *Practical Guide to Diseases of the Throat, Nose, and Ear*. It is with pleasure we notice a new edition.² The author, as he mentions in his preface, having retired from practice, has left the revision of the fifth edition to his friend and former pupil Dr Frederick Svedenhorn. While some eighty pages of new matter have been added, the original character of the book has not been altered. The object has been to present to the student and practitioner not a complete textbook but a "guide," enabling them to recognize the various common abnormalities and to treat minor ailments of the throat, nose, and ear. The new matter includes an important chapter of original observations on the radiography of the accessory sinuses of the nose. The chapter is illustrated with thirty-one full page plates of shadowgraphs demonstrating the indications in radiography and its value. Some of the new matter may be provocative of criticism. For the removal of tonsils and adenoids in children especially in the outpatient department, where the child cannot be admitted afterwards but must return home within a few hours,

the reviser prefers to operate without an anaesthetic of any kind. In his belief that method is better in every way. It does not matter whether the child has had food given to it just before the operation, as there is never any vomiting. Some parents will feed their children just before coming to hospital, whatever instructions they may have received beforehand. It is further remarked that without an anaesthetic of any kind "there is no danger at all during operation post-anaesthetic pneumonia is avoided, the loss of blood at the time of operation is one-third or less of the amount lost with an anaesthetic, and the child is quite ready to go home within an hour." The reviser firmly believes there is less shock. He is well aware that this method does not meet with general approval and he recommends it only to those who operate fairly frequently for this purpose and who are expert. The removal of tonsils and adenoids in children in an outpatient department where the child cannot be admitted afterwards into the hospital presents obvious difficulties, and is a matter on which sharply divergent views have been expressed in our columns recently.

VIEWS ON THE MEDICAL LIFE

IT is a very trite remark that the medical profession offers unique opportunities for the student of mankind. In this may perhaps be found the reason why so many novelists and dramatists have begun their careers in medicine, and certainly when a doctor with the literary instinct finds time to put his thoughts and reflections on paper it nearly always results in a volume which is well worth reading. Dr C O HAWTHORNE has fortunately found such time, and in a little book entitled *Short Essays on Medical Topics*³ he discourses on many varied themes. The first, on the subjective influence of the study of medicine, may perhaps be taken as his *credo*, and he analyses very soundly and sympathetically the attractions which the medical profession has to offer. Dr Hawthorne does not quarrel with the hard-worked plitudes about the nobility of the calling and the undesirability of making a money reward the first or chief consideration, but he seeks to show that, side by side with altruistic motives, the medical man's reward lies largely in the fact that in the course of his daily work "it is to the heart as well as to the head that the appeal is made, and the whole man, not merely his intellectual faculties, is encouraged to a liberal growth and a generous development." His opinions on unqualified practice, on specialism, on professional secrecy and on ophthalmic medicine, must be well known to a considerable number of our readers and they find cogent expression in sundry chapters of this volume. We have never seen the advantages of a university training to the right kind of medical student so well set out in a few words as in the essay on the universities and medicine, here is a large and balanced view concisely expressed in admirable English. This philosophical outlook and command of phrase will strike the attentive reader on many other pages. A spirited reply to the claims of Christian Science is well worth careful study for the way in which the superficial philosophy which masquerades as "science" is skillfully dissected. In this essay Dr Hawthorne is reviewing a book about the Christian Science cult by C H Lea and leaving aside the obvious criticism of the "cures" claimed by the author he attacks the philosophic conceptions of a perfect universe in which apparent imperfections are due to "false human consciousness" so that pain and disease are considered as unreal because of the untrustworthiness of our senses. The medical man Dr Hawthorne suggests has learnt from his experience neither blindly to trust nor obstinately to mistrust either his physical senses or his human consciousness. He endeavours to judge of the reliability of these processes by developing his common sense. "Mr Lea has a more ready way. He swallows a formula and then judges the universe and thus performance he calls Christian Science." Shorter pieces such as those on "baby shows" and "the telephone in medical practice"

¹ *The Radiography of the Chest*. Vol. II. Non-tuberculous Affections. By Walker Overend. M.D. (Oxon.). B.S. (Lon.). London: W. Heinemann (Medical Books) Ltd. 1928. (Demy 8vo pp. vii + 196. 124 figures. 2s. net.)

² *Practical Guide to Diseases of the Throat, Nose, and Ear*. By William Lamb. M.D. Fifth edition revised by Frederick W. Svedenhorn. M.D. C.M. London: Baillière Tindall and Cox. 1927. (Cr. 8vo pp. xvi + 450. 81 figures. 31 plates. 12s. 6d. net.)

³ *Short Essays on Medical Topics*. By C O Hawthorne. M.D. London: J. Bale, Son and Dantel's. Ltd. 1928. (Cr. 8vo pp. iv + 245. 4s. 2d. net.)

"sudden greyiness of the hair," and on "the training of memory," illustrate the wide range of Dr Hawthorne's interests. This is, in brief, a collection of well written and thoughtful papers on medical matters and the medical life—not to be looked through once and put aside, but kept in a handy place for occasional reading, with other books which are opened with expectation and studied with profit.

ENCYCLOPAEDIC OBSTETRICS

THE appearance of DeLee's *Principles and Practice of Obstetrics* in its fifth edition is a sure sign of the regard in which the book is held in the medical centres of America. The author may again be congratulated on what is truly a monumental work. The term textbook is inadequate, encyclopaedia would be a more apt description for a book of some eleven hundred pages, in which each chapter contains a great deal printed in small type in addition to the ordinary text. The practice of inserting "small type" paragraphs is of doubtful value, as important matter may be overlooked by the student—as, for example, in the chapter on placenta praevia. That so large a volume is beyond the province of the undergraduate is recognized by the author himself, as shown by his advice to the student in the preface. Here the student is urged to confine his attention to the "high lights," and to leave the rest of the work till after graduation. Even allowing for this attitude, there appears to be included considerable matter that might have been omitted without impairment to the value of the book.

The high incidence of maternal mortality and morbidity is ever before the mind of the author, and the principles of treatment enunciated are well calculated to improve the general standard of midwifery practice. To steer a happy course between conservatism and active intervention is frequently no easy task, but the teaching here propounded should enable that task to be of easier accomplishment.

The preparation of the volume has involved an immense amount of labour in searching through current literature, and the work gains in interest by the inclusion of references given at the end of each chapter. A feature of all American textbooks is the clarity of the illustrations. In this regard DeLee's book is no exception, for the many included are in themselves an education. As a work of reference the volume can be commended, for the author's endeavour to make it "an ever present help in time of trouble" has been attended with distinct success.

PHYSICAL CHEMISTRY AND BIOPHYSICS

FOR the student of medicine—whether he be practising, or still attending wards and lectures—one of the most difficult problems is the co-ordination of the facts with which he comes into contact, and the fitting of them into the mental picture which he has of his subject, so that they cease to be mere information and become knowledge. We venture to suggest that Professor STEEL's *Physical Chemistry and Biophysics* will prove of real help to anyone who wishes to grasp the relationship of the more recently acquired knowledge of the nature of matter to the biological problems with which the physician has to deal. It has for some time been clear that the newer conceptions of atomic structure and molecular constitution, and of the nature of the energy exchanges involved in chemical reactions, must affect, in quite a fundamental manner, the way in which we regard biological phenomena. It has, however, not been altogether easy to follow the development of current theories. To the uninitiated the technique of the physical laboratory is unfamiliar, and the terminology difficult, and apt to be alarmingly mathematical.

The first few chapters of Professor Steel's book give a

lucid explanation of some of the most important discoveries that have been made in the last few years in the realm of atomic physics. He commences with a brief historical account, starting with Dalton's work, he carries his reader to the researches of J. J. Thomson and Rutherford. He explains the birth and the development of the electron theory, its relationship to radio activity, and the physical principles of x rays. Such questions as the theory of isotopes and the quantum theory are briefly and very clearly discussed. It is hardly necessary to emphasize the importance of these matters for the biologist in general, and for the medical man in particular. Radiant energy of every sort is being pressed, often perhaps inadvisably, into the service of medicine. Only a clear grasp of the physical principles involved can ensure a proper discrimination in the employment of therapeutic agents of this type. To be ignorant is to surrender one's judgement. As a second example—the conception of enzyme activity lies at the root of our ideas of the nature of living matter. Recently there have been signs that Fischer's "lock and key" hypothesis, helpful as it has been, is being replaced by more exact conceptions. Such conceptions are based on the electrical theory of matter, in that they suppose that in certain conditions electrons may be displaced from molecules by external fields of force—for example, at certain active centres at a surface—and their displacement, by altering the electrical balance of the molecule, renders it "activated" or ready to undergo a chemical change. Specificity is vested, not in a chemical substance, but in a field of force having definite form and properties.

The remainder of Professor Steel's book is devoted to matters which are for the average reader more familiar territory. The subjects include the energy exchanges of the animal body, the properties of solutions, hydrogen ions, colloids, and cell membranes. They are discussed with admirable clearness, and with a peculiar insight for what is important and fundamental.

PENTAVALENT ARSENIC COMPOUNDS

IN his small book on oral chemotherapy with arsenic, Dr KURT HEYMAN gives an interesting history of the use of stovarsol in the treatment of syphilis. Dr LEVADITI, in a preface, points out the importance of this drug, which has been used with success not only in the prevention and treatment of syphilis, but also in amoebic dysentery and many varieties of trypanosomal infections. The author recalls the fact that Ehrlich made extensive experiments with pentavalent as well as trivalent arsenic compounds, and that stovarsol was number 564 in his well-known series, but that the inability of some of the pentavalent compounds to produce optic atrophy diverted his attention to the trivalent compounds. This fear of optic atrophy has been shown to be unfounded in the case of stovarsol, but Dr Heymann recalls that this defection of Ehrlich's interest at a critical point in his research has influenced the whole subsequent development of the chemotherapy of syphilis. The author shows that stovarsol is efficacious as a prophylactic against the development of syphilis, and that it is also of special value in the treatment of neuro-syphilis. The outstanding merit of the drug is that it can be given orally, and that it is actually more potent when given on an empty stomach than when injected. It produces only minor toxic effects, such as slight fever, purgation, and rashes, and these can be controlled by administration of sodium hyposulphite. Dr Heymann claims that it is possible to treat syphilis satisfactorily by intramuscular injections of bismuth combined with stovarsol by the mouth, and he remarks on the great advantage to the patient of avoiding intravenous injections. The evidence produced is scarcely adequate to support so drastic a change of procedure, but the suggestion is of interest as it indicates how important are the developments that may result from further study of the therapeutic properties of the pentavalent arsenic compounds.

* *The Principles and Practice of Obstetrics*. By Joseph D. DeLee. A.M. M.D. Fifth edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company, 1928. (6½ x 10½ pp. xvi + 1140. 128 illustrations. 55s. net.)

* *Physical Chemistry and Biophysics*. By Matthew Steel. Ph.D. New York: J. Wiley and Son, Inc. London: Chapman and Hall Ltd. 1928. (Med. 8vo pp. x + 372. 8 figures. 20s. net.)

* *Chimiothérapie par Voie Buccale avec l'arsenic*. Par Dr Kurt Heymann. Préface du Dr le Dr Levaditi. Paris: J. B. Baillière et Fil. 1928. (Med. 8vo pp. 1-4.)

INFECTIOUS DISEASES IN SCHOOLS

THE Medical Officers of Schools Association has recently issued the ninth edition of its *Code of Rules for the Prevention of Infectious and Communicable Diseases in Schools*.¹ The advance in our knowledge of the subject since the appearance of the last edition (noticed in the *Journal* of February 10th, 1923, p 251) has called for numerous changes and the incorporation of much new matter of which the most important are the pages dealing with the value of chemical disinfection and the part played by fomites in the spread of infection, the Dick, Schick, and Schultz Charlton tests, and the suggestion for a broader outlook on infectious diseases generally. Like its predecessors, the present edition of the *Code* has been drawn up with considerable care, and will be an indispensable guide to all interested in school hygiene.

NOTES ON BOOKS

DR HASTOR THOMSON is to be congratulated on the third edition of his little book on *Tuberculosis its Prevention and Home Treatment*.² It is one of the very few books on tuberculosis that could safely be put into the hands of a lay person. We think it rather a pity that in a popular work so much weight is placed on the infectivity of the sputum and so little on the cough spray. The available evidence suggests very strongly that the respiratory diseases, including pulmonary tuberculosis are transmitted largely by the fine droplets forcibly exhaled from the mouth or nose in loud talking, coughing and sneezing, and that dried dust is, at any rate under modern sanitary conditions, of comparatively small importance. It is really far more dangerous to permit anyone in a crowded railway carriage, theatre, cinema hall or other public place to cough or sneeze without a handkerchief in front of his mouth than it is to allow him to spit. Not that we think warnings against spitting superfluous—they are obviously not—but the time has come when the public should be instructed in the dangers of the cough spray, and taught that both spitting and coughing are to be avoided in public.

The new edition of *The International Handbook of Child Care and Protection*,³ the third of the series, has like the two earlier issues which bore a slightly different title been prepared by Mr EDWARD FULLER, editor of *The World's Children* under the auspices of the Save the Children Fund. Its aim is primarily to provide a record of conditions concerning matters affecting children—child welfare and education, juvenile employment and juvenile delinquency, marriage, divorce and legitimacy—in the 300 political units from which it has been possible to collect information. These details arranged geographically, occupy the greater part of the volume and apart from their obvious value, afford material for an absorbing study in contrasts, bringing to light the much more than nine and forty ways in which the nations have seen fit to arrange—or have blundered into arranging—their social affairs. Special articles deal with the policy of the Save the Children Fund, the refugee problem in relation to children, and religious laws and the family in the Roman Catholic, Jewish, and Mohammedan faiths. There is a useful directory of international organizations concerned with children, a statistical section tabulating where possible the main facts reported in the various national units, and a bibliography of works published between 1925 and 1927. The general index, an important feature in such a publication, appears to be adequate and well arranged and the work as a whole should prove exceedingly useful to those interested in its subject matter.

The new edition of Mr H C H CANDY'S *Manual of Physics for Medical Students*,⁴ which is designed to provide candidates with the information required for their first examination in this subject, has been revised throughout. Additions have been made to many of the sections, the main new feature being the incorporation of the kinetic theory of gases which

¹ *Code of Rules for the Prevention of Communicable Diseases in Schools*. Issued by the Medical Officers of Schools Association. Ninth edition. London: J. and A. Churchill, 1928. (Demy 8vo pp 74 2s 6d. net.)

² *Tuberculosis its Prevention and Home Treatment*. By H. Hastor Thomson M.D. D.P.H. Third edition. Oxford Medical Publications: London: Milford Oxford University Press, 1928. (Cr 8vo pp xi + 99 6 charts. 2s 6d. net.)

³ *The International Handbook of Child Care and Protection*. Compiled from official sources by Edward Fuller. Third edition. (Cr 8vo pp xiii + 646 10s. 6d. net.)

⁴ *A Manual of Physics Theoretical and Practical for Medical Students*. By Hugh C. H. Candy B.Sc. Lond. F.I.C. Third edition enlarged. London: Cassell and Co. Ltd. 1928. (Fcap 8vo pp. viii + 387 299 figures 1 plate. 7s. 6d. net.)

is now included in the syllabus of the Conjoint Examining Board. Experimental illustrations have been employed throughout the text. In spite of additions, however, this little volume remains of reasonable size—it is conveniently arranged and clearly written.

LAMBOURNE and MITCHELL'S *Qualitative and Volumetric Analysis for Medical Students*,⁵ is a small volume providing candidates for the premedical examination of the Conjoint Board with all the coaching they need in practical chemistry. Brevity is of the essence of lucidity and the shortest description is the easiest to remember. That is why textbooks of condensed memoranda to which class this little volume belongs are so much favoured. It is not pretended that they teach all that science requires, but if the student has had a proper course of lectures he will profit more from short directions than long ones. Lambourne and Mitchell's book is one of the best of its kind.

Income Tax Up to Date,⁶ is a brief but clearly arranged guide to the various allowances and reliefs provided by the Income Tax Acts. Our fiscal code is so scattered over the various Finance Acts that a succinct exposition is often desirable and this little publication by Mr H. J. GULLY is well designed to fulfil that object. It does not however afford much assistance in the calculation of the amount of income to be returned for assessment—which is usually the chief source of difficulty to taxpayers.

⁵ *Qualitative and Volumetric Analysis for Medical Students*. By H. Lambourne M.Sc. F.I.C. and J. A. Mitchell, M.Sc. Oxford Medical Publications. London: Milford Oxford University Press, 1928. (Cr 8vo pp v + 64 5s. net.)

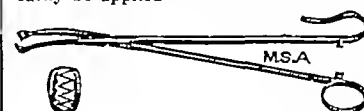
⁶ *Income Tax Up to Date*. By H. J. Gully, F.C.A. Fourteenth year. London: *The Financial News*, 1928. (5½ x 8½ pp 20 9d.)

PREPARATIONS AND APPLIANCES

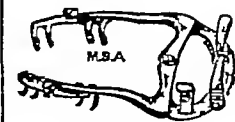
THROAT, EAR, AND NOSE INSTRUMENTS

DR G. W. MONEY (London) has devised the following modifications of certain well known instruments which have been found to be very useful.

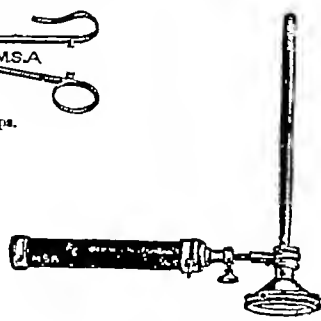
Tonsil Volcrillum Forceps—This has been adapted from Tilley's instrument the chief difference being that while the jaws have a similar curve they grasp the tonsil longitudinally instead of horizontally. Moreover the spring catch has been replaced by the ordinary cross-over shanks which are fitted with a ratchet at the handles by means of this a good grip is retained throughout the operation. The instrument has also been considerably lengthened, being 9½ inches as compared with the 8 inches of that of Tilley. The bows of the forceps are so made that a snare can easily be applied.



Tonsil Volcrillum Forceps.



Mastoid Retractor



Nasopharyngoscope.

Mastoid Retractor—The mastoid retractor is a modification of that of Wagener; it gives a wide field the shanks being bent to allow of this. The base of the instrument is curved so as to lie well back out of the field of operation. It is opened and closed by a ratchet action which is easier and quicker in use than the ordinary screw.

Nasopharyngoscope—The illustration shows a Holmes instrument connected with a handle containing a battery, as used with the May's ophthalmoscope. The instrument being self-contained has been found to be more convenient than nasopharyngoscopes comprising more than one part.

These instruments were made by the Medical Supply Association, Ltd., 167, Gray's Inn Road, W.C.1.

NOX FLAM EYE SHIELDS

Messrs Solport Brothers Limited of whose Fortin's non flamm eye shields a notice appeared in the *Journal* of July 14th (p. 57) inform us that they are taking prompt measures to adopt our suggestion for a series of small perforations parallel with the upper border of the shield.

HEALTH OF LONDON

REPORT FOR 1927

THE progress of public health in London during 1927 is set forth by Dr F N Kay Menzies in his reports as county medical officer of health and school medical officer, which are contained in volume III of the annual report of the county council.

Births and Deaths

The population of the County of London in the middle of 1927 is estimated at 4,550,000, including 9,000 non-civilians. The births during the year were 73,263, giving a birth rate of 16.1 per 1,000, which is lower than last year and the year before. Since 1921 the number of births has been decreasing at the rate of 4,000 annually. The deaths were 55,170, or 12.1 per 1,000. This rate is higher than in the two preceding years, the influenza outbreak at the beginning of the year is held to be responsible. Deaths due to diarrhoea were considerably below the average.

Small-pox

Five cases of small-pox occurred in the administrative county, of which two were fatal. Three patients were unvaccinated at the time of infection, one, described as vaccinated, showed no scar, and one, 54 years of age, had been vaccinated in infancy only. One of the fatal cases belonged to the unvaccinated group, the other was the case without a scar. Four of the five patients are believed to have been associated, directly or indirectly, with a conedental outbreak in Hendon. The fifth was a man who had tramped from Yorkshire and was discovered in the Paddington casual ward, his illness was of the mild provincial type. These five cases occurred in 1927, the year dealt with by the report. During the first three months of 1928 there were about fifty cases in London, mostly among vagrants or indigent persons.

In December, 1927, the Metropolitan Asylums Board adopted revised arrangements for the removal of small-pox patients to hospital. When the Board receives an application from a medical practitioner for the removal of a patient certified to have small-pox, it removes the patient and at the same time notifies the medical officer of the borough concerned. The medical superintendent of the hospital informs the borough medical officer of his view of the diagnosis. If the patient is retained for observation the borough medical officer is given facilities for visiting. When a medical practitioner applies for the removal of a patient whom he is not prepared to certify as suffering from small-pox, the Board refers him to the borough medical officer. Removal is not effected without a certificate from the applicant practitioner or without a request from the borough medical officer to have the case admitted for observation.

Puerperal Fever

The mortality from puerperal fever is much lower in boroughs with poorer class populations than in those occupied largely by the well-to-do. During the five years 1921-25 the average annual death rate per 1,000 births was 0.88 for a poorer group of boroughs and 1.80 for a well-to-do group.

Anthrax

Five cases of anthrax were notified during 1927, but two were not confirmed. The three patients with definite anthrax, and one other resident outside London, had been engaged in handling the carcasses of two elephants which had died at the Zoological Gardens. All received anti-anthrax serum and recovered. Twenty-nine other patients who had come into contact with the elephants received successful prophylactic doses.

Encephalitis Lethargica

The notifications of encephalitis lethargica were 142 as contrasted with 600, 293, and 224 in the three preceding years. Suitable patients with post-encephalitic symptoms and under the age of 16 are dealt with in the encephalitis lethargica unit at Winchmore Hill. The work there has shown that, while no positive curative results can be expected, many children exhibit considerable improvement.

The unit has justified its existence, if only as a clearing house and observation station, patients suffering from the characteristic physical disabilities, including paralysis and Parkinsonism, may receive skilled attention, and children whose mental condition unfits them for ordinary outside life may be kept under observation. For the past three years officials of the council's health department have followed up surviving cases of encephalitis lethargica, whether notified or not. The results in 528 cases, covering the years 1918 to 1926, are stated in a table, which indicates that of 217 patients under the age of 16, 85 are still affected, while of 311 cases over this age 200 are still affected.

Cancer

The deaths from cancer during the year were 6,774, with a death rate of 1.49, which is higher than in the two preceding years. The cancer mortality among women in London has been decreasing in the last ten years. From a survey of the cancer deaths during 1911-20 it emerges that the most frequently fatal cancers in males are those of the alimentary tract above the diaphragm, while the most frequently fatal cancers in females are those of the reproductive system. Cancers in other parts of the body appear to have an approximately equal sex mortality. It is suggested that the female cancer mortality rate in London will continue to decline, while that of males will increase further for some time.

Mothers and Infants

Of 5,000 duly certified midwives with London addresses 870 gave notice of intention to practise in the county during the whole or part of the year. Seventy-seven infringements of the rules of the Central Midwives Board were reported. 41 were slight, and 29 were dealt with by written caution. Four midwives were interviewed by the committee, and one was reported to the Central Midwives Board. There were 267 notifications of puerperal fever and 892 of puerperal pyrexia. In the course of an inquiry as to 186 cases of puerperal pyrexia the most frequently attributed causes were influenza 35, respiratory disease 20, septicaemia 20, retained membranes 9, urinary infection 8, pelvic infection 7, breast inflammation 6, digestive disease 5, and phlebitis 5. In a number of cases no cause had been diagnosed. Of 814 notified cases of ophthalmia neonatorum 60 per cent were in the practice of midwives. Of the cases which occurred in the practice of midwives 475 were completely cured. Of ophthalmia neonatorum during the year there were 251 cases, in 16 instances there was group infection. The average date of onset was six to seven days after birth. In six cases where the serum from unbroken blebs was examined the organism present was *Staphylococcus aureus* in pure culture.

Chemical Branch

Among matters dealt with by the chemical branch of the Public Health Department were the killing of trees in a public park by acid sulphate of iron washed by rain out of ashes used for making up a playground, the filling up of the cavity of a hollow brick wall at one of the council's housing estates by the giant puff ball, *Lycoperdon giganteum*, and the use of copper sulphate and chlorine to maintain the clarity of water in swimming baths. It is estimated that the amount of impurity introduced into a bath by a not too clean adult is 0.8 gram of nitrogen in all forms and 1.4 grams of chlorine.

Desks in Schools

In the account of school hygiene, which forms chapter IV of volume III of the report of the London County Council, it is claimed that the London dual desk has given in practice as good results as can be attained. This is largely due to the fact that the desks are supplied in seven graded sizes. At one time the desks were made with foot-rests, but many years ago, on the advice of the school medical officer, the foot-rests were discarded. Recently the question of foot-rests was revived by certain head teachers. The arguments advanced in their favour were (1) that they gave an alternative position for the feet, (2) that they allowed quicker drying of wet foot gear, (3) that they were less noisy, (4) that they ensured a better

sitting posture, and (5) that they strengthened the desks. Dr N Dobbie reported upon these arguments as either erroneous or unsubstantial, and it was decided to take no action. Despite the seven graded sizes of desk misfits occur, especially in the upper standards, where the range of difference in height of the children may amount to as much as 18 inches. The suggestion is offered—and it seems self-commended—that, as soon as pinnacles have been made, the children in each class should be paraded, “dressed” according to sizes, and, by means of exchanges with other classes if necessary, fitted with proper desks. The guiding rule is that the height of the desk sent above the floor should be approximately two-sevenths of the child's stature. This is, or should be, an easy rule to apply.

Dental Condition

An interesting report of progress is presented with regard to the dental condition of school children. In 1906 the late Mr C E Wallis carried out a careful inspection of the teeth, gums, tonsils, throats, and glands of 245 children in the Michael Faraday school at Waltham. The conditions which Mr Wallis revealed prompted the council to set on foot its now existing school dental service, which treats 125,000 children yearly. To the question, Is the service justified by its results? an affirmative answer is given. In 1927, at an inspection of the same Michael Faraday school, which still remains in Waltham, an examination was made of children in the same sex and age groups as in 1906. In every group and in the total number the frequency of carious teeth, both temporary and permanent, was lower in 1927. In 1906 the average number of carious teeth per child was 7.4, in 1927 it was 2.10. In 1927, 47 children, or 21.5 per cent, were free from dental defect and oral disease, in 1906 not one. The reduction of cases of enlargement of the submaxillary glands from 218 in 1906 to 65 in 1927 tells the same tale. It is a story of work which was well worth doing, though complete prophylaxis, as Dr Menzies regrets, is still far off. Schools differ considerably from one another in the response of parents to the intimation that dental treatment for a child is necessary. In one school, where 58 children were referred for treatment, there were 31 refusals, a number of parents taking the view that the teeth were “not bad enough yet.” In another school, where the head teacher had army experience, 100 per cent of treatment recommended was obtained, both dental and medical.

Rheumatism in Childhood

From the commencement of the rheumatism scheme in November, 1926, until December 31st 1927, a total of 535 nominations was received for institutional treatment for rheumatism in childhood. The children were treated in the subacute and rheumatic fever units at St Mary's Hospital, Carshalton, and in the subacute unit at Highwood Hospital, Brentwood. An analysis of 100 cases revealed that 20 were pure subacute rheumatism, 6 were pure rheumatic fever, and 9 were pure chorea. Of the remaining cases 37 combined the subacute phase with rheumatic fever, 19 were subacute rheumatism with chorea, 1 was rheumatic fever with chorea, 6 combined all three types, and in 2 there was no previous history. The high proportion of chorea among the 100 cases is possibly due to the fact that the group was weighted with advanced cases. A peak of incidence appeared about the age of 7, and another between 11 and 14. Seventy-nine of the children were below average nutrition, and 89 showed pallor. Forty-three children had enlarged tonsils and 40 had undergone tonsillectomy, the enlarged tonsils were seldom accompanied by adenoidal growths. Thirty-five of the children came from slums, and 53 more were borderline slum dwellers.

Diphtheria Carriers Clinic

With a view to the more intensive treatment of diphtheria carriers the council, in November 1926 sanctioned an arrangement with Guy's Hospital for dealing with such carriers at a special clinic attached to the hospital. These patients, though harbouring virulent diphtheria, are themselves immune, they are unsuitable for admission to infectious diseases hospitals or to ordinary

out-patient departments of the general hospitals. It is now becoming well known that the carrier state is always associated with a pathological condition of the nasal mucosa, fauces, or pharynx. Up to December 31st, 1927 a total of 115 children had been dealt with at the clinic. 56 were able to return to school in less than four weeks, 32 in four to eight weeks, 13 in eight to twelve weeks, 9 in twelve to sixteen weeks, and 1 was under treatment for nineteen weeks. The remainder were still under treatment. Much benefit has been derived from the special treatment of the children, and the council has authorized the extension of the scheme to other hospitals.

Epidemic Jaundice

In April and May an outbreak of jaundice occurred in a school in Tooting involving thirteen cases, and in October and November further cases appeared in some schools in Camden Town. The attacks began with vomiting or anorexia, rapidly followed by jaundice lasting from one to four weeks. The stools were clay-coloured and the urine dark. There was little evidence of household infection. Examination of the urine for *Leptospira icterohaemorrhagiae* proved negative, there were no cases of influenza at the time and the disease was presumed to be catarrhal jaundice.

Non Angli sed Angeli

Other sections of much interest in the school report are those dealing with chronic invalidity, personal hygiene, physical education, instruction in hygiene, open-air schools, nursery schools, poliomyelitis, and defectives. The general chapter on public health and chapters on main drainage and housing complete the annual report. The ideal towards which Dr Menzies aspires are declared by him in the following words, which may fitly close this notice: “Fourteen hundred years ago the children of the south-eastern part of England were famed throughout the civilized world for their beauty, their health, and their physique. The industrialization and urbanization of the nineteenth century, combined with the pursuance of the policy of *laissez-faire*, sadly discoloured the beauty of the race's childhood. We are now in the process of emerging from that nightmare. Good housing, better education, playing fields—these three are the dominant needs of the child and parent of England's great metropolis. Already and increasingly going into our schools, the improving appearance of our London children brings back the echo of the words of Pope Gregory, *Non Angli sed Angeli*.”

ROYAL MEDICAL BENEVOLENT FUND

At a recent meeting of the committee of the Royal Medical Benevolent Fund thirty-seven applications for assistance were considered and £520 was voted to thirty-two cases. As the holiday season approaches requests are received from widows and others for help towards the holiday expenses of children of medical men, and an appeal is made to all who sympathize with the children's needs at this time to support this work by sending subscriptions to the Honorary Treasurer, 11 Chandos Street, Cavendish Square, London, W.1. The following cases include examples of holiday appeals and others.

Mrs. X wife of M.B. Lond. who is in a mental home as a free patient has charge of three children with no income except that from her own needlework. One child, a girl of 12, is educated by her godmother. The Fund pays school fees for a boy of 9, the third child is at home. The applicant broke down in April and has been able to do so little work since that the prospect of the summer holidays is a nightmare as regards finance. A grant of £7 10s was voted.

M.R.C.S. died in 1921 leaving five children aged 4 to 12 years, one is at Epsom College, one at a girls' school and three at orphanages. They are dependent on relatives who are unable to contribute. Fund voted £15 for children's holidays.

M.M.S.B. aged 70 after twenty-one years in practice broke down in health in 1920, now suffering from bronchitis and diabetes and unable to work without means except 15s. a week which his wife earns as a cook housekeeper. Voted £40.

L.R.C.P. and S.E.d. aged 68 whose wife aged 66 is delicate had to give up regular practice twenty-four years ago, since then he has worked as locum tenens. He is handicapped by ill health and during the last nine months has been unable to work and has got into financial difficulties. Voted £40.

The Royal Medical Benevolent Fund Guild still receive many applications for clothing, especially for coats and skirts for ladies and girls holding secretarial posts and suits for working boys. The Guild appeals for second hand clothes and household articles. The gifts should be sent to the Secretary of the Guild, 58 Great Marlborough Street, W.1.

THE OPIUM PROBLEM

DEVELOPMENT OF INTERNATIONAL CONTROL

The Opium Problem,¹ by Dr Charles E Terry and Mildred Pellens, is a formidable compilation of over a thousand pages, prepared for the Committee on Drug Addictions of New York, which was formed in 1921 as the outcome of several conferences on the narcotic drug question. The committee sought to ascertain the extent, causes, nature, and treatment of "chronic opium intoxication." The method adopted was to review the medical and other literature on the subject, to make a digest of the relative laws, regulations, and international conventions, and to collate the replies to questionnaires issued to medical and administrative authorities throughout the United States. In fourteen chapters the compilation deals successively with the extent, pathology (somatic and psychic), symptomatology, and treatment of narcotic drug addiction, and with the national and international control of the traffic in opium and its derivatives.

The materials for arriving at the number of addicts in the United States are admittedly and necessarily unreliable. Estimates varying from a hundred thousand to a million have been put forward, but most, if not all, agree that there is "a major medico-social problem" to be grappled with. An interesting sketch is given of the history of the use of opium as a drug from the earliest times, and of the discovery and extraction of its alkaloids in the early nineteenth century, followed by the introduction of hypodermic medication. At first it was generally asserted that the injection of morphine was not productive of the same addiction as opium eating or snoring was liable to occasion, but since 1870, as shown by the writings of Clifford Allbutt and others, the erroneousness of such teaching has been overwhelmingly demonstrated. So again, in 1898, when Dresser in Germany produced heroin or diacetyl-morphine, the claim was made that the new alkaloid possessed all the advantages of morphine and opium without their dangers. Since 1903, however, evidence has accumulated to prove it also to be a perilous drug of addiction, moreover, it is largely resorted to by "the underworld" and the criminal classes.

A careful review of recent researches on the pharmacology of opium and its derivatives and their physico-chemical effects leads the authors to the conclusion that no theory yet advanced sufficiently explains the exact nature of the somatic and psychic phenomena observed, and they accordingly urge further research—clinical, psychiatric, neurological, and experimental—into the pathology of chronic opium intoxication. As regards the types of person apt to become addicts, the conclusion is reached that this liability is "not restricted to any social, economic, mental, or other group," and "that there is no type which may be characterized as the habitual user of opium, but that all types are actually or potentially users."

Under the head of treatment the arguments for and against complete and immediate withdrawal of the drug, put forward by a long array of writers on the subject, are cited, but "the conclusion reached from the material reviewed is that, for the most part, the treatment of this condition has not emerged from the stage of empiricism. The various methods described in general indicate that the basis of the majority of them is merely the separation of the patient from the drug."

The remaining chapters deal with "control" of the drug traffic—international, national, and municipal. In view of the approach of the coming into force² of the

Geneva Convention of 1925, which implements in certain respects the Hague International Opium Convention of 1912, it is useful to have a resume of the efforts made to effect the international control of the traffic in drugs of addiction. According to the late Dr Hamilton Wright, the United States, as early as 1833, entered into a treaty with Siam forbidding Americans to engage in the opium traffic with the Siamese. In 1844 a similar treaty was entered into with China, but by the Treaty of 1858 the restriction on Americans trading in opium was relaxed. By an American-Chinese treaty of commerce in 1880 the import of opium into China by Americans or into America by Chinese was forbidden, and by a later pact in 1903 the importation of morphine into China, and also the manufacture of morphine and instruments for its injection, except for medicinal purposes and on payment of a tariff duty, were prohibited. When the United States assumed control of the Philippine Islands the serious abuse of opium among the natives led to the appointment of a commission, whose report resulted in legislation prohibiting the importation of opium into the Philippines except for medicinal purposes. Arising out of the Philippine Commission came the suggestion of Bishop Brent to President Roosevelt to invite the Powers interested in the Far East to confer with a view to investigating the opium trade and the opium habit.

Thus arose the Shanghai Commission of 1909, attended by representatives of Great Britain, the United States, France, the Netherlands, Germany, China, Japan, Persia, Portugal, Italy, Russia, and Siam. The report of this commission sufficed to show that drug addiction was not confined to the Far East, but was in fact world-wide, that the unrestricted sale of morphine constituted a grave danger, that drastic measures should be taken to control its manufacture and sale, and that other derivatives of opium were liable to similar abuse. The gradual suppression of opium smoking was also urged, and the need for control of the export and import of opium and its derivatives was emphasized.

The Government of the United States followed up the Shanghai Commission by proposing an international conference at the Hague to conventionalize the findings of that commission. Meanwhile, the British agreement with China to bring to an end the Indo-Chinese trade in opium was taking effect, and the British Government, in consequence, showed some reluctance to take part in the proposed conference, but eventually agreed to participate on the condition that the growing evil of the illicit use of morphine and cocaine should be drastically dealt with. The outcome of the first International Opium Conference at the Hague, presided over by Bishop Brent, was the Hague Convention of 1912, which, by international action, sought to restrict the production, sale, distribution, import, and export of raw opium, to suppress opium smoking, and to limit the use of morphine, cocaine, heroin, etc., to medicinal and other legitimate purposes. The Dangerous Drugs Acts of 1920 and 1923 gave effect to the convention in Great Britain, while the Harrison Narcotic Act of 1914, amended in 1918, 1926, and 1927, provided similar legislation for the United States.

After the war (experience during which had indicated greater need for control of the traffic in narcotics) the Treaty of Versailles and the other peace treaties provided for the adhesion to the Hague Convention of Powers which had previously abstained, and the League of Nations took cognizance of the opium traffic. The story of the measures taken in this connexion by the League Council and Assembly and the Advisory Committee on Opium is related with much documentation, and the proceedings and results of the two Geneva Conferences of 1924 and 1925 are duly chronicled, bringing the history of international control of addiction up to the end of 1927. If the work of Dr Terry and Mildred Pellens adds little that is new to the discussion of the opium problem, it brings together in a useful and handy form material derived from many countries over a series of years, and provides the student of this complex social question with abundant information in regard to the pathology, therapeutics, and efforts at administrative control of so-called habit-forming drugs.

¹ *The Opium Problem*. By Charles E. Terry M.D. and Mildred Pellens of the Committee on Drug Addictions in collaboration with the Bureau of Social Hygiene Inc. New York. The Committee on Drug Addictions 1923. (M. d. Soc. pp. xvi + 1042. Illustrated.)

² The provisions of the Convention of 1925 were discussed in the *British Medical Journal* of July 21st (p. 117). We published on August 25th (p. 351) a Home Office communiqué announcing that the Convention will come into force on September 26th and describing the consequent changes which will take effect on that date in the regulations governing the traffic in dangerous drugs in Great Britain.

British Medical Journal.

SATURDAY, SEPTEMBER 8TH 1928.

LATE RESULTS OF OPERATION FOR CANCER OF THE BREAST

THESE are something stimulating in a bird's eye view of an association of active efforts directed to a common objective. The series of reports which has emanated from the Departmental Committee on Cancer since its institution by the Ministry of Health in 1923 is such a survey. These documents indicate the stages in a campaign, they show that real progress is being made and they encourage the hope that still more definite messages of success may be looked for in the not distant future. Thus in 1924 an immense amount of information on the surgical treatment of cancer of the breast was collected, and an exhaustive report was issued by Dr. Janet Lane Claypon, who received guidance in the statistical investigation from Professor Major Greenwood. When referring to this valuable piece of work at the time of its publication¹ we remarked that this demonstration of the effectiveness of surgical operation should convince even the most sceptical. A year and a half later Dr. Lane Claypon produced a second report on cancer of the breast, relating more particularly to the statistical study of the antecedents of mammary cancer. We considered this report likely to be even more useful than its predecessor, in that conclusions which had previously been little more than impressions were now fortified by the evidence of exact figures.² A third report³ by Dr. Lane Claypon has just been published, dealing with the late results of operation for cancer of the breast, and based on an analysis of 2,006 cases occurring in the practice of the general hospitals of eight county boroughs of England and Wales during the period 1910-21: the cities under review were Birmingham, Bristol, Cardiff, Leeds, Leicester, Newcastle, Nottingham, and Manchester.⁴

It will be remembered that in its earlier efforts to assess the value of surgical operation in cancer of the breast a statistical analysis was given by the Departmental Committee of the data contained in medical literature throughout the world. The number of reporters was comparatively small, few were English and most of them recorded their results for a period no longer than three years after treatment. This evidence which formed the substance of the first report was supplemented by the second report: a further step has now been taken, rendering it possible to ascertain the fate of many patients submitted to operation for cancer of the breast for periods of three, five, and ten years after operation. The primary object of the present investigation has been to ascertain the results of operation in relation to the stage of the disease for which the operation was performed, the nature of the operation, and the type of tumour present as identified by routine examination.

In a prefatory note to the present report Sir George Newman remarks that the type of growth as usually

classified appears to have the least influence on the success or otherwise of the operation, the stage of the disease, and the completeness with which the operation is performed, are of relatively outstanding importance in securing the best results. The most vital factor in success, therefore, is that treatment should be applied as early as possible. Thus it is shown in the report that the percentage of survivals to ten years when treated in the early stages is 73, while when the disease has spread beyond the breast the percentage falls to 13. Yet of patients undergoing operative treatment at hospitals, not more than 25 per cent are in this early stage. The average interval allowed to elapse, even in early cases, between the first notice of the condition and the patient seeking treatment is as long as seven months. Sir George Newman emphasizes therefore the prime need for fuller realization on the part of the public as a whole, and perhaps of the medical profession too, of the fact that a lump in the breast of an adult woman calls for diagnosis and treatment without a moment's avoidable delay.

The operations concerned were performed by 113 different surgeons. In 1,642 cases carcinoma was verified by pathological examination, while 364 cases which were believed to be carcinomata, though no pathological confirmation was obtained are considered separately in the report. Sarcoma was diagnosed in 35 cases, and endothelioma or perithelioma in 19. There were 36 recurrences after previous operation elsewhere, in 41 instances the operation was stated to have been palliative only, and these cases have therefore been omitted from the conclusion. Analysing the clinical data Dr. Lane Claypon shows that the age of hospital applicants does not follow the same curve as that of the mortality rate, since the number of these applicants falls off rapidly after middle life, whereas the mortality rate continues to rise. The fertility of the married women was below the average and complete absence of lactation occurred even more often than had been found in previous investigations. Growths were fairly evenly distributed between the sides of the body, but such preponderance as existed was towards the left side. This contrasts with the report for 1924 in which no difference at all was found in the two sides. The outer and upper quadrant of the breast was the site most frequently affected. As regards the delay in seeking treatment Dr. Lane Claypon reports that if only those women are considered who gave an alleged duration of their symptoms of three years or less, the mean alleged duration is roughly nine months for all stages of the disease, and is just over seven months even for those patients in whom the disease was still local. No reasons are offered for this delay, which seriously reduces the patient's chances of survival. The net survival rates were as follows: When the growth was still local as shown by pathological examination of the axillary glands the rate at three years was 85.0, at five years 78.5, and at ten years 73.3. When the axillary glands had been invaded the rate at three years was 40.7, at five years 24.7, and at ten years 13.0. With still more extended growths the rate at three years was 35.2, at five years 21.9, and at ten years 12.7. In this calculation deaths from operation were counted as deaths from cancer, but the total operative mortality was below 3 per cent.

Contrary to the general clinical impression the prognosis in women under the age of 40 who had been operated upon at an early stage of the disease is shown to be definitely more favourable than that for older women. In the later stages of the disease there was little difference in the survival rates, but such

¹ *British Medical Journal* 1924 ii p. 628.

² *Ibid.* 1926 i p. 437.

³ Report on the Late Results of Operation for Cancer of the Breast by Janet E. Lane Claypon, M.D., D.Sc., Ministry of Health Report No. 51. H.M. Stationery Office or through any bookseller. 3s. net.

⁴ The first report on Leeds was noticed in the *British Medical Journal* of August 14th 1926 p. 318.

slight difference as there was favoured the women over 60 years of age. No significant difference was observed between the survival rates for growths of the cellular type and those of the scirrhous type, though duct, adeno, and colloid carcinomata had the more favourable prognoses. As regards the nature of the operation performed, good results followed in very early cases when the breast or even the tumour alone was removed, although there is, obviously, risk of incomplete removal. Operations involving the partial clearance of the axilla in early cases were attended by bad results as compared with those following the radical operation, even when the latter was performed in cases less early than those in which the conservative operation was employed. Cases of rapid dissemination, in the early stages, of cancer cells to other organs were rare. No support was obtained for the view that growths towards the inner side of the breast were more dangerous than those elsewhere. The excellent functional results obtained after radical operation showed convincingly that in most patients there was little detriment either personal or economic, following removal of the pectoral muscles. Dr. Lane Claydon concludes her report by insisting that a great reduction in the mortality rate from cancer of the breast at all ages up to and even over 70 would be effected if early and radical operation were undertaken more often.

RECENT MALIGNANT DIPHThERIA

GENERALLY speaking, the type of diphtheria which prevailed in this country during 1927 was not characterized by its severity. In England and Wales the case mortality amounted to 5.2 per cent, as compared with 5.8 and 5.9 respectively during the two previous years, and in London in 1927 there was a decline from 3.9 and 4.0 per cent to 3.15. Reports from the United States and the Continent, however, testify not only to a marked increase in prevalence, but also to the occurrence of an unusually malignant form of the disease. In New York City the total of 13,507 cases and 717 deaths during the year 1927 showed a notable increase over that of 1926 with 7,531 cases and 477 deaths, the lowest figures yet recorded for any year, presenting the contrast of an attack rate of 2.26 per 1,000 population and a death rate of 12 per 100,000 for 1927 as compared with only 1.27 per 1,000 attack rate and 8 per 100,000 death rate in 1926.

The steady fall in the diphtheria rates in New York of recent years has amounted to a difference of as much as 38.9 per cent in the case incidence between 1923 and 1926, which may have lent substance to the hope that immunization had been in some measure responsible. But as there are no less than two thirds of the one and a half million child population of New York under the age of 15 not yet immunized, this larger unprotected fraction, of roughly one million, would alone have afforded abundant and ready soil for the considerable increase in morbidity shown by the wave of epidemic which arose in the early part of 1927 in the city of New York and elsewhere and reaching its crest during the spring, maintained its force through the summer months till mid July. During that period of twenty-eight weeks the notifications totalled 9,112, averaging 325 per week, more than double those in the corresponding period of 1926, when only 4,218 cases—a weekly average of 150—were recorded. In the subsequent fourteen weeks, from July 17th to October 24th, the increase showed decided abatement, the excess over 1926 of the weekly totals amounting

only to 20, with a total for the fourteen weeks of 1,657 cases, as compared with 1,385 in 1926. In the final ten weeks of 1927 there was a further recrudescence, but considerably less than during the first half of the year, with an average of 85 per week in excess of the 1926 weekly notifications.

Similarly in Chicago, the total notified cases of diphtheria rose from 2,723, with an attack rate of 0.9 per 1,000 in 1926, to 5,182, a rise in attack rate nearly double, to 1.7 per 1,000 in 1927, and from the records available for the first half-year the diphtheria deaths more than doubled those for the first six months of 1926. At the Chicago Municipal Hospital the case fatality rate rose from 11.6 per cent in 1926 to 15.2 per cent in 1927. In Boston, too, diphtheria notifications increased from 995 in 1926 to 1,387 in 1927, an increase in attack rate from 127 to 177 per 100,000.

In Germany, reports from Berlin, Breslau, and other towns for the past two years have shown a considerable rise in prevalence, as well as in the case fatalities, which in old Berlin in 1926 reached the high figure of 17 per cent, as compared with 6 per cent in 1923, and has lately led to the adoption by the authorities of free immunization for the protection of the public. The exceptionally malignant type associated with the greater prevalence of the disease in the United States in 1927 and Germany in 1926 and 1927 has been marked by considerable glandular enlargement, the so-called 'bull neck,' with foul discharges from the throat and nose, and not uncommonly followed by cardiac and renal complications, with rapidly fatal toxemia. The severity of such cases and their failure to respond to prompt and early administration of antitoxin have been attributed mainly to secondary streptococcal infection, and it was only after combining diphtheria antitoxin with a polyvalent antistreptococcal serum that treatment proved successful.

Whereas this country has experienced comparative freedom in the past year from the severe form prevalent in America and Germany, reports from certain areas, however, such as Bristol and Leicester, have recorded its occurrence and sound a note of warning. In West Ham also the type of diphtheria experienced last year was more than usually severe (M.O.H. annual report 1927). At a meeting of the Fever Hospital Group of the Medical Officers of Health Society held at the end of April, a paper by Drs. H. S. Banks and George McCracken dealt with some 300 cases, including close on 10 per cent of the malignant type, successfully treated by the intravenous administration of antitoxin at the City Isolation Hospital in Leicester during the past two years. Their cases were classified in four groups in order of severity: (1) 27 malignant cases with severe adenitis treated with an average dose of 71,000 units given intravenously and 31,000 units intramuscularly, (2) 52 cases of lesser severity, which received 19,000 units intramuscularly, (3) 214 mild or moderate cases, to which 14,000 units were given by intramuscular injection, (4) 7 cases of laryngeal diphtheria. In the procedure of intravenous injection Dr. Banks recommended the use of a serum concentration of 1,400 units per c.c.m., administration occupying a period of twenty minutes, followed by injection of 4 minims of adrenaline to counteract the possibility of serum reaction. The advantages of the intravenous route were the rapidity of obtaining a maximum concentration of antitoxin in the circulation, which followed immediately, as compared with twenty-four hours by intramuscular injection, and three days' interval by means of subcutaneous inoculation—in all important

gain of precious time, when every hour saved may make all the difference to the patient. With reference to the size of the doses, as much as 140,000 units intravenously in a single dose has been given at Leicester without harmful effects, and even larger doses, up to 200,000 units, have been employed by Professor v. Bie in Copenhagen. As the result of intravenous injection it was claimed that the case mortality of the diphtheria patients in the Leicester hospital had been reduced from an average of 9.3 to 2.6 per cent. The number of diphtheria deaths in Leicester fell from 38 in 1926 to only 10 in 1927, representing a decline in the diphtheria death rate from 15 to 4 per 100,000. Moreover, the risk of complications, notably paralysis, had, it was stated, been considerably diminished.

This experience of the value of intravenous administration of antitoxin in large doses is, however, contrary to general opinion in this country, as held by E. W. Goodall and others, and in America by W. H. Park, who have asserted that doses in excess of 30,000 and 50,000 units are useless. It is of interest to note that the intraperitoneal injection of antitoxin has lately been advocated in America. Platon and Stewart of Minnesota found that one hour after treatment by this route the blood contained sufficient antitoxin to neutralize all the circulating toxin of even the most severe form of diphtheria.

INTERNATIONAL PUBLIC HEALTH

A SUMMARY has been issued recently of the proceedings at the extraordinary session of the permanent committee of the International Office of Public Health, held in Paris last May. Its appearance coincided sadly with the news of the death of Dr. H. Poterwin, who had been secretary of the office from its foundation in 1907 to 1926, when he was appointed director. Dr. Poterwin was highly esteemed for his brilliant services to international medicine and hygiene, his exceptional ability in summing up controversial questions, his wide outlook, and his genial personality. He was a member of the French Senate until last year, a professor in the Conservatoire des Arts et Metiers, and during the war gave valuable help in co-ordinating information about the health conditions of the different forces. He was taken ill shortly after the close of the Paris session in May. The practical importance of this session is to be found in the adjustment of details of quarantine procedure under the International Sanitary Convention of 1926. Model certificates of deratization or exemption from deratization—a word coined to denote the clearance of ships from rats—have been drawn up and have been adopted by two countries, Great Britain and France. Some provisions of the Opium Convention have been examined, and the conclusions arrived at have been sent to the Health Committee of the League of Nations. The work of the permanent committee is naturally mainly concerned with such international agreements, but the committee furnishes also a convenient body for the pooling of experience in matters of epidemiology. Thus the report records sundry observations made in various recent epidemics of yellow fever, cholera and plague. There is a note on the continued prevalence of mild smallpox in England, the freedom of the large ports except Newcastle from this disease, and the relative frequency in Holland of post-vaccinal encephalitis. The researches of Dutch, English, and German experts are tending to distinguish this form of encephalitis from encephalitis lethargica, and to associate it rather with the form sometimes seen in measles, smallpox, and antirabic paralysis. Striking examples of the almost complete suppression of smallpox by mass vaccination of the population have been reported in Egypt

and in Uruguay. Undulant fever, spread by milk and cattle, has appeared also in Scandinavian countries, its catches in the United States have confirmed its association with *Brucella abortus*. In Denmark the disease has been shown to be more prevalent than typhoid or paratyphoid fever. In Rumania it has been found that the connexion of cases of poliomyelitis could generally be traced, and that for the most part the contagion came from direct contact with those suffering from the disease. There is a tendency in some countries to regard milk as a possible source of infection. Rumania is also faced with a difficulty in the treatment of general paralysis by malaria therapy. It has been found that in certain districts where malaria is common some patients are refractory to inoculation. Interesting questions of immunity in paludism are raised by this observation. There was considerable discussion at the session of the permanent committee on the subject of pre-immunizing infants against tuberculosis by means of B. C. G. Professor Calmette was invited to attend the session, and the results obtained by him are recorded in the report. Attention is drawn to the considerable variations in different countries of the infant death rate from tuberculosis. The report of the permanent committee concludes with the mention of what are described as four entirely new questions which are to engage its attention. The first is the subject of acute rheumatism, and the steps to be taken to prevent heart affections. Secondly, the committee will consider what measures should be adopted as regards intoxication by methyl alcohol and its relatively frequent result—blindness. Thirdly, there is the hospital question and its evolution in two directions—namely, the American conception of establishments for all classes and even for minor maladies, and the Czechoslovakian development of diagnostic centres for a definite area, whether urban or rural. The fourth question to be discussed is the more rapid diminution of mortality in towns than in the country, a condition which is said to obtain even in Poland. The remedy contemplated is the development of institutions of social hygiene and preventive medicine analogous to those existing in towns.

ANNUAL REPORT OF THE MINISTRY OF HEALTH

THE ninth annual report of the Ministry of Health, which covers the year ending March 31st, has now appeared, it follows in most respects the form of earlier issues, and the report of the Chief Medical Officer is, as usual, being published separately. Last year, however, the main report included accounts by the general inspectors of the administration of Poor Law, this year it is proposed to publish them in a separate volume, together with a reprint of the relevant section from the report under review. This report falls into five main parts, four sections deal respectively with public health, local government and local finance, the administration of the Poor Law and the administration of national health insurance and contributory pensions. The fifth section is devoted to the affairs of the Welsh Board of Health. Under the heading of public health are treated such subjects as international health work, general health questions, sanitary administration, food inspection, infectious diseases, maternity and child welfare, welfare of the blind, housing and town planning. Much of the ground covered in these chapters has already been traversed in earlier publications which have been the subject of notices in the *Journal* from time to time, but the present report brings the material together in a convenient form. Reference will be found in the preface to the steps taken to secure a reduction in maternal mortality, and to the arrangements made in co-operation with the British Medical Association for instituting investigations of all maternal deaths and all cases of puerperal fever. An analysis of local financial statistics for the year 1925-26

shows that of the total amount of money received as rates by local authorities in England and Wales in this year, 20.3 per cent was expended on health services. Of this 3.6 per cent was expenditure on lunacy and mental deficiency, 1.3 per cent on maternity and child welfare work, tuberculosis treatment, and venereal diseases, the balance (15.4 per cent of the total) covered expenditure in such directions as sewers, disposal of refuse, water supply, baths, parks, cemeteries, isolation hospitals, vaccination, salaries of medical officers of health not allocated to specific services, and port sanitary services. Education, it may be added, absorbed 20.9 per cent of the total income from rates, highways and bridges 19.6 per cent, and poor relief 19.3 per cent. Regarding national health insurance, it is stated that the total cost of medical benefit for the insured population in England (about 13,500,000) in the financial year 1927-28 was approximately £8,055,000, of which about £5,999,000 was paid to insurance practitioners. A brief account is given of the action taken by the Ministry in cases of alleged excessive cost of prescribing brought to light by the survey undertaken in the year 1925-26 by the regional medical officers, and continued last year, and reference is also made to the revision of the disciplinary procedure affecting insurance practitioners. Much interesting detail regarding local government affairs and finance, and statistical matter relating to the administration of national health insurance, is given in the appendices to the report, which is published by H.M. Stationery Office at the price of 5s.

THE ETIOLOGY OF TRACHOMA

On October 22nd, 1927, Dr Hideyo Noguchi left New York for Accra on the Gold Coast of West Africa. Before his departure he had almost completed an investigation into the causes of trachoma, and the concluding observations have been made by his assistants. The work has now been published by the Rockefeller Institute for Medical Research as a supplement to the *Journal of Experimental Medicine*.¹ This report begins with a review of earlier investigations since the days of 1883, when Koch found a minute bacillus associated with Egyptian ophthalmia. This was later shown by Weeks of New York to be the excitant of an acute conjunctivitis—"Koch-Weeks conjunctivitis." Many other similar observations were doomed to a like fate. Animal experimental inoculations were unsatisfactory, though Hess and Romer in 1905 succeeded in transmitting a trachomatous disease to two baboons, the lesions were, however, less extensive than the human disease, and cleared up in two or three months without leaving scars. The new research was carried out on untreated cases of trachoma among students of the Albuquerque Indian School, a few cases were chosen of the advanced type, and each was studied in the most minute detail. Monkeys were inoculated directly by fresh material. Though the employment of particular kinds of culture media and the use of low-temperature incubation, not only have a number of common bacterial forms—cocci, bacilli, and sarcinae—been secured, but, in addition, two distinct varieties of peculiar Gram-negative motile bacilli, from four of the five cases studied. The two kinds of motile bacilli are readily distinguished, since one grows well at 37° C. as well as at lower temperatures on ordinary media, whilst the other requires media containing animal blood, and thrives best at temperatures from 15° to 30° C. The latter organism does not multiply when oxygen is completely excluded. It bears resemblance to *B. monocytogenes*, but differs from it in inability to grow on ordinary media at 37° C., in its non-pathogenicity for rabbits, and in serological reactions. Under unfavourable conditions

the bacillus assumes forms found in the group of corynebacteria, but differing from these in showing motility under particular growth conditions. Single polar flagella are carried by the bacilli, which do not seem to have been described before. For the reasons that follow, the organism has been named *Bacterium granulosis*. The investigation was elaborate. Every organism found and cultivated in each case investigated has been injected in pure culture and in heavy suspension into the conjunctival tissues of macacus monkeys and the chimpanzee. With one notable exception, the cultures produced only fleeting reactions or acute inflammation, which soon subsided. The exception is notable because the injection of the culture of the bacillus called *B. granulosis* induced a persistent granular conjunctivitis resembling closely, and apparently identical with, trachomatous granular conjunctivitis in man. When the disease was induced in one eye the other later became involved, or if the second was directly infected from the first the advance was more rapid. Histologically the conjunctival lesions correspond closely with those of human trachoma, and include the characteristic follicle and scar tissue formation. The experimental disease induced in the macacus with the pure culture of *B. granulosis* has been transferred by direct tissue passage to the chimpanzee, baboon, and other *Macacus rhesus* through at least four successive passages, the clinical and histological characters remained the same. The lesions were infective as early as 17 and as late as 204 days after the original inoculation. The organism was recovered from these tissues, and has been seen in both human and monkey tissues. The great difficulty of its recovery in culture and its demonstration in sections of tissues and in films is not necessarily an indication of its absence from the lesions. The methods employed to recover and find the organisms may not be the most suitable for the purpose. No other organism obtained from the human cases of trachoma produced in animals effects comparable with those induced by *B. granulosis*. In the absence, therefore, of indications to the contrary, it is considered that this organism is the inciting micro-organism of trachoma in man. There have been so many disappointments in the past over researches into the etiology of trachoma that anyone will be forgiven caution in accepting new discoveries without independent repetition, but on the facts given the case for this new discovery is strong. The clinical and histological drawings of the monkey trachoma appear identical with those of human disease. Moreover, the clinical course of the disease in the monkeys was watched by half a dozen American ophthalmologists of first-rate repute and experience.

DARNLEY'S SKULL

PROFESSOR KARL PEARSON has generally made the scope of *Biometrika* a wide one, much to the pleasure and profit of those of his readers who are not mathematical statisticians, but he seldom has travelled so far from those metaphorical dry bones as when he writes of the actual bones supposed to have formed part of the skeleton of Henry Stewart Lord Darnley. Volume xx B, Part I, of *Biometrika* is entirely devoted to a critical study of the skull and portraits of Lord Darnley and their bearing on the tragedy of Mary Queen of Scots. Most of this volume is taken up with a discussion of the unsolved and probably insoluble riddles which have already been the subject of numerous histories and biographies, and have aroused so much partisan feeling. Professor Pearson is an enthusiastic defender of the character and doings of Mary Stuart, while he is equally a severe critic of practically all the other public men of England and Scotland of that day, including in that term the remarkable woman who ruled England. His suggested explanation of the strange happenings which ended with the blowing up of Kirk-o'-Field and the finding of

¹ The Etiology of Trachoma. Supplement No. 2. *Journal of Experimental Medicine*, vol. xlviii, No. 2, August 1st, 1928. The Rockefeller Institute for Medical Research, U.S.A. (Pp. 55-31 plates. Price 2 dollars.)

Darnley's apparently uninjured body in a neighbouring field is ingenious, although it needs a good deal more evidence than has yet come to light to substantiate it. It is perhaps a pity that this part of the study should not have appeared in a periodical of wider circulation and lower price, where it would no doubt successfully fan the always smouldering embers of Mary Stuart controversy into a temporary blaze. In a costly "journal for the statistical study of biological problems" Professor Pearson cannot find so large a public as his efforts deserve. Sir Arthur Keith, in the interesting and masterly study of the skull of Lord Darnley which appears on page 456 of this issue, confines his attention to anatomical and pathological considerations, only including such history as concerns the skull and thigh bone now in the museum of the Royal College of Surgeons of England. This article shows—as does all its author has written—great scientific acumen and a judgement that will not allow him to make or support any statement without sufficient evidence. As will be seen, Sir Arthur Keith very cautiously approves the opinions recorded by Professor Karl Pearson, while giving full weight to opposing considerations and quoting the adverse opinions of others. The verdict thus arrived at restores to royal honours and pathological importance two osteological specimens which have long been considered as impostors, and one of which, as mere "bric à brac," shared a drawer in the museum of the Royal College of Surgeons with a number of mere plebeian thigh bones. But while he thus restates these bones in historical importance, he also supports Professor Pearson in his assault on the character of Darnley—such as it may have been—for contumace. Yet the evidence is puzzling and somewhat contradictory. Despite the researches of Professor Pearson and the careful examination of the bones made by Sir Arthur Keith, it is still not certain that they are parts of the skeleton of that Henry Stewart, Lord Darnley, who was masterfully murdered at Kirk-o'-Field. If the bones are genuine it is still doubtful whether the pits and other appearances of the skull are due to syphilis. Sir Arthur Keith with commendable caution, declines to commit himself fully to an endorsement of Professor Pearson's conclusions, although he provisionally approves them. Until the four questions propounded in the last paragraph of the article are satisfactorily answered we think that we must concur in a verdict of "Not proven" on this as on some other happenings in the career of Mary Stuart. This caution is further justified when we reflect that twenty years ago some distinguished French savants discovered what they considered to be evidence of syphilitic bone disease in certain Nubian skulls, and that Professor Elliot Smith showed that these erosions and perforations were the work of beetles.¹

PETTENKOFER AND HIS WORK

Max von Pettenkofer,² by Major Hume of the Medical Corps of the United States Army, does not pretend to be in any way a complete biography, it gives a brief account of Pettenkofer's life, with an outline of his many and varied activities, but is mainly devoted to a review of his theories on cholera and other intestinal diseases. Born in 1818, Pettenkofer was taken in charge at an early age by his uncle, a chemist in Munich. In his uncle's society he probably developed that interest in chemistry which remained dominant throughout his life. After a varied career he took, in 1843, a medical degree at Munich, where he became professor of medical chemistry four years later. His general interests remained wide, as is shown by his

work on picture preservation. In 1865, at his request, a chair of hygiene was founded in the University, and he was appointed the first professor. Epidemiology gradually claimed his attention, but not to the exclusion of other health problems. He was always anxious to improve the conditions in his own city, and his efforts were ultimately attended with success, Munich being converted into one of the healthiest cities in Europe. After receiving many honours, he died by his own hand in 1901, leaving behind him a notable record of achievements in many fields. Pettenkofer's theories on the causation of cholera have not stood the test of time. While he recognized the existence of a specific germ, he held that it alone could not cause the disease unless certain local, seasonal, and individual conditions were favourable. His investigations were chiefly concerned with the first and second of these, and he maintained that the organism as it left the body was not infective until it had undergone ripening in a suitable soil. Major Hume gives a detailed account of Pettenkofer's work on cholera, and contrasts his views with those of Koch. In conclusion, he points out that while Pettenkofer's work on epidemiology was not confirmed by later workers, it was of the greatest value in stimulating contemporary research. As a chemist and physiologist he ranks with the great men of science, and many of his methods are in use to-day.

THE MEDICAL REGISTER UNTRACEABLE PRACTITIONERS

We publish in the *Supplement* this week (p. 129), at the request of the Registrar of the General Medical Council, a list of the names of those medical practitioners who have not replied to his inquiries as to the accuracy of their postal addresses. Any practitioner whose name is included in this list should communicate at once with the Registrar of the General Medical Council, or, in certain cases, with the Registrar of the Scottish Branch Council, at the addresses given on page 129.

By an Order of the Committee of the Privy Council Professor Robert Muir, M.D., F.R.S., Sir John Herbert Parsons, F.R.S., F.R.C.S., and the Right Hon. Sir Charles Philips Trevelyan, Bt., M.P., have been appointed members of the Medical Research Council, filling the vacancies caused by the retirement of Professor Georges Dreyer, Sir Archibald Garrod, and the Right Hon. William Graham, M.P. The new appointments become effective on October 1st.

DR. OLIN WEST, who is secretary of the American Medical Association, has been asked by the House of Delegates of that association, in session in Minneapolis at the annual meeting last June, to transmit to the medical profession in Great Britain an expression of the profound sympathy of American physicians in the loss of Dr. Adrian Stokes and Dr. William Young, who sacrificed their lives for the sake of the advancement of medical science. It is also stated that these names will be added to the list of those heroes of medicine whose memories are truly revered by the organized medical profession of the United States.

THE usual half-yearly indexes to the *Journal* and to the *Supplement* and *Epitome* have been printed, they will however, not be issued with all copies of the *Journal*, but only to those readers who ask for them. Any member or subscriber who desires to have one or all of the indexes can obtain what he wants post free by sending a postcard notifying his desire to the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1. Those wishing to receive the indexes regularly as published should intimate this desire.

¹ See *Lancet*, vol. ii, 1908, p. 521. The Alleged Discovery of Syphilis in Prehistoric Egyptians.

² Max von Pettenkofer. *His Theory of the Etiology of Cholera, Typhoid Fever and other Intestinal Diseases*. A review of his arguments and evidence. By Edgar Erskine Hume. M.D., LL.D. New York: Paul B. Hoeber Inc. (1.50 dollars.)

THE SKULL OF LORD DARNLEY *

BY

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THE historian in search of light on the most poignant, hot-blooded, and human of all tragedies recorded in history is not likely to consult the pages of the leading biometrical journal of our time, and yet I am convinced that in those pages Professor Karl Pearson records facts which give us a clue to the behaviour of that embodiment of tragedy Mary Queen of Scots, in the very crisis of her drama. The secret he has to reveal is of a medical nature, for medical secrets have often a more important bearing on the events of national life than orthodox historians have realized. Incidentally, too, Professor Pearson illustrates the part which craniology may play as the handmaid of biography.

Let me first tell the story of the skull and thigh-bone which Professor Pearson attributes to Lord Darnley, father of James I and grandson of Margaret Tudor, sister of King Henry VIII. The skull and thigh-bone are in the Museum of the Royal College of Surgeons, England, and my predecessor, Sir William Flower, described them in the catalogue thus:

No 345-345¹ *A remarkably depressed or tapeinocephalic cranium, and a femur, supposed to belong to the same individual, a male*

'These were purchased by the donor at the sale by Messrs Sotheby and Co, on March 22nd, 1865, of a collection of Fossils and Minerals, etc., formed during last [i.e., 18th] century by the Hon Archibald Fraser of Lovat, and described in the catalogue [of the sale] as skull and thigh bone of Lord Darnley

The internal evidence afforded by both bones conclusively negatives their authenticity. Darnley, at the time of his death in 1567 was about 22 years old and the bones are those of a man considerably more advanced in life and of great muscular development. The almost complete absence of frontal elevation, which is one of the most striking features in the skull, finds no corroboration in any of the known portraits and descriptions of the young Earl, and the femur could not be that of a person invariably described as tall or long, as, calculating at the usual ratio of 27.5 to 100, it would give a height of only 5 feet 2.2 inches.

"Presented by J. W. Belt Esq., 1869

No 745 *A left femur resembling the previous cranium in character and inscribed "Thigh bone of Lord Darnley, husband of Mary Queen of Scots, murdered and blown up Feb 10th 1567"*

Said to have been purchased with the above inscription at a sale at Sotheby and Wilkinson's with two other bones, 'Thigh bone of Little John, Robin Hood's companion, and shin bone of Humphrey Duke of Gloster,' by Mr F. M. Grimshaw (25, Gt Ormond Street, Bloomsbury) from whom this femur was purchased July 1st, 1880. It is that of a very tall man, and is probably the real thigh bone belonging to the cranium (345), 345¹ having been accidentally substituted. Length 5.58 mm.

In the light of subsequent events it is most probable that Mr Grimshaw sold "Little John's" femur to Mr Belt as that of Lord Darnley and later sold the real femur to our museum.

With such a verdict passed on them by my predecessor, the Darnley bones sank to the rank of bric-a-brac, and in that class they would have remained had not Professor Pearson come to their rescue. In recent years he has issued monographs "on skulls and portraits" of three famous men of Sir Thomas Browne, prepared by Miss Miriam Tildesley, of King Robert the Bruce, and of George Buchanan, prepared by himself. It was probably during his search in Edinburgh for documents relating to the Scottish historian George Buchanan that Professor Pearson came across the tracks of Darnley's skull. He found that in 1793 a skull reputed to be that of Lord Darnley had been "preserved among the curiosities of the

Antiquarian Society of Scotland," and that it exhibited "a melancholy proof of the effects of his [Lord Darnley's] incontinence." Professor Pearson found, further, that when the secretary of the society, James Cumming, "a most ardent collector," died in 1793, some items of the collection were sold along with Cumming's effects, among them the reputed Darnley skull. The same skull, with the "melancholy marks of incontinence," passed into the possession of the Hon Archibald Fraser of Lovat (1736-1815), whose collection was sold at Sotheby's on Thursday, March 22nd, 1865. The catalogue of the sale, it appears, is preserved in the British Museum, on consulting it Professor Pearson found:

'Lot No 164 Skull and thigh bone of Lord Darnley and cast from life of Oliver Cromwell preserved in the family of Noel.'

The lot passed to "Grimshaw" for the sum of six shillings, royal skulls went cheaply in 1865. There is no doubt that the skull and thigh-bone bought by Mr F. M. Grimshaw at the Lovat sale in 1865 are now the specimens numbered 345 and 345¹ in the museum of the Royal College of Surgeons.

Having traced the Darnley bones from Edinburgh to London, Professor Pearson turned his attention to their earlier history. Kirk-o'-Field was blown up on the night of February 10th, 1567, Darnley's body was found next morning in a neighbouring field or garden, with no outward injury, and had apparently been removed from his lodgings before they were blown up. His body was embalmed by the Queen's apothecary—for which he was paid £40—enclosed in a leaden casket, and on February 14th placed in the royal vaults of the Abbey Church of Holyrood. There it still was when the roof of the church collapsed in 1768. Later the royal vault became exposed, and somewhere between 1776 and 1778 Darnley's skull was stolen, later one or both of his thigh bones were removed from his coffin. All we know is that these parts became missing, and that in 1793 a skull reputed to be that of Lord Darnley was in the possession of James Cumming, an "ardent collector," and a thigh bone said to be Lord Darnley's was then, or soon after, the property of a collector of curiosities—the Hon Archibald Fraser.

Having read Professor Pearson's history of the Darnley bones, I turned again to their examination to see if I could obtain corroboration of his belief in their authenticity. The bones are of a brown tan colour—the colour which is given by burial in peat or in soil containing much vegetable matter. Always in such burials one finds the deep crevices and recesses of the bones—such as the depths of the ear passages and nasal cavities—packed with soil or earthy matter. On looking into the tympanum of the Darnley skull I found the ear bones in place and not a trace of soil, only the weathered tissues. On the deeper and unrubbed surfaces of the cranial bones, as on the femur, there clings a fine film of dry brown material such as is never found on bones which have been buried in the ordinary way, the appearances seen can be accounted for only by accepting such a history as Professor Pearson postulates for Darnley's bones. Further, I have no doubt the skull and thigh-bones are parts of the same individual, there is a community in their texture and state of preservation which bears out this inference.

But what of the indications of age? Lord Darnley was two years younger than Mary Queen of Scots, he was in his nineteenth year when he married her, being then a tall lanky lad, with a countenance which has been described as effeminate. In February, 1567, when he was murdered, he was in his twenty-second year. Are the bones those of a young man of 22? We have seen that my predecessor regarded them as those of an older person. Professor Pearson scarcely touches on this important point. Dr H. A. Harris, our leading authority on this matter, informs me that the lower growth line of the femur should be obliterated before the age of 22, and in Darnley's femur this line is not traceable except at one point. We can get no help in determining age from the teeth, they have fallen or been knocked from their sockets, but the sockets are free from disease and consonant with youth. The other source of information is the state of the sutures of the skull. The growth sutures of the base are closed, as

they always are before the age of 22. All the other sutures are open save one—the sagittal, which passes along the vault and separates right and left parietal bones. It is abnormally short, and has become, throughout the greater part of its course, prematurely obliterated. Strangely enough, this, the most outstanding feature of the Darnley skull, has escaped Professor Pearson's attention. This abnormality of growth is, as we shall see, the key to the chief peculiarities of Darnley's skull. The state of the sutures of the skull and of the lower femoral epiphysis is in keeping with Darnley's known age, and supports Professor Pearson's claim for authenticity.*

Readers of Professor Pearson's monograph will be struck by the pains he has taken to prove that at no time was it possible for the roots of trees or plants to reach the contents of the royal vault at Holyrood. I fear I am the cause of this particular part of his inquiry. One aspect—the right—of the Darnley skull has scattered over it a series of punched-like pits of various sizes, which I remarked when Professor Pearson began his inquiries, as areas which had been eroded by the action of spreading roots. I had compared the skull with others in the museum which were pitted by syphilitic gummatas, and found none to show identical lesions, nor did I find skulls which were known to have been eroded and marked by root action show pits of exactly the same form and character. That a wild and dissolute youth who had grown up in the courts of France and England may have contracted syphilis is probable, historians have suspected that he was a victim. Professor Pearson has reviewed the evidence of his illnesses and is convinced that when Darnley, a youth of 19, left England in the spring of 1565, to woo the Scottish Queen, he had already contracted syphilis, and when he was dallying with the Queen in Stirling Castle the secondary symptoms were upon him. By the end of the following year (1566) the disease, in Professor Pearson's opinion, had made such outward progress that Darnley did not dare to appear at the baptism of his son, who became James I, "because he was unrepresentable." Less than three months later Darnley was murdered.

Professor Pearson holds that the skull now in the Museum of the Royal College of Surgeons is truly that of Darnley, and that its pittings are the result of syphilis which at the time of his death had entered its tertiary or gummatous stage. It is unusual to find syphilis running so rapid a course in these later times, but the course of the disease was probably more precipitate in the middle of the sixteenth century. If Professor Pearson is right that from the days of his courtship until that of his death Darnley was riddled with syphilis and displayed on his body all its loathsome manifestations, then we can understand Mary's feeling of repulsion towards him and take a somewhat more lenient view of her wayward, light, almost criminal conduct at this period of her career.

But is the pitting of the skull really syphilitic? I had given my opinion that it was not, but in the light of Professor Pearson's discoveries I have re-examined all the pits. None of them shows the slightest trace of any inflammatory reaction of the bone in their walls or vicinity, some appear almost as if they had been "punched" out. But at the bottom of most of them is a brown scab, a root which erodes a hole in bone leaves no scab behind such as this. On the other hand, the pits are distributed almost entirely over the right aspect of the skull—the aspect which I supposed had looked upwards in the grave and had presented itself to the down-growing roots, the left aspect, which I had supposed to be the lower, was almost unaffected †.

* Since the above was written Dr. H. A. Harris has made a searching radiographic examination of both skull and femur. His observations lead him to conclude that appearances indicate a man over 25 rather than under that age. Professor T. Wingate Todd, our leading authority on age changes, also thinks that the state of the bones indicates an age over 22 years. While influenced by these weighty opinions I still believe that further observation will prove that the bones could reach the state here shown at the age of 22.

† Both Professor Todd and Dr. Harris regard the pits as produced by some artificial but unknown means long after death. Dr. Harris noted that both skull and femur had been coated by shellac and that the brown matter contained no haematin.

To settle this important matter, and being also mindful of Huxley's dictum that an unbisected skull is a disgrace to a museum, I caused the Darnley skull to be laid open, to see if there was any mark of syphilis within. There was no such indication, but there was the most definite evidence that the skull had rested on its left side, for in that half was the dried up rim of a pool of that same brown gummatous matter which had stained the open interstices of skull and femur. The condition thus revealed supports Professor Pearson's history of the Darnley skull. Further, on examining the cut surfaces of the tabular bones I found a few small cavities in the diploe lined by a thick brown material, roots could not have caused them, I know of no disease which could occasion such cavities except syphilis. So in this matter, too, I was driven to accept Professor Pearson's diagnosis of syphilis and give up my own of root action.

For a youth who stood six foot in his shoes the Darnley skull has a small brain cavity. Professor Pearson's measurement makes it 1,336 c.c.m.—about 150 c.c.m. under English mediocrity. The "kenskello" feature of the skull, however, is its broad, very low, retreating forehead—such a forehead as cannot escape observation and remark in life. Professor Pearson notes the abnormal shortness of the sagittal suture, but leaves its premature obliteration undiscussed. Nor has he called attention to another very remarkable feature—the outward bulge of the squamous parts of the temporal bone. Yet the low, retreating forehead, the small distance which the vault of the skull rises above the ear passages, the short fused sagittal suture, the bulging sides of the skull, all result from the same cause—a breakdown in the normal expansion of the skull to accommodate the growing brain. In this expansion, growth of bone within and along the sagittal suture takes a considerable, if undetermined, share. Failure of sagittal growth demands increased expansion at other sites of growth. The diag backwards of the frontal and the outward bulge of the temporals are attempts to compensate for sagittal failure.

An examination of the interior and cut surfaces of the bisected skull leaves no doubt that the characteristics of the Darnley skull are the result of an inherited anomalous mode of cranial development. Professor Pearson is inclined to be unduly liberal in the application of ugly epithets to Darnley's skull, but for my part it is just those cranial characters, of which Darnley was apparently the victim, which deserve our consideration. Darnley appears to have inherited this anomaly from his father, the Earl of Lennox, and to have handed it on to his son, James I. This uncommon disorder of cranial growth we may name the Darnley anomaly, for I have seen other instances of it, and it has all the appearances of a character which may be transmitted in a Mendelian way.*

Does the skull attributed to Darnley correspond with known authentic portraits of the man? Professor Pearson has been at great pains to gain access to, and to reproduce, all the authentic portraits of Lord Darnley, husband of Mary Queen of Scots. Certainly the portraits of Lord Darnley as a lanky youth of 17, preserved in Holyrood and in Windsor Castle, represent just such a youth as we should expect to possess, when the age of 22 was reached, the femur which Professor Pearson attributes to him. But when we come to apply the outline of the skull to the face and head of the portraits we encounter a host of difficulties and contradictions. Most of the portraits are of boyhood, between boyhood and manhood the face undergoes great changes. The facial parts, the jaws, cheekbones and supraorbital ridges all the animal parts concerned in mastication parts which mature after puberty are strongly developed in the skull now attributed to Darnley. The portraits, especially the early ones, reveal a youth with rather an effeminate face. At all times artists have painted to please their sitters and the sitters' friends rather than to produce an anatomical likeness. An artist selects an attitude which pleases himself rather than serves the needs of the craniologist. In my opinion

Professor Holt examined the skulls of over 700 young children and found two in which the sagittal suture was completely obliterated and ten in which it was partially obliterated.

one has to strain a point to fit the Darnley skull into his known portraits. Yet the fact remains that the youthful Darnley face revealed by his portraits may have developed into the robust development preserved in the "Darnley" skull.

For my part I hold that, although Professor Pearson has not completely proved his case, he has rendered it highly probable that the skull and thigh-bone preserved in the museum of the Royal College of Surgeons did form part of that youth who played so prominent, proud, and somewhat ignominious a part in a most tumultuous crisis in the history of Scotland. I am indebted to the author of this monograph for demonstrating to all the world how craniology may be made to serve as a handmaid to history, for just as the knowledge of a home gives us a clue to the men and women who occupy it, the knowledge of a skull gives us an intimacy with the kind of brain which at one time had its home within it.

I have reviewed Professor Pearson's monograph at length because it is the result of long and serious inquiry and because it raises a number of important questions which I, as well as other medical men, should be in a position to answer. Is it possible for a femur and skull to have reached the stage of growth seen in the Darnley bones at the age of 22? The answer, in my opinion, is yes. Is it possible for syphilis in less than two years to pass from the secondary to the tertiary stages of its manifestation and to produce the form of lesion seen in the skull? Is it possible for a youth with effeminate features at the age of 17 to possess such a robust development of jaws as is seen in the skull at the age of 22? Is it possible that it may be a skull from another embalmed burial? When we have obtained evidence to settle all of these questions, or when others have obtained it for us, we shall be compelled to acknowledge that Professor Pearson has proved his contention.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

ANNUAL MEETING IN GLASGOW

THE ninety-eighth annual meeting of the British Association for the Advancement of Science opened in Glasgow this week, this being the fifth time that the Association has visited that city. Last March a Royal charter of incorporation was granted to the Association. On Wednesday the incoming president, Sir William Bragg, delivered an address dealing with modern developments of the physical sciences and their relation to national problems. The scientific proceedings of the meeting are arranged in thirteen sections—namely, mathematical and physical sciences, chemistry, geology, zoology, geography, economic science and statistics, engineering, anthropology, physiology, psychology, botany, educational science, and agriculture. The variety of topics dealt with under these headings can be imagined, and the programme for the present meeting includes such contrasting subjects as the sources of tin in prehistoric Greece, the metabolism of iodine, the question of hours in industry, the land of the Tuaregs, insects and Empire trade, factors affecting cell growth, the scope of the Child Guidance Clinic, and the biological aspect of the decay of stone in buildings and monuments.

An important announcement was made to the General Committee of the Association with reference to Down House. It will be recalled that on September 10th, 1927 (p. 464), we referred to the welcome news that Mr. George Buxton Browne, F.R.C.S., had generously bought the estate, and established a fund for its upkeep, to permit future generations to visit Darwin's home. It is proposed that the house and grounds shall be used by the British Association for the benefit of science, and that certain of the rooms, in particular the old study in which the *Origin of Species* was written, should be furnished as when Darwin lived in them, so far as may be possible. For this

purpose the original documents of Darwin's works, and various articles of furniture, are being collected by Mr. Buxton Browne and others. The Hon. John Collier has painted replicas of the well-known portraits of Darwin and Huxley to hang on the walls.

The Glasgow meeting is to continue until September 12th, and we hope to publish some further reference to the proceedings in our next issue.

Presidential Address (Craftsmanship and Science)

In his presidential address Sir William Bragg dealt particularly with the relations between science and craftsmanship in this country. He defined craftsmanship as the skill which was exercised in the production of whatever was wanted for human welfare, the qualities of which it was composed, including knowledge of materials, imagination, technical skill, perseverance, love of work, and sympathy both with the use to be made of it and with user. Sir William remarked that love of good work and delight in successful accomplishment were among the most powerful motives activating mankind, and when satisfied were sources of real happiness. Of all the motives which sway the world these were among the purest and best. By a simple analogy he showed that a people lived on what it made or earned, and that its success depended on its craftsmanship. He illustrated his point by reference to the productions of the Greeks, the Romans, and Indian workmen, adding that the craftsmanship of a people was an expression of the best of its very self, its very life, and an index of its health. He traced the development from the simple workshop of the old single-handed craftsman to the vast complex factory of modern industry which had come about owing to the urgent desire of the individual to better himself and his neighbours. He then showed how the craftsmen had called scientific knowledge to their aid, and he uttered the warning that hindrance of the growth of science in any way impaired the growth of craftsmanship. For the purposes of industry it was therefore necessary that there should always be a certain number of laboratories, or parts of laboratories, where scientific research might not be hampered by immediate thoughts of possible applications. Recent scientific discoveries had given rise to such thriving industries as these which were concerned with dyes, explosives, fertilizers, rubber, and artificial silk. Elaborating his main contentions he referred to the general connexion between science and mass production in industry, and remarked that, while many were benefited by the results of mass production, yet, when its processes called for little intelligence in their working, it would be found in the end that people of little intelligence were taking charge, science was therefore both the builder and the destroyer in respect of mass production. If craftsmanship was to improve continually, fresh industries and further adaptations of old ones must be sought. Moreover, improved craftsmanship depended in large measure on the absorption and adaptation of scientific discovery, and there must be direct practical contact with the problems to be solved. Sir William spoke of the new class of worker who was engaged in research associations and industrial research laboratories, and emphasized the importance of these men keeping in close touch with employers and shop workers. Such research workers deserved all possible encouragement. As an example of the subtle problems raised by new discoveries, he cited the radiation theory of light, upon which were largely based the great advances of nineteenth century physics, within the last twenty or thirty years, however, a new field of optical research had been opened up, and had shown that light had the properties of a stream of very minute particles. Here were two conflicting views about the nature of light, both of which had to be accepted, each hypothesis was used by physicists on appropriate occasions, though no reconciliation of the contradiction was as yet possible. In his peroration Sir William Bragg added that to the student of science there came a message to put his whole heart into his work, believing that in some way which he could not fully comprehend it was all worth while, every straining to understand his surroundings was right and good, and led him to be of use to his fellow men.

Nova et Vetera.

THE MUSEUM DIARIES OF JOHN THOMAS QUEKETT

TRADITION at the Royal College of Surgeons of England maintains that the vacant space under the lecture theatre was used by John Quekett, who succeeded Sir Richard Owen as conservator in 1856, as his dissecting and demonstration room. The tradition has been strengthened by the fact that one of Quekett's lecture tickets, of date 1857, has been found below the flooring. The room, now lit by electric light, has lately become a fine annex to the library, but it remains a question how it could have been used by a microscopist of Quekett's calibre, unless, indeed, he preferred a dark room for his microscopes, which were illuminated by gas probably at all times.

John Thomas Quekett, who was the master histologist of his time, was born in 1815, he was educated at home by his father, master of Langport Grammar School, Somerset, and became a microscopist at the age of 16, when he gave a course of lectures on microscopic subjects, illustrating it with his own diagrams, and employing an instrument constructed, we are told, out of a roasting-jack, a parasol, and bits of brass from a marine store. After serving his apprenticeship to a Langport surgeon and to his brother Edwin, he received his medical training at King's College and the London Hospital, obtained the diploma of L.S.S. in 1840, and in March of that year became the second student in human and comparative anatomy at the Royal College of Surgeons, the first, William Crozier, having been appointed by the Council in 1839.

In the first volume of his diaries, at the top of page 1, is this entry: "Mr J. Quekett commenced his duties at the Royal College of Surgeons on the 17th of August, 1840, since which time he has been engaged as follows." A careful account of the examination of the hair of a large cat is recorded, and then is unrolled, in many closely written pages, the history of a famous man's work in the Hunterian Museum. William Clift's "Museum Diaries" cover a period of some thirty-one years (1811-42). They are amusing in parts and always careful, but for minuteness and geniality Quekett's official diaries entirely outdo them. They date from 1840 to 1848, and chiefly cover the period (1843 onwards) when Quekett was assistant conservator to Richard Owen, William Clift's son-in-law and successor.

It is probable that Owen was a difficult chief under whom to be employed. Early in Quekett's service at the Museum we find Owen disapproved of by the Museum Committee, which was not satisfied by the way he spent his time. Owen, taking a large view of his position, said he worked for the credit of the College. To young Mr. Quekett he said "Busy yourself with pathology," but the committee had previously told the student in anatomy to confine himself to his own subjects. Between the horns of a dilemma, Mr. Quekett laid the matter before Mr. Edmund Belfour, the secretary of the College, who decided that the committee, and not the conservator, must be obeyed. Owen doubtless left matters very much in his own hands. Early in 1840 Charles Darwin presented the skull of a flat-nosed ox to the Museum, but no mention of Darwin appeared in Quekett's manuscript, either then or later. Manifestly, Owen himself negotiated with the great naturalist.

The diary of Quekett's period of studentship is at first quite grave and confined to strictly scientific matters, but gradually, as student merged into assistant conservator, we find a lighter note, and towards the close of the six ample quarto volumes of MS. we are at times almost in Pepsian company. The volume of eighty years ago (1847) may be taken as typical of the book as a whole. On February 16th Quekett records "Attend Mr. Langstaff's sale and make purchases to the amount of £21", and, on the 18th, "busy in unpacking the purchased specimens and in helping Hulme to make a Catalogue of them", and, on the 20th, "Still assisting Hulme [student in anatomy] when not otherwise interrupted." On the 23rd he was still busy making a catalogue of the lots purchased, with the prices affixed.

The sale of George Langstaff's valuable collection of pathological and anatomical specimens had been a disaster. It had taken place in October, 1842, before the collector's death. He was one of the original Fellows of the Royal College of Surgeons, created on December 11th, 1843, he was a born collector, pleasant, sociable, ever ready to impart his information to others. He impressed his friends as a great man with a magnificent hobby, which might entail his ruin. For years, as surgeon to St. Giles's workhouse, he obtained material for what came to be known as Langstaff's Museum. He sank his fortune, amounting to many thousand pounds, in the collection, for which the purchase of alcohol involved considerable expense in a period before the use of methylated spirits became known. He still supported himself with the belief that present loss of income could be compensated for by the sale of his museum. He neglected his large practice, and in 1842 published a laborious catalogue descriptive of 2,380 preparations, it had been baulked down from ten bulky MS. volumes.

The sale took place after the publication of the book, and, to Langstaff's disappointment, much of the collection went for less than the cost of glass and spirit. He suspended the sale at Stevens's auction rooms and applied to the Council of the College, who consented to harbour the collection and to make certain purchases. The specimens were moved to the College, and were either badly shaken in transit or badly put up in the first instance. He prided himself on being his own museum man. Eventually the Museum Committee spent £365 15s. 6d. on 1,500 preparations—a poor price in view of the fact that they had lately bought 307 specimens from Luston at his own price, £450. Langstaff died a few years afterwards a disappointed man.

On March 17th Quekett was busily occupied in getting ready some minutes for a meeting relative to the erection of a monument to the memory of John Hunter, and the matter was afterwards taken up by Sir William Lawrence and the Council. On April 4th "Candidates for the Fellowship, four in number, operate and dissect. One is ordered to tie the external iliac artery. He cuts into the abdomen the first thing and asks me to hold up the guts." In elephant, a dolphin, a wombat, a wolf-fish, and part of a dodo from the Ashmolean Museum were dissected, and there was constant preparation for demonstrations, and every day a minute description of some twelve microscopic preparations for his great catalogue. Every day, too, he received and examined singular pathological specimens and reported on them to their senders, many of whom were surgeons of eminence. On June 28th, in the midst of his multifarious occupations, his brother Edwin, John Quekett, also a microscopist and Fellow of the Linnean Society, in whose house the Royal Microscopical Society was founded in 1839, lay dying of diphtheria. "I stayed up with Edwin," writes John Quekett, "all last night, and, he being much worse, I did not leave him until he died, which was at ten minutes to eight p.m., being perfectly collected and aware of his situation all the time except at intervals."

But science has to hurry on as usual, and two days later the conservator dispatched Hulme, John Pearson, and others to fetch back from the Surrey Zoological Gardens parts of the elephant which had just died there. They returned loaded with the kidneys, ovaries, and so forth, and Quekett set to work to inject them, reporting the results at length in his diary. At the end of the year his demonstrations had come to be so largely attended that he repeated his lecture twice a day. He shirked no labour. On February 23rd and 24th, 1848, it assumed Herculean proportions.

Busily engaged in preparing for my demonstration I use one of my new microscopes for the first time. It answered uncommonly well after I had put some bottle indian rubber to it. I show on this occasion Phosphate of Lime, Triple Phosphates, and Carbonate of Lime, and the action of Polarized light on the two last. After the demonstration I go with Hulme and see a specimen of the *Balaena Proops*? which was on show near the Hungerford Market.

24 Thursday. Soon after my arrival I receive orders from Mr. Owen to be in readiness at six o'clock to go to Hungerford Market to take the viscera out of a large whale. I dine with him and get all things ready. At six o'clock no messenger arrived, so Hulme, Arldge, Searson, and myself set off but found that it was not to be commenced until one in the morning. We spent lots of time

in finding the owner. At 1/2 past one we commenced and loft off between eight and nine—a most troublesome job—up in nurkies in oil. Get home at ten o'clock and after breakfast sleep for two hours. Then having washed dressed and partaken of luncheon I start down to the College again. I give directions about preparing the parts we brought home and about having more of Sir Wm Burnet's solution applied. We consumed in all three quart bottles full the decayed smell was certainly destroyed but that of the oil was certainly not much acted on.

The day following

"I find that the men had again been sent to the whale. I go down there and this time we get os hyoides part of the larynx another part of the heart and a variety of other things. I go into the public house and there I pay all the men."

On the 28th

"Occupied all day in cutting up and disposing of the portions of whale. We well wash and allow them to soak in water all the night."

An alligator from the Zoological Gardens had then to be dealt with. This and other pathological investigations took till March 4th, when we read

"Occupied in the lower work room in getting bottles and other things ready for a campaign of whale mounting."

Hard work upon the whale continued, together with hard work upon a variety of other subjects. This is not to say that the diary is only a record of toil. There are many engaging references to family matters, dinner parties, games of loo, evenings in the society of great men. Yet we feel that the famous histologist was fretting his energies to atoms. He died at the early age of 46 in 1861, having succeeded Owen as conservator in 1856, since that year his health had failed.

V G P

India.

The Pasteur Institute of India.

THE position of the Pasteur Institute of India Kasauli, has been the subject of a correspondence between the body responsible for the conduct of the Institute's affairs and the Government of India, from which it appears that the Institute has been suffering from the failure of the provincial administrations to give adequate financial support. It will be recalled that the central Government is responsible, in the medical sphere, only for the provision of research agencies and for the care of persons residing in areas directly under its control. The research activities of the Pasteur Institute are financed by the Indian Research Fund Association, which is supported mainly by grants from the Government of India. About the beginning of the current year a request was made by the Institute to the central Government for a non-recurrent grant of Rs 229,000 and an additional annual contribution of Rs 20,000 to meet the cost of certain additions and improvements. As an alternative it was proposed that the Institute should meet Rs 122,000 of the non-recurring expenditure by the sale of investments and that the Government should make a non-recurring grant of Rs 107,000, but should increase the annual grant asked by Rs 6,000 a year to make good the loss due to the sale of investments. In its reply the Government recalls that it already makes an annual payment of Rs 16,700 on account of the treatment of persons from areas directly under its control, and suggests that its contribution compares favourably with the assistance given by some of the provinces. It is realized by the Government, however, "that a matter of this nature cannot be settled merely on a basis of arithmetical proportion or with strict regard to the constitutional obligations of the central and provincial Governments," and that if the work of the Institute is to be continued in accordance with modern requirements the existing buildings and equipment must be improved. The Government of India therefore proposes to ask the Standing Finance Committee of the Assembly to agree to a grant to the Institute of Rs 114,500 towards the estimated non-recurring expenditure, and to increase the annual grant by Rs 10,000, provided that an equivalent amount can be raised from other sources. This offer was considered at a meeting of the association which controls the Institute, at Simla in July, when it was decided to accept it but to ask that the proviso making the grant contingent on other financial assistance should be removed, as it was felt un-

possible to secure an equal amount elsewhere. It was also decided to ask the Government of India to consider the possibility of addressing the local Governments regarding the association's appeal. The association accepted the director's recommendation that the work of rebuilding must be proceeded with at once, and set up a sub-committee to undertake the work of additions and alterations. A gift of Rs 12,000 was received from the Maharaja of Dholpur towards the expenditure to be incurred in the provision of electric light.

Malaria in the Lower Bengal Delta

Particular interest attaches to the results of a malaria survey of the neighbourhood of Calcutta made by officials of the Bengal Public Health Department in 1920-24 in view of the fact that the conclusions reached suggest that the generally accepted view on the topographical factors affecting the incidence of malaria is inapplicable to the Lower Bengal Delta. The inquiry was initiated in the post-war years, when an acute housing shortage in Calcutta led to a demand for the development of the suburbs of that city, its purpose was to recommend, in relation to the incidence of malaria, the most suitable line which any projected extension of the city might take. Apparently this question is no longer causing concern as housing difficulties have become less serious, but the results are none the less interesting. An area of about 300 square miles, and containing 280 villages, was surveyed very thoroughly. Data were collected for each village relating to the prevalence of anopheline mosquitos—the number and nature of possible breeding places, the percentage of those that bred anophelines, the species of anopheles present, and the relative proportion of the different species. To measure the extent of malarial infection present all available children in each village between 1 and 10 years old were examined for enlarged spleen, the percentage of children with enlarged spleen to the total examined being recorded as the spleen rate for the village. The area surveyed consists of low-lying flat ground of very ancient deltaic formation, penetrated in parts by tidal waters and traversed by a number of rivers and canals, it includes the Salt Water Lake, and also several areas which are flooded for six months in the year. It is characteristic of deltaic topography in that the river-bank tracts are elevated ground, while the inter-riverine zones are depressions, in the higher areas the villages are comparatively dry, the subsoil water level is low, and there are relatively few large-sized collections of water, while in the low lying areas there is much accumulation of water in and around the villages and the subsoil water level is very near the surface. These two typical conditions are sharply contrasted in the report of the survey prepared by Mr M O T Iyengar, entomologist to the Bengal Public Health Department, because his investigations have revealed a close relation between the topography and the incidence of malaria. The striking feature is, however, that in this region he has found the relatively healthy and only moderately malarial areas to be usually those which are low lying, these areas were situated on a very low level and were subject to flooding. The endemic and hyperendemic areas were on elevated ground. It is therefore contended that in a deltaic country such as Lower Bengal stagnation of water and malaria, contrary to popular opinion, are not closely associated. Dr C A Bentley, Director of Public Health in Bengal, who contributes a foreword, states that this peculiarity in the distribution of malaria has been observed by him in other parts of the Presidency. It is interesting to note that Mr Iyengar's report, which contains much valuable detail not touched upon in this review, concludes with the opinion that it would be more practicable to reduce the incidence of malaria in the elevated regions by simple antimosquito measures than to undertake the drainage of the low-lying malaria free regions.

Tuberculosis in Delhi

Following consideration of a report on the prevalence of tuberculosis in Delhi, submitted by Dr Sethna, medical officer of health, the municipality approached Major J R D Webb I M S, assistant director of health, with a request for advice and suggestions. Major Webb after

making a survey of the city, has prepared a report in which he emphasizes the need for relieving congestion. He believes that the solution of the problem of tuberculosis depends upon this factor, and, understanding that the formation of an improvement trust is impracticable, urges that strong representations should be made to the central Government for financial assistance to relieve congestion. The five years' programme of health and sanitary improvement recently formulated by the municipality is regarded as a step in the right direction. Major Webb suggests three means of providing some immediate relief from the problem under consideration: (1) tuberculosis dispensary work, (2) education of the public, (3) prevention of further congestion in the already congested areas of the city. While admitting the value of voluntary efforts, he doubts whether real success in anti-tuberculosis propaganda work can be achieved unless it is entrusted to a whole-time paid staff. Referring to the third point, he suggests the need for much stricter control than exists at present over building activities, and for rigid administration of the building by-laws. He compares the conditions existing in the congested areas of Delhi to-day with those in London over three hundred years ago at the time of the "great plague."

Grant Medical College, Bombay

The report of the Grant Medical College, Bombay, for the year 1927-28 records several notable improvements in its position and equipment. It has been regarded in recent years as a reproach to the college that it was overcrowded, but in this respect matters are now much better, the number of regular students, which was about 1,150 in the years 1921-24, had fallen to 518 in 1927 and to 418 this year. At the same time steady progress has been made in organization and equipment, and work on several important extensions is now proceeding. In January operations were commenced in the construction of a new building to accommodate the pathological museum and the bacteriological and clinical laboratories, with ample facilities for post-graduate instruction and research. This addition has been made possible by a donation from Sir Darab Tata of approximately half the cost. It is proposed, with the new quarters available, to reorganize the departments of pathology and bacteriology so as to correlate and extend instruction in these subjects. The new dental school and hospital which is under construction will, it is claimed, be the only institution of its kind in India. Extensions to existing hospitals and the establishment of new ones will shortly add considerably to the facilities for clinical instruction. The report was read at the annual prize distribution on March 8th by the dean of the college, Captain S. L. Bhatia, M.C., I.M.S. Sir Leslie Orme Wilson, Governor of Bombay, who presided, referred to the progress of the institution, and went on to speak of the change which had followed on the progressive reduction in the strength of the permanent Government medical services, to which was due so much credit for building up the system of medical education in India. These officers, he said, had largely been replaced by independent members of the medical profession, and it was a matter for satisfaction to see such a large number of Indian professors carrying on the same traditions in responsible appointments in the college. The appointment of associate professors, who were the pick of the profession in the city, and the appointment of short-term house-physicians and house-surgeons showed that they were endeavouring to readjust, as he thought they should, the hospital and teaching staff on the lines followed by the large hospitals in the United Kingdom.

We are indebted to Captain Bhatia for the following information regarding the early history of the college, which is among the oldest medical schools in India. It owes its existence to Sir Robert Grant, then Governor of Bombay, who was responsible for the institution of an inquiry by the Medical and Physical Society of Bombay (which he had founded) into the desirability of establishing a medical school. Receiving a favourable opinion from this body, Grant, in 1838, addressed a memorial to the Court of Directors of the East India Company at Calcutta—then the capital of British India. The scheme was sanctioned, but before the news was received in Bombay its author had died. His name is perpetuated in that of the college,

which was opened in 1845, the cost being met half by public subscription and half by a contribution from the East India Company. A teaching hospital was also provided, the necessary funds being supplied largely by Sir James John Teesdale, whose name it bears. It is interesting to note that there had existed in Bombay at an earlier date the first medical school in India, but after six years of existence it proved unsatisfactory and was abolished. The Bengal Medical College at Calcutta was opened in 1835.

Women's Medical Service Difficulties

The development of medical services for women in India is being hampered by the lack of funds and the lack of interest on the part of the provincial Governments within the spheres of which this work falls. An effort to secure additional assistance from the central Government for the development of the Women's Medical Service has proved unsuccessful. In the report of the National Association for Supplying Medical Aid by Women to the Women of India (which incorporates the Countess of Dufferin's Fund and the Women's Medical Service) for 1927, it is stated that the present subsidy from the Government of India will, at present rates and with the present very low average of service (about eight years), only pay for a cadre of forty-two doctors. With the rapid Indianization of the Women's Medical Service a longer average service is to be expected, involving greater expense in pay and allowances. The reduction of the cadre from forty-four to forty-two means the elimination of two sanctioned posts, and it has recently been necessary to refuse two requests for officers for new posts. An application was made last year for an increase in the subsidy from Rs 3,70,000 to Rs 5,00,000, to provide for eight more officers, it was proposed to employ several of these for special maternity and child welfare posts, one, at least, being available for research work into the causes of antenatal and infantile mortality. The Government of India, however, replied that it had decided not to concern itself further with the pay or strength of the Women's Medical Service, pointing out that medical administration was a transferred subject of administration in governors' provinces, and suggesting an appeal to the local Governments or to the general public. A request has therefore been addressed to the provincial authorities concerned asking them to contribute towards the salaries of W.M.S. officers employed in Dufferin Hospitals. An application has also been made to the Rockefeller Foundation for a grant for research work. The Dufferin Fund has continued to aid hospitals exclusively for women and children by supplying W.M.S. officers, free of cost, to take medical charge and by giving grants-in-aid to the limit of its income. The apathy of the provinces has made the work difficult, the local Governments do not yet accept responsibility for medical aid to women and children in the way and to the extent that they do for men. The Central Provinces, however, are mentioned as a notable exception, here medical aid to women has made rapid strides, and several new hospitals have been provided.

Mentally Defective Children in India

Attention is called to the absence of any institution in India for the care of mentally defective European children in the report for the triennium 1924-26 of Lieut.-Colonel Owen A. R. Berkeley-Hill, I.M.S., medical superintendent of the European Mental Hospital at Ranchi, which receives European and American patients from all provinces in Northern India. Colonel Berkeley-Hill states that in 1926 three mentally defective children were admitted to the hospital, which is not regarded as a suitable place for their treatment. He accordingly submitted to the board of trustees a proposal to provide, as an experiment, an annex entirely outside the hospital enclosure for the accommodation of twenty children, mentally defective, but not certifiable under the existing Lunacy Act. The question of principle involved has been referred to the local Government for consideration, since this type of institution has never existed in India, and legislation to authorize the State to assume charge of such children would be necessary. According to the superintendent of the St. Andrew's Colonial Homes, Kalampong, the studies carried out in the homes have shown that nearly 5½ per cent of those resident

there were mentally defective. The report states that this figure indicates the gravity of the question, for this class of children has a grave bearing on all sociological and economic problems, but more particularly those of vice, crime, and pauperism. Colonel Beikley-Hill considers that, while a few institutions of the type recommended would not deal effectively with the problem, they would serve a most useful purpose in educating public opinion and arousing interest in it. In the Madras Presidency, it may be added, the establishment of a home for mentally defective children is under consideration.

Union of South Africa.

Jubilee of the Royal Society of South Africa.

On August 1st a very successful *conversazione* was held in the Hiddingh Hall of the University of Capetown to celebrate the jubilee of the Royal Society of South Africa and the inauguration of the Medical Association of South Africa (British Medical Association). The large number of representative guests, including many notable figures in the scientific world of Capetown, were received by Mr T Lindsay Sandes (president of the Cape Western Branch of the Medical Association) and Mrs Sandes, and by Professor W A Jolly (president of the Royal Society of South Africa) and Mrs Jolly. Professor Jolly, who is a past-president of the Cape Western Branch of the Medical Association and at the present time one of its vice-presidents, gave a short but concise account of the activities of the Royal Society since its inception in 1877, under the name of the South African Philosophical Society. Mr Sandes depicted similarly the growth of the British Medical Association from its birth up to the present time. A musical programme and a dramatic reading were followed by the presentation of a British drama in the Russian manner, entitled "Love Lies Bleeding," staged by the Play Reading Circle of the University of Capetown.

Mental Deficiency

On May 10th, when the Lower House in Committee of Supply discussed the estimates of the Department of the Interior, the necessity for dealing with the Union's increasing number of mental defectives came in for serious consideration. The subject arose in connexion with immigration. An Opposition member drew the attention of the Government to the importance of the problems to be considered in determining the character of the future population. It was pointed out that international conferences on immigration held largely in Europe and sometimes under the aegis of the League of Nations were rather overbalanced by emigrant-exporting countries, which were most concerned with keeping an open door for the less desirable inhabitants of the overcrowded territories. South Africa's aim should be to build up a nation of citizens of a type best qualified to maintain white civilization in that part of the world. Another Opposition member thought that the time had arrived when the immigration laws should provide not only for the exclusion of undesirables, but for the introduction of people of a type suitable to the conditions of the country. The chief ingredients of the European population were of northern stock, and they should introduce people more likely to assimilate with the existing stock than was at present being done. They wanted producers who would make their homes in the waste spaces rather than the present stream of unproductive small traders. Following naturally on a discussion of the need for preventing the deterioration of the European stock in South Africa by the immigration of undesirables, came a debate on methods of dealing with mental defectives. Mr Alexander (Constitutional Democrat) considered that the rate at which the mentally deficient population was increasing was becoming a very serious problem. There ought to be no difficulty in South Africa in legislating against the marriage of persons declared mentally deficient, a better procedure was sterilization, about which advanced views were held in some other countries. The Rev Dr van der Merwe,

declared that the Government had never yet tackled in a practical manner the problem of dealing with mentally deficient children. At least 1 per cent of the school-going children of the Union fell within that category. Special provision should be made for such children. Their educative laws demanded that all children between certain ages must go to school, but such abnormal children were exempt, and they often grew up without any sort of training whatever, least of all that sort of education which would keep them out of the criminal ranks. He estimated the number of such children in the Union at 3,500. The Minister should make an early start in the provision of education by appointing specially trained men to look after such children. The Minister for Public Health said that a great deal of work was necessary on behalf of the normal children of the country before the Government could think of spending more money on abnormal children. The definitely deficient child (in contrast with the "backward child") fell under the Mental Disorders Act, and was sufficiently provided for by two institutions. Intelligence testing was being done gratis by university professors. A grant of £4,000 had been made by the Carnegie Trust to investigate the "poor white" problem, including the relationship between mental deficiency and poverty.

Medical Golf

Present-day interest in the rural and ancient game is reflected in the activity of the golf section of the Cape Western Branch of the Medical Association of South Africa (British Medical Association), which has now a membership of between thirty and forty. An attractive programme has been arranged for the current year, including matches against the dental surgeons, the united banks, the journalists, the insurance companies, the ladies, the university, the Bar, and the navy. Matches are played usually on the third Wednesday of each month on the various courses of the peninsula. The annual competition for the Jones-Phillipson cup was held on July 11th over the course of the Royal Cape Golf Club at Wynberg, and resulted in a win for Dr C W Comrie-Shaap, the runner-up being Professor A W Falconer. The winner, whose first success it is in this competition is an ardent golfer, and is at present captain of the Metropolitan Golf Club. Much of the credit for the present enthusiasm of the medical golf section is due to Mr C E Jones-Phillipson, who, as honorary secretary, has done much to reawaken interest among medical golfers.

Scotland.

Aberdeen Royal Infirmary

THE PRINCE OF WALES, accompanied by his brother, the Duke of Gloucester, visited Aberdeen on August 28th for the purpose of laying the foundation stone of the new Aberdeen Royal Infirmary at Foresterhill. An address presented to the Prince stated that the history of the Aberdeen Royal Infirmary went back over a period of 200 years, and that the present building had served its generation well, but was no longer adequate to the needs of the times, as its situation was in a noisy and crowded area of the city. The cost of the new infirmary would be £400,000, and nearly the whole of this sum had already been raised by the freewill offerings of the people. The address continued that the new Royal Infirmary would be merely a part, although an essential and important part, of a large scheme which had as its ultimate object the concentration of the principal medical services of the city around one site. The originator of this scheme was Emeritus Professor Matthew Hay, for many years medical officer for the city. One of the chief advantages, it was pointed out, would be the concentration in the task of healing of the best and most experienced professional skill in the city of Aberdeen, thus giving a new impetus to the teaching work of the medical school. The Prince of Wales, before laying the foundation stone, expressed the conviction that the whole sum required would be speedily raised, and said that the joint hospital scheme appealed to the

imagination by the many advantages, such as economy in administration and equipment, which would be obtained when all the units were on one site.

Dunfermline Hospital Extension Scheme

His Royal Highness the Duke of York, accompanied by the Duchess, visited Dunfermline on August 11th, and laid the foundation stone of the new extension to the Dunfermline and West Fife Hospital. The freedom of the burgh was conferred upon the Duke and Duchess, who thereafter proceeded to the hospital for the opening ceremony. Mr H M Brownlie, chairman of the board of management, who presided, and who was accompanied by Dr Tuke, Dr Fleming, and Dr Cameron of the medical staff, said that more accommodation had been required in the hospital for many years, and contributions to the extension fund now amounted to over £31,000, so that the managers hoped that when the time arrived to open the extension it would be possible to say that it was free from debt. The Duke of York said that they were all compelled to keep a watchful eye on expenditure at the present time and were no longer, unhappily, able to indulge each and every generous impulse, but he was certain that the claims of a local hospital upon the community for whose benefit it existed were strong enough not to be ignored. He expressed the hope that the example of those who had already contributed would be followed by others, and that the Dunfermline and West Fife Hospital would have many years of useful service. The hospital was originally opened in August, 1884, with 16 beds and a staff consisting of a matron and two nurses. In less than six months 4 more beds had to be added. Notwithstanding frequent subsequent extensions, the shortage of accommodation continued, and in the summer of 1925 it was definitely decided to utilize the present site and adjoining properties for extension. The purchase price of Priory House and grounds, in the immediate neighbourhood, was presented by Mr James D Spence, and plans for the extension were prepared. These provide for two new wards, each of 21 beds, an additional operating theatre, an out-patient department with special out-patient operating theatre, a bacteriological department, new kitchen and laundry accommodation, and a new heating system. A department for electrical and orthopaedic treatment will also be provided, the equipment having already been promised, while the neighbouring Priory House will be refitted as a residence for nurses. The estimated cost of the extensions is £50,000.

Dundee Royal Asylum

The 108th annual report of the directors of the Dundee Royal Asylum, dealing with the year ending June, 1928, has been issued. The medical officer, Dr A B Dalgetty, draws attention to the fact that the past year was noteworthy as the first in the history of the asylum in which the number of voluntary admissions exceeded those admitted under certificate, the figures standing in the ratio of 70 to 20 per cent. Of 88 patients under treatment during the year, 14 were discharged and 7 died. Of those discharged 8 had recovered and 5 were relieved, while of the 7 patients who had died 4 were over 70 years of age. The financial statement of the institution showed an excess of income over expenditure of £968.

England and Wales.

The Royal Westminster Ophthalmic Hospital

The new Royal Westminster Ophthalmic Hospital, which has been under construction since November, 1926, was opened for the admission of in-patients on September 3rd. It replaces the old hospital in King William Street Strand where the work of the institution was carried on for ninety-five years out of the 116 years of its existence. Situated in Broad Street, Holborn, near New Oxford Street and Shaftesbury Avenue, where it is easily accessible from all parts of London, the new building is regarded as one of the finest of its kind in the United Kingdom. The out-patient and casualty departments, opened at

Easter occupy the whole of the ground floor, and provide facilities for treating 500 patients daily. Fourteen single private wards, which are intended to meet the needs of those who cannot afford the expense of private nursing home accommodation but are ineligible for the ordinary wards of the hospital, will be available in the autumn. The new building has been designed to furnish the rapid and prompt treatment so often necessary in eye diseases or accident. It has cost almost £100,000, exclusive of the freehold site, the total expenditure being about £150,000. Nearly two-thirds of this has been met by the response to a public appeal and from the proceeds of the sale of the old site. The hospital is recognized by the University of London as a place of study for the M.S. degree in ophthalmology. Instruction classes for the D.O.M.S. recommence next month in the fine new theatres and laboratories.

Cremation in England

The Cremation Society of England has issued a pamphlet, No. xxxiv of its *Transactions*, containing the report of the council for 1927, an account of the proceedings at the annual meeting last March, a review of the movement in Europe, and the papers on cremation read by Drs H T Herring and Preston King at a sessional meeting of the Royal Sanitary Institute at Bath in May, 1927. It appears from the report that during the last year 3,266 cremations were carried out in Great Britain, as compared with 2,877 in 1926, an increase of 13.52 per cent. A new crematorium has been erected at Bristol, while others are being provided in Ipswich, Nottingham, and Guernsey, the question of making such provision is receiving attention at Stoke-on-Trent, Blackpool, Edinburgh, Bournemouth, Southampton, Portsmouth, Brighton, and Islington. The Births and Deaths Registration Act, 1926, made necessary various amendments to the existing regulations, and it is stated in the report that the Home Secretary is revising the statutory rules and orders made under the Cremation Act. It is hoped that many of the serious disabilities which hitherto against cremation will be removed. Reference to this question was made in the *Journal* of April 23rd, 1927 (p. 770), when the view was expressed that the existing requirements "are very stringent, possibly even over-stringent if cremation is to be preferred and encouraged as a public health measure to replace burial." At the annual meeting a communication from Sir Thomas Hordey was read suggesting that for the more rapid extension of the practice of cremation they must perhaps look to the poorer classes of the community. Sir Thomas Hordey remarked that legal requirements added both to the expense and to the formality of this mode of burial, and that it ought to be possible to provide for effective certification in a modified form under the national health insurance scheme. It was obvious that if cremation followed only 10 per cent of the deaths in this country the cost could be reduced very much below that of the commonest form of burial. Professor A Bostock Hill, who presided at the opening of the meeting, emphasized the importance of educating the public, and commented on the desirability of a return to the old idea of the church and the churchyard being the centre of village life. At present many of the village churchyards were full and had been closed, while new cemeteries had to be opened at heavy cost. If they could give each community a crematorium, he suggested, then the people might return not to burial, but to the disposal of the remains of the dead in the churchyard. Another speaker quoted a letter, written by a representative of the Minister of Health, in which it was stated that the interment of an urn containing cremated remains was permissible in any churchyard in England and Wales which had been closed by Order in Council. The report states that in Germany, where 45,758 persons were cremated in 1927, there was no uniform law, each State prescribing its own requirements. The offices of the Cremation Society of England and of the Golders Green and Woking crematoriums, it may be added, have been removed to 23, Nottingham Place, London, W1. Life membership of the society is obtainable by payment of 5 guineas, or six consecutive annual subscriptions of 1 guinea. This provides for cremation at any British crematorium without fee.

After-Care of Mentally Defective Children in Birmingham

An interesting account of the present position of the ex-pupils of the Birmingham Special Schools for Mental Defectives is given in the report of the After-Care Subcommittee for 1927. Statistics have been compiled relating to 4,301 persons, some of whom are now over 40 years old and left school nearly thirty years ago. The total includes 2,501 males, of whom 1,108 were doing remunerative work, and 1,800 females, of whom 587 were doing equally well, the average wages of the males were 31s 3d per week, and of the females 20s 7d. In some cases, however, earnings were small, while others were considerably above the average. Of the remaining cases 280 have been excluded from special schools through mental or physical disability. 667 are living at home and doing no paid work (this includes a number of employable girls on household duties in their own homes), 178 have been transferred to ordinary schools, 587 are in institutions, and several have been lost sight of through removals. Inquiries are conducted from time to time into the family histories of ex-pupils of special schools who are known to have married. The most recent investigation covered 284 families, into which 514 children had been born in 165 cases the father, and in 119 cases the mother, had been certified as mentally deficient. Particulars relating to the sex of the children show, so far as they go, that with one parent mentally deficient relatively more infants of the other sex have been born. Most of the children are still too young to allow any accurate diagnosis to be made of their mentality, 344 being under the age of 5. Of the 170 children over 5, 115 are known to be attending ordinary elementary schools, while thirty-nine are 5 years old only, and the reports do not indicate what school, if any, they are attending. Five attend special schools for the mentally defective and one has been excluded from such a school, two are at a colony for defectives, three in other institutions, and five are at work. Among children under the age of 5 years, five are reported to be subnormal. It has been noted that the tendency is for the deficiency of the parent to emerge with more frequency in the children of the opposite sex.

Dairying Research at Reading

In the report for 1927 of the National Institute for Research in Dairying, which is associated with the University of Reading, attention is again called to the difficulty experienced in securing adequate funds. An application for assistance from the Empire Marketing Board was granted, but the Ministry of Agriculture has been unable to respond to a request for funds for capital expenditure or to hold out any hope of an increase in the annual grant for maintenance. It is added that if no way out of this latter difficulty can be found some of the research institutions which have been started will be seriously handicapped. Discussing the need for further developments of the work of the Institute, it is suggested that the first step necessary is the appointment of a physiologist to study the problems of milk secretion, continuing this work from the point to which it has been brought by the existing staff. Increased accommodation at the farm, extended laboratory facilities, and alterations to facilitate experiments with dairy appliances are also regarded as immediately necessary. Meantime much work in progress at the Institute is of direct importance to the dairying industry, investigations are being conducted of conditions necessary for the efficient use of a milking machine, and the study of the cause of "oily" milk. Experiments have also been made with a view to increasing the vitamin content of milk in winter, and in the effect of pasteurization upon milk infected with tubercle bacilli.

Harrow Mothers' Hostel

The report of the Harrow, Wealdstone, and District War Memorial Maternity Hostel for the year ended March 31st states that in the period under review there were 138 patients, the average weekly cost of each being £5 3s 11d or £5 12s 7d if allowance be made for repairs and renewals to the hostel. The average amount paid weekly by patients was £3 2s, 17 paid from 15s to £1 10s, and 29 from £5 to £5 5s a week, weekly payments

by the remainder ranging between these amounts. It should be noted that the 17 patients mentioned as paying small amounts were nominated by the urban district councils of Harrow and Wealdstone, each of which makes a grant to the hostel and has the right to nominate a certain number of cases at special fees. Owing to the increased number of local applicants for admission an agreement which gave the Middlesex County Council the right to nominate certain cases from other areas has been terminated. The need for extended accommodation has become still more apparent and, while the question of building has been deferred pending changes in the district boundaries, a suitable site has been secured and a reserve and development fund is being built up. In her report the visiting medical officer, Dr Frances Huxley, states that of the 138 patients confined during the year 113 were admitted from the ante-natal clinic, after regular attendance there, and 25 were under the care of their own doctors. Medical help was needed to aid delivery in seven cases, and for complications after delivery in eight other cases, three babies were stillborn, and two survived only a few hours after birth. Commenting on the increasing desire for admission to the hostel Dr Huxley remarks "It is not nearly large enough. Patients are beginning to apply so early for admission lest they should miss their chance, that I have sometimes difficulty in determining whether they are going to have a baby or not!"

Ireland.

Resignation of Dr E C Thompson

DR E C THOMPSON, who has been surgeon of Tyrone County Hospital, Omagh, for more than fifty-three years, has tendered his resignation following the death of his wife. The chairman of the Committee of Management of the Tyrone County Council on August 21st expressed sympathy with Dr Thompson in his bereavement, and paid an eloquent tribute to his work in the hospital. A resolution was carried recording the high appreciation of the council of Dr Thompson's long and faithful service, and his medical colleagues in Ulster have joined wholeheartedly in the tribute. Dr Thompson succeeded his father in this appointment, so that the post has been held by the family for ninety-five years. He was a familiar figure at local medical meetings, and was for many years vice-president of the Ulster Branch and chairman of the Tyrone Division, for the formation of which he was largely responsible. Before the establishment of the Free State he was well known in Dublin medical circles, and as a staunch champion of the privileges of the profession carries with him in his retirement the good wishes of its members in both Northern and Southern Ireland. He was a candidate for the Parliamentary representation of Tyrone on more than one occasion, and sat as a Constitutional Nationalist from 1899 to 1906, when he took an active part in advocating the necessity for proper housing accommodation.

Queen's Institute of District Nursing

Following the establishment of two governments for Northern and Southern Ireland, the question of the control of the Queen's Institute of District Nursing in Ireland gave rise for some time to considerable discussion. It has now been decided to form an independent executive committee for Northern Ireland in the belief that the area will thus be better served than if it remained under the council in Dublin. Under the new arrangement the North and the South will each have an autonomous executive committee, with its own trustees and its own training centre. It has, however, been decided by the London Council that, in the interests of nursing as a whole, it will be better to retain the Irish Council, on which the whole country will be represented in proportion to population. The duties of this All-Ireland Council will, it is stated, be purely formal, but the principle of unity in nursing, even if only in name, has been insisted on by the headquarters of the institute.

Hospital Provision in Wicklow

Dr Raverty, medical officer for Bray, has written to the Wicklow County Board of Health stating that a serious position as regards hospital accommodation is likely to arise in the near future, and urging that the matter be investigated at once. He said the establishment of a sanatorium at St Columbkille's for cases of pulmonary tuberculosis would be a menace to the lives and health of the people of the locality, and that the hospital arrangements proposed would be utterly unsuited to, and inadequate for, the requirements of the sick poor. A resolution was passed requesting the responsible Minister to take steps to see that the arrangements made for the treatment of the sick poor in St Columbkille's Hospital for Rathdown No 2 Area by that board with the former Rathdown Guardians are continued, or, if this is not feasible, to arrange for their treatment in their own area, since the cancelling of the original arrangements would seriously affect the poor of the district, and alterations could not be made without heavy expenditure being incurred.

Correspondence.

TONSILLECTOMY AND REMOVAL OF ADENOIDS

SIR.—The discussion on the selection of the anaesthetic for the removal of tonsils and adenoids tempts me to refer to the practice I adopted soon after the department for diseases of the throat was established at Guy's Hospital in 1884. Having removed adenoids as early as 1820, when chloroform was the only anaesthetic used for children, one found that not only was there anxiety, but the time occupied—especially in recovery—was incompatible with out-patient work. With the rapid increase in the number of cases, amounting in a few years to 300 per annum, it became necessary to devise a method of inducing anaesthesia which would fulfil four conditions: a minimum of risk, rapid induction of complete anaesthesia, its maintenance after cessation of inhalation during the deliberate removal of tonsils and adenoids, and the speedy recovery of the patient.

The late Matthew Corner of Poplar, who will be remembered as a wise and experienced general practitioner, as well as surgeon to the Poplar Hospital, called me to a case of hepatic abscess. Observing that he was about to administer ether, and, from my experience at Guy's, expecting the induction would take some time, I was leisurely preparing my instruments when, within five minutes, came his summons, "Ready." It was amazing. Mr Corner, who had used Clover's inhaler of a new and convenient pattern, gave me a few hints as to its use. I bought the apparatus next day, took it to the hospital, and perfected myself in its use until without fail I could obtain complete relaxation in children within five minutes, and in nearly all adults. One of my colleagues, Dr Lancaster, learned the method, and we combined in the out-patient department, with the result that four minutes sufficed for the induction, this gave four minutes' complete anaesthesia for the operation, and without total abolition of the throat reflex. This is time enough for anyone practised in the guillotine, and, moreover, allows for the separate curetting of Rosenmüller's fossa.

Taking the operations at Guy's over a period of twenty years and those in private a moderate estimate gives about 4,000 cases. There was no fatality and only one case of troublesome hæmorrhage, and that was a private case, a boy aged 8.

Recognizing the danger of chloroform, especially in the hands of the occasional administrator, I always took Clover's apparatus and a supply of ether to cases in private when the general practitioner was to be the administrator, and in this way introduced the method to many practitioners, the best of whom adopted it. With a little practice complete anaesthesia can be obtained for other short proceedings such as tooth extractions, rectal examinations, reduction of dislocations, etc.

Ethyl chloride, even given by special anaesthetists, did

not, in my experience, allow sufficient time for clearing Rosenmüller's fossa or for curvetting the remaining portion of tonsil when this was so large as likely to give rise to trouble. This drug also seemed to me to be attended with a risk which was unnecessary. I admit that in the "team work" described by the writers of the article in the *Journal* of July 28th (p. 149), the risk in their hands is reduced to a minimum. In clearing Rosenmüller's fossa the most efficient instrument is that introduced by Mr Golding Bird, the first of the post-nasal curettes (*Guy's Hospital Reports*, 1881, p. 446). While the tip of the foregoing protects the Eustachian tube the fossa can be effectually cleared of growth. Unless this is done Eustachian catarrh is liable to persist, and that complete recovery of hearing which should follow the operation may not be secured.

The objections raised to Clover's inhaler have no real foundation, provided it is properly used and the rubber bag cleansed with hot water after each administration. There should be no cyanosis, and though there is more bleeding than with chloroform it is never excessive or harmful. The re-breathing of the air is another objection, and this is fully met by admitting fresh air from time to time. The practice of employing gas or ethyl chloride before ether has, in my experience, led to delay, and prevented the quick and easy induction obtained with ether alone, while the preliminary employment of chloroform or A.C.E. was always a cause of anxiety. In making this statement I may add that in private and in hospital the administrators have been amongst the leading anaesthetists of the day.

When once the right use of Clover's inhaler has been understood the practitioner has in his hands a means of producing anaesthesia for a few minutes or for any required period and with complete freedom from anxiety. The fatalities that have attended this operation—and there have been many—have almost invariably occurred when chloroform has been employed. I have felt compelled when my advice has been asked as to the necessity of an operation to enquire on condition that ether be employed. This is not the occasion to discuss the operation itself though on several points raised in the discussion I should like to remark. It would also occupy too much space to describe the special points in the use of Clover's inhaler—I am, etc.,

London Aug 24th

CHARTERS J. SYMONDS

DISTALS OF THE CORONARY ARTERIES

SIR,—I am much interested in the instructive article on the above subject by Dr George A. Allan in your issue of August 11th (p. 232). I would have expressed my indebtedness to him sooner, but when he was conveying his cardiac message south I was enjoying a holiday in Scotland, which was, from a health point of view, much better for my coronary arteries than a dissipation in Cardiff. Since then I have been waiting patiently and fruitlessly for the flood of light which he anticipated would clear up the obscurities of this obscure subject.

Nearly fifty years ago Dr Mitchell Bruce sent me a German paper showing that in dilatation of the thoracic aorta the expansion chiefly took place in the direction of the greater curvature. Dr Bruce suggested that I might try to find out the cause of this undoubted fact. I soon did so, at least to my own satisfaction. At the time I was working on the effects of overwork on the heart and aorta, and I had already published a paper on the subject in the *Edinburgh Medical Journal*, 1876.

I found that this dilatation was due to longitudinal straining of the arteries owing to a great disparity between the systolic and diastolic pressures—which is now known as pulse pressure, a term very commonly used by many who have no knowledge of its cause or value. This dilatation was then very common in German beer drinkers. The low percentage of alcohol was quite sufficient to keep the peripheral vessels dilated, while the huge quantity of beer drunk kept the whole vascular system over-repleted, and this was necessarily associated with dilatation of the heart's cavities. The brunt of the large output from the left ventricle was thrown against the greater curvature,

the systolic pressure was raised, and thus resulted longitudinal and to a less extent lateral straining. The outflow was large and rapid, and consequently at the end of the cardiac systole there was a rapid fall in the arterial pressure. I have often shown that the velocity of the blood in the arteries, apart from the pulse wave, depends on the difference between the systolic and diastolic pressures—the maximum and the mean. This high and rather intermittent pressure led to degenerative changes in the deeper layers of the intima, with fatty or atheromatous deposits. When there was excessive quantity of lime in the blood it was at first deposited in the atheromatous patches as a calcium soap, and afterwards the fatty acid was replaced by phosphoric and carbonic acids. Hence there followed calcareous degeneration which frequently involved the mouths of the coronary arteries, and the large vessels arising from the greater curvature. This longitudinal straining with subsequent atheromatous degeneration affected the large superficial coronary arteries, and the large vessels at the base of the brain, while the terminal branches embedded in the cardiac muscle might be quite normal, and even the cardiac muscle red and healthy, until a late stage when myocardial degeneration set in. There is very seldom any cerebral haemorrhage in these cases, as the patients usually die from cardiac failure with fall in the blood pressure. Longitudinal straining is also present in a very marked degree in aortic incompetence. On the other hand, in cases of arterio-sclerosis with high lateral pressure, such as occurs in granular kidneys, there very frequently occurs rupture of a small artery into the internal capsule. In many of these cases the small coronary branches become involved and lead to myocardial degeneration and subsequent heart failure.

Many of the symptoms attributed to the coronary arteries are really due to the myocardium, and many of the cock-sure diagnoses are not established on the post-mortem table.

The subject of treatment is very interesting. Remedial measures may be very successful if the heart and aorta are dealt with before any very advanced lesions have developed—I am, etc.,

London, S.W., Aug. 25th.

JAMES BARR

THE DIAGNOSIS OF CORONARY THROMBOSIS

SIR,—Dr G. A. Allan (August 11th, p. 232) gives statistics which show that in at least 37 per cent. of necropsies coronary lesions are found, from the evidence of fibrosis half of these may have had coronary occlusion. If, therefore, one person in six has at some time some slight occlusion of the coronary arteries, we must all be meeting this frequently and not recognizing it, but labelling it something else. Clinical examinations for some years have convinced me that coronary thrombosis is common, and Dr Allan's statistics fortunately add another link to the chain of confirmation. Many patients in whom we have been diagnosing angina, pseudo-angina, cardiac dilatation, and myocarditis are really suffering from pericarditis, we do not recognize it because we have not been trained to look out for the signs and symptoms of an increase of fluid in the pericardium. Since I have learnt in the last few years to recognize these signs I have found that in persons over middle age a pericarditis of this type is quite common, I am seldom without a case under treatment, and I have labelled them "coronary thrombosis." By far the greater number recover, as from Dr Allan's statistics, they must have done in the past under another name, but an accurate diagnosis probably will lead to a better prognosis.

Taking Dr Allan's classification, I give the approximate number of cases in which I have made the diagnosis

(1) *Sudden death*. I have had three probable cases of coronary thrombosis though I had only one examination and there the suggestive patch was not examined microscopically.

(2) *Death in a few hours or days*. Of two cases in one there were gradually increasing signs for sixteen hours and the pericardial sac was enlarging the whole time. The second patient was improving and getting more comfortable but thirty-six hours from the onset had a cup of tea and in less than ten minutes was found dead without having made a sound, evidently a second and more severe occlusion.

(3) *Continual myocardial insufficiency with death in weeks or months*. One of my two cases was shown at the necropsy to have been due to gumma of the heart, the specimen is now in the Pathological Museum at Cambridge.

Of Dr Allan's classifications (4), (5), and (6), the milder cases, I should class all mine together, since all the patients spent, sometimes unwillingly, at least three weeks in bed. Of these I have had from thirty to forty, and all have recovered, apparently no worse for the adventure, though this is probably due to taking more care of themselves.

The first case in which I diagnosed the complaint was that of a man, aged 75, in September 1924. His illness began with sudden pain in the chest gradually increasing fluid in the pericardium and fever from the persistence of pain he was probably the most ill of those who recovered but he has continued to carry on his business as a building contractor, and I have found him in the last few weeks shovelling gravel quite unnecessarily. He has only been careful not to get breathless. But the great majority walk in to see me, with gradually increasing anginal symptoms which at once suggest a cardiac examination. In this week two have come in. One complained of continual chest uneasiness and had to stop three times on the way up to get case he was 77, and had never had heart symptoms before. The other suffered from chest uneasiness which would not let him sleep because he could not lie on the usual side, he was 67, and had for some months shown undue breathlessness.

Cases such as these are frequently seen by all of us, yet both had a swollen pericardial sac which increased day by day, one has now lost his uneasiness and is recovering the other is probably at the zenith.

The chief symptom is chest pain, and this, or at least some uneasiness, is continuous, it may get worse with exertion, but the consciousness of it is always present. The sternum is the main point, sometimes to the left shoulder or the pit of the stomach, but the sternum can always be found to be the centre. There is always evidence of an increase of fluid in the pericardium. It is on this that the diagnosis rests. It can be found almost at once, increases for the first few days, then remains stationary, and slowly disappears in about three weeks from the beginning. A friction sound I have only heard occasionally, and I am inclined to think, in the stage of recovery. The heart sounds are muffled, especially in the recumbent position, in the first day or so they are plainer when upright. The blood pressure is lowered, and with recovery returns to the patient's normal. In only the severe cases is there fever. In my patients in Class (2) the first had it, the second not, in Class (3) both patients had fever for the first few days. Of those who recovered, only my first patient mentioned previously had fever for a few days, the mild cases are afebrile throughout. But the main point in diagnosis is the increase of pericardial fluid, it may be found by light percussion, though I prefer to trust to auscultatory percussion, and here the right border of the heart's dullness is the important point. At the second rib it will be a very little outside the right border of the sternum, but the distance from the sternum gradually increases with each rib, till, in a bad case, it may reach the nipple, or be an inch inside it in a mild one. The left border of the heart will be an inch outside the nipple, but the slanting right line is the important finding. It has only to be looked for in the right way. I have always been able to get colleagues to find it and to detect it in other cases which I have confirmed.

In one case Sir Humphry Rolleston in consultation agreed with my findings and conclusions. That patient a retired medical man, has recovered can play his round of golf and since his attack over a year ago has been free from angina though before I saw him he had been diagnosed by a well known specialist as suffering from this condition. In the attack his blood pressure was around 105 but has got back to 130.

When recovery has occurred the right line of the heart's dullness will be parallel with the right border of the sternum and close to it; on the left it will be found about the nipple. The principal point in treatment is, of course, rest in bed, for drugs I pin my faith to opium, with a grain or two of potassium iodide. The mildest case will have 5 minims of tinct. opii three times a day, in the next stage, every four hours, and in more severe cases the dose is further increased. Vaso-dilators in the early cases were of no help, and with the natural lowering of the blood pressure I now never even think of them. But a mustard plaster over the pericardium till the skin remains reddened is probably of real use, it is certainly grateful to the

patient, except in the mildest cases. After the attack, for prophylaxis, I firmly believe in potassium iodide, and I think it does these urticulo-sclerotic patients good. It is taken for one week in the month, and to aid the memory the first day in each month is the day to begin the medicine.

The technique of auscultatory percussion is to place the stethoscope about the middle of the organ to be mapped out and gently tap with the tip of the finger from the stethoscope outwards, over the organ the note remains the same, but directly over taps beyond it the note alters. Practice is necessary, and perhaps, though I am not sure, a "musical ear." Besides practice the only caution I would give is not to percuss along but across a rib, for the rib will give its own note. There will be no difficulty in defining the size of the heart in the so-called emphysematous chest. The spleen may be found with a certainty that is not always attainable by palpation. In a case diagnosed as a huge spleen, by this method I found a normal spleen and a tumour arising from the pelvis, for the notes were distinctly different. My finding was subsequently confirmed at operation. Fluid in the chest can be diagnosed with certainty, for the note alters at the upper limit, while the uncovered lung has the same note right up to the apex. It is interesting that the note of fluid in the chest is conveyed over to the opposite side, Grocco's triangle is exactly marked out at the upper limit, so that the swollen pleuritic sac does actually bulge out to the other side. The shape of the stomach and its alteration from the recumbent to the standing position can be mapped out like an x-ray picture. The spleen and the liver will be found larger than in the cadaver, and the upper limit of the liver dullness is always an astonishment.

I am sure no one will regret the time given to practice when he has obtained a working acquaintance with auscultatory percussion, but this will not come quite easily or at once. It is worth learning if only to confirm ordinary percussion and give to it a certainty which is denied to most of us in all cases.—I am, etc.,

W. R. GROVE, M.D.,
Honorary Medical Officer, Huntingdon
County Hospital

August 18th.

HERMAPHRODITISM

Sir,—The interesting account of a case of tubular partial hermaphroditism of the external type recorded by Mr. Harold Hartley and his discussion thereon (*British Medical Journal*, August 25th, p. 342) raise two important questions—namely, what is the legal definition of sex, and what should be the social upbringing of the person affected?

I have always been under the impression that the sex of a person depends in law on the nature of the gonad, and in my book *The Sex Complex* I have discussed the difficulties of this position, which become accentuated when there is an ovotestis. I should be glad to learn what is the authoritative legal ruling on this matter at the present time.

With regard to the upbringing of a partial hermaphrodite, Mr. Hartley rightly states that most British medical authorities have advised that the subject should always be reared as a boy, owing to the greater frequency with which the gonad is of the male type (see Nagebauer's *Hermaphroditismus*). I have, however, recorded¹ four similar cases of tubular partial hermaphroditism of the external type, seen by me within the space of a few months in all of which there were ovaries.

Mr. Hartley further states that I have not accepted the above doctrine and have advised that the sex of the individual should be assessed according to the character of the external genitalia, and that the person should be brought up accordingly. This statement does not expound my views quite correctly.

All tubular partial hermaphrodites have secondary characteristics, both physical and psychological, of a sex-type opposite to that of the gonad, and usually (but not in the very rare internal tubular type) external genitalia in con-

formity with the general secondary characteristics. I have therefore recommended that partial hermaphrodites should be brought up in accordance with the predominance of the secondary characteristics, and this will usually mean according to the appearance of the external genitalia—a fortunate circumstance, for the general secondary characteristics may not be pronounced in childhood. Where, however, there is simply a hypertrophied phallus associated with ovaries the case may require different consideration.²

It must be remembered that when the external genitalia resemble the male type the external genital folds are rarely united, so there is no penile urethra or scrotum, and care must be taken to exclude hypospadias in the male in such cases. When feminine the external genitalia are true to type, and in these circumstances the secondary characteristics correspond, and, as in Mr. Hartley's case, the person is always regarded as a woman. I have known more than one happily married.

Operative intervention to alleviate the disability present is a matter for serious consideration in many cases, but I cannot here enter into this aspect of the problem. Those who are interested, and find this brief discussion incomplete, will glean further information from the references given. It is a highly important matter from the legal point of view in regard to inheritance and marriage, and it is one to which forensic authorities should turn their attention in the light of modern knowledge.—I am, etc.,

Liverpool Aug 31

W. BLAIR BELL

THE CURSE OF NOISE

Sir,—I am convinced that the majority of motorists—be they drivers of motor cars, motor cycles, or heavy motor vehicles—never knowingly use their horns or drive noisily when passing hospitals, infirmaries, and nursing homes, but in many cases the stinger is quite unaware of the purpose of the buildings adjacent to the road upon which he or she is proceeding.

The Automobile Association has erected tons of thousands of road signs specifying the nature of unseen dangers, in particular schools, cross-roads, dangerous corners, concealed turnings, level crossings, etc., leaving it to the good sense of the motorist who is strange to the district to drive in the expectation that children, cross traffic, or closed gates may be encountered.

If, however, there is a general demand on the part of institutions tending the sick and convalescent for the erection of signs, I shall be pleased if those in charge will communicate with me, when I will arrange for an inspection to be made. As more signs of this type are provided and erected, appeals will be issued to all motorists to refrain from disturbing patients by unnecessary use of the horn or noisy driving.—I am, etc.,

Fanum House, New Coventry
Street W 1, Aug 28th

STENSON COOKE,
Secretary Automobile Association.

SEA-SICKNESS

Sir,—In a letter on sea sickness (*August 25th*, p. 357) Dr. Blair says he "is surprised that no one has mentioned the respiratory disturbance associated with this malady."

In my student days in the early eighties a correspondent in one of the medical papers suggested as a cause of sea-sickness the disturbance of the respiratory centre caused by irregular respiration due to the pitching of the vessel, a disturbance which affected the adjacent vomiting centre. To test this the writer said that on a voyage from Tasmania to Australia he had taken a number of the passengers who were notoriously "bad sailors" up into the bows of the vessel (where the pitching would be more felt), and had induced them to breathe regularly by the raising and lowering of his hands about eighteen times a minute, the experiment was successful in that most, if not all, of them got through without any sickness.

I remembered the suggestion some years later when I was crossing from Southampton to Jersey one very rough night,

¹ *Amer. Journ. Obstet.* 1925, x 778.

² *Amer. Journ. Obstet.* 1925, x 778.

feeling the onset of sickness, the concentration of my attention on maintaining a regular respiration served me well.

On another occasion I was in a small yacht in the North Sea with three other amateurs. It became rough, and there was difficulty in managing the boat. To my dismay, the one of the four who knew more about sailing than any of us had to retire to the cabin and leave us to manage the boat as best we could, because he was beginning to feel sick. Again I remembered the suggestion, and I persuaded him to breathe regularly to the raising and lowering of my hands. After ten minutes or a quarter of an hour he said "Thank you, I feel better. I will lie down again, and I think I shall soon be all right." But presently he came back to me and said that he felt the sickness coming on again, would I set him breathing once more? With that his trouble passed off entirely, and he was able to take his share in managing the boat.

Dr Blau may like to know that his suggestion has been tried and found to be effective—I am, etc.,

Tunbridge Wells, Aug 27th

ARNOLD C INGLE

Sir,—I venture to think that an experience of my own may perhaps throw some light on the cause of sea-sickness in certain cases.

About two years ago I paid a visit to America. I had never before been on the sea for more than thirty hours, and was glad to find that I was not sea-sick on the outward journey, although the boat rolled 30 degrees or more. I quite expected to be immune on the return voyage.

About the second morning out, after an early bath, I went to the gymnasium for the customary "table" of exercises before breakfast. The gymnasium felt very hot (it most likely was so), and I felt myself perspiring about the face, which was unusual. It was only when returning to my cabin and feeling sick that I realized, and with considerable surprise, that I was in for sea-sickness.

Some of the usually alleged causes, although no doubt operative in some cases, can, I think, be excluded in mine. Visual impressions can hardly have had anything to do with the matter as the gymnasium commanded no view of the outer world. The movements of the exercises were so violent that any motions of the semicircular canals due to the rolling of the ship would form but a small part of the whole, and would probably be negligible. I think suggestion may be ruled out on this occasion on subjective grounds, although it might well act on any future occasion.

There is, however, one very important difference between a man on shore and the same man on a ship, which would be described by physicists as the difference between "accelerated" and "unaccelerated" frames of reference—a rolling ship being a good example of the former and the solid earth the very best instance (to us humans) of the latter. As to this being a possible cause of sea sickness I would refer to the work of Sir C. Sherrington on the sympathetic control of voluntary muscle; he pointed out that over and above all other controls there existed a sympathetic nerve mechanism, the function of which was to maintain a "normal" or "world right side up" posture. The co-ordinations of this mechanism suited to a stable earth would not function correctly on a rolling ship or in an earthquake. As we all know, conscious balancing is made use of on such occasions, but, underneath all conscious action, the unconscious mechanism will be doing its best to deal with the disorderly crowd of sensory impulses coming in from the skin, muscles, joints, and semicircular canals, and it will be greatly overworked.

I do not know what would be the result of that continued strain, but wonder whether it might not cause sufficient disturbance of related systems, both sympathetic and cerebral, to evoke the disorders of action and feeling that are called "sea-sickness."

If this is so, the recovery from sickness would correspond to the re-education of the sympathetic mechanism so that it could effect co-ordinations suitable to a moving "base"—I am, etc.,

Reading Aug 26th

J B PARFITT

TREATMENT OF PUERPERAL SEPTICAEMIA

Sir,—In the year 1925 the death rate recorded in England and Wales from puerperal septicaemia was equal to 1.56 per 1,000 births, and in 1926 1.60. In Ipswich the puerperal septicaemia death rates were 2.81 and 1.30 respectively. Thus, the local mortality experience was rather worse than that of the country as a whole.

For many years cases of puerperal septicaemia have been admitted into the Ipswich Isolation Hospital. The results of treatment were not good, because only a small number of the very worst cases were received as a last resort, with, in consequence, a very high mortality experience. Since the war a greater number of cases have been admitted to the hospital, and during recent years a determined effort has been made to unearth the actual cases and secure hospital treatment. As a result, between 1919 and 1924 inclusive, 23 patients with all types of puerperal sepsis were admitted, of whom 8 died—a case mortality of 34.78 per cent.

Between the beginning of 1925 and the moment of writing 27 cases of puerperal sepsis have been admitted, with one death, a case mortality of 3.7 per cent. The type of case during the last period was much the same as that of the earlier, in other words, type was not the factor determining the mortality experience. In both periods certain procedures were common, such as the sitting-up position for drainage purposes, the systematic use of enemata, the administration of drugs, such as quinine and pituitin, to promote uterine contraction, vaginal douches as indicated, and the injection, as deemed advisable, of doses of 30 to 40 c.c.m. of antistreptococcal serum.

The sole difference between the two groups of cases lies in the fact that, in the series treated since 1925, colloidal argenticum has been given intravenously—in adequate dosage as the results would appear to indicate. In the first series colloidal argenticum was given intravenously in a few cases, but in doses too small to be effective. I have come to the conclusion that the dose should be not less than 15 c.c.m., and probably not more than 25 c.c.m., as doses of 20 c.c.m. have, on occasion, produced rigors. It is difficult to believe that a dosage sufficient to produce a rigor can be without risk. These doses should be repeated daily for four or five days, should the fever last so long, but in my series the only case in which the temperature remained up over five days was the one subsequently proving fatal.

In the limits of a brief statement such as this it is impossible to discuss the way in which the colloidal silver may act, but, in my opinion, a case has been made out suggesting that, in intravenous doses such as have been indicated, the remedy is well worthy of investigation, not only in puerperal sepsis, but in other septicæmic conditions. The drug, so far as my experience goes, is without injurious effects either generally or locally. If there is any local disturbance it is transient and can be disregarded. In this respect colloidal argenticum has very considerable advantages indeed over drugs such as mercurochrome. Lastly, I would emphasize that the drug must be given intravenously.—I am, etc.,

A. M. N. PRINGLE, M.B., C.M., D.P.H.,
Medical Officer of Health and Superintendent Isolation
Hospital, Ipswich.

August 4th

LATERAL RADIOGRAPHY OF THE URINARY TRACT

Sir,—The paper on "The diagnosis of ureteric calculi" by Professor Fullerton, published in your issue of August 25th (p. 327) would appear to raise an immediate question concerning the most accurate method of localizing and confirming the nature of doubtful shadows in the urinary tract.

Professor Fullerton, in introducing the technicalities of radiological examinations, stated that the subject was a large one and could not be embraced in the compass of his paper. I venture to suggest, however, that the omission of some mention of lateral radiography of the urinary tract was a grave one, and that its exclusion in favour of stereoscopic radiography was unfortunate and misleading. Radiological examinations are becoming an integral part of the clinical procedure adopted in investigating a patient

presenting symptoms of urinary dysfunction, and one feels that every effort must be made to insist upon a routine in the methods employed by the radiologist in presenting his contribution to the picture. Stereoscopy must necessarily place the localization of doubtful shadows almost entirely in the hands of the radiologist and make his opinion an omnipotent one, it is not always possible to convince another that the eyes could not have been deceived, and the difficulties of recording an impression are obvious. The technical errors which can arise in carrying out stereoscopic x-ray examinations are well known to those who have had considerable experience in localization.

While admitting the value of stereoscopy in selected cases, I believe that very much more accurate and convincing information can be gained by obtaining right and left lateral radiograms of the whole urinary tract under modern conditions a lateral radiogram of the lower portion of the ureter presents little difficulty. By means of a lateral series of films the site of urinary shadows can be demonstrated and permanently recorded, and the subsequent pyelography or urography be undertaken, when necessary, without fear of injury to the patient's skin by an accumulative erythema dose.

Lateral radiography appears to have been sadly neglected in the past, and I think it must be agreed that its inclusion in pyelographic examinations as well as ordinary x-ray examinations of the urinary tract is of great importance—I am, etc.,

London W 1, Aug 25th.

L. J. H. ROTH

THE ALLEGED HIGH FERTILITY OF JEWS

SIR,—In the report on August 18th (p. 310) of the discussion on the falling birth rate held in the Section of Medical Sociology of the Annual Meeting of the British Medical Association Dr Lotitia Farnfield is stated to have referred to the high fertility among Jews.

The contention that Jews are a prolific race is being made repeatedly, though all the facts point to the contrary. It is true that Jews have the injunction to "increase and multiply and replenish the earth," and that Biblical history records that in Egypt "the children of Israel were fruitful, and increased abundantly, and multiplied and waxed exceedingly mighty and the land was filled with them." It is also true if Biblical statistics are to be accepted at their face value—that the 70 souls that migrated with Jacob increased in the space of 430 years to about 3,000,000 (603,550 males "from 20 years and upwards all that were able to go forth to war in Israel").

But Biblical commands and statistics are no criteria of conditions obtaining in modern days. The fertility of the Jews was probably high during the beginning of the last century, but towards the latter part conditions had changed enormously. With the political emancipation of the Jews in Western Europe, a great weakening of religious fervour occurred, with a consequent disregard of Biblical injunctions. The Jewish birth rate declined rapidly, and in many places fell much below that obtaining among the non-Jewish communities, as can be seen from the following table,¹ which refers to the period at the beginning of the present century.

Births per 1000 Population

	Jews	Non-Jews
Berlin (1905)	17.7	25.5
Frankfort-on-Main (1905)	16.2	29.1
Prague (1901)	15.8	31.3
Bavaria (1906)	18.2	36.0
Prussia (1903)	17.0	33.0
Bohemia (1900)	17.8	34.9

The decline in the birth rate in most European countries, which is engaging so much attention, is thus not only seen among Jews—but is found among them in a most accentuated form. To what extent the birth rate among Jews can fall is also seen from the following comparison for Vienna—

Birth Rates in Vienna

	Jews	Non-Jews
1900	22.2	21.7
1923	13.5	16.4

¹ Fishberg, M. *The Jews*, p. 23.

² *Mitteilungen des Bundesamtes für Statistik* Wien.

It is also worth noting, that during the past two years the number of deaths in Viennese Jewry has exceeded that of births.

The state of affairs in London can only be judged on indirect evidence since, unfortunately, there is no denominational census in England. It appears that, contrary to conditions seen in other Western countries, the birth rate among Jews in London was actually rising towards the end of the last century² (this was probably due to the heavy immigration at that time into London of poverty-stricken Jews from Eastern Europe). But since then the birth rate among Jews in London has not only been declining, but doing so to a greater extent than the rate among non-Jews, as can be seen from the fact that in Stepney, where the Jews are crowded together, the fall in the birth rate has been more marked than in comparable districts of London. This is shown by the following table⁴:

Birth Rate per 1000 Population

	Stepney	Poplar	Southwark	London
1903	38.1	35.1	33.7	8.8
1927	18.3	19.8	19.0	16.1

It is thus seen that far from leading with the highest birth rate the decline in the birth rate in Stepney has been greater than for London as a whole—52 per cent against 44.

As against the fact that the rate for Stepney is higher than that of London as a whole (18.3 as against 16.1) must be set the fact that Stepney harbours the poor among the Jews, so that when the presumably lower birth rate of the wealthier Jews is considered, it must be concluded that while the birth rate among poor Jews is lower than among the comparable non-Jewish population, the birth rate among Jews as a whole is as low, and probably lower, than that of London as a whole.

It is not necessary to labour the point. The figures for London are in agreement with those of other centres in showing that the declining birth rate is presenting an even more acute problem to Jewry than to other communities. There is certainly no justification for speaking of a high fertility among Jews—that is now a thing of the past.

I am obliged to Mr D. Tcherniakoff, B.Sc., the secretary of the Jewish Health Organization of Great Britain, for some of the data in this letter.—I am, etc.

M. SOLARSKY, M.D., I.R.C.S.Ld.

London W 1, Aug 19th.

RESULTS OF TREATMENT OF UTERINE CANCER

SIR,—On returning from abroad my attention has been called to a letter by Mr Victor Bonney in the *British Medical Journal* of July 21st (p. 128). In it he takes exception to certain figures quoted in the first report of the Cancer Research Committee of the London Association of the Medical Women's Federation. As I was largely responsible for these figures perhaps you will allow me to reply.

The report was compiled in the spring of 1925, and was in the press before Mr Bonney's 1926 paper was published. The figures quoted are substantially the same as those produced by Mr Bonney in his paper in the *British Medical Journal*, 1921, vol. 11, p. 1105, and agree with the results recorded in Berkeley and Bonney's *Gynaecological Surgery*, second edition, p. 401. Mr Bonney subjects his figures to many minor deductions and variations. We regret that we did not include the complete bibliography, but only gave the reference to his most recent publication.

Apart from the lessened operative mortality to which we referred, the most recent results given by Mr Bonney, and based on a larger number of cases, are practically identical with those given in his earlier papers. The figures we quote make his results appear even slightly better than those which he now claims are correct.

It would appear from Mr Bonney's figures that for many years surgeons have been unable to improve materially the results obtained in the treatment of this disease. Our report was an attempt to compare the surgical results in cancer of the cervix with those which

³ Royal Commission on Alien Immigration. Minutes of Evidence. 3357.

⁴ Annual Reports of the Registrar General.

had already been obtained with radium, notwithstanding the inadequate technique and dosage so often used—I am, etc ,

E HURDON,

The Cancer Research Committee London Association
of the Medical Women's Federation

August 28th.

IONIZATION FOR NON-SUPPURATIVE OTITIS

SIR,—I read with much interest your review of the work of Drs Landry and Franquet of Rheims on the effect of ionization in non-suppurative otitis. I have, for the past eight or nine years, used and advocated this method as part of the routine followed by me in cases of middle-ear deafness, excluding otosclerosis. Certain selected mixed cases have, however, also had the same treatment. The clinical results obtained led me to the belief that the drug passed to the desired site and produced the expected result of reabsorption. It is of the utmost importance that the experiments recently carried out at Rheims appear to confirm this view. My best results have so far been obtained with potassium iodide and sodium chloride—I am, etc ,

Bath Aug 25th.

H NORMAN BARNETT

PRESTON HALL TUBERCULOSIS SETTLEMENT

SIR,—In your review of the British Legion Village Settlement report (August 25th, p 354) "according to newspaper accounts over 50 per cent of the settlers will be thrown out of employment," as a result of the fire which occurred here on August 12th. This is far from representing the true state of affairs, for, actually, not a man has lost one hour's work. It is gratifying also to report that as a result of improvisation in workshops and machinery, goods were actually delivered in the open market in less than seventy-two hours from the time of the outbreak of the fire—I am, etc ,

Aylesford Aug 27th.

J B McDONNALL,
Medical Director

Obituary.

THE LATE LADY OSLER

THERE must be few women who have enjoyed a wider reputation amongst members of the profession than the late Lady Osler. This was due, in great part, to the fact that she was the wife of the late Regius Professor of Medicine at Oxford. Apart from this, however, she had a personality of her own which was most attractive, and many from far and near have been the recipients of her hospitality. Indeed, during Sir William Osler's lifetime, her duties as a hostess were often so exacting as to impose a serious strain on her physical resources. It may not be amiss to recall some of her other activities and to place on record some of the virtues that endeared her to her many friends and acquaintances. Begotten of a stock illustrious in the history of America, Grace Revere was the great granddaughter of Paul Revere, whose memorable ride was immortalized by the gifted pen of Longfellow. He was a remarkable man in other ways—an engraver of wide repute, a craftsman of great skill in the working of silver and other metals, an accomplishment which laid the foundation of a prosperous career. As a young woman Grace Revere married Professor S W Gross of the Jefferson Medical College, Philadelphia, whose father at that time was America's most distinguished surgeon. As a young wife she acted as hostess to her father-in-law's numerous guests, and early acquired that grace and charm of manner which subsequently became such an attractive feature of her personality. Left a widow, she married in 1892 Dr William Osler, then the most brilliant and accomplished physician in the United States. In the spring of 1905 she came to Oxford with her husband, who had been appointed Regius Professor of Medicine. Ever since she has identified herself with the interests of Oxford and its medical school. As Sir William Osler's wife she shared in all his responsibilities. It was an ideal partnership. As his widow she was eminently successful in carrying on

the traditions he had left. Of a nature most generous and bountiful, she spared no pains to befriend the afflicted, and during the early years of the war she was most helpful, for, through her influence in America, she was the means of obtaining large sums of money to succour the wounded and relieve those sorely stricken. Her sympathy was very real with those in sorrow, for she, too, had suffered by the loss of her only son. Her interests were in later years centred in the welfare of the Radcliffe Infirmary, of which she was a member of the board of management. One of the duties of which she was most proud was her appointment as a trustee to the Evelyn Charities. This enabled her, after the death of Sir William, to retain her association with the old-world village and its picturesque almshouses. So, too, the Regius Professor's connexion with Christ Church was responsible for her devoted interest in the Christ Church Mission.

It was largely due to Lady Osler's personality that her home in Norham Gardens became one of the social centres of Oxford. There one would meet men of world-wide reputation side by side with the youngest "fresher," who had come to present his letter of introduction to the high-hearted "Regius" and his lovable wife. There, too, she exercised a motherly care over many of the friendless ladies who had been attracted by the lure of Oxford, amongst whom may be mentioned especially the American Rhodes scholars, who found a home when far from home. Her influence has done much to draw closer the bonds which link together the youth of kindred stock and tongue. Her dignified presence, her charm of address, and her sincerity of purpose, coupled with a tenderness essentially feminine, has ensured, amongst those who were privileged with her friendship, a memory ever fresh and desirable. This counts for much, and is, alas! all that is now left to us.

A T

DR EGERTON CHARLES GREY, who died suddenly from pneumonia on August 10th, had recently been engaged on research work for the League of Nations, and was formerly professor of chemistry at the University of Cairo. He was the second son of the late Colonel Arthur Grey, and was educated at Cambridge, where he was a member of Emmanuel College, proceeding with his medical studies at Guy's Hospital, London. He obtained the diplomas M R C S and L R C P in 1918, graduating M A Cantab and D Sc Lond two years later. Previously he had served during the war as a subaltern with the Royal Fusiliers and had been wounded at Gallipoli. After being invalided from the army he later joined the R N V R as a surgeon probationer, and took part in the operations in the Black Sea. Subsequently, while Foulerton Student of the Royal Society, he was appointed professor of chemistry in the University of Cairo, then in process of formation, he was the first general secretary of this body, and for his services in Egypt received the Order of the Nile. Dr Grey resigned his post in Cairo to undertake research work for the League of Nations on the food problems of Japan, the results of his investigations have only recently been published at Geneva. His scientific work was directed mainly to the study of the chemistry of fermentation, which was the subject of many of his numerous contributions to the *Proceedings* of the Royal Society. He was a member of the British Medical Association, in which his brother, Dr F Temple Grey, is a prominent member of the Marylebone Division. A colleague writes: A great admirer of Pasteur, Dr Egerton Grey's work was distinguished by scrupulous accuracy and attention to detail. A man of lofty mind, broad vision, and extraordinary generosity, he will be sorely missed by those whose privilege it was to know him.

Dr J E MOORHOUSE, who died after a short illness on August 17th, at his residence in Stirling, was born in Yorkshire in 1869, and graduated in arts at St Andrews, where he obtained the degrees M A and B Sc in 1889. He afterwards proceeded to Edinburgh and studied medicine, obtaining the degrees M B, C M in 1892, and becoming M D in 1895. After holding an appointment as resident physician in the Royal Maternity and Simpson Memorial

Hospital at Edinburgh he removed to Stirling, at the time of his death he had been in practice there for some thirty-six years. He was a medical referee under the Workmen's Compensation Act, and until recently had held the appointment of surgeon to the Stirling Royal Infirmary, he was also for a number of years medical officer to the troops stationed in Stirling Castle. In spite of the claims of a large practice Dr Moorhouse took a constant interest in scientific medical progress, he was a member of the Medico-Chirurgical Society of Edinburgh and a Fellow of the Obstetrical Society of Edinburgh and frequently attended their meetings. He was a member of the British Medical Association and in 1906 was actively engaged with Dr Burt in the compilation of evidence from a questionnaire on Poor Law administration, which was sent to Scottish Poor Law officers. Dr Moorhouse represented the Stirling Branch on the Central Council in 1914, 1915, and 1916. He was a man of kindly and sympathetic manner, much beloved by a large circle of friends and patients, by whom he will be greatly missed. He is survived by a widow and one daughter. A colleague, G. C. S., writes: Dr James Moorhouse was one of those men who devote time and labour without stint to further the interests of our Association. For many years, it might be said, he was the Stirling Branch. Any knotty question of Association business or procedure which was referred to Moorhouse was promptly cleared up. When I succeeded him, for a year or two in the secretariatship of the Stirling Branch, it was a joy and deposal to turn over his minutes: they were so exact, concise, and in such beautiful script—a model of what minutes should be. In addition to his business abilities Moorhouse was of the type of scholarly physician, happily by no means extinct, although less common, I think than in former days. To him may be fully applied the words of Ausonius:

*Obitu opem cunctis poeuitibus artis membrae
Obiitumque meum cum pietate fuit*

which remain after the "mountains of gold" gained by one of the Roman court physicians have passed away.

We regret to announce the death of Dr MARY J. McNEILL, which occurred at Jugha Hospital in East Africa on June 10th for the past seven years she had been engaged in medical work in association with Roman Catholic missions in Uganda. Her name will be remembered in connection with the fine work rendered by the Scottish Women's Hospital in Salonika during the war. Born in 1874 in Orkney, she was the eldest daughter of the late Rev Daniel McNeill, M.D., and, after studying in Germany and Switzerland, received her medical education at Queen Margaret College, Glasgow, graduating M.B., Ch.B. in 1905. She then commenced practice in Orkney, remaining there until 1914, when she went to Leicester to free her brother for service with the Royal Army Medical Corps. Two years later, after serving for a period as resident physician in the Leicester Fever Hospital, she joined the staff of the Scottish Women's Hospital in Salonika, proceeding thence to Belgrade in Serbia in 1919. Subsequently she went to Palestine to take up an appointment as assistant medical officer to the Scottish Hospital at Tiberias, and later became medical officer in charge of the Scottish Mission Hospital at Bhandara in India. In 1921 she joined the Roman Catholic Church and was attached to the Catholic African Mission at Kampala, Uganda. Latterly she worked single handed with three Franciscan sisters at a remote and isolated station at Kamali, Busoga, and was looking forward to coming home on leave in November. A colleague writes: Those who knew Dr Mary McNeill loved her for her upright character, her unselfish life, her devotion to her family, and her loyalty as a colleague. The deep joy she took in living was a source of inspiration to her friends. She had a great interest in literature and art, and a marked gift for writing and for poetry. Dr McNeill never lost her youthful interest in people and places, she had travelled extensively and absorbed new ideas and made friends wherever she journeyed. The loss to her family is irreparable, and her passing has left a great gap in the hearts of her friends. She might well have been called the "beloved physician."

We have to announce with regret that Khun Bahadur Dr DOMINION PRATON COOPER died at Surat on June 4th, at the advanced age of 93. He was educated at the Grant Medical College, Bombay, where he won the Cairns scholarship, and obtained the diploma of Graduate of Grant Medical College in 1863, eleven years before the foundation of the University of Bombay. He was one of the band of practitioners whose pioneer work for Western medical science has stood the test of time and paved the way for the advancement of education in General and medicine in particular. He played a considerable part in public affairs, and served as a member of the borough council of Surat for an uninterrupted period of nearly fifty years—from 1867 until 1916. He was a first-class honorary magistrate of Surat, a Fellow of the University of Bombay, honorary assistant surgeon to the Viceroy in 1885, and was awarded the Kaiser-i-Hind Silver Medal. At the beginning of his career Dr Cooper was appointed medical officer to the Parekh Dispensary, Surat, at Naupura. There he did much to popularize vaccination, and rendered yeoman services in obstetrical and gynecological relief in the early days of the ignorant and superstitious native "dai." He was the first president of the Surat Medical Association, founded in 1886, and in 1887 he was awarded the distinction of Khan Bahadur for his public services. He was probably the oldest Freemason in India at the time of his death, having, in 1871, joined the Lodge Rising Star, which was founded in 1844 by Dr Barnes, under the auspices of the Grand Lodge of Scotland. Dr Cooper leaves a large family of sons, several of whom have achieved distinction, Mr Dhunjee-shaw Cooper is a sessions judge at Surat, Dr Ardeshr Cooper was formerly sanitary commissioner for the Baroda State and Dr K. D. Cooper is chief medical officer to the Bombay Electric Supply and Tramways Company. Sir Temulji B. Nariman, President of the College of Physicians and Surgeons, Bombay, writes: "I had known the late Dr D. P. Cooper from my college days—that is, from 1867. He rendered very valuable services to the city of Surat, both as a municipal councillor and as a practising physician, and his death will be greatly felt by both the poor and the rich of the city. He was a trusted Government servant, and once acted as civil surgeon, Surat, at a time when these posts were reserved solely for I.M.S. men. I shall miss him both as a personal friend and trusted colleague in the university. He was a man of genial disposition and noble character, and of great professional ability, and gave freely of his time and advice to suffering humanity, by whom his memory will be highly cherished. Thus passes one of the original, oldest, noblest, and strongest representatives of Western medical science in India, the fruits of whose efforts are just beginning to be realized."

Dr OGLETHORPE WAKELIN BARRATT BROWNING, who died suddenly on August 28th, in his 28th year, was a son of the late Samuel Browning of Birmingham, and received his medical education at University College Hospital, London, obtaining the diplomas M.R.C.S. and L.R.C.P. in 1925. Soon afterwards he contracted encephalitis lethargica while working for the M.B. degree of the University of London. His condition improved considerably for a period and it had been hoped that he would eventually be able to resume his work. As a student he showed great promise, and his death has caused much regret among his friends, who, although he was of a retiring disposition, were numerous.

We regret to announce the death on July 21st, at the age of 80, of Professor PANAGIS CAVADIAS, who occupied the chair of archaeology at Athens, and was an honorary member of the Section of the History of Medicine of the Royal Society of Medicine. He took an active part in the excavations of the Acropolis at Athens, and of the shrine of Asklepios at Epidaurus, where he was working until shortly before his death. His son, Dr Alexander Cavadias, is now in consulting practice in London.

The Services

DEATHS IN THE SERVICES

Brevet Colonel Alfred Goodwyn Kay, R.A.M.C. (ret.), died at Lymington on July 9th, aged 74. He was born on May 16th, 1854, and was educated at Edinburgh, where he graduated as M.B. and C.M. in 1879, after taking the L.R.C.S. Ed. in 1876. Entering the army as surgeon on February 5th, 1881, he became lieutenant colonel after twenty years' service, and retired on December 23rd, 1908. He served in the Egyptian campaign of 1882, receiving the medal, with the Khedive's bronze star. From March, 1900, to November, 1902, he was on the staff of the Commander in Chief in India. After retirement he was employed as recruiting officer at Clifton, Bristol. He rejoined for service in the recent great war when he was in charge of the Royal Victoria Hospital at Netley, and for his services received a brevet colonelcy on June 3rd, 1917.

Lieut. Colonel William Lloyd Reade, R.A.M.C. (ret.), died in London on June 30th, aged 69. He was born at Port Arlington on February 21st, 1859. After taking the Edinburgh double qualification in 1881, he entered the army as surgeon on July 30th of that year, attained the rank of lieutenant colonel after twenty years' service, and retired on August 14th, 1912. He was stationed at Hong Kong in 1896 when the great pandemic outbreak of plague—which is still going on, more than thirty years later—was imported into the colony from Southern China. He was employed on special duty combating the plague in Hong Kong, and was afterwards transferred to India when the disease became virulent there and employed as special plague officer at Poona during the years 1897-98. He served in the South African war of 1899-1902, receiving the Queen's medal with three, and the King's medal with two, clasps. He was also re-employed from August 15th, 1915, during the recent great war.

Lieut. Colonel Francis Patrick Staples, R.A.M.C. (ret.), died at Strawberry Hill on July 11th. He was born at Bally Cogley, County Wexford on December 14th, 1838, took the M.R.C.S. in 1860 and the L.K.Q.C.P. in the same year, subsequently becoming M.K.Q.C.P. in 1880. Entering the army as assistant surgeon on April 1st, 1861, he reached the rank of brigade surgeon on September 20th, 1887, and retired on February 1st, 1888. He served in the Hazara campaign on the North West Frontier of India in 1868, receiving the frontier medal with a clasp. In 1879-80 he was assistant professor of military surgery in the Army Medical School at Netley. During the old regimental days he served as assistant surgeon in the 19th Foot, the Green Howards.

Captain Leshe Graham Blackmore, R.A.M.C., died in a nursing home on July 2nd, aged 36. He was born on December 26th, 1891, the younger son of Mr. and Mrs. Herbert Blackmore of Gloucester Gardens, Hyde Park. He took the M.R.C.S. and L.R.C.P. Lond. in January, 1917, and, joining the Special Reserve of the R.A.M.C. immediately after, was at once mobilized as a lieutenant in the R.A.M.C., became temporary captain on April 1st, 1919, and captain from August 5th, 1920. He served during the latter two years of the recent great war.

Universities and Colleges

UNIVERSITY OF LONDON

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE
FOR WOMEN

COUNCIL has awarded the following scholarships and bursaries for the session 1927-28.—St. Dunstan's Medical Exhibition Miss M. London Isabel Thorne Scholarship Miss M. Margen Sir Owen Roberts Memorial Scholarship Miss M. Tate Mabel Sharman Crawford Scholarship Miss B. F. Goldsmith Lieutenant Edmund Lewis (R.A.F.) and Lieutenant Alan Lewis (R.N.A.S.) Memorial Scholarship Miss B. F. Goldsmith School Jubilee Bursary Miss N. I. Faux Alfred Laughton Scholarship Miss D. Woodman M. So. Ellen Walker Bursary Miss H. B. Burt Flora Murray Bursary Miss M. N. Linn and Miss E. M. Newham (d. vid.) Dr. Edith Pechey Philson Post-graduate Scholarship Miss Annie Price M.B., Ch.B.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated

SURGERY—J. P. Collinson H. B. Blaker E. C. Gross I. G. Hardinge G. L. Johnson C. K. McCoan C. F. C. White

MEDICINE—T. A. Barnabas C. M. Brooks J. S. Pury A. E. Gibbs K. Girgis I. G. Hardinge H. H. Jackson G. L. Johnson H. C. Johnson J. H. Johnston G. L. McDermett, M. T. Y. Selim H. D. K. Wright

FORENSIC MEDICINE—A. Das F. C. Gross I. G. Hardinge A. H. Hennessy G. L. Johnson H. C. Johnson A. R. Lundberg C. P. Macdonald S. M. Rahman M. T. Y. Selim H. D. K. Wright

PHARMACY—C. M. Brooks H. C. Clifford Smith W. A. A. Collington

J. I. Collinson F. V. Coates Holland L. P. Gregory I. G. Hardinge A. H. Hennessy G. L. Johnson H. C. Johnson A. R. Lundberg R. Perkins T. A. P. Proctor

The diploma of the Society has been granted to Messrs J. B. Blaker H. C. Clifford Smith J. P. Collinson I. G. Hardinge A. H. Hennessy G. L. Johnson G. L. McDermett, S. M. Rahman, M. T. Y. Selim, and H. D. K. Wright

Medical News.

THE annual dinner of past and present students of King's College Hospital will be held at 7.30 p.m. at the Trocadero Restaurant Piccadilly Circus, on Wednesday, October 3rd. Dr. B. R. Turner will be in the chair, and the donor secretaries are Dr. Ernest Playfair and Dr. H. A. Richards.

It is announced that the new laboratories of the Safety in Mines Research Board, upon which the Medical Research Council is represented, will be formally opened by the Prime Minister on October 11th. The new station which is situated at Sheffield, will serve as a national centre for scientific research into problems bearing upon safety in coal mines. Funds for this and for other purposes connected with miners' welfare are derived from a levy of 1d. a ton on the output of all coal mines, imposed by the Mining Industry Act of 1920. The expenditure of this revenue is vested to a statutory committee appointed by the Board of Trade, the Research Board advising this committee on the expenditure of any fund set aside for research.

A POST GRADUATE course for medical practitioners of the district will be held by the members of the medical and surgical staff of Addenbrooke's Hospital Cambridge, from Tuesday, October 2nd to Friday, October 5th. The course will begin at 2.30 p.m. and end at 4.30. Further particulars can be obtained from Dr. Aldren Wright, Cambridge.

THE Fellowship of Medicine and Post Graduate Medical Association announces that from September 11th to October 5th the Superintendent of the Bellem Royal Hospital will give a course of lecture demonstrations in psychological medicine on Tuesdays and Saturdays at 11 a.m. From September 17th to 29th, the Westminster Hospital will provide an all day course in medicine surgery and the specialties. An all day course in diseases of children at the Queen's Hospital, an all day course in orthopaedics provided by the staff at the Royal National Orthopaedic Hospital, and an afternoon course consisting of lecture demonstrations at the Royal Eye Hospital, Southwark all of a fortnight's duration, also begin on September 17th. Copies of all syllabuses, and information regarding the general course at the hospitals affiliated to the Fellowship of Medicine, may be obtained from the secretary J. Wimpole Street, W.1.

COMMENCING on September 17th a practical post graduate course in methods of examination and diagnosis will be held at the Central London Throat, Nose, and Ear Hospital, Gray's Inn Road, W.C.1.

THE Ministry of Health has issued a circular (No. 903) to sanitary authorities in England and Wales stating that instances have been brought to the notice of the Minister of the failure of local authorities to observe in the distribution of poisonous liquid disinfectants the provisions in regard to the shape and labelling of bottles made applicable to the retail sale of liquid poisons by various Acts of Parliament and regulations in view of the danger attending the use for the distribution of disinfectants of receptacles such as beer bottles, which ordinarily contain liquid intended for consumption. The Minister considers it desirable that the precautions taken in the sale of poisonous disinfectants should be observed also when they are distributed gratuitously or otherwise by a local authority. It is the Minister's view that in the public interest all poisonous disinfectants should be supplied only in containers distinguishable by touch from ordinary bottles, and that the containers should be labelled boldly in red with the words "Disinfectant—Poison—Not to be Taken."

THE annual congress of the National Veterinary Medical Association was held at Newcastle-on-Tyne from September 1st to 7th. Professor F. A. E. Crew discussed the nature of resistance to disease, and Professor R. G. Eliot dealt with the adulteration of foods as concerning animals. Mr. H. T. Matthews of the City of Liverpool Veterinary Department gave an address on the place of the veterinarian in public health. He emphasized the need for co-ordination of the medical, veterinary, and sanitary services in connexion with certain problems, notably in the control of meat and milk, suggesting that if veterinary officers were given authority to handle the existing machinery dealing with these products, they could eliminate much wastage and friction. He thought that the problem of tuberculosis in cows should be regarded in relation to the problem of animal disease as a whole, and urged the importance of preventive work among animals on a national scale. At the opening meeting a letter was read from the Prince of Wales in which he expressed his regret at being unable to attend the congress, and his appreciation, as an associate of the College of Veterinary Surgeons, of the work of the association. The letter concluded: "I think that in the control of disease, and especially those forms which are communicable from animals

to man, the veterinary surgeon has a role to fill equally as important as that of the medical scientist, and that every encouragement is therefore necessary. I am sure an interchange of veterinary opinions with those of practical producers cannot fail to be of benefit to the State generally."

THE Minister of Health in a circular (No. 921) to local authorities calls attention to the fact that the review on September 1st of Civil Service bonus is based on an average cost of living figure of 65, the bonus payable to officers whose salaries do not exceed £500 a year will, for the six months commencing on that date, be one fourteenth less than that payable during the preceding six months. In the case of salaries over £500 a year the bonus will still be subject to the special arrangements indicated in previous circulars. It is pointed out that in view of the decrease in the Civil Service bonus, it follows that the range within which bonus may be paid by local authorities to those of their officers who are remunerated is subject to the Minister's sanction is correspondingly reduced. Officers whose rate of remuneration for non manual employment falls to or below £250 a year as a result of the decrease in the bonus will become liable to compulsory insurance.

THE Joint Advisory Committee on River Pollution appointed by the Minister of Health and the Minister of Agriculture and Fisheries has issued its first report, dealing mainly with the legal and administrative aspects of the question, and containing a brief survey of the relative legislation. Attention is drawn to the fact that under the law as it stands at present the Minister of Health on the application of any county or county borough council through whose jurisdiction a river passes may set up a rivers board to control the whole length of the river and its tributaries so far as it is subject to the Rivers Pollution Prevention Act. The establishment of rivers boards would, it is suggested, be the first step towards the improvement of the condition of many rivers. Among the members of the committee is Dr. H. Maclean Wilson, Chief Inspector of the West Riding of Yorkshire Rivers Board. The report is published by H.M. Stationery Office at the price of 2d net.

THE report for the quarter ended June 30th of the Home Service Ambulance Committee of the Order of St. John and the British Red Cross Society again refers to the extensive use made of the committee's vehicles in the transport of casualties due to road accidents. While there has been no diminution in the number of traffic accidents recorded the establishment of first aid stations on the roads has minimized the effects. The task of the hospitals, it is claimed, has been lightened by the fact that an increasing number of patients brought in have already received skilled attention and have been carried in ambulances instead of being subjected to unskilful handling. Great difficulty has been experienced, especially in connexion with road accidents, in obtaining payment for the use of ambulances. The report suggests that motorists coming from London or other large towns where services are maintained by the municipalities do not realize that most of the ambulances in the country depend for upkeep on the moderate charges made for their use, supplemented by local voluntary subscriptions.

THE eighth Congress of the Society for the Study of Diseases of Digestion and Metabolism will be held in the Colonial Institute at Amsterdam from September 12th to 14th, when the following papers, among others, will be read: physiology and pathology of hunger, by Professor Morgulis of Omaha, the theory of the action of insulin in diabetes, by Professor Schurr of Vienna, treatment of diabetes with food poor in fat, by Professor Porjes, relation between diseases of the intestine and blood, by Professors Morawitz of Leipzig and Nordmann of Berlin, relations between diseases of the liver and blood, by Professor Schottmüller of Hamburg, and prevention of diagnostic and therapeutic errors in alimentary diseases, by Professors von Bergmann and Kuttner of Berlin and von Haberer of Düsseldorf. Further information can be obtained from the general secretary, Professor R. von den Velden, Bambergerstrasse, 40, Berlin, W. 30.

THE ninetieth Congress of the Society of German Natural Science and Medicine will be held in the Zoological Garden at Hamburg from September 15th to 22nd. The medical programme is a very full one, all specialties being represented. The subscription for members of the society is 20 marks and for others 25 marks.

THE twenty-eighth Congress of the French Association of Otolaryngology will be held in Paris under the presidency of Dr. Iselin, on October 9th, when there will be a discussion on strictures of the larynx, introduced by Professor Duvergey of Bordeaux. Further information can be obtained from Dr. O. Pastreau, 13 Avenue de Villars, Paris VII.

M. LOUCHEUR has been nominated Minister of Hygiene in succession to M. André Fallières, who recently resigned.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The Editor, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1**

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QUERIES AND ANSWERS

CHRONIC CYSTITIS

MR. G. B. RICHARDSON, M.B. (Edinburgh) writes: In answer to N.B.'s query (August 25th p. 382) I would say that in the absence of definite evidence—for example, negative Wassermann reaction—of causation the condition be regarded as syphilitic and that an intravenous injection of 0.45 gram of novarsenobillon be tried followed by a dozen weekly 1 ccm intramuscular injections of grey oil. Would it be objectionable to a short course of mercury to anyone infected by the spirochaete or not? It is an excellent tonic.

VAGINISMUS

"C.A." writes: I have a very obstinate case of vaginismus to deal with. The patient is a young woman of 23 married about two years and so far coitus has been absolutely impossible. She has seen a consultant surgeon who agrees with me that there is no local abnormality whatever. The vagina has twice been stretched under general anaesthesia without result. Any attempt at examination per vaginam has been impossible until anaesthesia was used. The surgical extent Cocaine suppositories were suggested but it was impossible to insert one. Can any of your correspondents who may have had experience of similar cases suggest any method of dealing with such a condition? Pregnancy would probably cure it, but it is difficult to see how this could be brought about.

MOUTH BREATHING

"SCHOOL MEDICAL OFFICER" writes: I should like advice in the cure of a child—a girl of 7½ years—who is a mouth breather. Is there any apparatus which will cure this bad habit? The child is of full intelligence, her adenoids were removed at the age of 3½ years for mouth breathing without success and at 6½ years the nasopharynx was scraped again and tonsils which were large dissected out but mouth breathing persists. The palate is high, the mandible V shaped and the teeth are getting crowded and lack symmetry. There is no nasal obstruction though the nares are small. Breathing exercises have been tried. I can get no help from any of the books I have read.

INCOME TAX

Replacement of Motor Cycle Use of Residence

"R.R.R." bought a motor cycle chiefly for work in 1921 for £120. In 1925 a car was bought and the cycle was used occasionally. In 1926 it was not used (not even licensed) and in 1927 it was sold for £10. The Inspector of Taxes declines to make any allowance for replacement. The house comprises eight rooms, three are on the ground floor one of which is used entirely for work and the other as a combined waiting room and dining room. He has been allowed one half of the rent and rates as for professional use but the Inspector now proposes to allow one third only.

"*." (1) It is clear that the car was, in fact bought and used in replacement of the cycle. We agree that no allowance can be given as in the year 1925 but are clearly of opinion that an allowance should be made as an expense of 1927 in the amount of (£120-£10=) £110 less any proportion referable to private use. (2) The question with regard to the house may be arguable. "R.R.R." might usefully consider whether the balance applicable to private use—one-half or two-thirds—represents an

amount reasonable for the private accommodation retained and might perhaps point out to the inspector that some portion of the non professional part of the house is used by the maid, who (presumably) devotes time to keeping the consulting room clean, attending to callers, etc. so that the two rooms downstairs are not the only ones affected

Deed of Partnership

"A H F" took a partner as from September 1927. He has supplied the inspector of taxes with certified accounts for the practice, and his accountant has now been asked a question which he can answer only from the deed of partnership. Can "A H F" successfully refuse to produce the deed for perusal by his accountant, and presumably, the inspector of taxes?

* * It should, perhaps, be remembered that the amount of tax payable by the firm is usually affected by the basis of division of the total earnings, and where that basis is complicated, or where the existence of a legal partnership may be in doubt, it is, we understand, not uncommon for the deed to be produced as evidence. The inspector of taxes however, has no legal right to demand its production. As "A H F" evidently feels strongly on the matter, he might inform his accountant that he is quite prepared to supply any information that may be relevant as to the terms of division of the firm's earnings, but regards the deed as a private matter between his partner and himself and does not propose to produce it unless it is formally required by the Commissioners in process of appeal.

Replacement of Car

"K D" bought a car in 1923, price £355 and in 1927 bought another for £245, retaining the old car for family and holiday purposes. What can he claim?

* * We think that "K D" can properly claim that his newer car has been replaced, and can treat as a professional expense of the year 1927—thereby affecting his income tax liability for 1928-29—£245 less the sale value of the old car as at the date it was last used for professional purposes. But we have known cases where the authorities have objected to make such an allowance until the old car has been actually sold and ceased to be available for professional purposes—for example, in the event of the newer car being out of order.

LETTERS, NOTES, ETC

TRAINING FOR THE D P H

DR T N KEITNACK (honorary secretary of the Royal Institute of Public Health) writes. The attention of my council has been drawn to a paragraph on page 416 in your Educational Number of September last dealing with the training of candidates for the Diploma in Public Health in London. In this paragraph you state by inference that the Royal Institute of Public Health will cease its training in this respect in October 1929. Will you allow me to say that there is no foundation for such a statement, but on the contrary it is the council's full intention to carry on the successful work which they have done in this direction for many years past. The council having obtained statutory provisions for the registration of the Diploma in Public Health by the General Medical Council, the subsequent legislation by which medical officers of health were required to possess such a diploma, and the curriculum of study for such from the General Medical Council by which uniformity in the value of the qualification was obtained determined in view of the inadequacy of the training in London for complying with the curriculum to establish laboratories, both bacteriological and chemical and provide the necessary training in other respects for such candidates. It is therefore most unlikely in any respect that they will abandon the useful and pioneer work which they have successfully undertaken for the past forty years.

A MODIFICATION OF THE LEISHMAN STAINING METHOD

MAJOR J C CHURCHBURY, I M S writes. The following is not suggested as an improvement on the original Leishman technique but as a "field method" for places where pure distilled water free from CO₂ is difficult to obtain. I publish it by the permission of the Director of Medical Services, India.

(1) Select an inch of the most homogeneous portion of the blood film. (2) Draw a perpendicular boundary line on either side with a grease pencil or better with a piece of ordinary candle, which is less expensive. (3) Pour as much freshly prepared Leishman stain as will cover the enclosed space and let it dry on the slide, preferably in the air or over a gentle distant flame. (4) Holding the slide with a pair of dressing forceps, dip it into methylated spirit kept in a wide-mouthed bottle always well corked and opened only at the time of use. Shake it well in the spirit until the film looks shining grayish blue. Too much decolorization will not entail retaining, for plunk. Too much decolorization because even if the white blood corpuscles malarial parasites retain some of their characteristic too little decolorization may entail a residual deposit. (5) Wash in a jet of tap water. (6) Blot immediately dry and mount. If sediment is still present repeat (4), (5), and (6).

Perfectly clean homogeneously stained fields show malarial parasites in bold relief even in their earliest stages of division. The nuclei of the white blood corpuscles are stained deep violet and the neutro base and acidophilic granules are beautifully shown. Many hundred slides have been stained by this method since October, 1927, when I first tried it, I have not used distilled water since. I have further observed that methylated spirit used for decolorization does not lose its fuel capacity. It can be used for lighting primus stoves and burning in spirit lamps. More than two hundred 1 in x 1 1/2 in films can be effectively decolorized by dipping and shaking them in four ounces of methylated spirit until it loses its effective decolorizing potency but retains its fuel property intact. The colour of the stained film will depend on the degree of purity of the methylated spirit which should be of neutral reaction. The staining results are as follows: red blood cells—shades of greyish pink nuclei—deep violet or shades of violet, acidophilic granules—red basophilic granules—deep violet, neutrophilic granules—lilac blood platelets—violet, malarial parasites—shades of blue, chromatin—ruby red.

BLOOD FILM EXAMINATION IN GENERAL PRACTICE

MR A J FAIRLIE CLARKE (Malvern) writes. A rough blood film, quickly made and examined, is often of value to the general practitioner in recognizing pneumonia, appendicitis and other conditions, and may help him to diagnose doubtful cases such as whooping cough or to differentiate bacillary and coccidial infection. The following technique provides an efficient rough clinical method. A saturated solution, in tap water, is made of corrosive sublimate. The dry smears are soaked in this for ten minutes or longer and then well washed under the tap. The fixer the blood to the glass. A teaspoonful of commercial methylene blue is put in a 4 oz bottle which is filled up with water from the tap. This stain is filtered direct on to the slide on which it remains for about ten minutes. (A porcelain drenching dish makes a convenient sink and a small ornament pot is a suitable stand for the slide.) The slide is next gently washed in tap water till most of the colour has gone, it is then blotted and dried by waving in the air. For examination a dry 1/6 in lens is used with a small substage diaphragm, closing down the diaphragm is essential. Examining the slide in air simplifies technique and allows eosinophilic to be detected without counterstaining, these cells are clearly distinguishable by their mulberry contour and refractile granules but are not so recognizable when the film is mounted in balsam. By this method the nuclei of the polymorphs show up well and I believe that it is possible to make a reasonably accurate Arnetti or polynuclear count another very valuable aid to the general practitioner. Finally the discarded slide is boiled for a minute or two in a small vessel containing a thick mixture of soap and water rinsed in hot water and dried ready to serve again. Two useful accessories are a spreader for the blood smear made from a microscope slide 1/16 in being ground away (on a flat stone or emery wheel) at each corner of one end of this slide at an angle of 45 degrees and the truncated angles thus formed being ground to steep knife edges while the other accessory is a microscope lamp made by cutting a round window in a cylindrical tin and suspending a frosted electric bulb from the lid.

PIREXIA ASSOCIATED WITH B. PYOCYANUS

DR R T VERN HODGE (Woodford Green, Essex) writes. In view of the present prevalence of paratyphoid fever I think it worth while to report the case of a young man aged 21, taken ill on July 1st with headache and extreme lethargy. Three days later both symptoms persisted, the temperature ranged from 101° in the morning, to 103° F at night and the pulse was slow. The fever continued for three weeks and then fell gradually with diminishing evening rises the pulse remained between 72 and 80 the chart resembling that of a typhoid infection. At the end of the first week the throat became painful but thrush fungus alone was recovered by swabbing. Widal tests were negative on the twelfth and thirteenth days. At the end of the third week a good growth of *B. pyocyaneus* was recovered from the stools in addition to *B. coli* and intestinal streptococci. I should be glad to have information about any similar conditions produced by this organism.

A REQUEST FOR BILBERRIES AND MULBERRIES

DR R D LAWRENCE (King's College Hospital S.E.5) writes. May I through your agency ask the help of doctors or their patients in a small matter? We have been analysing the carbohydrate content of fruits and vegetables and are unable to complete a few which are not obtainable in the London shops. We have failed to secure bilberries and mulberries and any information which would enable us to obtain these would be very helpful. Of course a gift of small amounts (say 1/2 lb) from a few sources would be still more gratefully received.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 35, 36, 37, 40, 41 and 42 of our advertisement columns and advertisements as to partnerships, assistantships and locum tenencies at pages 38 and 39. A short summary of vacant posts notified in the advertisement columns appears in the Supplement at page 131.

Remarks

OF

ACUTE CONDITIONS IN THE LOWER ABDOMEN OF THE FEMALE

BY

W. W. CHIPMAN, M.D., I.R.C.S.P.,
Professor of Gynaecology and Obstetrics, McGill University,
Montreal

Two general considerations

1 The genital tract in the female is a hollow cylinder, bifurcate above, which communicates directly between the skin surface and the peritoneal cavity. A direct channel, or avenue of communication between a contaminated skin surface and this mesothelial space¹ (Victor Bonney)

And this genital tract is subject to many vicissitudes. There are the traumata of menstruation, of childbirth, and abortion, and the dangers associated with venereal disease. It is an imperfect world. Hence in the female the frequency of acute infections of the lower abdomen.

2 The peritoneal cavity is one of the three large enclosed chambers of the body—it is the largest of the three the largest lymphatic space. Its absorptive surface is immense, compared either with the pleura or the subdural space. Hence the danger of an acute infection of this large space. The peritoneal cavity—an organismal Valhalla—a perfect incubation chamber.

These acute conditions are sometimes grouped together under the term, "The acute abdomen," "The emergency abdomen," or "The abdominal emergency." The point of the emergency concerns both the patient and the surgeon, and any given individual has only one abdomen. To open or not to open—that is the question, a decision of entimes of very grave importance.

I need not tell you that the opening of the abdomen should never be lightly or carelessly undertaken. I object to the term of "giving the patient the benefit of an exploration." "Open and see" is a foolish hehest. If too often done this may be interpreted as "condemning the patient to an added injury." In surgery we must remember the three "C's"—caution, care, as well as cutting. You will also agree that before any abdominal operation is undertaken a vaginal examination, a rectal examination, or both, should invariably be made.

In general terms, these acute conditions may be grouped as follows:

- 1 Haemorrhage, a concealed haemorrhage
- 2 Acute infections, usually of the uterus, the Fallopian tubes or the appendix
- 3 Perforation of the bowel or other hollow viscus—perforation or rupture
- 4 An acute bowel obstruction
- 5 Strangulation of any organ or neoplasm
- 6 The passage of a ureteral stone
- 7 A uterine abortion, spasmodic dysmenorrhoea, or even a bladder retention

For the gynaecologist the most common of these are a ruptured ectopic pregnancy, an acute appendicitis or salpingitis, a uterine infection, strangulation, thrombosis, or an ovarian cyst, or uterine fibroid with a twisted pedicle.

Speaking in a general way for all these conditions, some of them are at once recognizable—his who runs may read—while others require a most painstaking differentiation.

May I first make two pleas of a preliminary character? The first concerns the wisdom of a careful case-history, for in many of these conditions the previous history, or the story of the onset, may afford the clue. Sir James Mackenzie pointed out that in difficult cases the diagnosis frequently depends more upon an exact history than even upon a careful examination. My second plea is always to pass a catheter, and to examine the resulting urine.

I shall now discuss in a general way the various signs and symptoms of these acute conditions.

Pain is always the outstanding symptom. It may well

¹ Paper read in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Cardiff, 1929.

be defined as Nature's expostulation to an injury, and its function is a protective one. La Rocheffoucauld has told us that pain is the greatest liar in the world, but it is wise not always to believe this. At times it is a liar, and so for the matter of that are all men, and a few women, but I believe it is wise to take the following advice: "Never open the abdomen for pain only"—for pain only and with no accompanying signs or symptoms.

The most important sign, perhaps, is the face—the abdominal face—the facial expression, and this never lies. So often it is the anxious peritoneal face, apprehensive. In haemorrhage it is pallid, often waxy, and the mucocutaneous line of the lip is unduly sharp and pronounced. There is the grey ashen face of shock, and the flushed or cyanotic face of a severe toxæmia. The severity of the lesion can often in this way be immediately inferred.

And there is the attitude of the patient, her decubitus and her mobility. If the lesion be acute and intraperitoneal, the patient lies invariably upon her back, and with her knees flexed. Any movement is a torture. On the other hand, if the patient moves readily, and turns easily on her side, there is no grave lesion within the abdomen. I have often found this test of asking the patient to turn over on her side of great service.

So far, you will observe, I have not mentioned either the temperature or the pulse rate. I shall refer to them later in their special place. Let us now consider the three commonest of these lower abdominal conditions. These are haemorrhage, acute infections of the appendix or Fallopian tube, and a strangulation or thrombosis of a pelvic organ or neoplasm.

1 Haemorrhage

The first of these is haemorrhage. The common site, of course, is a ruptured tubal pregnancy. A severe haemorrhage may arise, however, from other situations—for example, from a ruptured Graafian follicle. Three years ago Primrose of Toronto reported six such cases. I have met one in my own practice, and there was a large loss of blood. Again, a varicocele may rupture, and a uterus ruptured during labour, or perforated even by a sound or curette, may lead to a severe intraperitoneal haemorrhage. The history here is all-important.

Usually the condition is that of ectopic pregnancy. As you know, the history of the pregnancy, the amenorrhoea, is often indefinite. Rupture occurs usually between the seventh and the twelfth week, and this rupture may be large or small. The dangerous situations are the isthmus and the cornu of the uterus. If large, the haemorrhage is usually severe—the cataclysmic ease with pallor, subnormal temperature, rapid and thready pulse, air-hunger, cold and clammy extremities. The abdomen is tumid and tender, frequently tympanitic, for the bowel floats, the blood has a high specific gravity. The pouch of Douglas may be full and depressed, and a feeling of crepitation may be present as the finger breaks the blood clot. There is frequently the history of a dagger-like thrust of pain, with immediate faintness or collapse. A uterine trickle of blood is often manifest, together with rectal tenesmus, and some bladder stranguary. In these severe cases the diagnosis is easy, and does not require the taking of a haemoglobin index. The abdomen should be opened at once, and venous transfusion, of citrated blood or a glucose saline, carried out.

It is well to remember that if such a patient survive and be not seen till the fourth or fifth day she may present all the signs and symptoms of a widespread peritonitis—namely, fever, a rapid pulse, a distended abdomen with paralytic ileus, regurgitant vomiting, with a marked leucocytosis—the picture of late bowel obstruction.

In a so-called chronic case—the "leakers"—while the diagnosis is less urgent, it is sometimes more difficult to make. There is the history of repeated attacks of sharp, lancinating pain in the lower abdomen, an interval of twenty-four or forty-eight hours, or even some days, between them, slight uterine haemorrhage, no marked fever or great disturbance of pulse rate, a lateral mass on one or other side of the uterus, increasing rapidly in size. Mark such a case. If a decidua is shed from the uterus—this occurs in only about 20 per cent of the cases—the diagnosis is clear.

There is in these cases a degree of anaemia, there is often a marked leucocytosis (De Quervain contends that a leucocytosis of 20,000, where signs are slight, points to a haemorrhage rather than to an inflammation). A haemoglobin index is of small value. Two years ago the hope was expressed that a low and falling index would reveal a concealed haemorrhage. Unfortunately, this is not so.

We rely in these cases upon the history—the recurrent attacks of pain, the uterine bleeding and mass, at first lateral to the uterus, which increases rapidly in size. It is always well to bear that in mind. If in doubt, an exploratory colpotomy is the indication, and it settles the matter. If blood is found, the abdomen should be opened from above and the tubal sac removed.

2 Acute Infection of Appendix or Fallopian Tube

The second common condition is an acute infection—an infection of either the vermiform appendix or the Fallopian tube. The distinction between these two infections is all-important, for an inflamed appendix should be at once removed, certainly within the first twenty-four hours, while to open the abdomen for an acute salpingitis is nothing short of a disaster.

The inflamed appendix we all know, with its more or less definite syndrome, outlined first by Reginald Fitz, and its surgical treatment indicated by Charles McBurney of New York. Professor Wilkie of Edinburgh emphasizes an important pathological and clinical distinction. He says

‘There are two main types of acute appendicitis: (a) the one infective, an organismal invasion of the lymphoid tissue of the inflammatory type, here there is pain more or less continuous but not severe fever, increased pulse rate, localized tenderness, and a marked leucocytosis; and (b) the obstructive type, faecal concretions often present blocking of the circulation and sudden gangrene, and perforation. Here the pain is intense and spasmodic, the fever is slight, the pulse is often rapid—the abdominal faeces—and no great increase in leucocyte count.’

These are his two main divisions, and I think they are well founded.

The common infection of the Fallopian tube we are all familiar with. It is really a mixed infection, an acute exacerbation of a chronic condition. The chronic infection is a gonorrhoeal one, rarely tuberculous, and the acute malfeasit synergism is frequently due to the colon bacillus.

It is the distinction between these two acute conditions, the one of the vermiform appendix and the other of the Fallopian tube, that sometimes taxes our clinical acumen to the utmost. How shall we proceed to such a distinction? It is, I admit, an old story, but one that in our daily practice is ever new.

In a general way it may be said that in acute salpingitis the patient does not appear so ill, the temperature is often high, it is true, usually higher than in appendicitis, but the pulse rate is not correspondingly disturbed. The face is often flushed but not to the same degree anxious or apprehensive. The function of the bowel is not so greatly disturbed, nausea and vomiting are not a feature though there may be considerable distension, abdominal tenderness and rigidity are more diffuse and widespread. All this in a general way, the general rule if you like, where there are bound to be exceptions.

The history of the case—of the onset, or of previous attacks, a previous complicated puerperium, a one-child sterility, with depraved menstrual habit—may afford a clue. And then in our examination we always look for signs of a gonorrhoeal infection. As I have said, it is an imperfect world. First, the signs at the vulvo-vaginal outlet, the chronic urethritis, with the pointing and oedematous tubules of Skene, the maculae gonorrhoeae at the opening of the Bartholinian duct—these are all signs that a gonorrhoeal infection has passed that way.

If the infection be a Noeggerath's infection—a chronic gleet in the male—there will only be the chronic cervical catarrh and the immobility of the uterus—the uterus fixed in situ, as it were, and often with no definite appendage mass. Yet at this time the appendages are slightly enlarged and very sensitive, and the mere movement of the cervix uteri elicits severe pain.

With such a finding the diagnosis is an acute exacerbation of a chronic salpingitis, with a spreading peritonitis, and the indication is—*above all things do not operate*.

The situation in these cases was well summed up some years ago by one of our able southern surgeons, when he said, “In a gonorrhoeal salpingitis, never operate in the acute stage, wait till the cold stage, and clear them out.” Never operate till you are compelled.

In contradistinction to this clinical picture I think it is wise for us to keep in mind a typical attack of appendicitis. The history helps us here. There may have been previous attacks, but—

The pain is first felt above the umbilicus or in the epigastric region, it soon determines itself in the right lower quadrant. There is anorexia, or nausea, or even vomiting. There is tenderness over McBurney's point, which we remember is the base of the mesentery of the appendix—a lymphangitis. There is also some muscular spasm or rigidity of the right rectus or oblique muscles, with fever or quickened pulse rate, often not specially pronounced. There is a moderate leucocytosis—ten to twelve thousand—with polymorphs predominating. If the inflamed appendix be near the brim of the pelvis a vaginal or a rectal examination shows a marked tenderness in the neighbourhood of the right sacro-iliac joint.

Such is a typical clinical picture of a catarrhal appendicitis. We can see at once how it differs from an acute salpingitis. When in doubt between the two watch and wait—hour by hour, not day by day.

3 Thrombosis, Gangrenous Organ or Neoplasm

Here the lesion is a definite venous thrombosis, or a twist in a pedicle. The common neoplasms that suffer this pathology are ovarian cysts of medium size, or a fibromyoma of the uterus, pediculated or intramural. Frequently the patient has been aware of the presence of the neoplasm. The pain is severe and colic-like, short in duration, and the tenderness is at first localized to the tumour surface, there is slight disturbance of temperature or pulse rate.

A careful examination discovers the neoplasm. If the thrombosis be extensive or the strangulation severe, and the patient be seen late, there are all the signs of a superadded peritonitis, the result of a colour infection. These three conditions mark the common acute lesions of the lower abdomen.

May I add here a word of warning in respect of pneumonia?—a pneumococcal infection, which may spread below the diaphragm and simulate even an appendicitis. My warning consists in this—a careful history of the onset. If a rigor has occurred, a chill, it is probably not appendicitis. In a series of 85 cases of appendicitis a chill was recorded but three times, so, if there is a chill at the onset, watch the alae nasi (count the respirations), think of pneumonia, and make a leucocyte count. If the leucocyte count be over 15,000 in the first twenty-four hours the condition is likely to be pneumonia and not appendicitis.

A word or two concerning bowel obstruction—an obstruction of the lower bowel. I need not remind you to examine all hernial orifices. An intussusception is common only in the young or adolescent, and soon gives rise to a typical ileo-caecal tumour and the characteristic bloody-mucous bowel discharge. A volvulus occurs rather in the old, a rare left-sided lesion, which can usually be felt by bimanual examination.

The obstruction causes colic, with quiet intervals, constipation, of course, and, later, the antiperistalsis, may result in vomiting. A diverticulitis occurs usually in the pelvic or iliac colon, and diarrhoea is a frequent concomitant—diarrhoea and fever.

A stone in the ureter or in the pelvis of the kidney may cause abdominal distension and vomiting, and not a few abdomens have been mistakenly violated. The onset of the pain, its distribution into the urethra or down the leg, frequent micturition, and blood in the urine may possibly identify it. If in doubt, an x-ray picture should be taken.

A good surgeon must first be a good physician—a mind broadly trained, and the hand narrowly. The function of the good surgeon is to diminish surgery in the world to-day.

THE FALLING BIRTH RATE *

I—THE BIOLOGICAL ASPECT

I. A. E. CRAW, M.D., Ph.D.,

Animal Breeding Research Department University of Edinburgh

THE birth rate of this country has fallen and is still falling. That this is so is a matter of very grave concern to those who choose to envisage the overwhelming of our prized culture by hordes of barbarians of this or of that particular line, but all equally and amazingly fertile. To the biologist, however, there is nothing remarkable and nothing necessarily ominous in this decline. Had the conclusions which have emerged from the work of Pearl and his associates, and of Elton and others, been known at the time when the birth rate was soaring, this present fall would have been foreseen and accurately predicted. To the biologist a falling birth rate is nothing but the sign of the approaching end, not of a people or of a culture, but merely of a population growth-cycle.

All living things, be they pumpkins or peoples, exhibit in common the quality of growth. The growth of every living thing—an individual animal or plant, unicellular or multicellular, a congregation of cells or of multicellular individuals—follows the same scientific law. In the absence of appropriate external conditions there is no growth. Growth, due to the production of new living material or of new individuals, is encouraged, permitted, embarrassed, or prevented by conditions incident to development. The beginning of an individual, or of a congregation of living units, is small, but, in virtue of this inherent developmental impulse to grow, increase in size of the whole, and in size and number of its component parts, occurs.

The law of population growth, as enunciated by Pearl, states that the population at first grows slowly but gains impetus as it proceeds, passing gradually into a stage of rapid growth, which finally reaches a maximum rapidly, and that after this stage of most rapid growth is passed the population increases ever more and more slowly until, finally, there is no more perceptible growth at all. Such is the history of a single population growth-cycle. Stated somewhat differently, the law postulates that, within one and the same cycle and in a spatially limited area, growth in the first half of the cycle starts slowly, but the actual increment per unit of time increases steadily until the mid point of the cycle is reached. After that point the increment per unit of time becomes steadily smaller until the end of the cycle. In a spatially limited area the amount of increase which occurs in any particular unit of time at any part of the single cycle of growth is proportional to (a) the absolute size already attained at the beginning of the unit interval under consideration, and (b) the amount of unused or unexpended actual and potential resources for the support of growth in the given area. (In the case of human populations (b) includes such things as the amount of agricultural land still uncultivated or imperfectly cultivated, and new discoveries relating to production, manufacture, and distribution.)

If the birth rate of a population living in a spatially limited area remained constantly higher than the death rate, growth would continue according to an exponential curve to infinity, and no pause, and no fall, would be discernible. The result would be an ever-increasing density of population, leading ultimately to complete saturation. If, at the same time, the increase in available food did not parallel the increase in the needs for it, there would be ever-increasing insufficiency, leading ultimately to famine. The problems of increasing density and deficient food supply could be solved temporarily, and from time to time, by migration into less favourable regions, and by modifying the dietary. But it may be assumed that to both of these expediences there must be limits, and that ultimately, if harmony between container and contents is to be preserved or restored, the population must needs become stationary or reduced. The quart in the pint pot

must overflow, and a part be spilt and lost. This reduction in population could be achieved by removing the surplus or by reducing the rate of growth.

The first method of population reduction is the catastrophic, and is exemplified by the work of Elton on wild rabbit, field mouse, and lemming populations, and of McKeendrick on human populations. It would seem to be the case that as soon as population density reaches a certain level, epidemics, which otherwise would fade out, race through the whole population. The establishment of a harmonious relation between the density of a population and the habitat, by the removal by death of a proportion of the individuals, is to be observed in the case of the litters of polytocous mammals. Corner, Hammond, and others have shown that in the pig, for example, there is a considerable reduction in the number of the embryos resulting from conception, and an orderly spacing of those that remain, the actual size of the litter being determined in great part by the abundance and quality of the food supply. The instruments that play their parts in this catastrophic increasing of the death rate are war, pestilence, and famine.

The second method, that of reducing the birth rate, is revealed in the work of Pearl on *Drosophila*, where the primary cause limiting population growth is a fall of fecundity and fertility with increasing density. In this it is seen that the process is relatively gentle and orderly. It would seem that the conditions incident to overcrowding provoke a reaction on the part of the living organism which takes the form of a depressed fecundity. In the case of the mouse, it is the male which first reacts in this way to overcrowding. In the case of human populations this passive response to environmental discomfort can be replaced by a deliberate and conscious control of the reproductive rate (birth control). The end-result in all cases is the same, the rate of population growth is checked. It is for human societies to compare the different methods and to decide which shall operate—the catastrophe or the orderly, the overwhelming or the controlled. Is it not the case that if there is food scarcity and overcrowding in a spatially limited area then, by this method or by that, there follows a reduction in the population, and a re-establishment of the harmony that must exist between the life-supporting capacity of the area and the sum of the living? It may be that mankind can adapt itself so that it will be able to flourish in circumstances which now are impossible. For the present, however, a generous amount and quality of food, and a certain amount of elbow-room, are prerequisites to normal development.

Mankind can not only adapt itself to a changing environment, but can also modify the conditions of its habitat. Every advance in the application of knowledge which amplifies man's power to derive more fully from his physical environment things conducive to his material welfare increases the potentialities for population growth in a given area. Any discovery relating to the production, manufacture, or distribution of food may quickly be followed by changes in habits, and then either the upper limiting value of the population attainable in the cycle of growth then current is moved up, or else a new cycle of growth starts from a base line of the population already attained at the end of the previous cycle. That which an implant of anterior pituitary can do for the individual, industrialism can do for an agricultural population.

A rising birth rate heralds an extension of the conquest by man over his environment or over himself, a falling birth rate is an indication that mankind in a particular area is temporarily or permanently imprisoned. Man, like certain other animals, does not breed freely in captivity, even though this is picturesque and apparently comfortable.

The birth rate is falling now because this is the end of a population growth-cycle, and it will not rise again until those factors which are at present overriding the inherent tendency to increase are recognized and removed. When this has been done a new growth-cycle will be initiated and the birth rate will rise.

Most of these factors are, without doubt, social and economic, but, whatever they may be, they must produce

* A discussion in the Section of Medical Sociology at the Annual Meeting of the British Medical Association Cardiff 1928.

then effects because they condition the action of the forces of natality, mortality, and migration. The birth rate is the reflection of the operation of those agencies which raise or reduce fecundity, render fertilization more or less sure, and which do not, or do, interfere with the development of the products of conception.

Fecundity, the power of elaborating functional gametes, is affected by inborn and environmental factors which determine (1) the number of ova available for fertilization, (2) the frequency of ovulation, (3) the functional ability of the gametes.

Fertilization, the fusion of the gametes to form the zygote, is influenced by inborn and environmental factors which affect (1) sexual congress, (2) the actual union of ovum and sperm.

Pregnancy is influenced by inborn and environmental factors which affect the processes of development of the embryo and foetus.

Difficult as it is to disentangle the environmental factors, which profoundly influence the reproductive functioning of the individual, from the inborn, an effort to do this must be made, even though the result may be useful only in serving to emphasize the depth of our present ignorance and the urgency of the need for ardent experimentation. Much of what is known has emerged from the study of experimental material other than man, and this fact must be remembered in any discussion concerning human populations. It is not safe to transfer, by simple inference, conclusions derived from the study of less complex forms to the case of man, it has to be shown that that which holds for one form holds also for another. Moreover, even though the same phenomena are presented by two different forms, it does not necessarily follow that the causes have been the same in the two cases. But natality and mortality are not the peculiar possessions of humanity, and, therefore, it is highly possible that the conclusions reached in experimentations with mice, for example, may at least suggest lines of profitable inquiry into problems of human population.

Biological inquiry in the past has concerned itself mainly with problems that relate to the individual, the group has seldom been studied. It is established, however, that a congregation of individuals is biologically different from the sum total of the individuals comprising it, the whole in the organic world is something more than the sum of the parts. An intimate knowledge of a great number of individual bees could not explain the hive, a thorough understanding of the biology of the individual human subject does not comprehend the State with qualities and attributes peculiar to itself. But at long last the science of group-biology has come into being, and its contributions, though as yet but few, are important in themselves, and in that they point the way to a clearer understanding of the work that must be done before policies can be soundly based and brought into harmony with established biological fact.

The ability of a pair to beget offspring is conditioned by the ability of the individuals concerned to elaborate functional gametes. Though fecundity is influenced very directly by environmental agencies, including food (vitamins B and E, for example), yet it can be demonstrated that different races, stocks, and individuals are to be distinguished one from the other by true-breeding differences in fecundity. In the human subject the tendency to multiple births is faithfully transmitted through both male and female. This being the case, it follows that the birth rate of a population is affected by the proportion of "multiple birth" stocks present in that population. The King's Bounty is one method of making this true-breeding character socially worthy; the jokes of the music-hall are but modern versions of older taboos.

The reproductive rate of a pair, or of a community, is controlled by the frequency of the opportunities for effective fertilization. In a general way it may be accepted that the frequency of menstruation is an indication of the frequency of ovulation. Thus the reproductive rate is proportionately higher in those races, stocks, and families in which puberty is attained relatively early, menstruation is more frequent, the climacteric later, and the length of life greater. The relative time of onset of puberty is a true-

breeding character, so also are the relative time of onset of the climacteric, and longevity. It is possible that in the past the inherently longer-lived contributed disproportionately to the population, since the others were wiped out more quickly, and therefore had but few offspring, and that under modern conditions the latter live longer and transmit to their progeny this lowered fecundity. This would be a reasonable explanation of a lowered birth rate if it could be shown that there exists a high correlation between longevity and high reproductive rate. The frequency and intensity of menstruation, like all the other phenomena, are largely conditioned by environmental agencies, but, when all due allowances have been made for these, it still remains a fact that race can be distinguished from race, and stock from stock, by differences that are faithfully transmitted. In certain human females the *mittelschmerz*, the interval pain, may possibly be an indication of a secondary menstrual rhythm superimposed upon the main one, and it may be that such females ovulate more frequently.

Since the population has increased disproportionately to the accommodation and food supply, this country is now relatively overcrowded. There is a fundamental law by which the growth of a population is regulated by its own density. When the density reaches a certain point the death rate rises and the birth rate falls. Density applies not only to a country but also to its apartments. Lack of houses is an indication of a relative regional overpopulation, if, and when, the builders fail to keep pace with the babies, the birth rate will fall. The present housing shortage not only affects the birth rate indirectly through the marriage rate, but also directly through increasing density. How density provokes its results is not known, but the work of Pitt-Rivers perhaps suggests that sheer discouragement is enough to destroy a people. In the case of the vanishing peoples of the South Seas observed by him, coitus occurs, and there is no attempted contraception, yet the birth rate is steadily falling. The clash of cultures has made these peoples discontented and discouraged, and they are dying out. They cannot, or will not, adapt themselves to changing circumstances, and, therefore, they must perish.

There must be joyousness, eagerness, roominess for potential parents, or else the babies will not come. The birds when they mate build nests, but for human lovers the tenement is built by those who are ignorant of the relation that exists between population density and reproductive rate. The birth rate is falling because among other things this country is not fit for parents to live in, we await the coming of a new discovery, scientific or political, that will raise the level of the optimum density endured by mankind or increase and further democratize material prosperity.

The opportunities for fertilization are determined by the proportion of women of fertile age in the population, by the proportion of these who are married, and by the fertility of the marriages. The nature of the sex-ratio, the system of marriage, and the sexually selective catastrophic death rate of the late war condemn a great number of women to permanent yet undesired virginity. The sex-ratio cannot as yet be controlled. This is not the occasion for a discussion on the biological aspects of the prevailing marriage system, and the effects of the war are too manifest to require argument, but the fact that many women cannot become mothers cannot explain the falling birth rate. A high marriage rate associated with a low per-reproductive-woman birth rate can yield the same reproductive rate as can a low marriage rate associated with a high per-reproductive-married-woman birth rate. It would seem that in an inelastic habitat many marriages mean small families, whereas few marriages mean larger families. It is indeed probable that there is an inverse correlation between marriage rate and birth rate per reproductive married woman. Again, the controlling factor would seem to be density. Few marriages and larger families may yield a high reproductive rate, but it may be expected that among the offspring of relatively few couples there will be less variety, and variety surely is to be desired.

There can be no doubt that the present low birth rate is in part due to the incidence of sterile marriages. In certain cases it would seem that the ovum and the sperm

more as mutually antagonistic physico-chemically as are the blood serum and corpuscles of individuals belonging to different blood groups. There is no doubt that two individuals, mutually sterile, can yet be fruitful in other matings. But even the presence of mutually sterile couples in the population cannot account for the fact that the number of children per mutually fertile couple has also fallen. Perhaps the social and economic developments during recent times have permitted, or even encouraged, the survival of stocks which were, and are, relatively infertile, or which react more readily to the disharmonies attendant upon industrialism.

The peak of sexual activity, as established by the frequency of sexual intercourse, is about 29 in the male, while a woman's reproductive power drops sharply after 30. It follows therefore, that those who marry late tend to have fewer children. The relatively and highly fertile are such as reach full earning power early, and marry at a younger age. Prosperity implies plentiful food and comforts, and an adequate medical service and, therefore, a lowered death rate and a rising birth rate. But if such prosperity is associated with an unequal distribution there will be a differential fertility among the social grades created by this prosperity. Possibly Bernard Shaw's scheme of equal distribution would be followed by an equalized fertility rate throughout the community. If a large section of the community which is, socially, relatively unsuccessful, though by no means necessarily relatively unskilled in the biological sense, is left with no other mode of nervous release save that which excessive drinking and sexual over-indulgence can give then there will be a higher reproductive rate among these than among the community as a whole. Social advancement implies a lowered reproductive rate, for the reason that those who can, and do, advance socially are presented with a greater variety of modes of self-expression and of self-indulgence.

In one sense children are commodities subject to the law of supply and demand. There was a time when children could be regarded as commercial assets, but the Factory Acts have greatly depreciated their value as wage earners. One could assume that in these days when it would seem that everyone must be acquainted with methods of preventing fertilization, only those children are born whose coming is desired. Is not the fall in the birth rate due, in the main, to the spread of a deliberate and conscious limitation of fertility? It is undoubtedly the case that among the middle and upper social classes contraception is widely attempted. This being so the conclusion that these methods attain the end desired by those who employ them is inherently probable. But, unless it can be shown beyond all reasonable doubt that the methods employed are actually effectual, it cannot be accepted that birth control is largely responsible for the fall in the birth rate. It certainly has affected the marriage rate, in that a faith in contraceptive methods has caused this to rise. But such records as there are certainly seem to show that this faith is too often misplaced. Of course, birth control has undoubtedly prevented the birth of a great many individual babies, and it is probable that many of the methods now in vogue lead indirectly to later and permanent infertility. But it is very doubtful indeed if birth control has affected the population growth-curve—the crude birth rate. The fall in the birth rate has been too gentle, it has proceeded with evolutionary steadiness, and it has been universal. It would seem, therefore, that the fall must be the expression of some biological factors, and not due directly to some local social disturbance which produced repercussions throughout the world. Birth control, like migration, does not put waves into the curve of growth of a population already of a certain absolute size, it merely alters a population by altering the proportions of the different sections. It can be argued that the same total number of babies have been born as would have been born had birth control not been heard of, birth control has played its part no doubt, but may it not be that all that it has done has been to slam the doors of suburban houses and to open those of a slum? It would seem to be the case that conscious and deliberate limitation of fertility has been, and is, practised mainly by the

socially relatively successful—that is, by the inherently relatively infertile. If this is so, then it has prevented fewer conceptions than it would have done had it been employed by the socially relatively unsuccessful. The problem thus becomes that of determining the relative biological worthiness of the social grades. Is the present social structure one that encourages and rewards biological worthiness? And what is fitness? There is no reason to assume that, whatever this may be, it is linked with high-grade fecundity. The elephant is fit, and so also is the carwig, yet their reproductive rates are nightly different. Is the standard for humanity to be good physique, good brain, and low-grade fecundity? If so, then the ideal can be found abundantly among all social grades.

The suggestion that the relatively unfit are more abundant among the socially submerged is not necessarily true, for it must not be forgotten that it is far easier for a good man to climb out of the gutter than for a socially and biologically unworthy scion of an established family to descend to its depths. Many are those who float gaily in the mid-stream of social life, buoyed up, not by their own intrinsic worth, but by the efforts of their more worthy associates.

However, even though birth control may not have played any considerable part in the production of this fall in the birth rate, it would have been well for humanity had it been the only responsible agent, used intelligently by a people who knew what they did, and why they did it. All other methods are imposed upon a people, this is one that may deliberately and consciously be employed by a State to achieve harmony whilst new discoveries are awaited. At the present time it would seem that most, if not all, methods of birth control are too uncertain to allow any policy to be based upon their employment. A real control of fecundity and of fertility must soon be achieved if man, the rebel, is to consolidate the gains that he has won from Nature.

The course of pregnancy and parturition is affected by factors which disturb the harmonious and parallel development of the maternal organisms on the one hand and of the foetus on the other. It is not improbable that, if the rate of the development of the pregnant uterus becomes out of time with the rate of development of the foetus, abortion results. Sex-linked lethal factors can operate in this way, as can also genetic disharmonies in the time or rate of functioning of the endocrine glands. The birth rate of that race or stock in which such genetic factors exist must necessarily be affected.

Such, then, is my contribution to this discussion. I have tried to be provocative, I have incautiously stepped from the solid ground of fact to the uncertain terrain of opinion, but on my opinions I set no great store, none of them are precious to me. I trust that I have faithfully performed the duty that I undertook, that of exciting you to rob me of my point of view. I shall not mind if, in exchange, I get a better.

II—THE ECONOMIC ASPECT

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THERE has been a period in which certain propositions concerning population were widely considered to rank as well-established and most important theorems of economic science, and an economist who did not profess or accept them would at least be expected to discuss them and to give his reasons for rejecting them. Malthus, the propounder of these laws of population, as they were sometimes called, was believed to have enormously increased the range of historical facts which the economist could explain, and to have indicated and established conditions of human social life on earth which no economic thinker, who was not satisfied with building castles in the air, could long afford to ignore. It is well known that Malthus's treatment of population, which secured the assent of a long-continued tradition among the political economists of

many nations, also acquired a wider biological significance through suggesting to Charles Darwin certain lines of inquiry into the variation of species. Some of Malthus's main contentions appear to have been, in fact, biological propositions and not propositions to which economic inquiry, in any proper or limited sense, would have led him. This is assuredly of no importance in comparison with the truth of the contentions themselves, and I mention it here only because I shall presently have occasion to distinguish between propositions which are themselves economic and propositions which, however much it may concern the economist to take account of them, are not established by any method or inquiry which belongs specifically to economic science.

Economists continue to discuss the question of population, and most of the comprehensive treatises will be found to contain considerable sections devoted to this discussion. Recent inquiry by economists and sociologists into the theory of population is much more critical and tentative than the argument found, for example, in Mill's *Principles of Political Economy*, a work which I mention especially because it was one of the last general treatises published in this country to present the old doctrine of population in a readable and overwhelmingly persuasive form. I cannot claim that the science of economics now offers an orthodox or generally accepted doctrine of population, with the suggestion that the intelligent student can, once he has understood it, set about "applying" it with confidence to the actual situations which confront him. What can be claimed on behalf of our contemporaries is that they have access to a much wider range of facts than their predecessors who so confidently propounded a law of population, that, in particular, statistical data are much ampler and statistical methods much more refined, and that economists and kindred inquirers are apt to discuss the problems of population responsibly, and in view of important social issues. But a simple and definite theory or law of population no longer holds the field.

"Restriction of births" occupied a prominent place in the presentation of the older theories, and the notion has accordingly been familiar to economists since the first publication of Malthus's work. His fundamental proposition was that the population tended naturally, by the birth of new members, to press against the limits of subsistence or of food. The excessive population necessarily perished, though not in all cases directly of starvation, misery, pestilence, war, and other such "positive checks" diminished the number of the population, and thus anticipated the work of starvation, selecting, we may notice, victims who would not necessarily all have died of starvation, but, at all events, giving a better chance of livelihood to the survivors. The operation of such causes as starvation, war, and pestilence in reducing the population might, it was argued, be replaced, with great advantage to human well-being, by prudential checks on multiplication, as, for example, later marriage, marriage only when future livelihood was assured, and so on. The artificial prevention of conception was advocated by later writers and agitators as a suitable prudential check, but often guardedly, and subject to social censure and handicap which have notoriously, within our lifetime, shown a strong tendency to diminish.

I do not find Malthus's reasoning cogent or impressive, and hope that I shall not be accused of misrepresenting it in the above brief summary. What will not, I think be disputed is that Malthus's doctrine was advanced by him and used by its later adherents as a doctrine of political or social economy, and only incidentally or occasionally as embodying sound counsel for the ease and security of particular families. The social problem was thought to consist in the disproportion between the numerical increase of a group—a national or political group, for example, or the whole of a group within which regular commerce prevailed, and so possibly, if intercommunication became sufficiently penetrating and prevalent, between the increase of the whole human race—and the resources available for its physical maintenance, not in the mere inconvenience which adventurous or unfortunate parents might fear or encounter in trying to rear a large family. If members of such families grew up and prospered at the expense,

as might sometimes happen, of the less vigorous or less fortunate children of more prudent parents, the liberal political economy of the nineteenth century was not equipped with any argument against the desirability of such competition.

The decline in the reputation of the old doctrine of population, and, less directly, of other economic doctrines connected with it, is often declared, and I think rightly, to be related causally to the actual adoption in many countries, including our own, on a large scale, of the practice of prudential restraint—in the form not mainly, or to any extent relatively important, of the deferring of marriage to a later age, but of the express and deliberate limitation of the number of children born to parents capable of producing them. Statistical data concerning numbers of children born, the age and sex distribution of the population, and other facts which are relevant exist for our own and for many other countries, though no one contends that the statistics are perfectly accurate, no unformed person would, I suppose, contend, either, that they are completely worthless and misleading. The official statistical data naturally throw no light on the means by which the reduction of the number of births is secured within the marital relation, and we are compelled here to have recourse to other sources of information which are in their way ample and obvious to those who care to attend to them, but not, like the figures published by governing authorities, precise and statistical.

A fairly persistent decline in the birth rate is shown in the public statistics of this country during the last fifty years, and, roughly speaking, during the same period the same tendency is shown in the statistics of other countries of Western civilization. The phenomenon appeared considerably earlier in France and in certain sections of the population of the United States of America, and there are other variations also which would prevent us from insisting upon the seventies of the last century as a critical period for the natural increase of the population of these areas. It is noteworthy, also, that a diminution in the death rate has been, generally speaking, a characteristic of the same period, and that the statistics of births and deaths, taken together, have not in most countries given rise to lively apprehensions of a net diminution of population or even of a future failure of the population to increase. Such apprehensions have found expression in respect of the French population, and in the United States in respect of the relatively native or settled population, as opposed to the recent immigrants. American statistics are said to be manifoldly imperfect, but they enable conclusions to be drawn as to the rate of reproduction of various classes of the population, and they show, for example, that relatively more children are born to unassimilated immigrants than to the pure Americans. That the rate of increase may be "differential" as between different classes of the population is a matter to which importance is naturally, though not in all cases very reasonably, attached. We must return presently to this subject, noting for the moment that the population of a particular area may be recruited and increased by immigration, and, of course, diminished by emigration, that such movements have taken place in recent periods on an enormous scale, and that they have occasioned political and economic changes of the first magnitude.

The British statistics yield, indirectly at least, much information to the effect that the decline in the birth rate is "differential" also in our community, and more especially that birth control prevails more widely among the relatively better situated. Other sources of information are accessible here also, and it may be treated as notorious that the restriction of births is not confined to the well-to-do, and that large families, and especially large families of undesired young children, are to be found mainly among the poor. Mortality in early years and shorter life might be expected to be more frequent in this class also, and those who fear for the parentage and upbringing of the future adult population of this country are properly reminded of this connexion between high birth rates and high death rates. An observation which may frequently be made does not, however, lose

its impressiveness through the consideration just mentioned a married couple, for example, admirably equipped according to the prevailing standards for the decent upbringing of children, rears to maturity two children or only one or none. In the first case the couple is, to use the common phrase, just "reproducing itself" if its children reach maturity, and it is not even doing this in the two other cases. If we think of such parents as a class of eminently good citizens—apart from the possible dereliction of duty in this respect—and of conduct like theirs as prevalent in the class which possesses the like eminence, we may be led to feel alarm at the prospect of the failure of the "best" elements of the community to reproduce themselves.

It is not surprising to find that the propagation of children can be urged as a duty towards a social group or members of that group, as I think we may see at once by attending to the following sentences from Sir Arthur Newsholme's work on *The Declining Birth Rate* (1911):

"It cannot be regarded as a matter of indifference whether the unfilled portions of the world shall be peopled by Eastern races (Chinese, Japanese, Hindoos, etc.), by negroes, by Slavonic or other Eastern European peoples, by the Latin races, or by the races of Northern Europe."

Every Briton will wish that his race may have a preponderant share in shaping the future destinies of mankind" (pp. 57 and 58). Whether we have in these sentences moral and social teaching which will bear rigorous philosophical examination or not, no one will question the assertion that these and similar statements would command a general and spontaneous assent among members of the groups to which the appeal implied in them is made. The average Briton is, I suppose ready at once to prefer that persons of his race should enjoy in the present and the future such and such kinds of preponderance, and to do so not merely with an unoffended, but with an approving conscience. His group reactions towards other "races" are notoriously more fluctuating. We can readily imagine also a preference, more or less deliberate and more or less vehement, similarly manifested at the prospect of a particular country being peopled by the adherents of this or that religion and the larger families of Roman Catholics, for example—not unconnected apparently with the attitude of the Roman Catholic Church towards birth control—have already excited apprehensions and hopes in certain communities of the effects on future public policy, the prevalence of mass numerical and disciplined voting obviously gives a certain definiteness to these apprehensions. I have referred already to certain fears which have been expressed concerning the relatively small number of children which are now being reared in middle-class surroundings and traditions. It is not perhaps so well known that opposition has also appeared in some labour or socialist circles to the propagation of birth control among the working classes, on the ground that the future voting and political and industrial "fighting" force of labour would be thus diminished.

It would obviously be rash to argue directly from the general assent, which statements of the kind just quoted would command, to the future conduct in their personal and private relations of the persons assenting, and it is important here to keep in view the possibility of mass effects on the conduct of large groups rather than effects in isolated instances. The average individual is not apt, I suspect to pass immediately from his general preferences for the social and political future to any shoddering of a share—which to him personally is heavy, but may turn out to be insignificant in the mass—of the costs of bringing about such a result. Accordance with his other inclinations and interests, persistent group pressure and example, and like causes may sometimes come to the aid of such ideal and remote aspirations.

That discussion of changes in the number and distribution of the population is often strongly affected by class interest and bias is obvious to all who are acquainted with it, and this view has been strengthened, I hope, by the preceding sections of this paper. Scientific and more especially economic discussion of the subject should, it might be claimed, be unbiased and disinterested, and should address

itself to establishing and exhibiting general relations between the changes of population and the conditions of subsistence and prosperity. The old law of population offered such a statement of general relations in terms of natural phenomena, distinguishing, indeed, between the successful and the unsuccessful competitors for food and existence, but containing no suggestion that the division of population into hostile groups was anything but an incidental result of its excessive number. The unprosperous were broadly and simply the numerical excess of months for which Nature, even when subjected to the utmost pressure from the available labour, did not provide. Economic writers who accepted this law of population did indeed occupy themselves largely with the conflicts of groups, the suppositional errors of Governments, and other such matters, but they did so with this apparently simple and austere law in the background, beside which the group conflicts of actual social life could, at any moment, be made to appear theoretically insignificant results. Modern economists, as I have pointed out, are not even vaguely agreed on any simple doctrine of population which could perform the debating functions of the older one. Many of them would, however, recognize the scientific importance of the notion of the "social class"—that is, of groups of persons similarly situated in respect of their modes and opportunities of livelihood, and distinguished thereby from groups which differ in this respect. Obvious and notable differences, constitutive of social classes, arise out of what we must be content to call generally the distribution of property or of "capital." Much more is involved in this distribution than the mere distribution during limited periods of the actual products of industry. The quantity of the products created and made available, and expected to be created and made available, also depends upon it.

From this point of view it becomes necessary in discussing the actual growth of population in the areas with which we are concerned to take account of the political and social divisions which prevail in them and to seek to discover how they affect the conditions of the problem. We cannot pass directly from propositions concerning the generosity with which Nature produces human beings, and the ingardliness with which she produces the things which they happen to need for their subsistence, to the actual problems of a society which obviously does not enjoy the use of more than a small fraction of the resources available to it for its sustenance and comfort. It is true also that we cannot learn in a few lessons to perform marvels of explanation by using the notion of the class war and of the catastrophe to which it is inevitably leading us.

It must be remembered, too, that our existing social institutions and situations are not ultimate facts, however important it may be to understand them, but are only a stage in the development of processes economic and non-economic. We can properly contrast them with such ideal constructions as we are able to conceive theoretically and to approve morally as reasonable and just. In doing this we may derive confidence from the reflection that our thoughts and aspirations have a claim to be considered as parts of the process which I have just mentioned.

I must now summarize briefly what I think a representative of economic science finds himself in a position to say on this aspect of the problem of population, and I must first show what I conceive to be, and not to be, the proper and peculiar object of economic inquiry. Economics deals specifically with a certain aspect of the conduct of men as members of social groups—that is, with such of their deliberate and not merely impulsive acts as are directed to the non-violent, and in this sense peaceful, but onerous or costly, acquisition of external things, the performance of labour and the exchange of its products being the typical and important modes of such peaceful acquisition. It does not study greed or covetousness, nor does it even indirectly commend them. It deals with an aspect of the conduct of every reasonable and responsible person, however generous his ideals and motives may be, and with any disposition which such person may make of his labour and his means with a view to acquiring results of labour and exchange without waste, that is, without unnecessary or superfluous expenditure or cost. The "economic man" or

the man who is, or is assumed to be, wholly absorbed in the acquisition of "wealth" is not the proper or peculiar object of the science of economics

Both the things which we "demand" or seek to acquire and the terms on which we can acquire them are to a large extent socially determined, departure from the normal expenditure of the social group or class is difficult and, practically speaking, not possible for its average member. The consideration given by economists and others to what is sometimes called "consumption," to fashion and to its changes, yields uniformly this same result. The interested stimulation and direction of demand with a view to profit is a very strongly marked feature of modern civilization, and has consequences of a kind especially important for our present purpose in the sense of creating uniformity of demand and in breaking down class barriers, in so far as these depend on habitual differences of expenditure. "The standard of life proper to a class" is not so constant a notion as to make its more or less assured attainment a source of deep satisfaction or confidence in the future, and this standard is not apt to include under modern conditions the rearing of a large or even of a small family of children.

That the children of a family should in certain circumstances be looked upon as a source of economic strength to it, and accordingly that the upbringing of children should be encouraged by the persuasion that the condition of parents will be easier when the children come to earn, need not shock or surprise us, unfamiliar to our personal experience though such express calculation may be. The possession of some undertaking in which children, as they grow up, can help or to which they, or some of them, can succeed is a condition obviously favourable to the parental habit, though it will obviously again not always impel in the direction of large families, and parents thus situated may exhibit, as a class, habits which might be rashly enough attributed to some parental instinct or impulse. Again the following remarks of Dr Newsholme (p. 40) ought not to evoke merely cynical comment, but should rather inspire confidence in the economic study of social facts. "In the earlier years of these [the textile] industries each child was his parents' savings-bank, from which savings could be drawn as soon as the child could go to the mill as a half-time. Now the age at which the child's immature strength can be exploited has been retarded, and the child is a less profitable asset than in the past." Doubtless, Dr Newsholme views with satisfaction the diminished exploitation of the child's immature strength, and probably none of us would defend it against him. But the interest of this instance, in which some of the causes of birth control are manifested, should not be exhausted in an expression of satisfaction at the disappearance of the half-time system; we may see how the elements in a class or group situation are connected, and how measures which must have some good effects may also tend to destroy the economic unity of the family. Practically, we may feel ourselves urged to promote measures which tend towards family coherence under better conditions than those of the half-time system.

In the above instance, and in general, economic inquiry brings into prominence the connexions observable in the situations of groups and classes, and it substitutes insight into such connexions for such beliefs as the belief that important differences in social conduct are traceable to the persistence of profound or fundamental differences, of a psychological or biological kind, between individuals, and thus between the various groups which the individuals constitute. Thus, for example, in the above instance, we should say that the large families of textile workers in the half-time period were not the result of the peculiar greed and of the hard calculating temper of an inferior breed or "race" of men who happened to be textile workers, but were the result of the intelligible reactions of average human beings to given situations, and that the average person forced from one social situation into another tends to put off the habits fitted to the old and to assume those fitted to the new, even to the extent of changing some of his estimates of virtuous and vicious conduct. Even when, as may happen, the

transition encounters friction; strange habits and points of view become easier to "understand" in the sense of intelligent sympathy, if not always of abstract and intellectual comprehension. Economic inquiry tends, I think, to destroy utterly the impression that, corresponding, roughly at least, to the social divisions, there is a division of the people of this island, for example, into biologically distinct breeds or races, some of which are fitted by origin and nature to bear rule over the others. It is true enough that an economist as such will not be allowed to claim the last word in the matter, but he has or should have some special qualifications to examine such claims as (1) that the economic advantages of the relatively comfortable classes are the result of the prevailing excellence of their merely biological descent, (2) that these classes exhibit aptitudes for leadership and command which are in danger of perishing to the great loss of society if their stock is not continued, and (3) that in order to continue their stock they must be relieved of some of the taxes which now fall upon them, and otherwise favoured at the cost of the governed classes, who are now being pampered by doles and other public concessions and thus encouraged to propagate their inferior stock. That grievances with which we can sympathize underlie such contentions is obvious enough, but they are grievances which, like those of other groups, must be understood in the light of the general social and economic situation. This will probably appear to members of my audience, as it appears to the average economist, not to be one which should satisfy any informed and thoughtful person, and certainly not of a nature to pamper the unprivileged masses. They suffer, like many of their envious critics, from ignorance and from the lack of security and hope.

I will only refer briefly to the general problem of eugenics, with the intimation that I should like to hear the question discussed in a medical conference, if, as is possible, the issues raised and some of the proposals made are felt to be of interest. Some advocates of eugenic proposals advance contentions which economic inquiry is not called upon directly to endorse or to refute, and I may mention as an obvious instance some of the results based on the measurement of skulls. With the social and economic situations to which these results are applied the economist obviously must concern himself, and he has had occasion to regret the lack of economic interest sometimes shown by the students of corporeal measurements and the devotees of craniometry.

On certain other matters the economist would also wish to be better informed, and would gladly recognize that there is no method proper to the science of economics by which he can investigate them. The effect on conduct and habit generally of a widespread dissociation of sexual gratification from parental responsibility is such a matter, and so are certain other consequences of childless marriages and of very small families. Gratification at some of the results of birth restriction is widely expressed, and there is a tragedy in the birth of "unwanted" children which I need not try to impress upon my present audience. But there are many such aspects of the matter which future experience and inquiries not properly economic may be expected to illuminate. That men should know and choose, rather than behave as blind victims of impulse and despair, would seem to be in general a ground for confidence and hope.

To what used to be considered, and what probably is in fact, the main economic question, the question which the "law of population" purported to answer, I would offer the following definite reply. The obstacles to the growth of population, and the causes of misery and restricted livelihood in the mass of the people, are not those suggested in the "law of population" as lying in the ingenuity with which Nature responds to human labour and co-operation and science and goodwill. I do not think that our own island, to say nothing of what has been called our little planet, is overcrowded, or that our difficulties are due to any approximation to such a calamity. Our troubles are due, not to the efforts of free and equal people to win a livelihood, and are accordingly not "economic" in any such simple sense, but to causes which I may distinguish

as political, that is, to habits and institutions whose origin and purpose is mastery and privilege and monopoly. Much of the political activity and enthusiasm and the divisions created by them, to which we are trained to attach supreme importance, is viewed economically, a cause of pinched and anxious livelihood for large masses of the population, and these masses are, or are becoming, sufficiently educated in certain directions to contrast the prospects offered to themselves and their successors, both with the apparent productive capacities of our civilization, and with the sacrifices demanded of themselves. That justice should prevail over the whole economic community and not merely, if that were possible in such isolation, within the boundaries of particular States, is seen to be the main condition on which the continuous unfolding of productive capacity depends.

Economic doctrines concerning the advantages of the division of labour, and the dependence of the effective division of labour on the extent—that is, the numerical frequency—of the market, would be meaningless if it were not possible for a region to be more thinly populated than would be desirable, or for a community to suffer disadvantage, even apart from military and political considerations, from its too small numbers. Or again, a community may suffer from the fact that its population is too thinly spread over the area available to it, and that portions of its population are too closely crowded in particular centres and favoured areas. These possibilities do not admit of brief explanation and illustration, and I mention them here with a view to suggesting that the task of the economist is a more complex and more hopeful one than it was thought to be in the days when the niggardliness of Nature and the imprudence of parents were always at hand, to be invoked at need to account for almost every shape of social misery and calamity.

III—THE MEDICAL ASPECT

BY

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Even since I yielded, reluctantly, to the invitation to open this discussion from the medical side I have searched my mind very thoroughly for reasons which might be set against my original protest—that the subject before us seemed to me to be very largely outside the doctor's province. Whether or no my distinguished colleague has felt the same difficulty I cannot say, but up to the moment of writing these words I have had no opportunity of reading Lady Barrett's remarks, and so one of my last hopes has had to be relinquished.

To the Biologist, yes, and to the Economist again yes—the subject clearly has great interest for both of these students, as is manifest from the able papers presented by my two predecessors. But to the Doctor, the population problem seems to me to overlap very little his usual activities, and this whether his work lies mainly with the individual which sick or with that reputedly higher and larger function termed the prevention of disease. In short, the question of over-population or under-population seems to me to lie largely outside the doctor's sphere.

And yet I have enough confidence in the wisdom of those who choose the subjects of our annual discussions, and nominate the speakers, to believe that there is, after all, a medical aspect to this question of the falling birth rate. I therefore propose to examine the matter as well as I am able.

We are told that the problem of population resolves itself into three elements: natality, mortality, and migration. Surely, it will be said, the doctor has a good deal to do with the first two of these? If the doctor is not concerned with birth and with death, who is? But a closer look reveals the fact that the aspects of real determining value in regard to both of these things, as they are related to population, lie outside the doctor's province.

Take the case of natality. The age of marriage, a fact

having great influence upon natality, is almost wholly governed by economic conditions, and medical men have little or nothing to do with this side of the problem. Fertility, and even sterility, are at present questions which lie beyond the ken of the physiologist, let alone the doctor. If we exclude syphilis, a known cause of sterility, there is little or nothing of pathological importance known to us as operating in this direction, and therefore little or nothing that we can do to remove this deterrent to natality. Sex incompatibility, too, is a complete mystery to us, and even if we knew exactly upon what it depends its prevention would seem to be a matter for the eugenisists rather than for us.

Beyond all these things lie the laws which govern the function of reproduction, laws which so far remain inscrutable. We have to await solutions of these problems by the biologist, whether physiologist or biochemist, before we can prescribe appropriately for the patients who come to us inside this sphere.

Mortality. But we doctors function here, it will be said. And it is true that both in preventive and in curative fields of action there are things we can do to prolong life, our efforts do seem to achieve something in this direction, though here the main credit may really lie more with the sociologist than with the doctor, albeit the former relies upon the latter for stimulus and direction. Be it observed, however, in this connexion, that merely to prolong life is but a feeble contribution to population adjustment, and serves us in poor stead in the main issue: *saving* life, however, and improving health may serve us well, since these things may be done at all ages, and therefore at the child-bearing period in women and during childhood. In Germany it has been shown that whilst there is an increasing duration of life, there is also a rapid fall in the birth rate. In effect, old age is on the increase—a parlous state of affairs, and a grim reward for the doctor's contribution to the population difficulties. Such a condition of things must, of course, eventually show itself by an increasing mortality rate—a consequence which will doubtless be set at the doctor's door.

Let me turn for a moment to the actual position as we understand it. To a visitor from another planet much of our attitude towards the population question during recent years would seem very puzzling indeed. A few years ago many of us were not a little concerned about the dangers of over-population: we are to-day met together to consider the falling birth rate. If our visitor were human like ourselves he would probably agree with the poet that there is only one thing common to us all, and that is discontent. But, as I read the position, the present concern is not with the falling birth rate in absolute terms, but with the fact that it possesses differential values of an undesirable kind. It is generally conceded that a low population in any country is a serious affair, because the quality of a population is wont to suffer by a fall in its quantity. The crux of the situation would therefore seem to be the difficulty of securing a regulation of births as between the different social grades in a country. It would appear that this difficulty depends for its solution upon the differential use of family limitation. If so, we have once more reduced matters to a sociological, or economic, or eugenic platform.

The more I examine the matter the more convinced I become that until, and unless, the doctor associates himself closely and definitely with eugenic and economic principles, his opportunities of influencing the population problem are very small, not to say insignificant. But is this really the doctor's sphere? That he would prove a powerful ally, both to the eugenisist and to the economist, I have no doubt whatever. But does society expect him to function in this wise? Is he briefed for this particular advocacy? Until now he has not concerned himself with questions of family limitation, or only to give advice and instruction when husband and wife have already decided upon their course of action. With few exceptions he has not sought to influence men and women upon matters of principle, and he has kept clear of propaganda. He has a sanction for individual therapeutics, but he has hitherto not considered that he possesses any other sanction on

this matter. Even in the important subject of birth control he has very largely stood aloof, regarding jealously his lien over matters of individual health, and not risking his patients' confidence on the personal issue by voicing his opinion in regard to economic and eugenic questions. Is he right, or is he expedient, in this attitude? Has the time come when he should enter the field on the side of these larger issues? I think the point well merits discussion. If it be decided ultimately that he should do this, then he should be taught a good many things that are not now included in his curriculum, and his thoughts should be directed quite early to this vital question of the regulation of births, which is clearly the ideal to aim at. Such regulation presupposes, as has been said, "the economic encouragement of those parents who rise above the lowest levels, since it is the superior performance of numerous healthy parents which now requires moral and material recognition on the part of society."

It may be interesting to glance for a moment at the sort of advice the doctor would find himself giving, and the kind of effort he would be making, in his practice, if ever his help were really sought and given, in an attempt to carry such a rule as this into effect. Professor Grotjahn has indicated for us the elements of conduct which the operation of such a rule as I have specified would involve. The lifting of parenthood on to a rational basis in eugenic practice would imply the three following duties:

1 That every married couple would be in duty bound to bring up a minimum of three children above the fifth year.

2 That this minimum must be aimed at wherever the situation of the parents gives expectation of descendants not falling below an irreducible minimum standard. In this case, however, the minimum must not be exceeded.

3 That every married couple characterized by particular virility should have the right to double the minimum, and should receive for every child in excess material contributions, which would be exacted from the single and from those couples which for any reason whatsoever remain below the lowest number.

When, by the exercise of some such rule as this, the situation of the population has been safeguarded and the general quality raised, the professor considers that the rational use of contraceptives may follow undisturbed. The reward promised for observing a rule like this is the desideratum which all thinking folk desire—the checking of fertility in those social strata which have least means, room, time, or capacity for the upbringing of their offspring.

I have stated the matter thus explicitly because it is just as well to realize clearly the sort of problem the doctor would find himself "up against" were he to embark upon the task of discouraging pregnancy for eugenic as well as for therapeutic reasons. It is a task before undertaking which we may well be forgiven for pausing. And it must be obvious to us all that we should need, not only public sanction, but Government assistance and a system of penalties before we could even begin to make any progress. A merely pious expression of hope that in some Mosaic-like fashion differential reproductivity of a beneficial kind will arrive as the result of arousing eugenic interests in the doctor's mind does not advance the matter in the slightest. We are all eugenic in our attitude towards racial progress, but I doubt very much if the onus lies with us of initiating a carefully considered scheme by which alone such progress can be attained. I feel strongly that the will to improve the race must first be aroused by the sociologist, and that the study of the population problem, especially in relation to the differential birth rate, must be taken much further before the doctor's aid is sought. In summing up the discussion on this subject at the Geneva conference last year, Professor Julian Huxley remarked that, "from our point of view as scientists, one fact will emerge very clearly, and that is the lamentable insufficiency of the data we have on which to base any conclusions."

I have already referred to the fact that the profession has very largely, up till now, whether deliberately or sloth-

fully, stood aloof from the question of pregnancy control. I do not now refer to the therapeutic aspect of the matter, but to the social aspect. I may be peculiar in this, but I feel that such aloofness has been justified by the obvious lack of data upon which to form a sound judgement. I would go further and say that, as pregnancy control is only a part, and probably a small part, of the population problem, the principles governing its exercise do not, in the first instance, lie with the doctor, for reasons I have already adduced.

But the study of contraception is quite another matter, and the inventing or devising of methods, and judging of their success or failure, are certainly matters that concern the doctor. A number of cases present themselves to every busy practitioner where the therapeutic indication for family limitation is definite, and sometimes even imperative. Another important question which clearly lies within the doctor's province, with which, indeed, he alone can deal, is whether or no, and if so to what extent, the use of contraceptives is a factor in the production of disease local or general. Dr. McCann has expressed himself as quite convinced that pelvic diseases are fairly frequently traceable to this cause. But more investigations are required before we can come to any definite conclusions on the point.

Both in the cases in which there is a definite therapeutic indication for controlling pregnancy, and in the cases in which married couples have settled for themselves that it is their duty to avoid pregnancy and the doctor considers he is under an obligation to help them to carry out this decision—in both these cases our present available methods are lamentably defective. There seems to be no clear teaching on the part of our gynaecological colleagues, and many of them appear to regard the subject as taboo. I think this is a great pity.

The fact which emerges most strikingly from a consideration of the subject is, as I say, the completely inadequate means that are at our disposal in advising a patient.

In summarizing very briefly what these means are, such a conclusion becomes all too obvious. A certain very common method of pregnancy control, besides being quite impossible for many men, is such a gross physical and psychological offence to both parties that to continue to consider it at all is, as I have pointed out, only to pander to that itch which some people possess to be thoroughly inclusive, however impractical, in their survey of possibilities. To tell the partners to restrict the sex act to that period in the woman's menstrual cycle when she is least likely to conceive involves two great objections: first, that this reputed time of low conceptivity is relative only, and therefore cannot be relied upon, and second, that this period varies much with different individuals, and therefore cannot be calculated with safety. There is even a third objection to this method: a woman's time of relatively low procreative power by no means always synchronizes with her time of high sex desire, to adopt this method is therefore tantamount, in many instances, to the sacrifice of that very spontaneity in the union of the sexes which it is sought to preserve. As a writer has aptly expressed it, "practices founded upon this notion may not be in harmony with our present ideas of sexual justice."

Chemical contraceptives fail in that if they are physically harmless they are unreliable, and if they are dependable they are capable of endangering health. Mechanical contrivances have little more, if anything, in their favour. When adapted to the male partner they carry physical and physical disadvantages for which their effectiveness scarcely compensates. If it falls to the woman's lot to make the mechanical adjustment necessary to achieve the object in view we, at present, know of no contrivance the use of which does not involve (for success) manipulation approximating to gynaecological acumen.

It is a question whether the contraceptive method generally advocated at birth control clinics as being the survival of the fittest is not too crudit or too uncertain ever to be popular. A friend of mine, who interests herself much in birth control clinics, and who, being fully persuaded of the need and of the wisdom of these clinics, is unlikely to minimize their value, tells me that their "follow up"

system reveals the startling fact that in only about 50 per cent of the cases do the contraceptive demonstration and practice prove effective.

It seems clear, therefore, that if it be granted that individual cases presented to the doctor in his routine work offer legitimate opportunity for advice concerning the checks to pregnancy, he has at the moment very poor make-shfits to deal with. If, in addition, it be deemed part of the doctor's duty to deal with pregnancy control as a part of the health and happiness of the community as a whole—and the two things have very different bearings—the knowledge at present available to secure the desired results is lamentably deficient. Here at least, seems a subject deserving of inquiry, and concerning which the doctor's opportunities for research and observation are abundant and his conclusions paramount. It is a sound thing that he should proceed to extend his knowledge on these matters with the hope that by the time the public has made up its mind on the question of pregnancy control and in the event of such a principle being established he may have something worth offering as his contribution to the eugenics of the population problem.

IV—INDICATIONS FROM STATISTICS

BY

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BEFORE attempting to discuss the falling birth rate from a medical point of view it is necessary to define what we mean by the term "birth rate." The methods of stating the birth rate in common use are three:

1. The crude birth rate—or rate per 1,000 of the population living at all ages in the middle of the year.
2. The proportion of registered births to the women living at child bearing years—that is, roughly 15 to 45 years of age.
3. Dividing legitimate from illegitimate to state the number of legitimate births per 1,000 married women aged 15 to 45 and the number of illegitimate births per 1,000 unmarried women aged 15 to 45.

It is the third method only which will give us information as to the changing fertility in married women and as to the relative number of illegitimate births in proportion to the unmarried women.

In his book on vital statistics Sir Arthur Newsholme shows by the adjoining table how misleading the crude birth rate may be in comparing two districts like Kensington and Stepney, since Kensington has a large number of single women engaged in domestic service.

Legitimate Birth Rates in Kensington and Stepney 1921

	Kensington	Stepney	Percentage Excess of Birth Rate in Stepney over that in Kensington
A Birth rate per 1,000 inhabitants —	38.1	24.2	73
B Birth rate per 1,000 women aged 15 to 45 years	55.7	98.8	77
C Birth rate per 1,000 married women aged 15 to 45 years	163.0	207.4	27

Sir Arthur Newsholme has also shown very vividly by the example of Ireland that the crude do not always give the same indication as the standardized birth rates.

In that country the crude birth rate was 215 in 1881 as compared with 33.9 in England and Wales and was 23.1 in 1901 as compared with 28.4. Standardized rates in Ireland and En. and respectively were 35.2 and 34.7 in 1881, 36.1 and 28.4 in 1901. Thus Ireland whose crude birth rate was approximately as low as that of France had a true rate of fertility as high in 1881 as, and much higher in 1901 than England. The reason for this remarkable change in the relative position of the two countries

produced by arithmetical corrections is that while in England in 1901 the number of females aged 15-45 per 1,000 of the total population was 250 and in Ireland 235 the wives at ages 15-45 in England formed 46.8 per cent and in Ireland only 32.5 per cent of the females of the same age. The case of Connaught in 1901 is even more striking. Its crude birth rate was 21.3 as compared with 28.4 in England while its standardized birth rate was 38.1 as compared with 28.4 for England.

We see therefore, that the proportion of married women of child bearing age in any country is a very important factor in considering crude birth rates.

Diminished fertility of marriages as a cause of the falling birth rate can only be judged by a comparison of the standardized legitimate birth rate in any two periods under discussion—for example, when the birth rate was high (in 1870), and to day.

What has been the decline and when did it begin? We find that the birth rate in England and Wales was at its highest point in the decennium 1871-80. Since then up to 1910—that is during the pre-war era—the birth rate reckoned by either method had steadily declined.

Mean Annual Birth Rates (England and Wales)

	per 1,000 Living at all Ages	per 1,000 Women aged 15-45 years	Legitimate Birth Rate per 1,000 Married Women aged 1-45	Illegitimate Birth Rate per 1,000 Single and Widowed Women aged 15-45
1851-60 —	31.1	164.9	231.0	18.3
1861-70 —	35.2	151.0	287.3	18.1
1871-80 —	35.4	153.6	237.5	15.1
1881-90 —	32.4	138.7	274.6	12.6
1891-1900 —	29.9	122.7	250.3	9.6
1901-10 —	27.2	109.0	221.6	8.2
1911-15 —	23.6	91.4	169.7	7.8

The reduction up to 1910 was

In the crude birth rate	33 per cent
Standardized married birth rate	25
Standardized illegitimate birth rate	46

Birth Rates and Fertility 1871-1925 (England and Wales)

Period	Legitimate Births—		Illegitimate Births—		All Births—
	Per 1,000 Total Population	Per 1,000 Married Women 15-45	Per 1,000 Total Population	Per 1,000 Unmarried Women 15-45	Per 1,000 Total Population
1871 (1870-72)	33.3	292.5	1.96	17.0	35.3
1881 (1880-82)	32.3	285.0	1.65	14.1	34.0
1891 (1890-92)	9.4	263.8	1.31	19.5	30.7
1901 (1900-02)	27.5	235.5	1.12	8.5	28.6
1911 (1910-12)	23.4	197.4	1.03	7.9	24.4
1921	21.4	176.3	1.02	7.9	22.4
1922 —	19.5	160.7	0.89	7.0	20.4
1923 —	18.9	155.3	0.82	6.5	19.7
1924 —	18.1	148.4	0.78	6.2	18.8
1925 —	17.5	143.5	0.74	5.9	18.3

The difference between the crude and standardized figures is what we should expect from the effects of the war. Fewer women could marry and therefore fewer children would be born, but there remains a reduction in the absolute fertility of marriages, and a decrease of illegitimate children. This reduction in the fertility of marriage has been assumed to be due to birth control.

One of the problems for the medical profession is to determine the relative importance of voluntary use of contraceptive measures and of other factors as causes of the diminished fertility of the race. For other causes of variation it is interesting to study conditions which existed before contraceptive measures were known or practised appreciably in any class. In doing so we find

1. That there have always been variations in fertility in different classes.

Children Born per 100 Families—Standardized Rates

Date of Marriage	Duration of Marriage in Years	Upper and Middle Classes	Textile Workers	Miners	Unskilled Labourers
1805-11	0-5	70	76	105	100
1901-05	5-10	171	185	263	242
1856-61	10-15	242	275	359	352
1871-76	15-20	303	359	517	453
1885-91	20-25	357	435	610	541
188-86	25-30	413	501	671	596
1871-81	30-40	497	557	717	652
1851-71	40-50	606	648	777	715
181-61	50-60	662	695	797	763
	over 60	682	732	870	781
Total		277	319	433	392

Consider one example from this table—the families who had married in 1871-81 and who had lived thirty to forty years in wedlock. The actual figures of the numbers of children born in those thirty to forty years to each 100 families are upper and middle classes 497, textile workers 567, miners 717, unskilled labourers 652—that is, the average family varied between roughly five in upper and middle classes to just over seven in miners. It must be allowed, however, that some marriages were probably sterile.

This variation in fertility has been further increased in the last fifteen years. Therefore some factor or factors in the lives of different strata of society affect fertility apart from artificial or voluntary interference, all the factors, including contraception, tend to diminish the upper, middle, and textile classes only.

2 Another factor affecting the natural fertility of marriage is the age of the parents. The age of the father is secondary in importance, but has some influence. Roughly it may be stated that fertility in the healthy man remains stationary between the ages of 20 and 35 and tends to decrease after. The age of the mother in its effect on fertility is more important and has greater variation. Actual fertility increases from the age of 15 to 25, when the age of maximum fertility is reached, and after remaining more or less stationary for a few years declines from the age of 30 to that of 50 in a steady curve.

Actual fertility is much greater before than after the climax. The fecundity of the mass of wives is greatest at the commencement of the child-bearing period and gradually declines, after the age of 40 the decline is very rapid.

The following tables illustrate various details in connexion with the fecundity of marriage viewed from the point of view of the wife.

1 The first shows the effect of the age of the wife at marriage on sterility.

Proportion of Sterile according to Experience in Scotland of 1855

Ages at Marriage.	Proportion Sterile
15-19	15.6 per 100 wives
20-24	1.5 " "
25-29	22.5 " "
30-34	32.3 " "
35-39	50.0 " "
40-44	87.0 " "

2 The second shows (a) the initial fecundity according to age at marriage—that is, the percentage of women who bore children in the first year of marriage, (b) women who bore children within the second year of marriage, and (c) the percentage of women fertile at any time.

Ages at Marriage	Percentage Fertile in First Year	Percentage Fertile in Second Year	Percentage Fertile at Any Time.
15-19	13.71	43.71	92.7
20-24	18.48	90.51	100
25-29	12.41	75.8	72.3
30-34	11.44	62.93	62.5
35-39	9.27	40.97	46.8
40-44	3.63	15.45	9.1
45-49	0	4.35	4.4

Therefore nearly all women married between the ages of 20 and 25 are fecund—that being the age of climax of fecundity. The fecundity of the very young (15-20) is greater than that of those married between 25 and 30, but the total fertility is less. These figures illustrate exactly in how many instances the use of contraceptives in the first year of marriage is unnecessary for the prevention of immediate child-bearing.

Fertile women after sixteen years generally had an average family of 4½. Persistently fertile women—that is, wives bearing children up to the end of the child-bearing period—have an average family of 11½.

From these considerations we see that marriage under the age of 20 does not appear to be the most successful for child bearing, and this is supported by the development of children born of very young mothers.

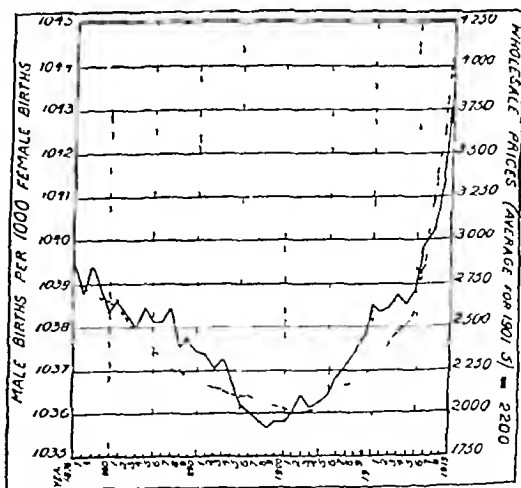
The average weight and length of children at birth vary with the age of the mother. This is shown in the following table.

Age of Mother	Average Weight	Average Length
15-19	6 lb 15 oz	19 0 in
20-24	7 " 3 "	19 1 "
25-29	7 " 6 "	19 3 "
30-34	7 " 4 "	19 2 "
35-39	7 " 4 "	18 9 "
40-44	7 " 2 "	18 9 "
45-49	6 " 14 "	18 16 "

Hecker approves the above figures of Duncan, but thinks increase goes on till the end of fertility, age not being the only factor. The number of pregnancies also has an influence. The highest average in weight and length is found in the children of women aged 25 to 29. Matthews Duncan thinks the weight and length increase with successive pregnancies, but does not doubt the accuracy of the age influence.

Considering the total fertility of wives married at varying ages, we find that the very young marriages are the most prolific, thus girls married at 15 to 19 years of age will after thirty years of married life have an average of 9.1 children, while those married between the ages of 25 and 29 will after thirty years have an average of 6.3 children. Early marriage, therefore, *per se* in any community will increase the birth rate, but the development of the children born in the early years will tend to be lower than where the marriage age is 25 to 29. These considerations all point to 25 as the best age for marriage.

Another point of interest to our inquiry is the proportion of male births, because it brings with it some knowledge



Wholesale prices are shown by the broken line sex ratios at birth by the continuous line

of another factor bearing on births. The accompanying chart gives Stevenson's figures regarding the relation of prices to masculinity.

Male births are always more numerous than female, but the proportion varies from time to time in this country and also varies in different countries. From 1870 to 1915 the highest point to which masculinity rose was 1,043 in

1875 the lowest being 1 033 in 1888 and 1890. In 1918 it reached the height of 1 060. The variations in different countries need not be described here, they will be more readily explained when the cause of changes in our own country is more clear.

We are now in a position to see that certain conditions obtain to-day which, apart from any artificial means, would tend to reduce the birth rate.

1. The later age of marriage. This we have seen, affects the birth rate in various ways. (a) It diminishes the total fertility of the family. (b) It lengthens the period between marriage and the birth of the first child. (c) It tends to lengthen the space between each child.

2. Conditions affecting the fertility of husbands. All gynaecologists meet with cases of sterility in which no abnormality can be found in the woman, but if before subjecting the woman to any treatment necessitating an anaesthetic the semen is examined in a number of cases it is found to be inactive. One of the causes of this is gonorrhoea. This also accounts for sterility in some women, but a man may have followed careful advice and abstained from marriage till non-infective, and though the wife remains healthy yet conception may be impossible. The work of Professor Leonard Hill on the sterilizing effect of heat (even body temperature) on the male cells suggests the possibility that sedentary indoor employment may account for some diminution in fertility of men of certain classes.

3. Of the factors which affect the relative fertility of different classes we have, however, no certain knowledge, but since the same differences existed in 1855 we know that it is not only due to the better knowledge of contraceptive measures, even though it were shown that there is in certain classes is very widespread. If relative prices and hence relative luxury and relative want affect the masculinity, it may also have an effect on total births.

4. Before drawing conclusions we must bear in mind that there are certain natural laws which, if obeyed, would affect the birth rate, and we must make allowance for the probability that in certain classes they have been a factor. (a) It is well known that ill health in either sex is marked by lack of desire for sex indulgence. If the mother is debilitated by too closely following pregnancies or the father is worn out by stress of mental work, she or he does not desire sex gratification. (b) In more developed races where sex is associated with love, desire for the wishes and well-being of the object of affection forbids intercourse when it is not desired, but we know that in many instances intercourse takes place in spite of failing desire. (c) It is significant, however, that where either partner consents to intercourse against his or her desire the result is unsatisfactory to both.

Nature thus provides a kind of natural eugenic law which, if obeyed, protects the mother from the burden of pregnancy when health is becoming impaired and protects the race by allowing conception to occur only when both parents are in full health. Nature's law would only allow large families where the parents are both virile, healthy, and free from mental anxiety or stress. Such results would obey the laws of eugenics, but we must admit might strew the resources of the parents in the matter of upbringing and of education. With the economic aspect, however, I am not dealing at the moment.

From the medical point of view much would be gained by obedience to these laws. (a) It would abolish motherhood in the overstrained woman, whether the overstrain resulted from too frequent child bearing, from overwork, or from unhealthy conditions of environment, because women under these circumstances usually lose sex desire. On the other hand, if intercourse takes place in ill health, with or without their consent, the result is more prolific child bearing than in the normally healthy woman. (b) Pregnancy under conditions of health produces an enhanced sense of vitality and well-being and is not a time of illness or invalidism, the expectant mother's efficiency is not impaired. (c) The dangers of child bearing are diminished in women who enjoy mental and physical health.

This obedience, however, may be said to be an ideal, unattainable in the case of exactly those instances where frequent child bearing is taxing the strength and resources

of the mother to the uttermost. This is undoubtedly true at the moment, and yet if we regard this subject with an unbiased mind from the point of view of prophylactic medicine we find that the ideal coincides with the health of the race. It is therefore the duty of the medical profession—itsself possessed of the highest ideals—to pursue and teach them to those able to receive them, just as it is our duty in the practice of our profession generally to aim at prophylaxis and only secondarily at cure. But we do and must aim secondarily at cure when prophylaxis fails and in this question of the birth rate under the present unsatisfactory conditions of large numbers of people Nature's law does not obtain, and the health of many poor women is being destroyed by overwork and over-child-bearing. In such cases it is, in my opinion, our duty to see that child bearing is modified and that the conditions of life are changed.

The influence of the doctor on both factors is essential, otherwise no progress will be made, and the doctor will be reduced far years to the unsatisfactory empirical treatment of some form of conception control. With regard to the first—the modification of child bearing—in the absence of the co-operation of the husband we are at present left with the problem of finding some method of preventing conception.

I do not propose to discuss here the various forms of contraceptives in use except to express my own opinion as to the undesirability of the various rubber instruments recommended. They are unreliable—that is, although they may prevent conception in a large number of women they entirely fail in many others, witness the fact that scarcely any advocates of them remain who do not combine with them the use of a spermicide. They are in many cases harmful. The clinics where they are in use have no records of systematic examination by the cervix with speculum to ascertain whether cervicitis occurs, and it is the only way of knowing if the cervix is damaged or if abnormal discharge is present. The observation recorded by the patient herself is valueless. I have found cervicitis a frequent result.

If conception is to be prevented the more harmless methods, in my opinion, are the use of the sheath and the introduction of medicated pessaries made up to the prescription of a doctor. But, regarding this subject from a purely medical point of view, we must also remember that sex indulgence to any excess produces nerve exhaustion, and contraceptive methods in the cases we are discussing are not a cure for the mother's debility.

The responsibility of the doctor for advice as to contraceptive measures is only one part of his duty, whether the doctor is the medical attendant of the family or the hospital physician or surgeon. Sources of ill health and disease are often found in the conditions of life of the sufferer, and the influence of the medical attendant in calling attention to the lack of ordinary hygiene in the lives of working-class mothers is as important as the duty of those medical inspectors who insist on hygienic conditions in factories.

Is it not time that doctors spoke clearly as to the lack of change and rest and of outdoor exercise among other factors in the lives of the mothers who bear large families? There are, however, some cases in which the recurrence of pregnancy is a matter of life and death to the woman—for example, severe heart or kidney disease, or even recurring puerperal insanity. If in such cases the co-operation of the husband is not obtainable sterilization should be performed, as it is the only absolutely certain method, apart from complete abstention from intercourse.

We conclude that medical practitioners have an important part to play in this question of the falling birth rate. In some cases duty demands that they teach the advantages of normal marital relationship, in others it may be their duty to do all in their power to help a potent to avoid pregnancy. They cannot stand aside and take no part in directing teaching, advising, and treating their patients. They cannot disregard eugenic considerations, their views and advice on conditions of life which cause debility and abnormal fertility are valuable, and, if frankly expressed, would be of real service to public health.

I make the most earnest claim that the family doctor should be the person to deal with this subject, whether with or without consultation with special clinics or consultants. I submit a few reasons for this in summing up some of the points to which I have drawn attention.

1 If the true facts, as shown in the above tables, about the chances of immediate conception and natural rate of child-bearing were explained, many young couples would begin married life naturally, unhampered by artificial contrivances. Such explanation is best given by the family doctor.

2 Most people of education in marriages of true affection would respond to the doctor's advice that it is not for the good of themselves or of their offspring to come together when either does not desire it.

3 The doctor knows the whole circumstances of the case in question, and how pressing or otherwise is the demand for some means of preventing conception, which may vary from avoiding a risk which would be almost certainly fatal, to anxiety as to whether financial resources will adequately maintain and educate another child.

It has been said that the medical practitioner is unable or unwilling to deal with this question, and has no training to equip him for giving wise advice suitable to each case.

I suggest that the remedy for this is that all that is at present known in regard to this subject should be taught to medical students, and then responsibility in regard to it be emphasized. If the family attendant refuses help in this respect it cannot be a matter of complaint if patients seek knowledge and helpful advice from a practitioner who is willing to give it.

One last word as to the medical aspect of the present situation from a wider point of view. The birth rate of the artisan class is falling most rapidly, but closely comparable is the fall in the upper and middle classes. The birth rate is actually rising among miners and unskilled labourers—that is to say, classes in economic comfort are becoming unnaturally sterile, while classes in or approaching destitution are unnaturally prolific.

In physical values, if only through being reared in unfavourable environment, the latter must be lower in vitality than the former, and as the proportion of healthy members of the race is gradually diminished and the proportion of ill-developed members is increased, the physical standard of the national health must deteriorate.

From a medical point of view the position is disastrous, and would not, in my opinion, be cured if all contraceptive practices were swept away. We should thereby add somewhat (though not to the extent imagined) to the stock of those who can afford physical necessities of health, but more drastic measures from a public health point of view are needed to arrest the fertility associated with destitution.

A CASE OF OSTEITIS FIBROSA.

BY

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MRCS LRCP
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THE following case presents some points of interest, and may be considered worthy of publication.

A girl, aged 18, cashier in a draper's shop, complained of "cutting pains" in the right knee, which gave out when she was walking. The pains were intermittent, did not incapacitate her from work, and lasted from October to December, 1926.

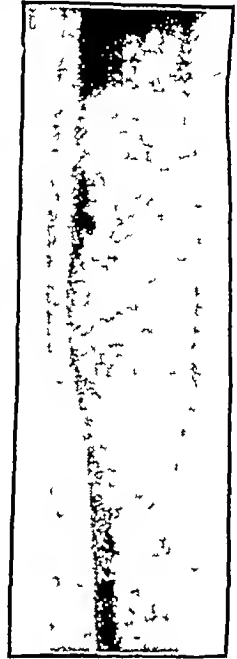
On Christmas Eve, 1926, she complained of pain in the right tibia, and took to her bed on January 4th, 1927. She then noticed a swelling about the middle of the tibia, and the pain became definitely worse. On examination I found a uniform swelling apparently involving the whole circumference of the bone at the junction of the upper two-thirds and lower third of the right tibia. There was some tenderness on deep pressure, but no other physical signs any-

where. No history of any blow or injury could be elicited. An antero-posterior x-ray photograph was taken of the right tibia and fibula, and showed a small area of rarefaction at the site of the swelling. A provisional diagnosis of chronic osteomyelitis was made, and the patient kept in bed, her temperature and pulse being carefully watched. At the end of a fortnight the pain had subsided and there had been no rise of temperature or pulse. The patient was allowed up and told to report again should there be any recurrence.

In March, 1927, she complained of a gradual onset of pain in the right hip-joint, saying that she got very stiff on sitting down and could not walk on rising. On examination there was a quarter of an inch true shortening of the right leg, marked limitation of movement on abduction, and some tenderness on pressure over the joint. A skiagram showed marked rarefaction of the neck of the right femur, with a spontaneous fracture extending about half way across it. The upper half of the shaft also appeared to show rarefactive changes. The patient was put to bed for three months and given tab parathyroid and calcium (P D and Co) thrice daily, and began to walk again in August, 1927. There were no more symptoms, and another skiagram was taken in October. This showed rather more marked rarefaction in the neck of the right femur, but the fracture appeared to be healed.

In April, 1928, the patient again complained of some increase in size of the tibial swelling, with slight intermittent pain in this situation. A lateral view of the tibia revealed an extensive area of rarefaction with marked thinning of the bone. Permission could not be obtained for removal of some blood for the Wassermann reaction and calcium content estimation.

The comparative rarity of this condition and lack of definite knowledge concerning the fundamental metabolic errors responsible seem to make this case worthy of record. The condition is sometimes associated with parathyroid tumours, in this case there were none discovered.



Radiogram of right tibia and fibula April 4th 1928.

A CASE OF PARTIAL STAPHYLOMA OF THE CORNEA

BY

R Y STONES, M C, M D, M R C P Lond,
MEEROO HOSPITAL, KAMPALA, UGANDA

A STAPHYLOMA corneae parziale, the scar of which is giving way, complicated by a staphyloma totale of the other eye, is a somewhat rare condition, so the following case seems to be of sufficient general interest to merit publication.

A young South African farmer, 18 years of age, living at Eldoret, some three hundred miles from Kampala, had a severe infection of both eyes when 3 years old. His parents were on trek miles away from any town, and it was only by the good offices of a regimental surgeon whom they fortunately met that the child's sight was not entirely lost. As it was, the one eye was completely and the other partially blind. The boy first went to school when he was 16, but at his first half-term holiday it was noticed that his sight had deteriorated a little, so on the advice of a doctor he was removed from school and took up farming. The father reported that the sight had again begun to fail during the last two months.

When seen on August 31st, 1927, the left eye was found to be completely blind, the cornea being replaced by a dense leucoma, the tension of the eye was very low. The right eye showed an elastic cornea except at the lower and inner quadrant, where an old leucoma was present. This scar had given way in the centre and the iris was protruding. No corneal ulceration was found, and there was no oedema of the conjunctiva. The anterior chamber was shallow and the tension of the eye subnormal; the iris was excentric, showing the presence of anterior synechiae, vision was only 3/60. The fundus could not be seen, a red reflex only being obtained, with a +20 lens strab could be seen in the lens vitreous opacities were not found.

It was decided that an operation must be performed, and this was conducted according to the method described by Alradie.

Operation—(1) The corneal tissue over and around the staphyloma was scarified with a sharp scalpel. (2) A "bridge" flap of conjunctiva was got ready and preparatory stitches were inserted. (3) The base of the staphyloma was incised with a Graefe cataract knife. (4) The flap, which covered the staphyloma entirely, was stitched in position. The lens did not escape. The patient did not take the anaesthetic well, and the operation had to be done quickly.

Ten days after this operation the scar again began to give way and the tension was still low, the conjunctival flap having apparently slipped back. Cocaine was instilled and the flap brought over again, after denuding the surface of the cornea. The patient was kept at absolute rest with a firm pad and bandage over the eye for three weeks. Graduated exercises were then begun, but the scar again began to bulge, the anterior chamber was almost gone, and the tension, which had improved after the operation, again fell. A further more radical operation was therefore necessary if the eye was to be saved; this was carried out under rectal anaesthesia.

Second Operation—(1) The conjunctiva was dissected

back all round the hialus and a purse-string suture inserted. (2) The cornea was scarified around the staphyloma. (3) The staphyloma was excised and two fine catgut sutures were used to draw the edges of the wound in the cornea together. (4) The base of the staphyloma was cut through with a Graefe knife. (5) The purse string suture was tied, drawing the conjunctiva well over the cornea.

A very severe reaction followed this operation, and the eye took ten days to quieten down, the scar which resulted was firm, but in spite of atropine being pressed the iris was drawn over and vision was perception of light only.

Owing to the severe reaction and the unstable condition of his eye the patient was advised to go home for some weeks before an optical iridectomy was done.

He was readmitted on January 2nd, 1928. It was then seen that a firm white scar had formed, the iris was bright and the eye quiet, the anterior chamber was deep and the tension nearly normal. A simple optical iridectomy was done. Two days later a severe reaction set in with an effusion of blood into the anterior chamber. The eye again slowly quietened down, but the vision was only hand movements. No red reflex could be obtained. The lymph and blood clot in the anterior chamber slowly cleared up and the vision improved daily. The patient could soon count fingers at three feet and could distinguish distant objects fairly well.

As the reaction after a simple operation had been so sharp it was considered inadvisable to do anything further for the time being, as the boy could find his way about independently and both he and his parents were satisfied. A month later the mother wrote saying, "The eye is improving. He can see quite well now. He is very happy and is out riding almost the whole day."

I wish to record my thanks to Dr H B Owen DSO, medical superintendent Mulago, who saw the patient in consultation and who shared with me the anxiety of the case.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TETANY INVOLVING THE RECTUS ABDOMINIS

The following case, which came to my notice recently, seems to be worthy of record, both on account of its rarity and of its somewhat abrupt termination.

A married man aged 53, of rather poor physique complained of symptoms of ordinary influenza—namely cough, coryza, malaise and headache of two days' duration. These symptoms did not inconvenience him so much as that during this time he had experienced agonizing pains in the upper abdomen which came on at any time during the day and night. He described them as just like a stitch or cramp. So severe were they that sleep was impossible. Nothing seemed to relieve them and they disappeared after five to ten minutes only to return. He had noticed that the attacks were induced more readily by stooping. His temperature was 99.4° F, pulse 100. The mucous membrane inside the nose was intensely congested and the nares patulous; the result of chronic nasal catarrh. Nothing beyond a few catarrhal signs was present in the chest.

While I was examining his abdomen he was seized suddenly with one of these cramp-like attacks and I was able to witness the course of events. In the epigastrium there gradually appeared two somewhat sausage-shaped swellings extending transversely on either side of the mid-abdominal line. They were slightly thicker towards the mid-line, tense of board-like consistency and there could be no doubt that they were the upper segments of the rectus abdominis in spasm. He was in great pain during the attack. At the same time the skin over the abdomen was hyperaesthetic and he could not bear me to touch him. I witnessed several attacks that night each lasting from five to ten minutes. The upper segments alone were affected and went into spasm synchronously on one occasion however, the left half only was concerned. Further examination revealed hyper-excitability of the face and tapping over the pes anserinus elicited fibrillary twitchings of the facial muscles on that side not quite amounting to spasm. I could find no other physical signs in the nervous system and no fibrillation in any voluntary muscles though his spare musculature seemed at first to suggest progressive muscular atrophy. I ordered 10 grains of compound ipecacuanha powder with 10 grains of aspirin in powders and a saline expectorant mixture. Two days later I saw the patient again; the cramp had then disappeared entirely and his influenza was much better.

There could be no doubt as to the nature of these tonic spasms. Their gradual and orderly onset excluded

the possibility of localized myoclonus, for here the contractions are almost always shock-like in their intensity and onset, and usually involve the peripheral muscles of the limbs. Moreover, there is frequently a history of mental deterioration or epilepsy, in this case both of these were absent. I am inclined to believe that I was witnessing a case of tetany involving the rectus abdominis, and the presence of Chvostek's signs tend to confirm this.

Though cases of toxic tetany are rare, Frankl-Hochwart mentions its occurrence in acute specific fevers, of which influenza is one. As compared with the number of cases associated with infantile rickets and post-operative thyroidectomy these toxic cases form a very small percentage.

For the rectus muscle to be involved alone seems altogether unique. I can find no mention of a similar case in the literature.

Bristol

S. LERNER, M.B., B.S. Lond.

TRIPLE INTUSSUSCEPTION IN AN ELDERLY WOMAN

The unusual occurrence of a triple chronic intussusception occurring in an elderly woman seems to be worthy of record, particularly in view of the diagnostic difficulty and the recovery following operation.

A married woman aged 57 was admitted to my wards in the Glasgow Royal Infirmary suffering from absolute constipation, constant vomiting and acute pain in the abdomen. She stated that she had not been well for a year or so with gradually increasing constipation, the passage of slime by the rectum and pain particularly on the left side. The pain became very severe and the constipation almost absolute vomiting began and she went to another hospital where she was x-rayed and the abdomen was examined but nothing abnormal was found. A week later she returned and was examined under an anaesthetic but again nothing was found and she was sent home the following day she came to the Royal Infirmary.

On admission the abdomen was found greatly distended so that palpation was impossible. Peristaltic waves were frequently seen in spite of the distension. The tongue was very dirty and the breath foul; the temperature was 98° F, the pulse 88 and the respirations 26. Rectal examination was negative and an enema yielded no result. Carcinoma of the large intestine was considered the probable diagnosis.

The abdomen was opened, and since the large bowel was distended it was incised but without much relief. An exploration was therefore made, and a hard mass was felt which at first was thought to be a large impacted gall stone. When this was brought to view it was found to be a triple intussusception of the small intestine. The two outer intussuscepta were very easily reduced but there then remained a third small hard one, evidently of considerable standing, and obviously irreducible. A short-circuit was therefore performed, and the patient made an uninterrupted recovery.

J A C MACFARLANE, M B, C M, F R F P S,
Surgeon Glasgow Royal Infirmary

HERNIA OF INTESTINE THROUGH A MESENTERIC HOLE

The following case seems worthy of record for its interest in regard to diagnosis and its peculiarity.

A boy, aged 8½, complained of sharp stabbing pains in the lower abdomen and of sickness. The pulse was 110 and the temperature 99.8°. The face was deeply flushed with circumoral pallor, the tongue was very coated and almost of the 'white strawberry' type. On inspection of the abdomen nothing abnormal was noted, although the mother stated that she had seen a definite swelling on the right side. There was pain on palpation over the appendix region.

Under anaesthesia a swelling as large as an adult's fist was noted in the right iliac region. On opening the abdomen the caecum was found to be very much distended, the lower part of the ileum caecum appendix and lower part of the ascending colon had slipped, from behind forward through a hole of about two inches in the mesentery becoming twice twisted on itself. The hole in the mesentery had smooth thickened edges and round it were some enlarged glands. The part of the intestine involved was untwisted and pushed back through the hole in the mesentery, the hole closed and the boy has made an uninterrupted recovery.

Four years previously this boy had complained of abdominal pain, and his father had been told by a colleague that the condition was probably tuberculous. I am indebted to Mr Edmund, who operated, for permission to publish this case.

Shrewsbury

JOHN WHITE, M B, Ch B Ed

FOREIGN BODY IN THE BLADDER

The following must be a rare accident, but should be borne in mind by those who are doomed to a "catheter life" owing to enlargement of the prostate.

An elderly man of more than average intelligence was admitted to the Colony Hospital, Grenada, on December 4th 1926 with a history of having passed a rubber catheter on himself the tip broke off when he tried to remove it. He had been carrying out this form of treatment for several months and had had no previous trouble.

On admission the patient was in great pain and collapsed, he was suffering from marked retention of urine with a bloody discharge from the urethra. A metal sound was gently passed into the urethra and was found to be held up by a resistant structure at the neck of the bladder. The prostate was found on examination to be considerably enlarged and very tender on palpation per rectum.

I performed a suprapubic cystotomy and a piece of rubber catheter about two inches long jammed tightly in the urethral orifice of the bladder was removed. The prostate which was markedly enlarged and congested and bulging forward appeared to surround it. There was a fair quantity of blood in the bladder, which was drained. On December 9th a tiny fragment of rubber was passed per urethram. Three days later there was a sudden and large haemorrhage from the prostate which was only controlled with great difficulty. Intermittent haemorrhages followed for six days after which there was no more trouble. Drainage was continued for some time afterwards, and on January 1st 1927 the patient was discharged from hospital passing urine freely per urethram. He refused to have prostatectomy performed.

My interpretation of this accident is that, after passage of the rubber catheter, the man had spasm of the neck of the bladder and urethra, and in his hurry and fright he wrenched at the catheter against the contracting urethra. It is notorious that rubber deteriorates rapidly in the tropics, and no doubt the catheter in question was not in good condition.

Since writing the foregoing I have been interested to read Mr A. Ralph Thompson's account of two similar cases on January 14th (p. 51), where fragments of catheter formed the nuclei of vesical calculi.

V L FERGUSON,
Chief Medical Officer and Resident
Surgeon.

St. Lucia, British West Indies.

VON RECKLINGHAUSEN'S DISEASE ASSOCIATED WITH FIBROMA OF THE APPENDIX

The following case illustrates an unusual condition of the appendix and emphasizes the fact that in von Recklinghausen's disease the distribution of the tumours is wide and variable, and by no means confined to the skin and subcutaneous tissue. It has previously been shown that intra-abdominal neuro-fibromata can simulate the commoner abdominal affections.¹

A man aged 47, is afflicted with neuro-fibromatosis having large numbers of nodular tumours, some sessile and some pedunculated, over the scalp, neck, face, trunk, and limbs. The tumours vary greatly in size. The accompanying photograph gives a good impression of the appearance of the patient. In addition, there are numerous subcutaneous tumours and areas of pigmentation on the back and lower limbs. A slight degree of hesitancy in the speech is noticeable, a condition said to be characteristic of this disease.²

He consulted me on March 31st last on account of abdominal pain and said that five days previously he began to suffer from intermittent abdominal pain which was colicky in nature and not localized in any particular area. The pain had continued but in the last forty-eight hours it had become localized in the right side of the lower abdomen where he had since felt a tender swelling. There had been no vomiting and the bowels had acted regularly except for an attack of diarrhoea on the second day. His temperature was 97° F, pulse rate 72 and respirations 20.

In the right iliac fossa an elongated mass was felt which was distinctly tender on palpation. The abdomen moved fairly well with respiration.

On the same day he was admitted to hospital where an operation was performed by Dr H. S. Jeffries. The abdomen was opened through a right paramedial incision. The mass was found to be the appendix which was much enlarged and closely adherent to the caecum from which it was dissected. There were no other adhesions and no other abnormality was found in the abdomen. On examination of the appendix after removal it was seen to be about 2½ inches long and in places about 1½ inches in diameter. It was of fairly hard consistency, and in one place a subperitoneal nodule was seen. The pathological report was to the effect that the appendix was surrounded by fibrous tissue in the form of innocent tumours of the type met with in neuro-fibromatosis, there was no sign of recent infection of the appendix itself.

Before the operation the possibility of the case being fibroma of the appendix was considered, though infection of the appendix could not be excluded.

Petersfield House

TREVOR HOEY, M B, B Ch

ACCIDENTAL SNARING OF TWO SMALL STONES BY A CATHETER

On May 15th a male child, aged 1 year, was admitted at noon for stone in the urethra. When the patient was brought on to the operating table it was found that the stone had passed back into the bladder. A No. 3 rubber catheter was tied in and the operation deferred to the next day, owing to the temperature in the theatre being too high for any but the most urgent surgery to be attempted. The catheter worked well during the night, and on the operation table one ounce of lotion was run into the bladder through the catheter. The bladder was then opened suprapubically. An assistant was asked to remove the catheter so that the interior of the bladder could be properly palpated. He found some difficulty in doing this, and presently the nose of the catheter appeared at the meatus alongside the other end of the instrument. When the loop so formed was pulled out it was found that two small stones—the larger one weighing 35 centigrams and measuring 5.5 centimetres in length and 3.5 centimetres in breadth—were caught in the loop and had been pulled by it through the urethra. No undue force was used in pulling out the catheter. There were no more stones in the bladder.

W F BRAYNE, B A, M B, Ch B,
Lieutenant Colonel I M S. Civil Surgeon, Mandalay

¹ Shouldice, Canadian Medical Association Journal 1925.
² Osler, Principles and Practice of Medicine.

Reviews.

SELF-HELP FOR DIABETICS

Dr J J CONYBEARE first published his *Self Care for the Diabetic* in 1926, it was noticed in our columns on January 1st, 1927 (p 18), and it has proved such a useful handbook for diabetic patients that a second edition¹ has now appeared. The general plan of the book is to explain to the patient the principles which govern his treatment. Diabetes is a disease in which the victim, if his life is to be lengthened and rendered more useful, must understand thoroughly the relative parts played by insulin and diet. He must realize that, notwithstanding the wonderful effects which the injection of insulin can produce, his health and strength depend in a much greater measure upon a properly balanced diet which is rigorously adhered to. Wisdom and understanding are essential to the preservation of the diabetic. Hence a simple book like Dr Conybeare's can be placed in a patient's hands without fear of making him morbidly introspective or unduly apprehensive. The greater part of the book consists of admirable hints on dieting, with a chapter on cookery for diabetics, giving specimen menus for properly calculated meals. In this second edition Dr Conybeare has emphasized the great dangers which may attend the use of so-called diabetic foods. A short chapter is devoted to describing such urine tests as a patient ought to be able to carry out. Full directions are given for the self-administration of insulin, and a sound epitome of hygienic rules for diabetics helps to complete a most sensible book.

Planned somewhat on the model of Dr Conybeare's handbook is Dr HENRY JOHN'S *Diabetic Manual for Patients*. It may be that the average diabetic in the United States brings to the study of his disease a greater interest in, and deeper knowledge of, human physiology. Dr John, at any rate, devotes considerable space to anatomical and physiological details, which strike us as being somewhat beyond the grasp of the average patient in this country. However, since the author makes apt use of similes taken from the motor car and its engine, it may be that he has made his descriptions intelligible to any patient who is a motorist. But when he comes to the practical advice as to the administration of insulin and the arrangement of the diet Dr John puts his points in the simplest fashion, and his pictorial illustrations are first-rate. An appendix by Miss Laura Soden, dietitian in the Cleveland diabetic clinic, furnishes one of the best series of diabetic menus that we have seen. Dr John's optimism as to the possibility of diabetic patients establishing sufficient carbohydrate tolerance to enable them to discontinue the use of insulin is most encouraging. It will be worth while following his directions with meticulous care if such degrees of improvement as he quotes can be obtained at all generally.

FROM MAGIC TO SCIENCE

It was a happy thought on Dr SMOEN's part to bring within one cover under the heading *From Magic to Science* various essays which have issued from his pen during the past ten years. The historical student, especially, will be glad to have these articles with the author's latest emendations in this easily accessible form. They range in subject-matter from such general headings as "Science under the Roman Empire" and "The Dark Ages and the Dawn of Science" to such specialized and detailed studies as "The Lore of Gildas" and "The Visions of Hildegard". Notwithstanding this diversity of appeal, the book is certain to be welcomed by even the general reader, since, apart from the intrinsic interest of the essays themselves, they are profusely illustrated with excellent reproductions taken

from illuminated manuscripts and early printed books. In short, Dr Singer has prepared a volume which delights the eye while it stimulates the mind.

Whatever be the subject of the essay, whether the wide panorama covering hundreds of years or the microscopic examination of a single life, or a particular book, Dr Singer walks with an assured step, and speaks as one widely and intimately acquainted with the facts. Serious students of medical history will, however, have a real grievance against him, since he gives hardly any references. It is doubtless an easy matter to make a parade of scholarship by filling the bottom of each page with references to authorities transferred from other writers who, in many cases, have copied them from someone else. In Dr Singer's case we may be sure that if he has not actually perused the original he at all events quotes from a reliable authority. Still, a reference would be something to go upon, and the student would have an opportunity of being introduced to some new and, perhaps, very interesting material. Thus, to take one example out of many, it is averred that "Fracastoro followed Lucretius in denying any essential difference between the living and the non-living." This is certainly at variance with what is generally known regarding Fracastoro, and we should have welcomed some indication as to the work in which he made this assertion. Moreover, this lack of reference even afflicts Dr Singer himself. He has paid special attention to Hildegard of Bingen, and must be regarded as an authority on the subject. The date of her death is usually given as September 17th, 1179, but in the first issue of this essay in 1917 Dr Singer definitely placed it in 1180, and even two years ago, he somewhat vehemently denied that her decease took place in 1179. In the present issue, however, "September the 17th, 1179," appears without comment. A note to the effect that he has now found reason to change his opinion would dispel the uneasy feeling that 1179 is here a misprint for 1180. Moreover, it would seem that some of the generalizations proceed upon too narrow a basis of fact, as, for instance, where he says in regard to Cassiodorus that "but for his activity it is possible that no complete Latin literary work, save that of Virgil, would have reached our time." In process of argument, too, there is at times some hastiness. Thus, while admitting that the most beautiful of the early English medical manuscripts and of all the illuminated specimens were prepared in monasteries, it is contended "that there are certain works, such as the Leech-Book of Bald and the Laennec, where the scribe himself must have been a layman." This is emphasized by the frequent demand that certain ceremonies need the aid of a priest, a superfluous direction in a book intended only for monastic use." Dr Singer evidently overlooks the fact that monks were not necessarily priests, and at the date to which this refers the vast majority were not in holy orders. Besides, many of these manuscripts were written in convents by women. On this somewhat insecure foundation, however, Dr Singer, a few pages further on, makes the bold statement, "The Leech Books, whether written in monasteries or no, are, as we have seen, essentially lay products."

As was inevitable from the title, much of this volume is given over to the question of magic. Dr Singer is of the school which holds that magic is a stage in the development of scientific medicine. Whether this is so or not may be open to question, but even as an assumption it is not without its uses. Objection may, however, be quite well taken to the very wide connotation which he has given to the word magic. Thus he would include not merely what is generally understood by the term, but also prayers, litanies, and even the sacramental system. In the section dealing with early English magic and medicine he enters a field which has up to the present remained almost untilled, but his zeal has succeeded in analysing the still existing manuscript fragments and assigning individual portions to no less than eight different sources. The general impression made on the reader is that the early Englishman dwelt in a world of spells and charms. It is difficult to believe this, and the mere existence of these manuscripts gives no indication as to the frequency with which spells, etc., were used. Probably in no case were they employed until ordinary methods failed. We may be sure that the twelve dog-Latin words which are instanced as a charm to arrest

¹ *Self-Care for the Diabetic*. By J J Conybeare, M.C. M.D. Oxon. F.R.C.P. Lond. Second edition. Oxford Medical Publications. London: H. K. Lewis, 1937. (Cr. 8vo pp. xiii + 70. 3s. 6d. net.)

² *Diabetic Manual for Patients*. By Henry J. John, M.D. F.R.C.P. Maj. M.R.C. London: H. Kimpton, 1938. (Post 8vo pp. 202. 4s. figures. 7s. 6d. net.)

³ *From Magic to Science: Essays on the Scientific Twilight*. By Charles Singer. London: Ernest Benn Ltd. 1928. (Roy. 8vo pp. vi + 253. 14 coloured plates. 108 figures. 25s.)

the burning of a house would not have been used by the peasant of that day if a sufficiency of water were available. When that failed this prayer to St Columba would, at least, be as effectual as regards quenching the flames as would cursing at large. In this connexion an incident recorded by Pepys is not without significance. He had heard that carrying the foot of a hare was a preventive against colic. Acting upon that information he proceeded to get his hare. The effect was remarkable, and some few months later his records with astonishment his continued immunity. He, however, like the sensible man that he was, had been taking every morning throughout this period a turpentine pill.

Even those who least agree with Dr Singer's philosophy will readily acknowledge his masterly array of facts. If, in their view, he has given too wide a scope for magic they will be tempted to enlarge their own definition so as to include him as a belated adept in the Art, albeit of the white variety. Certainly, in this book he shows a notable power of evocation, and has found a charm that can unlock the magic casements opening on the musty past.

ORGANIZATION OF HEALTH SERVICES

We are still awaiting the book which will, within moderate compass, present to the public in attractive form some account of the history of the movement for the organization of public health services, the present machinery by which the community attends to its own health and that of the individuals who compose it, the problems to which the complications of this machinery, mainly owing to its haphazard growth, give rise, with an adequate and not unduly biased discussion of suggestions and methods which are being tried or have been proposed for the solution of these problems. Some months ago (*Journal*, October 15th, 1927, p. 688) we reviewed a book by Dr F. F. Fremantle, M.P., entitled *The Health of the Nation*. We now have one entitled *Health Services and the Public*,¹ by Dr STELLA CHURCHILL, a member of the London County Council. The former, as we indicated, should be, with a few adjustments, an admirable "textbook or handy reference book for students of civics, for members of Parliament, of town and county councils, of committees and associations interested in health and social welfare, and also perhaps for senior medical students and qualified practitioners." Its method is to give the bare facts and statistics, usually to avoid expressions of opinion, but never really to discuss the problems that present themselves. Such method leads to conciseness but lessens interest. Dr Stella Churchill's book is intended, we imagine, to appeal to the same classes of persons as Dr Fremantle's. Though not a long book, it cannot properly be called concise, but its chief defect is that it is not interesting. Here again facts and statistics will be found in some abundance, covering an even wider field than that of the earlier book, but in no very logical sequence. Historical details of very minor importance are mingled with others of much greater significance. The expression of opinion is not avoided, but it consists largely in quotations from reports, articles, or speeches of all sorts of persons, some of whom undoubtedly speak with authority on the matters dealt with, but others of whom cannot make quite so strong a claim. All this, of course, discloses the author's great interest in, and acquaintance with, the very numerous branches of the wide subject with which she is dealing, but it seems to argue, also, a certain lack of judgement which may well arouse caution in the reader. A few small inaccuracies have been noticed. One of them is perhaps worth mentioning. The statement is made that "a considerable number of panel doctors, working without partners or assistants, have 2,000 insured persons on their lists, some have 3,000, and even 4,000 is reached," and to this there is a mere footnote "now reduced to 2,000 (1928) without an assistant." The statement in the note is inaccurate, the facts being that the maximum number allowed was reduced to 2,500 (with power of insurance committees to propose further reduction), and that some

years ago. The whole statement is calculated to produce a wrong impression, since it is nowhere mentioned that the average list of an insurance practitioner is well under 1,000, and the number of practitioners with over 2,000 and working single handed does not loom large, while it by no means follows (as is stated) that each of these has a total clientele of some 5,000 persons, and so rushes through his work in order to see his "enormous number of patients." It is evident, indeed, that there is a very strong political or sociological bias running through the whole work. The preference for State action rather than individual responsibility, for the multiplication of municipal clinics for all sorts of special conditions to be used by all sorts of persons, for the whole-time health officer rather than the private practitioner, is, probably of intention, pronounced. It is less easy to see why the attitude of the private practitioner towards preventive medicine is misconceived, or why the great preventive work which he is, as a rule, doing day by day is ignored or denied, or why doubts should be thrown upon the conscientious work, efficiency, and success of the insurance practitioner. Nevertheless, while we await the advent of the ideal book on the subject of public health organization, the reader who learns how to use Dr Stella Churchill's volume will find in it much valuable material and many provocative suggestions.

HAEMOGLOBIN

The second edition of Professor JOSEPH BARCROFT's book *The Respiratory Function of the Blood*, which originally came out in 1914, is now appearing by instalments. The first of these, entitled *Lessons from High Altitudes*, was reviewed in these columns (1926, 1, 56). The second part, *Haemoglobin*,² continues the interestingly written summary of much original investigation, in large measure helped by the Medical Research Council. Less than twenty years ago it was generally held that haemoglobin was the same in all animals, now, with the advance of knowledge, this belief has been very seriously shaken, and its once accepted origin from chlorophyll is now more than doubtful, porphyrin being substituted as the starting-point. Attention is directed to the relations of haemoglobin, haemochromogen, and exochromen, the last term being applied to a range of substances with approximately the same spectrum, and specially investigated by Dr Keilin. In the chapter on the specificity of haemoglobin it is suggested that the differences in its behaviour can be explained, not on the ground that it is built upon a different basis of porphyrin, but because its porphyrin is attached to a different globin. Among the other aspects of the subject treated are its specific oxygen capacity, the nature of what is usually called a haemoglobin solution, the dissociation curve, theories of its union with oxygen, and the effect of temperature on haemoglobin. The last chapter of this volume, though written with a light touch, is highly technical, and will therefore appeal to the man in the physiological laboratory more than to the medical man in general practice, it deals with the biological significance of haemoglobin.

TREATMENT OF GONORRHOEA

An author who can write on gonococcal urethritis in the male and find something new to say is to be congratulated. If he can at the same time write so as to interest his readers and compel even a reviewer, satiated with works on venereal disease, to read his book from cover to cover, he may almost be regarded as a worker of miracles. Dr P. S. PELOUZE of the University of Pennsylvania has done this. In the preface to *Gonococcal Urethritis in the Male*³ he states that his book is not a textbook upon gonorrhoea. "It is just a simple story, simply told, unhampered by the textbook writer's constant fear of leaving out something that his reviewer would expect to find, the reviewer has been forgotten, and the story told as my experience has taught it to me." Would that more writers worked

¹ *Health Services and the Public*. By Stella Churchill. M.R.C.S. Eng. L.R.C.P. Lond. D.P.H. Camb. London. N. Doullas, 1928. (Cr. 8s. 1p. 1x + 256. 7s. 6d. net.)

² *The Respiratory Function of the Blood. Part II. Haemoglobin*. By Joseph Barcroft. London: Cambridge University Press, 1928. (Roy. 8s. 6d. 1x + 200. 6s. 3d. figures. 12s. 6d. net.)
³ *Gonococcal Urethritis in the Male*. By P. S. Pelouze, M.D. Philadelphia and London: W. B. Saunders Company, 1928. (Med. 8s. 6d. 357. 7s. 8d. figures. 24s. net.)

in such a way! Most textbooks upon gonorrhoea leave one with a feeling of confusion and a sense of helplessness. Facts are furnished—too many of them, indeed—but so arranged that it is impossible to draw a lesson from them or to understand how gonorrhoea should be treated. Dr Pelouze boldly steps out of the beaten paths and fuds his way into untrodden country. He has shown a refreshing disregard for some of the idols that venerableologists have worshipped without question for many years. The keynote of his book is simplicity—simplicity in exposition and simplicity in treatment. He views with horror the methods of the instrumentalist, with his array of operating urethroscopes, canter points, dilators, and electrical contrivances. He is equally adamant against the disinfectant enthusiasts who would kill the gonococcus by means of strong disinfectants and aniline dyes that penetrate the epithelial lining of the urethra. He maintains that irrigation of the urethra and bladder achieves its purpose by provoking tissue reaction rather than through any direct action on the gonococcus. The use of too strong solutions or irritating lotions is harmful. The ideal irrigating fluid is that which produces only a mild reaction and a very slight increase of discharge a few hours after use. Success can only be obtained by extreme gentleness on the part of the attendant physician. Over-rigorous methods inflict harm and reap a harvest of complications. Dr Pelouze's book should be read by every practitioner who intends to treat gonorrhoea.

NOTES ON BOOKS

DR. J. ARTHUR MYERS has written a book entitled *Modern Aspects of the Diagnosis, Classification, and Treatment of Tuberculosis*,¹ which is designed to equip the general practitioner and recently qualified student with all the knowledge and experience necessary for a complete understanding of the tuberculosis problem. It is essentially a popular book and must of necessity appeal only to those who have no time to tunk for themselves or to make a serious study of the disease. Indeed, it is difficult to resist the conclusion that the author himself has never studied the disease seriously. In his chapter, for example on the tubercle bacillus we find a succession of wrong and misleading statements. Dr Myers's knowledge seems to be derived mainly from three or four textbooks, some of which are written by authors whose views are very largely discredited. He refers repeatedly to Mantoux's intradermal tuberculin test as the Mantoux test, he says that tubercle bacilli are destroyed by 5 per cent phenol in half a minute, and he has the tiresome habit of saying that such and such a thing has been 'shown' or 'proved,' when the truth is that someone has on some occasion brought forward a highly debatable piece of evidence in favour of it.

On its first appearance RIBBERT's textbook of general pathology and pathological anatomy was recognized as a work of outstanding merit, and enjoyed great popularity for many years. It is now sixteen years since the last edition appeared, and in that interval great advances have been made in the subject and the standpoint from which it is viewed has undergone a complete change. The preparation of a new edition, therefore, involved practically a recasting of the work if it was to be brought abreast of the present time, and it became a question whether it was worth while to undertake the revision considering the number of good books on the subject which are already on the market. Ribbert's book was an outcome of Birch Hirschfeld's textbook, and that, together with the publishers loath to see it drop out of their list. They have accordingly prevailed on Professor STERNBERG to undertake the preparation of a new edition,² and instead of inserting the new material in the original text, which would have produced a patchwork effect, he has deemed it best practically to rewrite the greater part of the book taking care at the same time to preserve the general plan and character of the original. Almost all of Ribbert's figures remain, and sixty additional figures have been inserted. Professor Sternberg and the publishers have done a good work by reinstating Ribbert's book in current medical literature.

Professor and Mrs PLIMMER have just published a third edition of their small book previously called *Food and Health* and now named *Food, Health, Vitamins*.³ This work has evidently satisfied a popular demand, for three editions have appeared within three years. The volume has been revised thoroughly, and gives an excellent summary of present day knowledge of dietetics. Dietetics is undoubtedly a highly contentious subject, and the authors hold strong views of their own, but they give a fair and impartial account of their subject.

Professor C. R. MARSHALL and Mr H. D. GRIFFITH, both of the University of Aberdeen, have joined forces in the production of *An Introduction to the Theory and Use of the Microscope*,⁴ which should prove very useful to those for whom it is designed—students who require a microscope in their studies and amateurs who wish to understand the fundamental principles of microscopy. This textbook is clearly and simply written and amply illustrated, a supplementary chapter gives a mathematical statement of some of the problems discussed in the text.

The Chemistry of Crude Drugs,⁵ by J. E. DRIVER and G. E. TREASE, is described by the authors as an elementary textbook for students of pharmacognosy. It provides, within the space of 160 pages, a short account of the chemical characters of the chief constituents of crude drugs.

¹ *Food, Health, Vitamins*. By R. H. A. Plimmer D.Sc. London and Violet G. Plimmer. Being a new edition of *Food and Health*. London: Longmans, Green and Co. Ltd. 1928. (Cr. 8vo pp. viii + 120. Illustrated. Paper cover 2s. cloth 3s.)

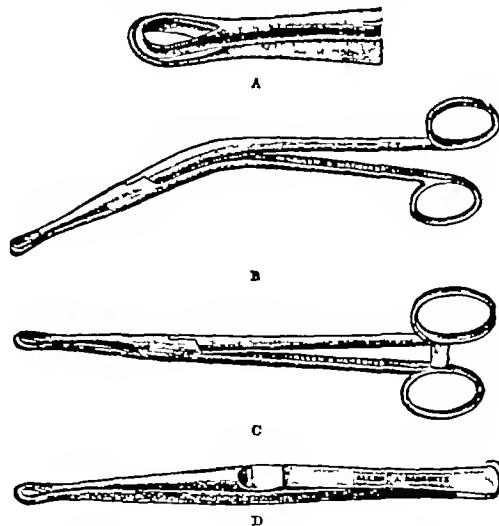
² *An Introduction to the Theory and Use of the Microscope*. By C. R. Marshall M.D. J.L.D. and H. D. Griffith B.A. London: G. Routledge and Sons Ltd. 1928. (Demy 8vo pp. viii + 90. 28 figures. 3s. 6d. net.)

³ *The Chemistry of Crude Drugs*. By John Edmund Driver M.Sc. Ph.D. A.I.C., and George Edward Trease Ph.C. London: Longmans, Green and Co. Ltd. 1928. (Demy 8vo pp. vii + 159. 10s. 6d. net.)

PREPARATIONS AND APPLIANCES

GRIPPING FORCEPS

Mrs DENIS BROWNE, J.R.C.S. (Resident Medical Superintendent, Hospital for Sick Children, Great Ormond Street) writes: 'Some years ago, when devising an instrument for holding that very friable organ the tonsil during dissection, I designed a grip which I believe to be both new and of a fairly wide application in surgery. Its principle is to produce a ruck in the material grasped by its blunt overlapping jaws (A), much in the way of the army regulation fastener for webbing straps. It is obvious that a grip of this sort will tear out less easily in flimsy material than one that depends for its hold on piercing or crushing. The original tonsil forceps (B) proved so popular that I have had two other models made



a tissue forceps (C), which is very useful for holding tuberculous glands, cyst walls and other washy tissues, and a bowel forceps (D) which I think will grip the intestine more firmly and with less damage than anything else I have ever tried. The forceps are manufactured by Messrs Allen and Hanbury, Ltd., Wigmore Street, W.

¹ *Modern Aspects of the Diagnosis, Classification, and Treatment of Tuberculosis*. By J. Arthur Myers. With an introduction by David A. Stewart. London: Baillière Tindall and Cox. 1927. (Med. 8vo pp. xii + 271. 54 figures. 25s.)

² *Lehrbuch der Allgemeinen Pathologie und der Pathologischen Anatomie*. Begründet von Professor H. Ribbert. Neu bearbeitet von Dr. Carl Sternberg. Leipzig: F. C. W. Vogel. 1928. (7 x 94 pp. xv + 727. 739 figures. M 45.)

Nova et Vetera.

THE BROMPTON MEDICAL BOOK SOCIETY

AMONG the local medical societies of London one of the oldest must surely be that which has existed for ninety-four years under the name of the Brompton Medical Book Society. It was founded on August 16th, 1834, by a meeting held at the house of Mr Newbery, at which were present, besides the host, Messrs Eisdell, Muller, Godrich, Chinnock, and Dr Boyton. In addition to these, Messrs Green, Coward, Mullus, and Wilson were also original members of the society, though they were unable to attend the inaugural meeting. The founders decided that the society should consist of thirteen members (thus displaying a degree of moral courage which was probably rare in those days), who should pay a subscription of one guinea annually, with an entrance fee of half a guinea. (In later years the membership was enlarged to eighteen.) Elaborate rules were drawn up for monthly meetings, for the purchase and circulation of medical books, for fines, for the election of new members, and so forth. The first three books purchased by the society were *Diseases of the Urinary Organs*, by Sir Benjamin Brodie, *Diseases of the Joints*, by the same author, and Dickinson's translation of *Diseases of the Skin* by Rayer. The first secretary was Mr Newbery.

It has to be borne in mind that in 1834 Brompton was still a village round about where South Kensington Station and Sussex Place now stand, connected with London by a long street of straggling houses known as Brompton Row—now rebuilt as the Brompton Road. So far as the present writer knows, the only house left of the old village is Park Cottage (behind Pellham Street), which is apparently of Jacobean date. In 1820 Fankner estimated the population of the whole district at 3,000, Brompton Chapel (in Montpelier Street) was the only place of worship until 1829, when Brompton Parish Church was built on land previously utilized as a cemetery for those patients dying in St George's Hospital whose relatives could not be found or who would not defray the expense of their interment. Footpads had within quite recent memory infested the neighbourhood of Knightsbridge, where a bridge (as the name implies) carried the main West Road across an open stream, the Westbourne, issuing from Hyde Park, in fact, decent citizens even then stirred out after dark at the risk of their purses or even of their lives. The Half Way House—half-way from London to Kensington, that is—still existed, more or less on the site where the park-keeper's lodge now stands, opposite the top of Ennismore Gardens. This inn was notorious as the resort of the highwaymen who robbed incautious travellers on dark nights at Knightsbridge. It was pulled down about 1845, and a true story about it serves to make one realize how very near, in reality, those apparently far-off times are to the present. Some three or four years ago the Kensington Public Library acquired at a sale a water-colour drawing of the hostelry, and a paragraph appeared in the press to this effect. Within a few days a distinguished looking old gentleman wandered into the library and asked if he might see the water-colour. When the librarian showed it to him he said, "Yes, that's the Half Way House all right, I remember it well." On the librarian remarking that it had been pulled down eighty years before, the visitor replied, "Yes, I know that, I lived opposite to it when I was a boy—indeed, I live in the same house still." He was (the late) Lord Listowel, wounded at the battle of the Alma!

The neighbourhood of Brompton consisted chiefly of large houses standing in extensive grounds, and of market gardens for the supply of fruit and vegetables to London. Even as lately as 1850 there were wheat fields in the Queen's Gate region, at least one retired member of the Brompton Medical Book Society remembers walking through them on his way to school. Chelsea was a similar

village, on the banks of the river, and between the two was Little Chelsea, a hamlet placed on the road to Fulham, where Drayton Gardens now intersects that thoroughfare, and still identifiable by the narrow piece of road which tends to clog up traffic in the Fulham Road at that point. That the society drew members from a wider area than the village of Brompton is proved by the election of Mr Baines of the King's Road in 1834, and of Mr Marshall of Cheyne Row in 1838, it may be further illustrated by the membership list for 1846-47, which also shows how rapid the development of the district was about those years.

Francis Godrich, Esq., Little Chelsea
Alfred Warden, Esq., Robert Street
Franklin Hudson, Esq., Alexander Square
Charles F Pollard, Esq., Brompton Crescent
J D Hewett, Esq., Michael's Place (now Egerton Mansions and Terrace)
E W Pollard, Esq., 1, Brompton Square
J Mould Esq., Brompton Row
Fredk Muller, Esq., Hans Place
Edward Seaton Esq., Sloane Street
Wm Vesalius Pittigrew, Esq., 30, Chester Street.
J D Rodgers, Esq., 2 Upper Ebury Street Publico
Alfred Barnes Esq., King's Road
D O Edwards Esq., Sydney Place
Fredk Genet, Esq., Queen's Buildings Ovington Terrace
Wm Gilbert, Esq., 17, Brompton Square

The most interesting of these names, probably, to residents still alive, is that of Mr John Mould, who remained a member of the society until his death in 1899, and is still well remembered by a good many people of scarcely more than middle age. He was a man of remarkably fine appearance and great personality, who carried on a large practice almost down to his death. The receipt for his subscription of one guinea to the British Medical Association for the year 1858 is still, by some curious chance, to be found loose in one of the early minute-books of the society. The name of the member from Chester Street would have delighted Sir Walter, indeed, it is not impossible that it actually may have delighted him.

It will be noticed that by 1846 very few of the original members retained their connexion with the society. Apparently in 1837 there were dissensions within the fold, and Mr Newbery, who had acted as secretary ever since the foundation, resigned after a resolution, which amounted to a vote of censure on him, had been passed at the March meeting in that year, one or two more of the founders resigned shortly afterwards.

The society took no official notice of the accession to the throne of Queen Victoria, which seems strange when it is remembered that she had been living for some years quite near them all. But they signalized the year by holding the first annual dinner in September, when loyal toasts were doubtless honoured with due enthusiasm. But for the interruption caused by the war, this dinner has been held annually down to 1927. In 1838 a custom was initiated, which has been continued ever since in the society, of presenting a retiring secretary with any medical work which he might elect to receive.

The members were assiduous readers of medical text books, and even ordered such strange productions as Colquhoun on *Animal Magnetism*, *Isis Revelata*, *Kosmos* by Humboldt, and Thompson's *Food of Cattle*. In 1847 it was decided to deposit a number of books—presumably no longer wanted by the members—in the library of the Western Medical and Surgical Society. This was done, and two printed lists, dated 1850 and 1851, are pasted into one of the minute-books showing the books thus deposited. It is regrettable to see that Suow's *Inhalation of the Vapour of Ether*—purchased 1847—is one of these discarded volumes.

In more recent years the society abandoned the purchase of medical books, but continued for some time longer the circulation of medical periodicals. Finally this, too, was given up, and for several years the society has existed for purely social purposes. The doyen of the membership at the present time is Mr J P Bartlett, who was elected in April, 1877, two gentlemen who were members when Mr Bartlett was elected are alive—Dr Hamilton Bland, who is still in practice, and Dr W B Whitmore, who has retired, while yet another contemporary member, Dr Walter Riden, died early this year. Mr G H Pedler

was also of those who elected Mr Barlett, he served as secretary for the remarkable period of thirty three years, and died about four years ago. The society has never had any president or chairman throughout its existence, the chair at each meeting is taken by the host in whose house the meeting is being held and the chairmanship at the annual dinner goes by rotation.

H R

THE SOUTH AFRICAN UNION MEDICAL COUNCIL

[FROM OUR CORRESPONDENT IN CAPTOWN]

With the advent of the Medical, Dental, and Pharmacy Bill on the statute book radical changes will take place in the control of the medical profession in the Union of South Africa. On December 31st this year the four provincial medical councils will cease to exist, and their functions will become unified in the Union Medical Council. This body, by special arrangement, will extend its jurisdiction over the Mandated Territory of South-West Africa.

Constitution of Council

The personnel of the Council will comprise

Two *ex officio* members—namely the Chief Health Officer or an assistant health officer for the Union, and the Commissioner of Mental Hygiene or the physician superintendent of a State mental hospital.

Two medical practitioners, one dentist and two lay members nominated by the Minister of Public Health.

One medical practitioner (who must be a member of the governing body or teaching staff) nominated by each university with a complete medical faculty.

One medical practitioner nominated by the Minister to represent the Mandated Territory.

Ten medical and three dental members elected respectively by the medical and dental practitioners of the Union.

Two persons (who may be either medical practitioners, nurses, midwives or masseurs) elected by the nurses, midwives and masseurs of the Union.

The two members elected by the nurses, midwives, and masseurs will not be entitled to vote on matters which, in the opinion of the president of the Council, do not affect the interests of the classes they represent. It will be observed, then, that, inclusive of the two *ex officio* members, the new Council will contain twenty-five members. At the time of writing the following appointments to its membership have been gazetted:

Government Medical Nominees—Dr A. J. Stals, M.L.A. (Worcester) and Dr H. E. Fernandez (Durban).

Government Dental Nominee—Dr J. A. Stegmann (Bloemfontein).

Ex Officio Members—Dr J. A. Mitchell (Chief Health Officer) and Dr J. T. Dunston (Commissioner of Mental Hygiene).

Lay Members—Mr E. W. Douglass, K.C. (late Attorney General Cape), and Mr W. H. Rood, M.L.A. (Barberton).

Mr E. Barnard Fuller, F.R.C.S. Ed. has been appointed as representative of the University of Capetown.

Elective members of the new Council are to be elected by the medical practitioners of the whole Union voting as one constituency, so that every practitioner, wherever he resides in the Union, can vote for ten representatives, wherever they reside, even though his selection may not include one resident in his own province. It is laid down, however, that not more than four elected medical practitioners, and not more than one elected dentist, shall be ordinarily resident in any one province, and also that each province shall be represented on the Council by at least one medical practitioner ordinarily resident therein. The election will be by ballot, the first taking place by authority of the Minister, thereafter under the authority of the president of the Council.

Procedure

The elected Council will appoint a president, a vice-president, and a treasurer, who will hold office for the term of each Council. Ordinary meetings of the Council will be held half yearly, but special meetings may be convened by the president. The first meeting will be held at Pretoria, but subsequent meetings may be arranged to take place at any other centre to be determined by the

Council. As it is laid down in the Act that the office of the Council must be situated in Pretoria, it is hardly likely that meetings will be held in other centres, unless for some special reason. The Council may appoint committees to which obviously very extensive powers will have to be delegated, owing to the six-monthly intervals between ordinary meetings of Council and the immense size of the area under its jurisdiction. The quorum of the Council will be seven, of which not fewer than four must be medical members. A registrar, who will also act as secretary, will be appointed by the Council and the Pharmacy Board jointly. These bodies may also appoint a legal adviser.

The Union Medical Register

On the coming into force of the Act a Union Medical Register will supersede the present provincial registers, and all persons thereon will have the right to practise throughout the Union. All persons who are or who have been on any provincial register will be transferred to the Union Register without payment of any fee, but all other medical practitioners are liable to pay a fee of £25 on having their names placed on the new Register. Eight registers will be established—for medical practitioners, dentists, chemists and druggists, nurses, midwives, masseurs, medical students, and dental students. The three last-named are new departures. The Council, in addition, may establish registers of dental mechanicians, sanitary inspectors, and various other classes performing functions ancillary to medicine.

Of great importance to medical practitioners are the provisions, introduced in Section 80 of the Act, bringing the question of fees into the purview of the Council. It is laid down in Subsection 1 that no registered person shall make or attempt to make or recover "excessive or extortionate" charges, in Subsection 2 that, unless the circumstances render it impossible, he shall (a) if requested by the patient, or (b) when the fee exceeds that usually charged, state beforehand the fee he intends to charge. In Subsection 3 that detailed accounts must be rendered whenever requested, and in Subsection 4 that any person who contravenes or fails to comply with any of the above provisions shall be guilty of improper or disgraceful conduct, of which it shall be the duty of the Council to take cognizance and to deal with under its disciplinary powers.

Nomination of Direct Representatives

The announcement that nominations for the ten elected members of Council were required to be in the hands of the returning officer not later than July 31st caused much activity in the medical profession throughout the Union. The action of the Federal Council of the Medical Association of South Africa (British Medical Association) in deciding to run a "ticket" in the forthcoming elections has aroused a division of opinion in the profession as to the wisdom of such a course. Whether or not the formation of such a "ticket" can be justified, there is no doubt that no better method could have been devised for stirring up interest and wakening medical practitioners in general to a sense of their responsibilities, for, in the past, elections in medical circles have been distinguished by extreme apathy on the part of the electors. The question of the formation of a "ticket" was referred by the Federal Council to the various branches, and the action of the Cape Western Branch in deciding to organize a preliminary ballot in the area of the Cape Province has proved to be the best solution of how to select representative nominees to compose the "ticket." This Branch circularized every member of the Association throughout the Province, calling for nominations of four representatives for the Province to form part of the official "ticket." A preliminary ballot was conducted, as the result of which four names were submitted to Federal Council. Other branches likewise called for nominations from their members and when the nominations received exceeded the number of vacancies for the respective provinces, a ballot vote was taken.

In this way the names of candidates selected by provinces were placed before Federal Council, who thereupon drew up a list, or "ticket," of fifteen names of candidates from

whom it is recommended members of the Association should choose in voting for the ten vacancies on the Union Medical Council. The official list of the Federal Council has been declared as follows: W. Darley-Hartley, M. R. Diennan, S. J. O'L. Grimsell, and D. J. Wood, representing the Cape Province; W. T. F. Davies, J. Drummond, and G. E. Oddie-Taylor, representing Natal; C. H. Bidwell, S. M. de Kock, and E. R. Smyman, representing the Orange Free State; Sir Spencer Lister, R. P. Mackenzie, A. J. Ornstein, A. W. Sanders, and A. H. Watt, representing the Transvaal.

It must be understood clearly that these fifteen candidates are the official nominees of the Medical Association of South Africa (British Medical Association) representing the organized body of the medical profession in the Union. It is open to any registered medical practitioner, however, to nominate any number of candidates not exceeding the number to be elected—namely, ten—and it is emphasized also that members of the Association are not morally bound to vote for candidates included in the official list. This list is put forward merely to serve as a guide to the electorates in selecting suitable representatives on the Council.

THE BRITISH ASSOCIATION

ANNUAL MEETING IN GLASGOW

(Continued from page 495)

SEVERAL topics of direct and indirect medical interest were considered during the annual meeting of the British Association for the Advancement of Science. We referred last week to the presidential speech of Sir William Bagg, in which he indicated the connexion between science and craftsmanship, it would hardly be overstating the case to remark that some excellent examples of this connexion have been seen in the programme of the proceedings of this past week, illustrating the gain to medical craftsmanship afforded by purely scientific investigations.

In the Section of Physiology Dr. H. E. C. Wilson reviewed the nature of the material stored during nitrogen retention, using first Voit's conception that the food protein was built up into a labile circulating protein, which was metabolized by the cells relatively easily as compared with the more stable tissue protein. Pflüger, however, held that all ingested protein became an integral part of the living cell before it was metabolized. Investigations planned on the superimposition method had shown that when equilibrium was attained the body excreted the same material qualitatively as was ingested. When, however, the nitrogen output was rising, the material retained was found to be relatively poor in sulphur, correspondingly, when the nitrogen output fell, the material lost was relatively sulphur-poor. This evidence that material "in transit" was poor in sulphur was in accordance with the belief that the sulphur moiety of the protein molecule was more quickly metabolized than the nitrogen moiety. Professor Noel Paton reported recent work on the relation of guanidines to tetany, and a discussion on cell structures was built up by Professors Bronte Gatenby and Charles Walker, and Messrs. Rogers Brambell, D. Sc., and L. A. Harvey, M. Sc. Lactation and the nutritional factors associated with it was the subject of another discussion. The remaining topics in this Section included pulse velocity, a new type of recording oscillogram, simultaneous colour contrast, resistance and polarization in the human skin, the metabolism of iodine, fatty acid as a source of carbohydrates in diabetes, and the measurement of ultra-violet radiation.

The Relation of Physiology to Other Sciences

In his presidential address to the Section of Physiology Professor Lovatt Evans referred to the close association which from the earliest times had existed between physiology and medicine to the numerous contributions of physiology to medical science, and to its influence on the development of medicine, surgery, pharmacology, and hygiene.

He recalled more especially Harvey's fundamental physiological work and revival of the experimental method, which now formed the permanent basis of medical as of physiological knowledge. In this country the teaching of physiology fell for a time far behind when compared with that on the Continent, where Ludwig in Germany, who obtained a separate chair of physiology in 1865, and Claude Bernard in France, had raised the subject to a high level by the time that physiology in England was being reborn through the activities of Sharpey. No separate chair of physiology existed in England until 1874, when Sharpey, who had been professor of anatomy and physiology at University College, London, was succeeded by Burdon-Sanderson as the first professor of physiology. Since that date specialization had made notable strides. Whereas in the sixties the student's chief study was anatomy, there had now grown up special courses of instruction in the preliminary sciences and in anatomy, neurology, histology, embryology, organic chemistry, physical chemistry, physiology, experimental physiology, biochemistry, and pharmacology, each with its professor or special teacher. Herein lay the great dilemma of the medical curriculum, the solution of which, the speaker contended, was to be sought in two directions: first, in an extensive modification of the present system of examination, and secondly, in the exercise of a sympathetic understanding by the specialist teacher of the difficulties of students, and a proper perspective of the relation of his own subject to the requirements of the curriculum as a whole. It was impossible, and perhaps undesirable, at the present time to frame instruction in physiology so as to equip adequately the ordinary medical student to proceed directly to the prosecution of research in any of its branches, but since one of the main objects of instruction was to enable the latest results of physiological investigation to be utilized in the clinic, it seemed that a good way of effecting this would be for workers specially trained in physiological methods to enter the staff of clinical units where facilities for research work were at hand. As regards the relation of the exact sciences to physiology, their value had been immense. More particularly, mathematics and mathematical physics had exercised their influence by bringing the accurate experimental and intellectual methods of physics to bear on the construction and use of the numerous instruments employed, and by furnishing the means for evolving generalizations out of experimental data. Owing, however, to the complicated conditions involved in physiological experiment, as compared with the relatively simple conditions of purely physical experiment, it had been found impossible up to the present to avoid a considerable margin of variation in the results of many physiological experiments. By regarding these, however, as "chance" variations, considerable help had been obtained by the application of the theory of errors, based on the theory of probability. Research by such statistical methods had proved a useful method of investigation. An elementary deduction to be drawn from the consideration of these facts was that where only a few experiments of any kind were performed, important conclusions could not be regarded as established unless it could be shown that the conditions were so controlled, and the accuracy of the observations so high, that the sum of individual "chance" variations was bound to be small. Observation of this precaution, the speaker said, would reduce the bulk of physiological literature very materially, with a corresponding improvement in its quality. The contribution of pure physics and chemistry in the development of physiology was then touched upon, reference being specially made to the rich harvest already reaped through the union of chemistry and physiology in the form of biochemistry. Turning to the relation of anatomy to physiology, Professor Lovatt Evans recalled the fact that when physiology separated from anatomy it took with it all those dynamical problems which concerned function, leaving anatomy little but the dry bones. The consequent stationary condition of anatomy during the last decades of the nineteenth century was little relieved by the subsequent incorporation of anthropology and embryology. Signs, however, were now wanting of the growth of a more living and scientific type of anatomy, and a prospect that the artificial line of

demeantation between anatomy and physiology would be obliterated. With regard to the philosophical aspect of physiology, it was contended that there should be no misapprehension as to the nature of the assistance which physiology derived from the exact sciences. They in no way helped towards an explanation of the phenomena of life, they merely enabled them to be described more accurately. What life was would remain a mystery for all time, and the views of each on that subject would depend largely on individual temperament and physiological make-up. Physiologists, in attempting to know what life was, had attempted too much. A new standpoint was needed, and it would seem that the idea of adaptation might advantageously be accepted by physiology as its basic principle, just as the chemist accepted the conservation of matter and the physicist the conservation of energy. Not a definition of what life was, but a brief statement of its way, was valuable and stimulating. Regarding the organism and its environment as one, it would be perceived that life was conserved by adaptation, and this conception could not fail to be of value alike to general biology, to physiology, and perhaps most of all to pathology. For there was no fact in biology, pathology, or therapeutics which might not be profitably viewed from this fundamental physiological standpoint.

The Psychology of Education

In the Section of Psychology the application of this science to education was illustrated by Dr C S Myers, who commented on the clash of evidence regarding the relation between innate ability and "trainability," and concluded that a psychologically effective measurement of improvement and improvableity was very difficult. He distinguished between the mechanical repetitive "practice" of an innate ability, which led to precocious ripening, and the higher "training," which produced the best attitude, technique, and style. He also drew distinctions between general, group, and special educabilities. Professor C W Valentine reported experimental investigations into the psychology of early childhood, which tended to rebut the view that later childhood could be interpreted in terms of adult experience, such a study afforded the only reliable evidence as to what was innate in human nature. The supposed stable reflexes had been found to be very variable in the same child on different days, and could not, therefore, be used as the basis for standard tests. Watson's demonstration of the absence of innate fear appeared to be unreliable. Mr P M Earle and Dr A. Macrao dealt at length with the principles, methods, and tests of vocational guidance. In the Section of Educational Science, educational and child guidance clinics formed the subject of papers by Messrs W Boyd and R H Crowler, and Miss M Drummond.

The Nature of Skill

In his presidential address in the Section of Psychology, Professor Peir suggested that for the purposes of scientific discussion skill might be defined as "an integration of well adjusted performances." The aptitude for a particular form of skill might be regarded as based upon well-coordinated reflexes, instinctive tendencies, adapted habits, and the power of "patterning." The physiological conception of skill as consisting entirely of an integration of "conditioned reflexes" could not be regarded as completely satisfying. To ensure the certain conditioning of a reflex the control of external surroundings must be complete, whereas skill typically showed itself in the rapid adjustment to a changing environment and to unforeseen conditions. Even in such a dominantly reflex event as the maintenance of posture, the matter might be partly controlled by consciousness, by taking thought we could improve balance, assume different types of it, and even plan balances in advance. With regard to instincts, their part was probably unimportant. Unlike many animals, man was born unskilled, his skills were acquired, not inherited. But such instincts as those of self-assertion, self-display, and the like might play an important part in impelling him to acquire a skill against material and human obstacles. Habits, naturally, were important components of any skill, they ensured adequate adaptation, and where the conditions were complicated the habitual movements

interacted so that the whole was more than the sum of its parts. Skill, however, was not a mere collection of habits. The essential characteristic of skill was, according to Professor Peir, the ability to integrate responses and, in the highest skills, to substitute, if necessary, one type of integrated response for another, whereas habits were acquired specific responses to specific situations. "Patterning," which objectively considered might be said to be the arranging of human movements in an integrated order in time and space, also played an important part in skill, moreover, it formed the basis of individuality in performance, the particular integrations of part-actions into wholes expressing the individuality of the performer. The power of patterning might be partly acquired, partly innate, and genius in skill might be exhibited in the ability to produce novel patterns. In the matter of classification Professor Peir recognized five groups: (1) Collections of imperfectly adapted responses. This class included the skill of most labourers and workers in the semi-skilled trades. (2) Perfectly adapted responses which did not exhibit personality. Such were the movements on parade of the perfectly drilled soldier. Military skill of this type might be compared with the skill which would result in industry if a stereotyped series of actions, however efficient, was rigidly applied. Its advantages and defects were clear in military organization. (3) Responses resembling habits, but less specific and automatic. Such responses were exemplified in sport when rapid, delicately effective complex adjustment was being made towards the surface upon which the player was moving—as, for example, hard and grass tennis courts. (4) Responses similar to the last, but exhibiting in their totality a pattern characteristic of the individual. (5) Creative skill, whether unconsciously exhibited or the result of deliberate analysis—inventive creation—more often exhibited in the world of art, but no less desirable in that of industry. With regard to the relation between intelligence and skill, it had been concluded by some writers that there was no general capacity, no "motor type" of person, and that vocational tests for ability in any performance gave valid results only when the test performance was identical with that for which the test was being administered. These conclusions, however, had been based on tests concerned with simple motor abilities. Another method of attacking the problem was to set it in the form of the transfer of training. Subjects were intensively trained in some skilled activity until their curves of practice showed a marked rise over a fairly long period. It was then observed whether the ability gained was transferred to related performances. The results of tests of this kind varied with the attitude of the subject experimented upon. He might regard the test as a mere mechanical performance devoid of interest, or the test might be so planned that he was able to take a sentimental interest in it—and it was generally held that transfer largely depended on the formation of a sentiment. The evidence seemed to show that the problem of transfer might be divided into two parts: (a) transfer resulting from the exercise of some particular function, and (b) transfer resulting from extension of attitudes, sentiments, ideals, or knowledge of methods, where the particular function trained was the vehicle of these mental powers. The former was rare, the latter could undoubtedly occur, but only under suitable educational conditions, and the automatic occurrence of transfer could not now be assumed by anyone conversant with the facts.

Mental Analysis and Psychotherapy

Dr William Brown discussed the place of mental analysis in psychological investigation. He suggested that the term psycho-analysis should be kept for Freudian doctrine, and that the investigation involved in obtaining the material for theorizing and new facts in psychology should be entitled "deep analysis," implying analysis of the depths of the mind, this analysis would be performed by different investigators and by the same person on different occasions. It was necessary to distinguish between the therapeutic effects of analysis and the theoretical conclusions that might be drawn from its results. The cure of the patient's illness was due to underlying uncontrolled mental factors being brought into the

consciousness, and coming under the sway of the conscious control. The patient recalled episodes of earlier life, re-living experiences of childhood, this gave him the power to control the symptoms though the mental causes of his recovery might remain obscure. Freud's Oedipus complex in the sexual sense was too narrow, though it was true that the general reactions of the child to its father and mother were of fundamental importance for its future life and character. The self-knowledge obtained by the patient as the result of such analysis was different from the other factor in the cure—namely, the re-living of the past with great vividness, which resulted in the removal of repression and the conferring of re-association. Self-knowledge, the patient's becoming aware of the cause of his illness and not being merely told it, was of very great importance, though the patient did not always realize how it came about that he had been ill and was now getting better. Further research was necessary in this respect by workers of independent character who were prepared to draw conclusions for themselves from the facts they discovered. In addition to the factors of re-living and acquiring self-knowledge there was the general factor of transference to the analyst of the mental attitude referred in early life to the parents and others, there was also the suggestibility of the patient as regards the analyst, suggestion and transference not being wholly identical terms. Thus a patient analysed by a Freudian tended to shape his views accordingly, losing his power of criticism unless he resumed after each analysis his own independence of thought and critical ability. There was need for closer co-operation between the practitioners of differing psychological schools if progress was to be more rapid in the future. Mental analysis must be followed by mental reconstruction, the patient being encouraged in a Socratic form of instruction to discuss his problems, to debate alternative courses, and eventually to make his own decision with the help of his adviser, though not under his control. With the gain of self-knowledge the patient became less emotional as a rule without losing actual force. Analysis seemed to be educative, not only of intellect and reaction to life, but also of the primitive instincts, which became more manageable. The personality became freed from fixations on past experiences, from the tendency to regress to earlier attitudes, and from "compensations" and other forms of self-deception.

Normal Psychology in the Medical Curriculum

A committee, of which Dr William Brown was chairman, furnished a report on the place of normal psychology in the medical curriculum. It was stated that a questionnaire had been circulated to all medical schools in the British Isles and the Dominions, inquiring what facilities were offered to medical students for acquiring a knowledge of normal psychology, and whether the instruction should be optional or compulsory. It was reported that thirteen schools in the British Isles offered no facilities, eight had optional courses, and in five there were compulsory ones. Most schools in the Dominions had courses, sometimes, apparently, of an extensive nature. Such instruction in normal psychology was placed, as a rule, in the pre-clinical or preliminary clinical years, a series of lectures being given with occasionally some experimental work. The majority of the opinions received in answer to the questionnaire favoured the provision of optional instruction in this subject. The committee reported, therefore, that, in its opinion, facilities should be available in every medical school for instruction in normal psychology in the pre-clinical years, preferably the second one. There should be not less than ten and not more than twenty lectures, and wherever possible about ten two-hour sessions in experimental psychology. The course should be compulsory, and the instruction have special reference to medico-psychological facts and problems, this would give a working basis for subsequent lectures in morbid psychology, which should be considered a necessary part of the general instruction in psychiatry. The findings of the committee are to be circulated to those medical schools which replied to the questionnaire.

Other Psychological Subjects

Mr E R Clarke discussed the mental tests of Binet and the group tests. He concluded that in both cases there was an additional factor of variation, which was either an extra emotional reaction called up in the young child by the strangeness of the situation, or was the result of the varying of environmental influences during the initial stages of learning, which were eliminated later when the child settled down to its real place in the scholastic scheme. In the Binet test this time came after the age of 6, and, in the group tests, after the thirteenth year, only then could the tests be used as sound diagnostic technique. Dr R D Gillespie considered the relation of the size of the family to psychoneuroses, and concluded that the effects of place in family in producing psychoneuroses were probably psychological. The "only child" might be nervous when young, but did not tend to grow up into a particularly nervous adult. While the eldest and youngest members of a large family were more likely to be intellectually distinguished, there was a corresponding liability to some mental defect or disease. Dr S Dawson, in a paper on "Dullness and disease," reported a comparison of the average intelligence ratios of groups of children suffering from various ailments with those of their brothers and sisters, and with those of the same patients subsequently. The investigation showed that most ailments had little or no appreciable effect on intelligence, though some—such as encephalitis lethargica and epilepsy—were not only associated with mental abnormality, but actually produced it. Diseases of the nervous system which were limited to the spinal cord did not appear to affect the intelligence.

Signature of the Vas Deferens

In the Section of Zoology the committee (Dr F A E Crew, Mr J T Cunningham, and Professor J S Huxley) for the experimental investigation of the effects of vasoligation on the seminal tubules and interstitial tissue of mammalian testes presented a further report, their previous one was noticed in the *Journal* of September 10th, 1927 (p 460). The new experiments related in part to the grafting of rat testes, from which little success had been obtained. Attention had, however, been more particularly devoted to the effect of an artificially raised temperature, it was found that by exposing the scrotum to a temperature equal to that of the interior of the animal's abdomen the course of disorganization in the seminal epithelium could be traced in detail. It was noted that the normal condition persisted longer in the peripheral tubules than in the more internal ones, and that disorganization in the individual tubule commenced in the internal layers of cells next to the lumen and proceeded centrifugally.

Various Topics of Medical Interest

Dr R R Rusk dealt with the technique and organization of educational research, and considered "mass" as contrasted with "individual" methods. In describing the organization of research he mentioned the necessity for having a bureau or institute to assist and inspire individual workers, organize co-operative investigation, collect data, record failures, and collate and disseminate reports. Mr W Fitzgerald contributed a critical discussion of the population problem of South Africa. Miss D Strangeways reported the results of a comparative study of leucocytes and fibroblasts cultivated *in vitro*. She found that transformed leucocytes differed from fibroblasts in their smaller nucleoplasmic ratio, in certain important cytological features, and in the character of their intracellular and amoeboid movements. Professor J H Ashworth spoke on the distribution of anopholes in Scotland with reference to the existence of malaria. Dr D N Buchanan reported a series of experiments which indicated that hypnotism might find a new scope for utility in enabling students to pass examinations. Visual imagery was thus increased and the power of musical improvisation was enhanced. Stammering, and drug or alcohol obsessions, could also be cured by this means. Surgical operations had been successfully performed under hypnosis. Functional blindness or deafness might similarly be permanently cured.

British Medical Journal.

SATURDAY, SEPTEMBER 15TH, 1928.

THE FALLING BIRTH RATE

THE subject chosen for discussion in the Section of Medical Sociology at the Annual Meeting of the British Medical Association at Cardiff was 'The falling birth rate.' On August 18th (p. 310) there appeared a summary of the discussion and at page 477 this week we print in full the opening papers. These papers are of exceptional interest as indeed was the greater part of the debate to which they gave rise, in spite of the fact that those who took part in it, losing, perhaps, a little sense of proportion in their zeal for a cause, persisted in confusing the subject with that which is now commonly described as 'birth control.' It is, of course, the object of this particular Section of the Annual Meeting to consider matters which are largely non-medical in their bearings and on the present occasion care was taken to secure an adequate presentation of the subject of the falling birth rate from the economic and biological aspects, as well as from the medical standpoint. This disclosed a considerable measure of disagreement, perhaps not quite irreconcilable, among the openers of the discussion, and the conclusions of those who read these pronouncements, or who were present at the sectional meeting, may reasonably be that the complexities of the subject are very great, that the actual data for forming a rational judgment are confused or meagre, and that only to a small extent can it be regarded as a medical question.

One of the most valuable contributions to the discussion was Sir Thomas Horder's argument—his demonstration, indeed—that the population problem overlaps very little the actual activities of the medical practitioner, whether his work is concerned mainly with the individual when sick, or with the prevention of disease. The question of over-population or under-population lies almost wholly outside the sphere of the medical profession as such. This is an important matter, for indications have not been wanting that both the profession and the public are in danger of confusing their functions in certain fields of public health and welfare, and of asking and expecting more than should be sought or required. In some of these fields the medical profession has special competence, and therefore upon it lies special responsibility. Its members individually and its societies collectively are especially qualified in these cases to advise the community, and must seek to initiate sane and efficient action. But the profession has no right to demand that the public shall accept its views, the final responsibility for action or inaction rests not with it, but with the public, which has complete liberty, after seeking what advice it wills, to take whatever action it chooses. Similarly, the community has no right to demand or expect guidance from the medical profession on matters which though it may be competent to give advice in individual cases when they may arise, are in their broader aspects not strictly medical. In such matters the public must seek advice elsewhere. The population question is one of these matters. From Sir William Petty's remarkable *Essays on Political Arithmetic* and Daniel Defoe's extraordinary *Essay upon Projects* in the last quarter of the seventeenth

century, through the work of the Rev. Thomas Malthus and Sir Francis Galton to our own day, it has always been first the economist, and later the biologist, whose function it has been to elucidate the main problems in this field. The biologist rather than the economist seems likely to be the more valuable helper in the immediate future, but ethical, sociological, and even political questions may legitimately, or must necessarily, arise also. It is true that, as in the case of Sir William Petty, who was himself a doctor of medicine and professor of anatomy in the University of Oxford, members of the medical profession will make incursions into these alien or cognate fields of observation, and many doctors will be interested therein; but their opportunity or authority for making contributions thereto, specifically as medical men, is quite restricted.

Viewing the problem of the falling birth rate from these wider aspects, the discussion at the Cardiff Annual Meeting would seem to tend towards the establishment of certain propositions as at least probable. There is a law of population growth which occurs in cycles, following in the main a curve of a definite type. The birth rate is falling now because we are at the end of such a cycle and it will not again rise until those factors which are at present overriding the inherent tendency to increase are recognized and removed. Density is one of the controlling factors, but the estimate of density should be applied not only to a country, but to restricted localities, and must be judged, not by total numbers, but by the relation of such numbers to resource and opportunity. Voluntary control of conception has undoubtedly prevented the birth of many individual babies, but it may be doubted whether this has appreciably affected the crude birth rate or population growth cycle. It is a devastating thought that as Dr. Crew put it very wittily, the immigration of an Irishman into Glasgow may of itself prevent the birth of a Scotsman! Further there is no true ground for the impression that the people of any country can be divided into their distinct breeds corresponding to their social status, some of which are biologically more fit than others. There are biologically and socially unfit persons in some abundance, and it is fortunate that, broadly speaking, these tend to segregate themselves so that it becomes more easy to deal with them and less likely that their offspring will survive to maturity, but the suggestion that the relatively unfit are more abundant among the socially lower is not necessarily valid. If any safe and effective methods of conception control were widely known, they would, in fact, be practised, apart from other considerations only by the more prudent of any class, and to restrict further the birth rate among the better artisan and working population would scarcely be a social advantage and certainly not a biological gain. So far the emerging science of group biology is helping to throw light on these problems, both directly and by its reactions on economics. But dogmatism is not yet justified, and among the matters into which it is still more urgent to inquire are the effect on conduct and habit generally of a widespread dissociation of sexual gratification from parental responsibility and certain other consequences of childless marriages and of very small families.

Are there then, no specifically medical points to which attention should be directed in this connexion? Certainly there are such points, but very few seem as yet to have become evident. It is clearly the duty of a medical man to advise individual patients as to the necessity or desirability of avoiding or of limiting

pregnancy It is equally clear that it may be his duty to advise or instruct patients about the technique of more or less effective methods of avoiding conception. There seems to be no reason why he should refrain from giving such advice or instruction, even in cases in which potential parents have made up their minds to avoid conception on non medical grounds. But there are at least two important questions, at present admittedly not decided, which he ought to bear in mind before giving his opinion, and which those who are interested in the subject from other aspects may properly ask the medical profession to attempt to answer. One of these is Can any, even the best, of the methods used lead to harmful results in the form of cervicitis or other physical disease or disorder? Lady Barrett, in her opening paper, states that she has found these to result frequently. The other question is Does the prolonged and frequent use of contraceptive methods tend to produce permanent sterility, apart from the relative infecundity which is necessarily brought about by the postponement of conception to a later age? This latter question is manifestly of great importance, not only in its bearing on individual cases, but on the wider discussion of the subject, and it can be satisfactorily determined only by a somewhat prolonged and difficult systematic and collective investigation by the medical profession.

LONDON WATER.

Pursuing his survey of the historic sources of the water supply of London, Sir Alexander Houston has introduced his annual report for 1927 with an illustrated description of the River Lee—known as Lea in cartography. This stream, rising in the Leagrave Marshes a little to the north of Dunstable and Luton, and drawing its waters from the four counties of Bedford, Hertford, Essex, and Middlesex, is famous for its associations with Izaak Walton. It provides London people with about a quarter of their total water supply. In connexion with the Redbourn chalk springs, which feed extensive watercress beds, reference is made to the too prevalent delusion that watercress—and oysters too—flourish best in polluted waters. The author recalls his bacteriological investigation, made a quarter of a century ago, into the quality of the watercress supplied to the London markets and of the water feeding the beds. He found then that the best watercress came from the purest water. Discussing the more general question of the pollution of rivers, he notes that the introduction of the water carriage system of sewage disposal eliminated objectionable material from the neighbourhood of houses, but produced a highly impure liquid which could only be disposed of by running it into rivers. Thus our proximal gain was our distal loss. The purification of sewage effluents beyond a certain moderate standard is unremunerative. Their sterilization at any reasonable cost is impracticable. Even if sterilization were easy it would not make rivers safe to drink untreated. A river flowing through a populous area receives, besides the effluents proceeding from visible and obvious sewage treatment works, unseen contributions of foul material from many unconsidered quarters. To exclude all these tributaries, by statutory or other measures, from their natural destination, which is the stream draining the valley, would be a Herculean task. It is, in fact, easier and more economic to purify a river after pollution than to prevent it from becoming polluted. The main sources of sewage pollution of the Lee and its tributaries above

the water intakes are at Bishop's Stortford, Harlow, Harpenden, Hertford, Hoddesdon, Luton, Royston, Stevenage, Waltham Abbey, Welwyn, and Wheat hampstead. As examined during 1927, these effluents were all well within the standards suggested by the Royal Commission on Sewage Disposal.

The chlorination of the Thames river water continues, at the rate of 76 million gallons daily. In 1927 Staines aqueduct water showed *B. coli* absent from 100 c.c.m. in 81 per cent of samples, Hampton water in 56.1 per cent, and Staines and Hampton water combined in 66.8 per cent. The corresponding figures for filtered waters were at Kempton Park *B. coli* absent from 100 c.c.m. in 83.4 per cent of samples, at Sunbury in 77.8 per cent, at Grand Junction in 75.0 per cent, and at West Middlesex in 72.0 per cent. In the chlorination of the New River, of 122 chlorinated samples collected at Wood Green 89.3 per cent showed *B. coli* absent from 100 c.c.m., of 123 chlorinated samples collected at Hornsey 91 per cent showed *B. coli* absent from 100 c.c.m., of 123 chlorinated samples taken at the outlet from the Stoke Newington reservoirs 21.9 per cent only showed *B. coli* absent from 100 c.c.m. This discrepancy is no new feature. Its most probable origin is some adventitious pollution flowing unseen into the water way between Wood Green and the outlet.

The storage reservoirs which supply London constitute a chain of forty-nine lakes which, taken together, cover 2,700 acres and hold 20,000 million gallons of water. The improvement produced in so great a body of water by dilution and lapse of time amounts to a very substantial security. The condition of this stored water, in Sir Alexander Houston's view, constitutes the pulse of the metropolitan supply, and he has modified the work of water examination in order to throw its qualities into prominence. Lambeth (Molesey) stored water contained *B. coli* in 100 c.c.m. in only 39.1 per cent of samples, as contrasted with raw Thames water, which contained *B. coli* in 0.1 c.c.m. in 50 per cent of samples. The Molesey stored water was 1,000 times better than the raw water of the river. The bacterial improvement is shown in the report as a percentage reduction for various reservoirs in tabular form. In plain language, it would seem to be less risky to drink fifty pints of stored water than one ounce of the native Thames.

The Barn Elms experiment has now been in progress for forty months. It consists in comparing the results of (a) filtration at very high speed without coagulant through a primary sand filter, followed by filtration more rapidly than normal, but not at very high speed, through a secondary sand filter, with (b) ordinary once through slow sand filtration. As photographs display, method (a) reduces diatomaceous and algal growths. In one pair of photographs the field before filtration is filled with fragillaria, while the field after filtration is free. In general, the results of the forty months' experimental working are summarized as follows: bacteriologically, the final product of (a) is as good on the average as (b), (a) has more freedom than (b) from algal troubles and from those caused by an excess of suspended matters, (a) has a much greater output than (b) of water per acre of filtration area, allowing for the space covered by the primary filters, per unit of time. At the Walton works, which were opened in July, 1926, the method of double filtration, experimental at Barn Elms, is put into practical operation. It is preceded by storage and followed by chlorination. The following percentages of samples containing no *B. coli* in 100 c.c.m. were obtained in 1927: raw river water

0.4 stored water 20.2, mixed primary filtrates 36.4, mixed secondary filtrates 74.5, chlorinated water 96.4. These figures are good and tell their own tale. The primary filters were worked, without a coagulant, at the high speed of 119.7 gallons per square foot per hour, and the secondary filters at 5.1 gallons per square foot per hour.

Under the title "Search for Pathogenic Microbes in Water" an account is given of a "semi-positive" method for isolating the paratyphoid bacillus from water. For the treatment of a green colour which appeared in the West Stoke Newington reservoir chlorination was found to give better results than dosage with copper sulphate. The presence of leptospiral organisms in the water is again referred to. Two years ago pathogenic leptospirae were found in the Deptford Garden Well. In 1927 frequent cultures of the London waters were made for leptospira. In the New River leptospirae were numerous before chlorination, after chlorination none could be found. In seven instances the organisms were pathogenic. Sir Alexander Houston expresses the view that, since leptospirae are common in natural waters, their presence in a water which happens to be associated with an outbreak of spirochaetosis should not be accepted as implicating the water without some clear evidence—such, for example, as a high incidence of the disease among consumers of the supply in question combined with a low incidence among others.

CONVALESCENT SERUM IN POLIOMYELITIS

THE recent outbreaks of epidemic poliomyelitis in Rumania, Hungary, and Germany, particularly at Leipzig and Chemnitz, and in the United States (Massachusetts and California), have focused attention on the methods of prevention and treatment of this disease. In a recent paper,¹ written in collaboration with Dr. Fred W. Stewart, Professor Simon Flexner states that studies on immunity and specific therapy in connexion with epidemic poliomyelitis have been resumed at the Rockefeller Institute. Experiments on the monkey, the only animal which is susceptible to epidemic poliomyelitis, showed that if convalescent serum was given intravenously about twenty-four hours before the intracerebral inoculation of the virus, paralysis did not develop. Although the duration of the immunity thus conferred has yet to be determined, it will probably be found to conform with that already fixed in other examples of passive immunization—namely, about three or four weeks. Flexner and Stewart suggest that in the event of severe outbreaks of epidemic poliomyelitis convalescent human serum should be given subcutaneously as a prophylactic measure in doses of 10 c.c.m. for young children and 20 c.c.m. for older children and adults, the injection being repeated in four or six weeks' time if the epidemic persisted. The therapeutic use of convalescent serum, which was first employed by Netter in 1911 and later by Amoss and Chesney in 1916 on the basis of the experiments of Flexner and Lewis in 1910, but has not hitherto led to any conclusive results, has recently been resumed by E. B. Shaw and H. E. Thelander,² who record their observations on 81 patients with acute poliomyelitis, of whom 43 received intramuscular injections of convalescent serum during the active stage of the disease. Persistent paralysis developed in no more than 13 of these to whom treatment was given late in the febrile stage, while of 38 untreated patients 33 showed residual permanent paralysis. The authors' conclusions are as follows:

(1) Intramuscular injection of convalescent serum is of distinct value in the treatment of poliomyelitis. (2) The effectiveness of such treatment depends on early diagnosis and the administration of sufficiently large, and if necessary repeated, doses of potent serum. (3) Owing to its safety and simplicity the method can be used in doubtful cases without waiting for confirmatory evidence. (4) It is very desirable that stores of pooled convalescent serum should be made available for general use, and particularly before the outbreak of actual epidemics. A still more important paper is that of Drs. W. Lloyd Aycock and Eliot H. Luther³ of Boston, on 106 cases of pre-paralytic poliomyelitis in which convalescent serum was used. These authors maintain that poliomyelitis can be diagnosed during its pre-paralytic stage, which usually lasts three days, by signs and symptoms of meningeal involvement, especially nuchal rigidity, though this is not so marked as that usually found in meningitis. Each patient was given two intraspinal injections of serum at twenty-four-hour intervals, and one intravenous dose when first seen. One patient who was treated on the second day of disease subsequently developed fatal paralysis, but the average total paralysis in these cases was only 19, as compared with 69.3 in 482 untreated cases, and only 5.7 per cent. of the treated cases developed paralysis, as compared with 46 per cent. of the untreated group. It is noteworthy that in all the cases treated by convalescent serum the degree of paralysis was estimated by the orthopaedic staff of the Harvard Infantile Paralysis Commission. Many of the patients who were at first thought not to have any paralysis were found by the specialists to have considerable muscular weakness. The proportion of patients, therefore, in the series who were classified as paralysed is not comparable with the proportion in other series of cases in which no expert examination was made.

TALK AND WORK AT GENEVA.

THE League of Nations (writes our correspondent at Geneva) appears to have talked itself out. More than once during the present session of the Assembly the meetings have closed prematurely owing to the lack of orators. The annual and supplementary reports of the Council—huge documents covering every department of the work of the League—were brought forward for discussion by the Assembly, and no one rose to discuss them. Even the committee which is concerned with the technical organizations of the League, including the International Health Office, when it gathered for a meeting which was expected to last three hours, rose at the end of ten minutes. The explanation of this dumbness which has settled upon the talking-shop of the world is that the Assembly, having reached its ninth annual session, is becoming stereotyped. About the earlier sessions there was an air of excitement and expectancy. It was felt that anything might happen. It is now clear that nothing will happen beyond the utterance of amiable platitudes—not that these are without their value. The initiative is passing from the debating chamber to the secretariat and its numerous accessory organizations. "Westminster" is handing over the sceptre to "Whitehall." Another impression which, with more regret, one derives from the present Assembly is that the English-speaking nations—that is, the British Empire—are surrendering their pre-eminence at Geneva to the French-speaking. Day after day passes, and scarcely a word of English is heard in the Assembly, except by way of interpretation. The La in nations have become the directing force on the political side of the League's activities, and the Scandinavian nations on the moral and social

¹ *Journ. Amer. Med. Assoc.* August 11th 1928 p. 383.

² *Ibid.* June 16th 1928 p. 123.

³ *Journ. Amer. Med. Assoc.* August 11th p. 387.

side, while the British Empire accepts a passive or watching role, and Germany still feels herself something of a stranger in these councils. The growth in size and importance of the Health Organization of the League is a more encouraging feature of the international situation. If the test of the value and activity of an organization be the amount of money expended upon it, then the Health Organization's far and away the most important of the dozen or more special organizations of the League. Its expenditure last year amounted to just upon one and a half million Swiss francs, or about £60,000, not entirely contributed from League funds, however, for the Rockefeller Foundation provides more than one-third of this sum. If the League, on its political side, should cease to exist, the Health Organization would remain as a vital necessity of the peoples, and would itself go far to preserve the newly created international amity. Some of the most recent enterprises of the organization illustrate the vigour and initiative with which the health work is being pursued. There has lately been, for example, an interchange of health officers for a study of the problems of rural hygiene, this began in May last in the kingdom of the Serbs, Croats, and Slovenes, and terminated in Geneva at the end of July. The twenty participants, from eighteen countries, visited the rural districts of six European countries, and made a comparative study of rural housing, water and milk supplies, sewerage and sewage disposal, public health and medical organization, and other matters. An interchange of health officers in Italy has just begun, and will continue until November. Representatives of about twenty countries are taking part in this study tour, which is to embrace all aspects of public health enterprise under Italian rule. Another event of the summer has been a conference on malaria, which has drawn up a list of subjects for further international investigation, among them the subject of housing in relation to malaria, and of the species of mosquito concerned in the transmission of malaria in Europe and in the United States respectively. This conference also recommended that the value of plasmochin and quiniostovarsol in the treatment of malaria should be studied in certain countries, including Central America, Germany, and India, while some other experimental studies designed to increase the knowledge of the treatment of the disease will be entrusted to three groups of laboratories—one group in Germany and Italy, another in British India and the Federated Malay States, and the third in Spain and Algeria. Other recent conferences have included one at Copenhagen on the sero-diagnosis of syphilis, for which thirty-eight experts assembled, a meeting of the small-pox and vaccination commission, to study post-vaccinal encephalitis as an international problem, and a meeting of a subcommittee of experts charged with the study of radiotherapy in the treatment of cancer. This last body set out certain questions for further study, which is now proceeding, these include the questions of propaganda among medical men and the general public in order to ensure the early discovery and the early and correct treatment of cancer of the uterus, of an increase in the number of consultation centres, and of the radiotherapeutical equipment of clinics. The subcommittee also noted as a subject for inquiry the available supplies of radium and the need for an authoritative opinion as to the advantages and drawbacks of distributing radium or radium emanation to hospitals and individual practitioners. These and several other activities are of quite recent origin, and are set out in the supplementary report of the Council, which covers the period since May last. It is evident that, if the tongue of the League is less busy than formerly, its hands, in one sphere of endeavour at least, are busily working, and to some purpose.

THE MECHANICS OF THE DIGESTIVE TRACT

There are many problems in physiology and pathology which a knowledge of mechanics helps to solve, and the trained physicist or engineer can very often make valuable suggestions when the facts of such phenomena as peristalsis or muscular contraction are put before him. These remarks are stimulated by the appearance of a second edition of *The Mechanics of the Digestive Tract*,¹ by Dr. Walter C. Alvarez, in which the author has considerably amplified the theories he first put forward some years ago. He bases his solution of many of the problems of gastro-enterology on the "gradient," defined in general terms as "a gradation, usually in some attribute or state or force or activity, which is to be found between certain limits in space or time." In the heart, for example, it is well known that the beat follows a gradient of rhythmicity from sinus to ventricle, that is, the isolated auricle, near the great veins, will beat faster than the ventricle. In the ureter also the fastest rate of rhythmic contraction is often to be found in the plexus of this tissue nearest the kidney. Alvarez suggests that there may be a physiological law whereby the direction of transport of material in a tubular organ depends on gradients of rhythm, tone, and irritability. The gradient in the rate of rhythmic contraction can be shown to exist in the alimentary canal in the rabbit: the rate of contraction in the duodenum is about twenty per minute, compared with ten in the ileum. Side by side with this gradient of rhythm there appears to be a metabolic gradient, and experiments have shown that the production of CO₂ and the amount of oxygen used by equal weights of muscle from different regions of the alimentary canal have a definite gradation from duodenum to colon. There is also some evidence to show that the catalase content of the intestinal muscle has a gradient closely parallel to that of rhythm and metabolic activity. Investigating a patient who had a jejunal fistula, Alvarez found that there was also a gradient in the "pulling force" exerted by different parts of the bowel on balloons, so that there appears to be a "gradient of propulsive force along the bowel much like that in a pipe line." With this gradient notion as the fundamental principle Alvarez works out in some detail his conceptions of the mechanics of the different parts of the alimentary tract, returning to the practical applications of the idea at the end of the book. If it be true that a downward gradient is of value in health, it follows as a corollary, he says, that upsets in it should produce symptoms of disease. Such upsets have, in fact, been observed in animals with disturbances in the various gradients, but it is not possible to speak with certainty in the case of man, although the evidence is suggestive. Irritating lesions of the alimentary tract may affect the metabolic gradient, an increase in metabolic rate of any part of the alimentary tract leads to a more rapid rate of rhythmic contraction, and it is well known that inflammation increases the irritability and tone of the intestine. When diseased conditions are under consideration it should be noted that there is a great difference in the hardness of muscle taken from various parts of the alimentary canal. The muscle in the duodenum, for example, is much more sensitive to adverse conditions than is the muscle in the ileum, and the muscle of the colon is more hardy than that of the small bowel. The influence of toxins on the alimentary canal will therefore tend to lower the effectiveness of the upper end with a corresponding rise in that of the lower, so that the gradient is reversed. This idea of the reversal or flattening of the gradient can be used to explain the loss of appetite, disgust for food, nausea, and vomiting seen in infectious disease and asthenic states, for in such

¹ *The Mechanics of the Digestive Tract*. By Walter C. Alvarez. M.D. Second edition. London: William Heinemann (Medical Books) Ltd. 1928. (6 x 9½ pp. xix + 477. 100 figures. 31s. 6d. net.)

cases a patent pylorus and good peristaltic waves can often be seen, ruling out a simple local mechanical explanation. Alvarez's ideas are not easy to follow by those whose notion of a gradient is confined to a vague idea of a hill, but in the sense in which it is used by the hydraulic engineer the term has much to commend it.

CHRISTIAN SCIENCE AND THE DOCTOR

MEDICAL men who read the daily newspapers are probably aware that a schism has arisen in Christian Science ranks. The Christian Science Parent Church, some four years old, is considerably younger than the other member of the family, the Church of Christ Scientist. The word "parent" is a little confusing, therefore, but it will be recalled that W. S. Gilbert raised much the same question in the case of the immortal Iolanthe, and some years ago (unless our memory has played us false) there used to be a standing debate on whether the hen was the mother of the egg or the egg the mother of the hen. It is not for us to comment on the heresy hunt which has started, but there is some interest in one of the points at issue—namely, the relationship of Christian Science teaching and practice to the medical profession. From literature sent to us by Mr. John A. Dittmore, contributing editor of the *Christian Science Hatchman*, it appears that the Parent Church, founded by Mrs. Annie C. Bill in 1924, is convinced that the time has arrived for some recognition of the doctor by the Christian Scientist, or of the physician by the metaphysician, as Mrs. Bill prefers to call him. Both Churches profess allegiance to the doctrines of Mary Baker Eddy, but the Parent Church produces ingenious arguments to show that the soundness of the faith was preparing the way for the recognition by her disciples of medical aid as an adjuvant of faith, when death ended the sufferings for which she had been compelled to resort to injections of morphine. In the early stages of evangelization—so the argument runs—it was necessary to forewear medical methods in treating disease in order to emphasize the importance of "methods of mind." But the distressing fact remained that the majority of mankind rested its hope of recovery upon "materia medica," and since one of Mrs. Eddy's axioms was that "the greater controls the lesser," it became easy to see that her sufferings were caused mainly by the majority of false beliefs of mankind. Vain was the dismay of Mrs. Eddy's students, vain their attempt to hide the doctor's visits, or prevent their leader's resort to the drug. While the majority of people continued to hold wrong beliefs Mrs. Eddy could not escape from suffering. The time was ripe, therefore, for the second period of the crusade, the "destruction of the degenerate element of wrong beliefs in which all disease originates." And so Mrs. Eddy took to morphine. The Parent Church alleges, with some show of reason, that the other group is illogical in its attitude towards drugs. Since all is mind, and there is no matter, it is plain that drugs are only a part of mind, or parts of the phenomena of the human mind. Mrs. Eddy was justified, therefore, in the intelligent utilization of the "vehicle" of the human mind operating in that special mode. But the older type of Christian Scientist—the argument proceeds—is not justified in building hospitals, in miscalling them "benevolent sanatoriums," in preparing for the reception of diseased conditions, while all the time students of the cult are being taught that "to permit disease to be present in the thought must bring it into the experience of the individual." Far better that he should come over to the Parent Church, and invite the aid of the doctor in destroying the degenerate element of wrong belief by means of the immaterial vehicle, materia medica. It remains to be seen how far the physician will advance to meet the proffered embrocades of the meta-

physician, and co-operate in "healing disease on the highest moral and spiritual basis," so that "Christian Science will be universally acknowledged to have brought to humanity the missing healing element of psycho mental energy." There is a type of mind within our profession which can discover in Hahnemann the father of rational dosage, and in Gall the father of brain localization for such it may not be too great an effort to regard Mrs. Eddy as the mother of psychotherapeutics. In the meanwhile it is not without significance that there are Christian Scientists today who can allow to the medical practitioner some merit in dealing with disease and it will be interesting to watch the effect of the new by-law of the Parent Church, which renounces commercialism and "financial rivalry with medical specialists."

TULARAEMIA

IN a recent article W. M. Simpson¹ refers to tularaemia as being "in every respect the first American disease," meaning apparently, that it was the first example of a disease first described in America. Although this may not be correct, as Decimus's and other diseases bear witness, it was certainly first observed and its bacteriology and etiology established in the United States of North America, thus Ansel Martin, an ophthalmic surgeon of Arizona, in 1867 reported five cases of human disease ascribed to an infection derived from skinning and dressing jack rabbits, Pearce of Brigham City, Utah, gave the first accurate account of the clinical features of "deer-fly fever," long known to the ranchers, McCoy and Chapin in 1911 isolated a new organism, *Bacterium tularensis* from ground squirrels dead or dying of a "plague-like" epizootic in Tulare County, California, Vale, in 1914, described a case of *B. tularensis* infection of the eye, and, more especially, E. Francis finally correlated these data. He showed that the "plague-like" disease of rodents and the deer-fly fever were both due to the same infection, which he called tularaemia, and that the blood serum of those who had passed through an attack agglutinated *B. tularensis*. The common wood tick (*Dermacentor variator*) infesting wild rabbits and other animals in Montana was shown by Parker and Spencer (1925) to carry the infection, which was transmitted among them hereditarily by the eggs from generation to generation. In the same year Hachiro Obara in Japan recorded a febrile disease transmitted by wild rabbits, which serologically and bacteriologically was proved by Francis and Mayne to be tularaemia. In the meanwhile Ledingham and Fraser (1924) in this country had reviewed the subject in an article on "Tularaemia in man from laboratory infection," of which much evidence was forthcoming in North America, indeed, it appears that most of those who have worked at its bacteriology have paid this penalty. Recently during five months Simpson unearthed 53 cases of tularaemia, and met with one fatal in four days and seven hours, the shortest time on record. He points out that since 1924 there have been 613 authentic cases, and that the disease has a seasonal incidence corresponding with the greatest activity of the wood-ticks and the deer-flies. In an analysis of more than 600 cases he recognizes four types of clinical conditions: (1) *The ulceroglandular*. This the commonest (415 cases) and most important, begins as a papule, which becomes necrotic and is followed by glandular enlargement with nodular lymphangitis like that of sporotrichosis. The onset is sudden, and the disease at first is like severe influenza with delirium. (2) *The oculo-glandular*. Of this form 26 cases have been reported. It starts in the eye, and in 22 instances was unilateral. (3) *The glandular*. The primary lesion in this variety is not obvious, but the lymphatic involvement is the same as in the ulceroglandular

¹ Simpson W. M. *Proc. Staff Meetings of the Mayo Clinic*, 1928, 311, 213.

type (4) *The typhoid* In this there is no obvious primary lesion or glandular implication, it imitates typhoid fever. Most of the laboratory cases are included among the 26 cases coming under this heading, and it has been shown that the micro-organism can penetrate the unbroken skin of guinea pigs and rabbits. The condition may be confused with a number of other infections, such as influenza, typhoid and undulant fevers, and, Simpson remarks, "pathologists have clung to the histo-pathological diagnosis of tuberculosis because of the remarkable similarity in the appearance of the two granulomas." The diagnosis can be made by agglutination reactions, and it is stated in Simpson's paper that the results of treating the acute stage of the disease with immune human serum will form the subject of a further report.

INTERNATIONAL MEDICAL ORGANIZATION

In the Supplementary Report for 1926 and the Annual Report for 1927 the Council of the British Medical Association reviewed the development of an international union of medical organizations designed to promote the interchange of information and ideas connected with the social and political aspects of medical practice. After two years' close observation of the progress of this association the Council decided, mainly on grounds of economy, not to join it. This decision was reversed by the Representative Body at Cardiff after a full and informative discussion on a motion by Dr C. F. Douglas to the following effect: "That the Representative Body is of opinion that the Association should give full support to the Association Professionnelle Internationale des Medecins as a body which affords the medical profession in each country the opportunity to make its contribution towards closer co-operation in all matters of common interest and instructs the Council to take the necessary steps towards full membership." The aim, constitution, and activities of the organization in which the British Medical Association will thus assume the responsibilities of membership are well illustrated by a report of which we publish a condensed translation at page 133 of this week's *Supplement*. The original report is the work of Dr Fernand Decourt, general secretary of the A. P. I. M. (as it is known familiarly), and one of its original founders. We may add that inquiries have already been instituted by the union, not only into the subject of national health insurance, reviewed in this report, but also on the following topics: (1) the constitution and general position at the present time of organizations dealing with medical politics and defence throughout the world, (2) possible methods of co-operation between the A. P. I. M. and the International Labour Office at Geneva, (3) laws regulating medical practice, qualified and unqualified, throughout the countries covered by the A. P. I. M., (4) laws and customs regulating the practice of medical specialties, (5) pharmaceutical services and freedom of prescription in connexion with organized medical services, (6) conditions governing the issue of motor drivers' licences. The results of all these inquiries are, of course, made available for the use of the British Medical Association as a member of the A. P. I. M.

DERMATITIS AMONG BAKERS

BAKER'S dermatitis has long been known to the medical profession—in fact, there is a good clinical description of it in the very first textbook of dermatology ever published, that of Willan, which appeared in 1808, but it has only come into prominence as an industrial disease during the past fourteen years. Since 1917 it has been notifiable, and workers suffering from it are entitled to compensatory allowances. At the recent annual conference of the Amalgamated Union of Operative Bakers and Confectioners it formed the subject of a discussion, a resolution was

passed expressing alarm at the spread of dermatitis among the members, and calling upon the Government and master bakers and millers to protect workers against it. The representatives of the operatives have always contended that the eruption, which is comparable clinically to an attack of eczema, is due to some impurity in the flour, probably introduced for the purpose of bleaching it, and this view found full expression at the recent annual meeting of the union. But this explanation of the disease is challenged by the employers, who affirm that neither of these contentions is well founded, in the first place because officials of the Ministry of Health have reported that baker's dermatitis tends to become less rather than more frequent, and further investigations into its causation, which have already been undertaken by the scientific staff of the Ministry, have conclusively shown that neither bleaching agents nor "improvers" in the flour had anything to do with the incidence of the disease. In addition to the investigations undertaken by Dr Allan Parsons on behalf of the Ministry, Dr Prosser White has made some independent experiments, which have been published in the *British Journal of Dermatology*. It appears that for the most part the patients affected come from small establishments where the work is done by hand, and consequently the hands and arms of the workers are exposed to maceration from long contact with mixtures of flour and water, and where perhaps the facilities for proper cleansing of the skin are somewhat imperfect. In larger establishments, where machinery makes this prolonged exposure to such deleterious influences unnecessary, the disease is quite infrequent. The proper method of dealing with this troublesome affliction, therefore, appears to be the extension of the use of dough mixing machinery, and the provision of proper accommodation and washing facilities for the operatives.

ROYAL SOCIETY OF MEDICINE JOINT DEBATES

THE calendar of the Royal Society of Medicine for the session 1928-29, under the presidency of Lord Dawson of Penn, has just been issued. It has been decided to continue the practice of holding special joint discussions, and at a conference of the presidents and presidents-elect of the various sections, held under the chairmanship of the outgoing President of the Society (Sir James Berry) the following subjects for discussion were agreed upon: (1) Encephalo-myelitis of man and animals (Sections of Comparative Medicine and Neurology) (2) Industrial dermatoses, their causation, recognition, prevention, and treatment (Dermatology, Epidemiology) (3) Post-operative thrombosis (Pathology, Surgery, Obstetrics) (4) Prognosis and treatment of general paralysis of the insane (Psychiatry, Nematology) (5) The indications for, and the results of, splenectomy (Surgery, Medicine) (6) Glanders and kindred diseases (Tropical, Comparative Medicine) (7) Urinary antiseptics (Urology, Pathology, Therapeutics) (8) The necessity for early diagnosis in the treatment of spinal injuries (War, Surgery). The dates of these combined discussions will be settled later, and announced from time to time in the society's diary card.

THE Clinical Congress of the American College of Surgeons will be held in Boston this year from October 8th to 12th. The College has invited the Editor of the *Lancet*, Sir Squire Sprigge, to deliver the Hunterian Oration on the evening of Tuesday, October 9th. The Honorary Fellowship of the body will be conferred upon Sir Squire Sprigge.

THE sixth Lloyd Roberts Lecture has been arranged by the Royal Society of Medicine for Thursday, November 29th, and will be delivered by Sir William Bragg, D.Sc., F.R.S., this year's President of the British Association.

"THE SKULL OF LORD DARNLEY."

BY

H. A. HARRIS, M.B., B.S. LOND.

(From the Institute of Anatomy, University College, London.)

WHEN Sir Arthur Keith, on August 1st, asked me to examine the reputed skull and femur of Lord Darnley I did not know that Professor Pearson's monograph (discussed by him in the *British Medical Journal* of September 8th, at page 456) was already printed. I subjected the skull and femur to radiographic examination, and concluded that neither could

have belonged to Lord Darnley, who was not more than 22 years of age at the time of his death. Furthermore, the lesions of the skull which are reputed to be syphilitic show none of the pathological bone changes associated with the disease. I submitted my report to Sir Arthur Keith on August 12th, and I propose to add nothing to it. However much one may



FIG. 1.—Radiogram of the basi-cranial axis showing the absence of any trace of recent union of the basi-occiput and basi-sphenoid bones.

admire Professor Pearson's vineible patience in the attempt to rehabilitate one of the many red-haired Hussies who have crossed the stage of time, and however much one may be impressed by his well-known partiality for the red-haired section of the community, anatomical truth is not concerned with virtue, morals, or the meretricious wiles of the satellites of the Court.

I append the report which I submitted to Sir Arthur Keith on August 12th, and I suggest that a committee of the Pathological Society be asked to report on the question of whether the lesions of the skull are syphilitic or artefact, for there are still a few pathologists acquainted with the protean manifestations of syphilis. Professor Pearson might perhaps be excused for omitting to submit the skull to the examination of anatomists, for few anatomists know much about the age changes in the skull, but why the help of "a distinguished American pathologist" should have been sought as a diagnostic guide by one working in the precincts of the late Sir William Gowers is beyond me.

REPORT ON THE SKULL AND FEMUR OF LORD DARNLEY.

A. THE SKULL.

I. Gross Appearance

The skull is that of a male with a cranial capacity of about 1,350 c.c. and is strikingly low in the brow. The auricular height is about 2 to 2.5 cm. below the average for British skulls. The thickness of the skull with the appearance of the section suggests no pathological condition, and is well within normal anatomical limits for a skull in the third or fourth decade.

II. Suture Union

All the sutures are open except (1) the sphenoidal suture, (2) the sagittal suture.

1. *The Sphenoidal Suture*.—Both to naked-eye examination on the sectioned skull and to radiographic examination there is no trace of this suture of the basi-cranial axis. Further there is no trace on the radiogram (Fig. 1) of the line of fusion. The faint parallel lines visible on the outer surface of the left half of the skull normal to the ventral surface extend but a portion of the way across the section, and correspond to the bony walls of a venous channel. This vascular channel with its surrounding bony condensation lies in the centre of the ventral aspect of the basi-occiput and is too near the anterior margin of the foramen magnum to be related to the sphenoidal suture. Thus the absence of the cartilaginous suture and the absence of the dense line of bony union at the suture suggest that the skull is at least more than 25 years of age.

2. *The Sagittal Suture*.—The sagittal suture is closed both ectocranially and endocranially except over a distance of

1 cm. at a short distance behind the bregma. The lapsed union of this small portion, in relation to the underlying motor and secondary sensory areas, is a common feature of any collection of skulls, and should be discounted in assessing age. The absence of any closure in the other sutures of the cranial vault suggests that the skull is definitely less than 38 years. The complete closure of the sagittal suture as a whole indicates that the age of the skull is over 25, and possibly over 30.

III. Radiographic Examination

1. *Venous Sinuses of the Diploë*.—The radiograms of the two halves of the sectioned skull show a high state of development of the venous sinuses of the diploë. These venous sinuses usually reach their maximum development in the fifth decade. This skull, therefore, would appear to belong to a man in the fourth decade. It is extremely rare to see such development of the venous sinuses of the diploë under 30 years of age.

2. *The Meningeal Grooves*.—The grooves due to the meningeal vessels on the inner aspect of the cranium offer no abnormal feature. There is no evidence of pathological bone formation in relation thereto.

IV. The 'Lesions' of the Vault

Both naked eye and radiographic examination fail to indicate any evidence of that tissue reaction which is invariably registered by areas of rarefaction in relation to areas of hyperostosis. The 'lesions' are limited entirely to the outside of the skull, and especially to the right half. They are produced by an artefact such as a blunt burr or bradawl. The fact that the diameter increases with the depth, the absence of changes in the margin, and the relative uniformity of the lesions suggest the handiwork of man. Here and there several such lesions have been run into one another so as to simulate a serpiginous lesion. A lesion in the right mastoid process displays the non-pathological features clearly.

The radiograms illustrate the sites of the bony lesions. There are visible on the radiogram a few dense shadows. These correspond to flecks of white paint on the outer surface of the skull, the ones near the postero-inferior angle of the left parietal and on the right frontal bone are very well marked (Fig. 2).



FIG. 2.—Radiogram of the right half of the skull showing the areas of erosion devoid of surrounding areas of hyperostosis. The venous sinuses of the diploë and the meningeal veins are well shown.

V. Microscopic Examination

The three slides show

- (1) Scrapings of the white paint from the outer surface of the skull. These flecks are visible on the radiogram (Fig. 2).
- (2) Debris consisting of dust and varnish (shellac) from one of the depressed lesions.
- (3) The negative result of repeated testing for haematin crystals.

VI. The Staining of the Skull

The outer aspect of the skull has been coated with shellac varnish. The inner aspect is deeply stained on the left side with old blood clots, which may have been the result of the normal *post mortem* changes apart from injury to the skull or

brain. The relative absence of staining within the right half suggests that the body lay after death on the left side.

The lesions occur mainly on the right side of the skull, and it was at first thought that molten metal (such as that from a lead coffin) might have produced the 'lesions'. No trace of a heavy metal could be found therein radiographically or chemically, and no trace of charred bone could be found.

Conclusion

The skull is that of a well developed but atypically low browed male of at least 25 to 30 years, displaying no pathological lesion. In particular there is not the slightest evidence of syphilis.

B THE FEMUR

1 Gross Appearance

The right femur is that of a well developed male of a stature of at least six feet. The muscular and ligamentous markings are not salient and do not suggest association with a highly developed muscular system. There has been *post mortem* destruction (probably mechanical) of the upper portion of the neck near the head, and, to a lesser degree, of the anterior aspect of the great trochanter. The anterior aspect of the shaft displays some amount of erosion. There is no naked eye evidence of the lines of epiphyseal fusion.

II Radiographic Examination

The radiograms of the proximal and distal extremities of the femur show but little trace of the line of fusion of the upper epiphysis, and no trace of the line of fusion of the lower epiphysis. Thus the femur is that of a man of an age considerably over 21 and probably over 25 years of age. The absence of the line of fusion of the distal epiphysis suggests that the man must have led an active life for many years after reaching adolescence, as such lines tend to persist more markedly in those of a relatively sedentary habit. The circular area of increased density in relation to the medial border of the external condyle of the femur is the dense plaque of bone at the insertion of the anterior cruciate ligament.

III Pathological Examination

There is no trace on the bone or on the radiogram of any abnormal periosteal or endosteal inflammatory reaction. The femur has been heavily varnished with a shellac varnish, and a portion of the scale removed was seen to consist of shellac only. There is no evidence of a syphilitic periostitis.

Conclusion

No syphilis. No Lord Darnley.

Australia.

[FROM OUR OWN CORRESPONDENTS.]

University of Sydney

PROFESSOR F. P. SANDES and Dr. AENEAS MACDONNELL have been nominated by the Senate to represent the University of Sydney at the first annual meeting of the College of Surgeons of Australasia, to be held at Canberra from March 31st to April 2nd next year. The Council of Advice to the Pastures Protection Board of New South Wales has intimated that approximately £2,500 per annum has been promised for a period of five years by various pastures protection boards for the purpose of assisting the University Veterinary Science School and the Glenfield Research Station with funds to enable research work to be undertaken as an extension to present activities. The council asked for advice how the amounts subscribed could be best expended. The late Professor Liversidge has bequeathed to the University a sum of £2,000 to form a scholarship fund for proficiency in chemistry, and a sum of £500 to found a research lecture-ship in chemistry.

Hospital Maintenance

Figures furnished by the New South Wales Ministry for Public Health show that during the eleven months to the end of last November £531,696 had been spent in hospital maintenance, including subsidy, special grants, and the liquidation of overdrafts. Of this, the Sydney Hospital received £104,629, the Royal Prince Alfred Hospital £64,749, and the Royal North Shore Hospital £36,293. Since January 1st additions and alterations to hospitals throughout the State had been carried out at a cost of £74,448. Other items of expendi-

turo during the same period included the cost of ambulance services, £30,207, subsidizing of doctors in bush settlements, £3,982, bush nursing centres, £2,500, and institutions for the deaf, dumb, and blind, £3,050. In the relief of distress £80,282 was expended during the same period by the Chief Secretary's Department.

A Plea for Self-supporting Hospitals.

Professor R. J. A. Berry, dean of the Faculty of Medicine in the University of Melbourne, recently gave an address at Wesley Church on "Hospitals, voluntary or self-supporting?" He pointed out that the world's practice to-day was to concentrate all medical effort—hospitals, laboratories, and pre-clinical sciences—at the one spot, and to endeavour to bring all medical knowledge to bear on the study, treatment, and prevention of disease. This had resulted in the creation of self-supporting hospitals in place of those of the voluntary type. Professor Berry then explained his scheme for the creation of a great medical centre for Melbourne, an account of which was given in the *Journal* of April 21st (p. 680). Proceeding he said that Great Britain was the home of the voluntary hospital, which was originally a noble charity, and which, up to the beginning of the present century, had fully met the needs of the times, and compared favourably with the hospital system of any other country. To-day, he thought, expert English opinion was against the system, because it had not developed in proportion to the needs of the community, and, further, it had failed to meet the growing needs of the middle classes, to maintain an adequate standard in regard to sites and buildings, and to co-ordinate its services in the interests of the community. Voluntary hospitals were, he alleged, demanding payment from their patients for board, lodging, and food, while for financial reasons they admitted many persons other than the indigent sick. Free medical service by the profession, however, was still retained in its original integrity. Of recent years there had been two main factors at work tending to destroy the voluntary principle: first, the rapid progress of medicine, which had compelled all hospitals to extend their medical activities and equipment; and secondly, the great war, which had impoverished the peoples of Great and Greater Britain. As a result the cost of upkeep per bed in the London voluntary hospitals had increased by 100 per cent, and repeated appeals for financial assistance had to be made to the most heavily taxed people in the world. Many patients, who formerly not only sought private medical advice, but also contributed their offerings to the voluntary hospital, were now seeking free hospital medical treatment—partly from economic reasons, partly because they thought that the well-equipped hospital gave better service than the private nursing home, and partly because the morale of modern democracy was being undermined by bonuses from the State. Professor Berry thought, therefore, that the voluntary hospitals—unless they could revolutionize their finances—were doomed. Although he had been educated under the British voluntary system, it had been impossible for him to pass, as he had done in 1927, from an examination of the voluntary system of Britain to the self-supporting hospitals of America without being profoundly impressed with the latter. These hospitals were not only open to all classes of the community, but were in association with the university. In addition, the medical staffs were well paid for their services, and a contented staff meant an efficient service. In the Canadian and American self-supporting hospitals the sources of revenue were (1) receipts from endowments, (2) payment for medical and other hospital services from wealthy and middle-class patients, (3) payments from province, State, city, or municipality for the actual cost of board, lodging, and medical treatment accorded to those unable to pay themselves. Under this system the hospitals were not in debt, and the members of the medical profession and others working in them received payment for services rendered. There was no pauperization of the people, and no exploitation of the medical or of any other profession. Professor Berry, therefore, was of the opinion that to enlarge and extend the existing hospitals of the voluntary type on their present inadequate sites would be to perpetuate a system which was gravely open to question and contrary to the world's accumulated medical and practical experience.

New Chair of Obstetrics

A letter received by the council of the University of Melbourne from the Premier's office announced the intention of the Government to co-operate with the University in the establishment of a chair of obstetrics, and asked for the submission of a scheme to carry out the decision. The council referred the letter to the faculty, and accepted the recommendation of the latter that the appointment should carry a salary of £1,500 per annum, with the right of private consulting practice. The recommendation of the faculty that the appointment should be a five-yearly one was referred back to that body for further consideration.

Proposed Clinical Hospital at Melbourne

The establishment of a clinical and research hospital in connexion with the University of Melbourne is still under consideration. The council of the university has given its approval to the scheme, and the faculty of medicine has appointed a committee to consider the method of administration and other problems connected with the proposed hospital.

Post-graduate Refresher Course

The annual refresher course arranged by the Melbourne Permanent Committee for post-graduate work was held in Melbourne from August 6th to 17th. This course ran concurrently with a special course of lectures delivered by Professor F. R. Fraser, of St Bartholomew's Hospital Medical College, London, who has been visiting Melbourne at the invitation of the Post-graduate Committee.

Scotland.

Scottish Quarterly Statistics

SALIENT features of the vital statistics for Scotland during the second quarter of the year 1928 include a birth rate of 21.2 per thousand, a marriage rate of 6.5 per thousand, and a death rate of 13.6 per thousand. In the larger burghs, taken individually, the death rate ranged from 17.2 in Perth, 15.4 in Aberdeen, 15.3 in Dundee, and 15.2 in Greenock, to 11.2 in Clydebank, 11.6 in Falkirk, 11.7 in Dunfermline, and 11.9 in Motherwell and Wishaw. In Glasgow the quarterly death rate was 14.6, and in Edinburgh 14.2. Deaths of children less than 1 year old numbered 2,112, equal to an infantile mortality rate of 62 per thousand registered births. In the larger burghs, taken individually, the infantile mortality rate varied from 119 per thousand births in Aberdeen and in Greenock, and 114 in Ayr, to 52 in Dunfermline, 55 in Clydebank, 71 in Motherwell and Wishaw, and 76 in Kilmarnock. In Dundee this rate was 99, in Glasgow 89, and in Edinburgh 83.

Montrose Royal Asylum

The report of the Royal Asylum of Montrose for the year ending May 15th, 1928, by Dr C. H. Shaw, physician-superintendent, shows that the number of patients under treatment in the asylum during the year was 371, of these 73 were discharged—56 left recovered, 8 relieved, 9 not improved—while 62 died. The total number of certified patients admitted was 148, including 70 men and 78 women, of whom 46 were private patients. During the year 27 voluntary patients were admitted, thus doubling the number of persons in this category undergoing treatment. Of the admissions, 24 had suffered from at least one previous attack. It is noted that in 3 cases the recurrence was due to the renewed abuse of alcohol, while in several other cases home conditions were not satisfactory. Dr Shaw suggests that a local after-care association, whose members would take an interest in discharged patients and arrange for suitable employment, would be a great benefit. It is also noticed that the standard of physical health among the persons admitted was low, 25 of them were in a very feeble and exhausted condition, while 70 were described as weak. With regard to the causes of mental breakdown, heredity was ascertained to be a factor in about 40 per cent of cases, while in 8 per cent alcoholic intemperance was assigned as a cause. The latter figure

is somewhat higher than in recent years, although there has been a great diminution in the frequency of alcoholic excess as a cause. Adverse economic conditions were found to be a causal condition in 13 cases, in which illness was due either to lack of proper nourishment or to unemployment. With regard to the deaths, the average age at death was 60 years, and evidence of the weak physical condition of many of the patients received is shown by the fact that 7 died within a week of admission and 15 within one month. It is pointed out that this asylum was originally erected by voluntary subscription in 1781 as a charitable institution, being the oldest foundation of its kind in Scotland, and that it still preserves this character. At present 38 patients benefit by a special rate—less than that charged for parish patients—because of their necessitous circumstances. During the year 5 male and 13 female nurses passed the preliminary and 5 nurses passed the final examination of the Royal Medical-Psychological Association.

Sir Arthur Keith, Hon. F.R.F.P.S.

At a meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on September 3rd, the honorary Fellowship was conferred upon Sir Arthur Keith, M.D., F.R.S. During the course of an "At home," given in the Faculty Hall to members of the British Association for the Advancement of Science, Sir Arthur Keith signed the roll of honorary Fellows. It will be recalled that last year Sir Arthur Keith was President of the British Association, and his address on "Darwin's theory of man's descent as it stands to-day" was published in the *British Medical Journal* on September 10th, 1927 (p. 439).

Edinburgh Prison Medical Officer

The Secretary of State for Scotland has appointed Dr. Allen Thomson Sloan to be medical officer of the Prison of Edinburgh. Dr. Sloan is a former Edinburgh Academical football player and on many occasions played for Scotland in international matches, commencing in 1914. Dr. Sloan graduated M.B., Ch.B. at Edinburgh in 1921.

Ireland.

Tuberculosis in Belfast

In his annual report for the year ending December 31st, 1927, Dr. Andrew Trimble, chief tuberculosis officer of the county borough of Belfast, submits certain practical suggestions for the further development of the work of the tuberculosis department, which has been in operation for fourteen years. He advocates more intensive education of the people in public and personal health and in the prevention and cure of tuberculosis, he thinks it reasonable also that there should be preventive inoculation against this disease, beginning with every infant born into a tuberculous family. More open-air schools are said to be required, it is stated that this subject is to be dealt with shortly in a joint report by Dr. Trimble and the chief school medical officer. Another suggestion made is that there should be added to the medical curriculum a course in the history, prevention, diagnosis, and methods of treatment of tuberculosis in the individual, and the means of dealing with it in the community. The accommodation for children suffering from non-pulmonary forms of tuberculosis is said to need extension. Dr. Trimble favours the extension of medical benefits to insured persons in Northern Ireland on the same terms and conditions as at present prevail in Great Britain, with, possibly, the inclusion of dependants. He adds that some reinforcement of his staff will be needed if the newer and more delicate methods for the diagnosis and control of tuberculosis are to be applied effectively. During the year under review 2,086 persons were notified, as compared with 1904 in the previous year, of these 51.7 per cent were found to be infected, 5.3 doubtfully so, and 43 per cent were free from the disease. In 27 per cent of the definitely infected cases there was clear indication of the possibility of direct infection by living in contact with tuberculous patients, Dr. Trimble draws attention to the continuance of overcrowding, despite the efforts made by

the Belfast Corporation to provide new residential accommodation with a low weekly rate of "purchase repayment," but hopes that the difficulty will eventually be overcome. During 1927 the Belfast Insurance Committee gave £150 for the provision of an artificial light installation at the Central Tuberculosis Institute, and shortly afterwards a mercury vapour lamp was presented to another tuberculosis institute in the city. The open air school has also been enlarged, but the demand for admission is far in excess of the accommodation. It is stated that the Government of Northern Ireland has issued only one form of licence for selling milk—namely, Grade A (T.T.) milk—and the Tuberculosis Committee has resolved to purchase this only in future for the municipal sanatorium and the hospital for tuberculous children. The hope is expressed that the time is not far distant when no other grade of milk will be allowed to be sold.

Preservatives in Food

The Minister for Local Government and Public Health in the Irish Free State has issued an order prohibiting the use of certain preservatives in foodstuffs on and from October 1st, 1928. It is made illegal to sell, import, or produce food which contains specified preservatives or other improper ingredients, and power is given to local authorities and to the Customs officials to deal with breaches of what are named as the Public Health (Preservatives, etc., in Food) Regulations. The Secretary to the Ministry, in a circular letter to local sanitary authorities dealing with the aim and scope of the regulations, points out that they follow the lines of similar ones made in the neighbouring countries in conformity with the recommendations of a committee of experts. They provide for the prohibition of the importation and sale of articles of food to which preservatives and other specified substances have been added, a preservative is defined as any substance which is capable of inhibiting retarding, or arresting the process of fermentation, acidification, or other decomposition of food, or of masking any of the evidences of such process, or of neutralizing the acid generated by any such process. It does not include common salt, salt-petre, sugars, lactic acid, acetic acid or vinegar, glycerin, alcohol or potable spirits, spices, essential oils, or any substance added to food by the process of curing known as smoking. No person may manufacture for sale or sell any article of food which contains any of the following preservatives: compounds of antimony, arsenic, cadmium, chromium, copper, mercury, lead, zinc, the vegetable colouring matter gamboge, and the coal tar colours—namely, picric acid, Victoria yellow, Manchester yellow, aurantia, and aurine. The use of sulphur dioxide or benzoic acid is permitted in very minute quantities in connexion with the manufacture of certain named commodities. No person may sell any article for use as a preservative, or any colouring matter for any article of food if such use would be contrary to the regulations. No cream may be sold which contains any thickening substance. Strict regulations are provided to ensure that all articles shall be properly labelled and described. The regulations make very full provision for their enforcement by the sanitary authorities.

Typhus Fever in Connemara

What was at first feared would develop into one of the recurrent severe outbreaks of fever which in former years caused serious havoc in the poorer districts along the sea-coast of Connemara occurred last week in Bealadangan district, one of the poorest areas in South Connemara. The infection has, however, it is thought, been brought under control, and so far there have not been any further additions to the ten cases of typhus which have been brought to the Galway Central Hospital. The outbreak is confined to two houses in the village of Drinn, in one instance nine members of one family have been stricken down and are in the hospital the other case is that of an old man who lived next door to the stricken family. The mother of the family of whom nine are in hospital died about fourteen days ago, and it is believed, but not definitely known, that her death was due to typhus. The father of this family and one of the children are in a serious condition.

Correspondence.

IRELAND AND THE QUEEN'S INSTITUTE OF DISTRICT NURSING

SIR,—With keen disappointment and a feeling akin to despair I have read the paragraph headed "Queen's Institute of District Nursing" which appears on page 464 of the *British Medical Journal* of September 8th.

Associated most closely as I have been with the work of district nursing of the sick poor in their own homes throughout the whole of Ireland since the year 1889, I am in a position to state with emphasis that this beneficent and most valuable patriotic work has been successfully carried on throughout the length and breadth of Ireland by a noble band of highly trained women.

The Queen Victoria's Institute for Nurses was constituted under Royal Charter dated September 20th, 1889, and supplemental Charters dated respectively March 31st, 1898, and September 5th, 1904. Recently the title of the Institute has been changed at the instance of His Gracious Majesty the King to "The Queen's Institute of District Nursing."

The aims and objects of the Irish Branch are

(a) To stimulate interest in district nursing and to ensure throughout Ireland the most skilled home nursing service without distinction of creed and with these objects in view (1) to provide for nurses special post-graduate courses in district work midwifery infant welfare school and tuberculosis visiting so as to qualify them for district nursing as well as for all branches of public health work (2) to supply nurses to local district nursing associations (3) to arrange for the inspection of the work of each nurse twice yearly and of the homes once a year, or more often as is considered advisable.

(b) To encourage the formation of a central or county nursing association in every county in Ireland for the purpose of combining the existing nursing associations and to promote the development of new district associations where required.

The business of the Irish Branch is vested in an executive committee composed of representatives from both Northern and Southern Ireland in proportion to the relative population of those districts.

The supplemental rules for Northern Ireland provide that—

1 There shall be an advisory committee for Northern Ireland consisting of not more than forty members elected annually by the county committee representing each of the six counties and two county boroughs of Northern Ireland.

2 The duties of the said advisory committee shall be

To promote and co-ordinate the work of the Irish Branch in Northern Ireland and as far as may be thought desirable to assist district nursing activities in general there.

To inform and advise the executive committee of the Irish Branch with regard to matters affecting the Irish Branch in Northern Ireland.

To report to the said executive committee as soon as may be after each meeting of the said advisory committee all proceedings at that meeting.

To nominate to the said executive committee not more than six suitable persons to act as representatives on the said executive committee.

To elect at its first meeting three trustees, who shall be jointly responsible for all capital sums raised in Northern Ireland in connexion with the said Institute, and for the payment of all interest accruing on such sums to the finance committee of the Irish Branch, and thereafter to fill any vacancies which may occur amongst the said trustees.

To receive a report from the aforesaid trustees at each annual meeting of the said advisory committee.

Such has been the existing constitution of the Irish Branch up to the present. For wellnigh forty years the work of the Queen's Institute has been carried on throughout Ireland without any question of either political or religious bias having arisen. In Dublin there are two homes for those already fully trained and registered nurses who are candidates under the Queen's Institute for the statutory period laid down for their training in district nursing before they can become Queen's nurses. Those homes it is true, are respectively Protestant and Roman Catholic. But outside their doors the Queen's nurses are just all that this honourable title implies, and nothing more.

It pains me to think that it should be left to my fellow countrymen in Northern Ireland to harbour the suspicion

and in veiled terms to suggest, that political or religious differences can possibly arise in connexion with the sacred work of nursing the sick poor of Ireland. That this suggestion has been made is clear from a report (which I enclose) of a subcommittee appointed by the Central Council of the Queen's Institute in London to consider the situation which has arisen in Ireland. That report was adopted by the Council on July 11th of this year.

It is lamentable that, whereas a project which would have interfered with the unity of Ireland in regard to the profession and practice of medicine was happily averted a few years ago by conciliatory and statesmanlike measures influential people in Northern Ireland and its capital should now attempt to subject the nursing of the sick poor of Ireland to an experiment which might prove disastrous, and which is quite uncalculated for.

The opinion of the medical profession is, I venture to think, well and correctly expressed in a resolution which was adopted by the Royal College of Physicians of Ireland on June 1st, 1928. It runs as follows:

"Resolved. That the President and Fellows of the Royal College of Physicians of Ireland have learned with regret that a proposal has been made to the Central Council of Queen Victoria's Jubilee Institute for Nurses to establish a branch of the Institute in Belfast separate and distinct from the All-Ireland Branch which has through so many years successfully and harmoniously carried on its work in all parts of this country.

The President and Fellows hope that the Central Council will not disturb the present constitution of the Institute in Ireland under which valuable service has been rendered to the country in the field of public health and private nursing of the poor.

The paragraph in the current *Journal* concludes with the following extraordinary, if not in fact dishonest, sentence: "The duties of this All-Ireland Council will, it is stated, be purely formal, but the principle of unity in nursing, even if only in name, has been insisted on by the headquarters of the institute" (Italics mine).—I am, etc,

Dublin Sept 10th

JOHN W. MOORE, M.D.

* * We willingly publish Sir John Moore's account of this regrettable dispute. He recognizes, of course, that the statement he impugns was merely quoted by our Dublin correspondent.—Ed., B.M.J.

TONSILLECTOMY AND REMOVAL OF ADENOIDS

SIR,—The article by Mr Sandiford and Dr Clayton in your issue of July 28th (p. 149), and the subsequent correspondence dealing with the guillotine and ethyl chloride, have brought out many points of interest. There are, however, several aspects of the question which have not been touched, and which I think are of considerable importance.

My own investigations have convinced me that lymphoid tissue, in the nasopharynx and the tonsils, enlarges and carries the name of "adenoids and tonsils" as a result of sepsis. If this is so, it clearly precludes absolutely such rapid methods as are advocated, for they allow no time for searching in the nose for signs of sepsis, or for dealing with such sites if they are present, which, in my experience, is the case in rather more than 20 per cent of patients in this class. To leave the sepsis which has caused the adenoids is to remove the sign and not the cause, and to condemn the child to carry in his years of growth and education a focus of infection which, if it is not cured spontaneously, affects the natural bodily growth and the development of the intellect.

The second aspect of the matter, which is undoubtedly important, is the amount of haemorrhage which follows operation. When rapid procedures are employed there is not time to utilize the modern methods which limit haemorrhage to half an ounce or so, and quantities of blood are often shed which are far greater than a child should lose.

A further aspect of the matter is the question of the pain which follows operation with the guillotine. This, to my mind, is far greater than that experienced after the gentler methods of dissection. To these objections to the rapid methods advocated by the authors I would add the psychological factors which must operate in children who

are so rapidly anaesthetized that there can be no time to gain their confidence. I would submit that the operation for the removal of adenoids and tonsils is one in which all efforts should be made by the surgeon to assure himself that he has dealt with every condition in the nose likely to need surgical attention in the future, and that the loss of blood in these operations should be considered as being as serious in its effects as in operations in other situations.—I am, etc,

London S.W. Sept 4th

A. LOWNDES YATES

SIR,—It was with considerable interest that I read Sir Charters J. Symonds's letter on the use of ether in tonsillectomy, published in the *Journal* of September 8th (p. 465), as I have been waiting for someone more able than myself to reply to those who advocate chloroform.

I have acted as locum tenens in general practices in many parts of the country, and the number of general practitioners who give chloroform for such operations as tonsillectomy, extraction of teeth, circumcision, etc., has surprised me. When one suggests ether—which I always give, and refuse absolutely to give chloroform for such cases—one is regarded almost suspiciously as being incompetent. This view is, I believe, in the North of England at any rate, due to the large number of Scottish graduates who have never learned the technique of other administration.

I hope that Sir C. J. Symonds will find time to describe the type of Clover's apparatus which he uses. The one I employ has no special features other than its wide bore, but I find any sort of apparatus with a bag rather terrifying to small children, and for them I use open ether. The period of induction by this method is very little, if any, longer than by the closed method.—I am, etc,

WRIGHT LAMBERT

Cornholme nr Todmorden, Yorks Sept 10th

THE IMMEDIATE DIAGNOSIS OF PULMONARY ASBESTOSIS AT NECROPSY

SIR,—Having recently had occasion to examine the fresh organs from a case of suspected pulmonary asbestosis it occurred to me that by making direct smears from the cut surface of the lung it should be possible to detect immediately the presence or absence of the characteristic "brown bodies" of this disease. The result was extraordinarily successful. A drop of the "lung juice," obtained by squeezing a small piece of the fibrosed lung tissue on a slide and covering with a coverglass, showed myriads of these remarkable bodies, and enabled a diagnosis to be made forthwith. Subsequent histological examination of the lungs showed their presence in large numbers, especially in the catarrhal alveoli bordering on the areas of fibrosis, and in smaller numbers within the fibrotic patches themselves.

So far as I am aware these bodies, admirably figured and described by Cooke, Stuart McDonald, and Simson, do not occur except in the lungs of asbestos workers. They have been present in large numbers in three cases of asbestosis examined after death by my colleague Dr A. L. Taylor, and in a considerable experience of lung histology in all sorts of diseases I have never previously encountered them. In the present instance, the patient, a woman aged 34, had been employed in an asbestos works for sixteen years, chiefly in the manufacture of asbestos mattresses. She had been away from work two years before her death. Both lungs were extensively fibrosed and very anthracotic, but there was no evidence of tubercle, syphilis, or silicosis.

It may be mentioned that dried films, suitable for the demonstration of the Prussian blue reaction given by these bodies, as well as for their more detailed study, were equally successful. In passing, one may express the conviction that these bodies are actual derivatives of the inhaled asbestos, and emphatically not animal or vegetable forms.—I am, etc,

Department of Pathology and Bacteriology
School of Medicine Leeds Sept 5th

M. J. STEWART

¹ Cooke, *British Medical Journal* 1928 II 1024. Stuart McDonald *ibid.*, 1925 and Simson *ibid.*, 1928 I, 885.

THE ALLEGED HIGH FERTILITY OF JEWS

SIR,—I was greatly interested in the letter of Dr M Sourasky in your issue of September 8th (p 469), and I cannot regret my statement at Cardiff, since it has given rise to such a valuable communication. It is true that I was referring only to orthodox Jews living in obedience to the Mosaic law, and I was quite aware that modern conditions had affected this race as well as their Gentile neighbours. It hardly seems possible, however, to explain wholly the remarkable figures quoted, by a "disregard of Biblical injunctions" on the part of the Jews. Is it to be supposed that the Jews in Prague, Bohemia, and Bavaria were, in 1900, restricting their families to double the extent that the Christians of those districts were doing? Surely some other factor, biological or psychological, must have been at work. Reliable figures or facts on the decrease of the birth rate are so difficult to obtain (as we found at Cardiff) that I suggest a closer examination of the records from Jewish sources would be of the greatest scientific value. One thing certainly seems to emerge, and that is that a fall in the birth rate follows rather than precedes an increase in prosperity. The higher the standard of education among Jews, the higher their standard of living and their material prosperity: the lower is the average birth rate, and thus, I am informed by a competent Jewish observer, is generally true, whether they maintain the rule of the Mosaic law against deliberate restriction or not—I am, etc.,

London WC Sept 10th

LETITIA FAIRFIELD

SPIRIT AND BIPP TREATMENT

SIR,—In your issue of May 26th (p 892), Mr N L Maxwell Reader describes a case of compound fracture treated after the method of Professor Rutherford Morison Bipp is the reagent used, that is a detail. It is only fair to the memory of the late Lord Lister to claim for him a decided priority as to the method. Although his name never will be forgotten, it is the fear that his technique is not familiar to the gentlemen named that prompts me to ask you to republish the salient features of what are almost parallel cases.

MAXWELL READER (1928)

On December 7th 1927 a feeble old lady of 77 was knocked down by a motor lorry and sustained a severe compound comminuted fracture of the lower end of the right tibia and fibula. The wound was now freely swabbed out with methylated spirit after which it was carefully dried. A small quantity of hipp was introduced into the cavity and thoroughly rubbed into every available nook and cranny. The dressing consisted of long pads of gauze freely soaked in spirit each pad being liberally sprinkled with boric powder. The pads were laid along the wound and did not encircle the limb. The plasters were applied as follows. The old lady remained very feeble and debilitated but no special pain was felt in the foot, and the temperature caused no alarm. On the seventh day—more from curiosity than necessity—I removed the dressing. The wound was quite dry. From start to finish not a bead of pus or even serous oozing occurred. At the end of the month the splint was removed daily for massage and a fortnight later discarded altogether.

JOSEPH LISTER (1867)

"Case 10—Thomas McB, a labourer who gave his age as 52 but had the appearance of a much older person was admitted having been knocked down by a lug gage waggon producing a compound fracture in the lower third of the limb. On diluted carbolic acid was applied freely to the interior of the wound by means of lint held in a pair of dressing forceps and a crust was formed of blood mingled with the acid covered with lint over which a cap of tin was placed. The limb was put up with lateral wooden splints.

"Next day the surface of the crust was touched with carbolic acid and the same treatment was continued for the following fortnight during which the limb was entirely free from pain redness or suppuration. I was present when the crust was removed eighteen days after the accident. Not a drop of pus existed beneath it. Six weeks and three days after the receipt of the injury the splints were removed the bones being satisfactorily united. This is an excellent example of the effects of the carbolic acid treatment in a compound fracture of the leg of average severity. No simple fracture could have caused less disturbance either local or constitutional.

Here we have two excellent examples of the antiseptic method of dressing wounds, separated in time by almost

exactly sixty-one years, both surgeons claiming originality in the method adopted. By priority, I opine that Lister wins. He used crude carbolic acid—that's a detail—I am, etc.,

Brisbane Australia, July 4th

A C F HILFORD, MD

THE FORGOTTEN SWAB

SIR,—The detailed account of the end-results of the two forgotten swabs in the abdominal cavity given by Dr H Roland Segar in your issue of January 21st (p 95) has greatly interested me, and I feel that Dr Segar will be equally interested to hear the end-results of a third forgotten swab.

Early in 1926 I came across a patient, who was referred to me by a physician, with a provisional diagnosis of tuberculous peritonitis. She had a sinus in the abdominal wall, following an abdominal operation for some pelvic trouble some six months before. A distinct lump could be felt in the abdomen about the level of the umbilicus. On opening the abdomen I found a sponge walled off by coils of intestine and omentum. The sac was full of pus, and the sponge measured 12 in by 12 in, with a tape at one of its corners. It had eroded the walls of the intestines. The faecal stains on the sponge were suggestive of perforation. On removal of the sponge the patient had faecal fistulae, which healed spontaneously in ten days, and then recovery was uneventful.

From that day I have had a small smooth silver letter "S" stitched to every sponge, at one of its corners, in my theatres, and every patient is x-rayed or screened before discharge, and I have had no more worries about sponges—I am, etc.,

H DE SÁ, MD, F.C.P.S.,

Gynaecologist, King Edward Memorial Hospital
and the Seth G S Medical College, Bombay

July 27th

PAYING PATIENTS IN VOLUNTARY HOSPITALS

SIR,—A year ago (October 22nd, p 751) you drew attention to the dangers of the numerous voluntary contributory schemes which were springing up all over the country, and which, under the guise of "insurance" or "helping the hospital," secured for their clientele, who demand their money's worth, services at far below cost price. During the past six months the medical profession has been much concerned regarding the National Health Insurance Act 1928, under which approved societies will be able voluntarily to enter into a "commercial arrangement" on behalf of their members for every benefit that a "charitable institution," which includes a voluntary hospital, can provide, but here again at less than cost price. In 1926 only 10 per cent of the cost was paid.

The poor old ship—the voluntary hospital—staggers under these friendly blows, meant to help her and to keep her afloat. And now, in the *Journal* of August 18th (p 317), you refer in some detail to a third attack the report of the Pay Beds Committee of the King Edward's Fund for London, and quite correctly say that "changes in conditions in the metropolis will certainly have their reactions upon the country generally." One calls it an "attack" because these facilities for the middle and upper classes are not to be paid for by them in full. The capital cost of provision of buildings and equipment is to be found by "special appeals." This report should be read carefully by all interested in the transition period in hospital accommodation.

But, before criticizing the report, may I draw attention to two seeming errors in your article. You state that it would appear that the Committee inclines to the solution presented by the British Medical Association policy that, where the pay beds are an integral part of the hospital building, a "closed" staff is generally necessary. Now the policy of the Association is only concerned with two groups of private patients—namely, those in the public wards and those in a nursing home attached to the hospital. No policy has been adopted so far with regard to private patients in private wards and private rooms inside the hospital building. The deputation from the Association overlooked this fact, and stated that the Association was in favour of the visiting staff (that is, a

"closed" staff) attending such patients. This statement is incorrect, and I very much doubt whether it will be accepted by the profession generally. It would be intolerable in the case of wealthy patients using such accommodation—just because, for instance, there is no alternative accommodation available in a nursing home, attached or unattached to the hospital—who desire to, and who can well afford to, pay the fees of their own general practitioner and his recommended consultant or specialist, that they should be forced to accept a member of the visiting staff, their own preferences being shown in the door.

Then, again, you state that the Committee, in its recommendation that no fees should be charged in the public wards by the medical attendant unless and until the full maintenance charge is paid, shows "a sharp difference of opinion" from the Association policy, and you quote in support of this contention a certain section of the policy, but that section contains a statement—wholly you omit—that it should not be quoted as referring to private patients. The Association policy should be interpreted that the payment "in full" for maintenance and any payment of the medical attendant form a well balanced situation, and that unless and until the former condition is fulfilled the latter cannot arise. The charging of less than full maintenance cost is a means by which the patient can be saved medical fees. This is being done now.

In considering the Pay Beds Committee's report it at once becomes apparent that its value has been reduced because there was not on the Committee a single medical practitioner representative of the private consultant or private specialist not attached to a voluntary hospital, nor of the thousands of general practitioners practising in London, that not one witness from these three groups was called to give evidence, and that the Council of the Association did not put forward to give evidence any one representative of these groups. Had that been done we should not have had a report which brushes aside so readily, and without any argument, the suggestion that the provision of the 4,000 beds said to be necessary for paying patients could be made gradually by means of, say, 500 beds—in private hospitals placed in the suburbs around London—in favour of providing them at the voluntary hospitals. In the former case the general practitioner could continue, if he so desired, to attend his patients to his scientific and financial advantage. In the latter case the visiting staffs evidently will keep for themselves, and for a few others they select, all patients sent in, to the exclusion of the rest of the medical profession. It is over this problem that the medical profession will become divided, and the unity in the Association be likely to be jeopardized.

The anxiety of these three groups in the profession will not be lessened when they read that the chairman of the Hospital Committee of the Association, representing the Royal College of Surgeons, expressed these opinions:

- (a) The likely clientele of these pay beds would be 2 per cent of a population of two and a half million persons (1134-1135).
- (b) The payment (for hospital treatment) should be through some voluntary and general insurance (1136).
- (c) The paying block would finally be under the control and direction of the lay authorities of the voluntary hospital in precisely the same manner as the rest of the clinical side (1109).
- (d) The provision of accommodation attached to voluntary hospitals for the well-to-do would be approved by the profession (1050).
- (e) If a block containing beds for paying patients is attached to a voluntary hospital it ought to be for those patients who are consigned to the members of the visiting staff. Each voluntary hospital should employ its own staff (1128).
- (f) The treatment of private patients by any one other than the visiting staff of the voluntary hospital providing this accommodation would not be entertained (1101).
- (g) The private practitioner should come in for consultative work or be present at an operation and see the patient several times afterwards with the member of the visiting staff concerned but he should not be responsible for the treatment (1121).

It would be asking too much to be allowed a full criticism of the report, but the profession should ponder over the following statements of the Committee:

- (1) The voluntary hospital system is becoming largely a co-operative effort.
- (2) It is impossible to obtain full hospital facilities for well-to-do patients except at a voluntary hospital.

(3) The general wards of voluntary hospitals should now be thrown open to those of moderate means on the same terms and conditions as apply to the sick poor, no payment for medical treatment being allowed. The wealthy should be catered for in pay rooms, private wards, and attached nursing homes.

(4) The means by which general practitioners would be kept in contact with their patients in private wards and pay rooms would be (a) by being allowed access to their patients at all reasonable times, (b) being communicated with when anything is going to be done—an operation to be performed, (c) being informed of the patients' exact condition on discharge, and (d) may get advice as to what should be done. (Such an arrangement the Association's representatives stated would entirely satisfy the Association (1205-1208).)

(5) The committee of management of the hospital should lay down certain rules or limitations as to the medical practitioners who were allowed to come into the attached nursing home.

(6) "King Edward's Fund should prepare and publish year by year, for the information of the public, a list of pay beds, wards and rooms at the voluntary hospitals with rates of charges and other particulars as the existence is not generally known." (As it is contemplated that the visiting staffs alone would attend these patients—being paid fees for their services—they would find themselves, were this proposal adopted, involved in a novel form of touting for practice amongst the middle and upper classes.)

(7) The well-to-do pay bed patients would assist the hospitals to finance their ordinary work. (Hospital administrators are always optimists.)

The voluntary hospitals of the country—originally built, equipped, maintained, and partially endowed for the sick poor—are now being appropriated, in great part with general consent, by members of every rank in society for their own use under contributory schemes for the industrial and lower middle class, by approved societies' schemes under the National Insurance Act, 1928, and now, as recommended under schemes for private pay bed patients of the upper middle and wealthy classes, by means of insurance and cash payments. All this with the tacit exclusion from participation in this branch of medical practice, with its experience and remuneration, of all medical practitioners except a selected few, called the visiting staffs. That is, a ring is being formed in medical practice. As you say, if this is allowed "the ranks of the younger consultants will be sadly thinned."

And so the fast foundering ship "Voluntary" goes lumbering on—under the delusion of making both ends meet by developing schemes each one of which turns out to be a financial loss. Then the British Medical Association, with an amused smile, hands out to all and sundry its panacea, put up in an easily handled form, guaranteed to cure timidity and nervous breakdown among the public and the State officials' stiff-neck among wealthy subscribers, blood impoverishment, deficient absorption, and malnutrition in the medical profession, especially among the visiting medical staffs hoarseness, brain-fag, run-down conditions, and sleeplessness among voluntary hospital administrators. "Use it, and all will be well." Is it not preferable that a real surgeon be called in?—I am, etc.,

HOVE SEPT. 7th

E ROWLAND FOTHERGILL

INSECT BITES AND RHEUMATISM

SIR,—In reply to the letter of Dr G. Arbour Stephens in the *British Medical Journal* of August 25th (p. 557), in which he mentions insects somewhat generally, and the human flea more specially, as the possible cause of rheumatic fever, may I refer him to the following papers I have written on the geographical distribution of the disease and of the common rat flea of temperate climates, *Ceratophyllus fasciatus*, with suggestions that this flea is the cause of the disease. *Indian Medical Gazette*, October 3rd, 1886, *Journal of Tropical Medicine* November, 1899, *Lancet*, 1915, vol. 1, p. 1160, *British Medical Journal*, 1922, vol. 1, p. 540, *British Medical Journal Supplement*, 1926, vol. 1, p. 202, *Proceedings of the Royal Society of Medicine*, February, 1928. Further investigation is required, but I think that I have shown a similarity in geographical, climatic, and other environmental conditions, both of this flea and of the disease, which may be more than coincidental. It is improbable that a specific disease would be caused by more than one insect.

The human flea, *Pulex irritans*, has not quite the same geographical distribution as that of *Ceratophyllus fasciatus*, and it seems to tolerate slightly higher temperatures, though not quite so low as those which can be withstood

by the rat-flea *Pulex irritans*, though not common, is found in some parts of the tropics, such as the Panama and in some of the southern Pacific Islands,² to which it was transported years ago. Although the geographical distribution of *Pulex irritans* is nearly similar to that of rheumatic fever, it would seem to be ruled out as a carrier by certain facts one of which is that it is so common that it would be more likely to be the cause of an epidemic disease such as scarlet fever than of an endemic such as rheumatic fever, although the geographical distribution of the two is almost identical. The structure of Aschoff's bodies is suggestive of their having been originated by a protozoan spirochaete, Rickettsia or allied organism rather than by a bacillus but it cannot be said that Aschoff's bodies are themselves protozoa.

It would seem that, if the possibility of this rat flea being the cause of rheumatic fever is accepted one of the important things to be investigated is the relation between the rat and the disease. There is said to be a relation between throat infections and rheumatic fever, but the throat condition may be either a symptom or a frequent concomitant of the disease, and the cause of the tonsillitis may enter a house through the same defective sanitary condition as does the flea-biting rat.

The work hitherto done on the environmental factors of rheumatic fever has been extensive though general and the cause has not yet been found. I agree with Dr. A. B. Stephens that the hypothesis that there may be a connexion between an insect and the disease is worthy of investigation.—I am etc.,

Harrow Aug 28th

J. TERTIUS CLARKE

Universities and Colleges

UNIVERSITY OF LONDON

THE Connaught Hall of Residence (14 Bedford Place London W.C.1) recently presented to the University of London by H.R.H. the Duke of Connaught will be ready for students of any of the colleges and schools of the University at the opening of the session in October. Mr. W. S. Angus M.A., LL.B., has been appointed warden, and Miss Barnett matron.

UNIVERSITY OF DUBLIN SCHOOL OF PHYSIC, TRINITY COLLEGE

THE Committee of the School of Physic, Trinity College invite every Lecturer in Ophthalmology for the next six months to undertake to prosecute study or research for a period of not less than six months in such place as the Board may approve and must during his year of office give an account of his research in a public lecture or lectures. The remuneration will be £150. Candidates must send their applications to the Registrar of the School of Physic Trinity College Dublin not later than November 1st and must state therein the work they propose to undertake and the place where they intend to carry it out. Applications should be accompanied by a statement of the applicant's qualifications and by a reprint of any published work.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

SAMUEL MCMAHON, M.B. Ch.B. was admitted to the Fellowship of the Faculty after examination on September 3rd. As recorded elsewhere (p. 507) the honorary Fellowship was conferred on Sir Arthur Keith.

Medical News.

THE introductory address before the Middlesex Hospital Medical School will be delivered at 3 p.m. on Tuesday, October 2nd, in the Queen's Hall, by Mr. A. E. Webb Johnson, C.B.E., D.S.O., after which the prizes gained by students during the previous year will be distributed by H.R.H. Prince Arthur of Connaught, and Princess Arthur of Connaught will present the Fardon Memorial medals. The annual dinner will be held the same day at 7.30 p.m., at the Savoy Hotel, when the chair will be taken by Prince Arthur of Connaught.

THE annual dinner of past and present students of University College Hospital in this the centenary year of the Medical School will be held at the Hotel Cecil, Strand, on Friday, October 12th, at 7 p.m. The chair will be taken by Surgeon Rear Admiral Gaskell, C.B., F.R.C.S., Medical Director General R.N. Tickets may be had on application to the honorary secretary at the Medical School.

DR. T. WATTS EDEN will distribute the prizes at Charing Cross Hospital Medical School on Thursday, October 4th, at 3.30 p.m., in the out-patients' hall of the hospital.

THE annual dinner of past and present students of the Royal Dental Hospital of London will be held at the Trocadero (Empire Rooms) on Saturday, October 20th, at 7 o'clock, under the chairmanship of Mr. G. G. Camplin.

THE anniversary dinner of the Pharmaceutical Society of Great Britain will be held at the Hotel Victoria, Northumberland Avenue, W.C., on Wednesday, October 3rd, at 7 o'clock.

THE seventy-third annual exhibition of the Royal Photographic Society of Great Britain opens at 35, Russell Square, W.C.1, on September 17th and will continue until October 13th. Photomicrography is well represented, and the advancement in x-ray photography is illustrated by numerous exhibits.

THE Fellowship of Medicine announces that four post-graduate courses begin on September 17th, each lasting for two weeks. One in medicine, surgery, and the specialties will be given at the Westminster Hospital, occupying the whole of each day with lectures, demonstrations, and operations. A course in orthopaedics at the Royal National Orthopaedic Hospital, and another in diseases of children at the Queen's Hospital for Children, Bothal Green, will similarly occupy the whole of each day. The fourth course is one in diseases of the eye, which will be held at the Royal Eye Hospital, St. George's Circus, S.E., each afternoon at 3 o'clock.

THE Home Office, in communications dated September 5th, 1928, gives notice that the Secretary of State proposes, after the expiration of forty days from that date, to make Regulations under Section 7 of the Dangerous Drugs Act, 1920, for controlling the manufacture, sale, possession, and distribution of benzoyl morphine, dihydro-oxycodolone, and dihydro-codolone. The Regulations will be in the terms of Provisional Rules, dated September 1st, 1928, which, in accordance with Section 2 of the Rules Publication Act, will continue in force in the meantime. Copies of the Provisional Rules may be obtained on application to the Under Secretary of State, Home Office, Whitehall, London, S.W.1. The Home Office also announces, in the *London Gazette* of September 4th, that the Secretary of State proposes to make Regulations under Section 3 of the Dangerous Drugs Act, 1920, applying the Raw Opium Regulations 1921, as amended by the Regulations of 1922, 1923, and 1924, to coca leaves and Indian hemp.

A PARTY of Canadian medical practitioners interested in tuberculosis are at present travelling in Europe as the result of scholarships offered by the San Life Assurance Company. They have spent the last ten days in England, and have visited Liverpool, Birmingham, Cardiff, Winchester, Alton, Midhurst, and London, next week will be spent in France, chiefly in Paris. Other places to be visited during the remainder of September and the whole of October include Florence, Rome, Milan, Venice, Lysian, and, on the return journey to Canada, Cambridge, Edinburgh and Glasgow. The party is principally engaged in studying tuberculosis institutions of different kinds, it will attend the Conference of the National Union against Tuberculosis in Rome at the end of this month and that of the National Association for the Prevention of Tuberculosis to be held in October in London. During their visit to the King Edward VII Sanatorium at Midhurst, Sir St. Clair Thomson gave a lantern demonstration on his seventeen years' experience as a laryngologist to the institution. Dr. Pratten (London, Ontario) stated that every sanatorium in Canada had a laryngologist on its staff, and the larynx was now systematically examined in every case.

A COURSE of 56 lectures and demonstrations on diseases of the alimentary system, organized by Professor F. Gallart y Montés, will be held at the Hospital de la Santa Cruz y San Pablo of Barcelona from October 5th to December 10th. The fee is 100 pesetas.

THE tenth French Congress of Orthopaedics will be held in Paris under the presidency of Professor Nové-Jossard of Lyons on October 12th, when the following subjects will be discussed: sudden pathological dislocation of the hip, introduced by René Le Fort of Lille, and surgical treatment of flat foot, introduced by Alenbach of Strasbourg. Further information can be obtained from the general secretary, Dr. Paul Mathieu, 74 Rue Vanean, Paris (11^e).

MESSRS J. AND A. CHURCHILL announce for early publication *The Practice of Refraction*, by W. Stewart Duke Elder, D.Sc., M.D., F.R.C.S., Assistant Ophthalmic Surgeon, St. George's Hospital; *Diseases of the Blood* by A. Pinney, M.D., Research Pathologist, Cancer Hospital, London; *Recent Advances in Bacteriology* by J. H. Dible, M.B., Ch.B., Professor of Bacteriology, University of Wales; and *Clinical Chemical Pathology*, by F. S. Fowweather, M.D., M.Sc., Lecturer on Chemical Pathology, University of Leeds.

¹ Dunn. *Amer. Journ. Trop. Med.* 1923, liii, 33a.

² Buxton and Hopkins on "Researches in Polynesia and Malaya."

We are informed by Messrs Baillière, Tindall and Cox that they have undertaken the distribution in this country of *The Optum Problem*, by Charles Torry and others, of which a notice appeared in our issue of September 8th, page 450.

The July issue of the *West African Medical Journal* has a strong editorial interest, the contributions including articles on traumatic rupture of the spleen, multiple pregnancy, quinoline intolerance, tetanus, village sanitation, leprosy, and the Public Health and Medical Service in Nigeria. It will be remembered that this journal was inaugurated by the West African Medical Staff, and the directors of the Medical Research Institutes, at Accra and Lagos, together with the director of the Medical and Sanitary Service of Freetown, co-operate in its production. Copies of the journal may be obtained from the Director of the Medical Research Institute, Lagos, Nigeria, the annual subscription is 20s.

The International Congress against Alcoholism held at Antwerp from August 20th to 25th was attended by about 400 members from 32 different countries. The programme included papers on alcoholism as an international problem, alcoholism in Russia, personal liberty, prohibition in the United States, the Bratt system of liquid control, liquid laws of 1919, the action of alcohol on the offspring, alcohol and spas, alcohol and sunlight, welfare centres for drinkers and non-alcoholic beverages. The next congress will be held at Warsaw in 1931, by invitation of the Polish Government.

According to the *Journal of the American Medical Association* during the last three years there has been a progressive decline in typhoid fever in the great cities in the United States with a population of more than 100,000. In 1927 five of the eight geographical groups had typhoid death rates under 2 per 100,000 and the other three groups had rates varying from 3.39 to 10.07.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Contributors who wish notice to be taken of their communications should authenticate them with their names and addresses.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBERS of the *British Medical Association* and the *British Medical Journal* are: **MUSEUM 9561 9562 9563 and 9564** (internal exchange, four lines).

The TELEGRAPHIC ADDRESSES are: **EDITOR of the British Medical Journal, Antiology Westcent London**.

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The address of the Irish Office of the *British Medical Association* is 18 South Frederick Street, Dublin (telegrams **Dacillus Dublin** telephone 62550 Dublin) and of the Scottish Office 7 Drumsheugh Gardens Edinburgh (telegrams **Associate, Edinburgh** telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

TREATMENT OF COLI BACILLURIA

"I. M. S." asks for suggestions for the treatment of coli bacilluria in a lady who has had large doses of antiseptics and has taken hexamine caproate and hexyl resorcinol for lengthy periods. She has also had great quantities of potassium citrate, potassium bicarbonate and other alkalis and gallons of Coutréville Vichy, and distilled water, without the slightest improvement. The urine remains highly acid, and gives a heavy growth of *B. coli*. Crystals of calcium oxalate were present in the last specimen of urine examined. Her gall bladder was removed two years ago, and the *B. coli* infection was detected six months later. She suffers from severe headaches, but is otherwise in good health.

SUNSTROKE IN GREAT BRITAIN

"W. J. B. S." asks where information can be obtained about the effects and treatment of the mild sunstroke sometimes experienced in Great Britain. One effect is that the patient is upset by being out in the sun though previous to the stroke this did not cause the unpleasant cephalic symptoms.

VAGINISMUS

SUGGESTIONS in response to "C. A. S." inquiry (September 8th, p. 473) have been received from several correspondents. "J. A. C." regards the case as essentially one for treatment by psychotherapy rather than by surgical measures. "H. M. L." also believes that cases of this kind are usually of psychical origin, and advises consultation with a medical psychologist with a view to analytical treatment, in his opinion hypnosis is unlikely to prove successful, as the condition may have several other elements. "W. H. M." suggests that artificial lubrication under anaesthesia immediately after a period would produce *ejaculation* and cure the condition.

MOUTH BREATHING

Dr. W. E. H. BULL (Hunstanton) writes in answer to "School Medical Officer" (September 8th, p. 477) that the cause of a child who is a mouth breather is an apparatus quoted from a paper of the London Hospital Medical Society on October 30th, 1913, by Mr. G. Northcroft, at that time senior dental surgeon to the London Hospital. And if any operation for adenoids is undertaken instruct them in acquiring the habit of nasal breathing by daily breathing exercises, and at night wearing an anti-mouth-breathing metal valve which keeps the mouth moist and clean, and absolutely prevents a reversion to oral breathing. This apparatus will also be found of great utility in the treatment of adults, and all rhinologists should advise its use.

Mr. WRIGHT LAWRENCE M.R.C.S. L.D.S. writes: When I was a student at the Royal Dental Hospital we used to make a light wire frame in the form of an internal dental splint, over which was stretched thin sheet rubber to correct the habit of mouth breathing. The appliance was worn during the night.

STATUS EPILEPTICUS

"H. C. B." writes in the *British Medical Journal* of July 7th (p. 40), in reply to a query by me the week before, Dr. L. Harris Liston advised giving hyoscin hydrobromide gr. 1/100 hypodermically for this condition. I have found this treatment of the utmost value and I think it should be widely known. That this is not so at present is evident from the fact that no mention is made of it in Muskoka's recent book on epilepsy or in Dr. Collier's 1928 Lancelot Lectures. Paraldehyde per rectum, strongly recommended by Dr. Collier, was quite without effect in my case, but I have had no other experience with it.

INCOME TAX

Commencement of Appointment

"R. M. L. S." terminated a short engagement in the Royal Navy on March 2nd, 1928, as from which date he commenced hospital duties. Is he liable for 1928-29, seeing that his income was taxed by deduction for 1927-28?

* Yes, the change in the nature of the appointment held necessitates a new departure in the assessment of his income, and he is liable to tax for 1928-29 on the amount of his income for that year.

Research Scholarship

"D. B." is the holder of a research scholarship of £150 for the year 1927-28, but owing to illness, the scholarship is being held over till this winter session. Is this income liable to tax?

* The exemption of scholarships from income tax was provided by Sec. 28 of the Finance Act, 1920, and applies to "income arising from a scholarship held by a person receiving full time instruction at a university, college, school, or other educational establishment", a "scholarship" is defined as including an exhibition, bursary or other similar educational endowment. On the whole, it is difficult to bring a research scholarship of the nature referred to within the condition that the holder shall be "receiving full time instruction" especially in view of a decision in a recent case (*Henslip v. Hasemer*) which suggests that mere oversight of study does not constitute full time instruction.

Expenses Incurred by Locumtenent

"D. C." has been doing locumtenens work during the past year, and inquires whether he can deduct hotel expenses in making his return.

* The Income Tax Acts forbid the deduction of any disbursements or expenses not being money wholly and exclusively laid out for the purposes of the "profession". Hotel expenses are in the main "laid out" for private purposes, and seem strictly to come within the above prohibition. But we have been given to understand that commercial travellers and other persons compelled by their vocation to move from one hotel to another are allowed to deduct some portion of their expenses as representing the additional expenditure caused by the nature of their work. Perhaps "D. C." can discuss the matter with his Inspector of taxes and obtain some relief on that basis.

LETTERS, NOTES ETC

MERCUROCHROME

MR. R. W. E. STICKINGS OBE, B.Sc. (Wandsworth, S.W.), writes in the *British Medical Journal* of August 11th p. 238 there appears an article on 'Mercurochrome 220 soluble' by Sir William Pope and others, in which a comparison is made of various trade samples of mercurochrome with a "standard" sample prepared by Messrs. British Colloids Ltd. We must admit that the general conclusions drawn are in agreement with our own findings but we think it unfortunate that among the trade samples analysed only one sample even approached the "standard" preparation in its conformity with the theoretical composition of disodium dihydroxymercuri fluorescein. We are also surprised that all the four samples analysed contain such a high proportion of water eliminated at 110°C *in vacuo*. Admittedly, the preparation of mercurochrome on a large scale presents several difficulties as the starting material, fluorescein, is itself not easy to obtain in a state of absolute purity. Moreover dihydroxymercuri fluorescein, whilst it may be recrystallized on a laboratory scale, is very insoluble in the ordinary solvents in commercial use. After this stage the intermediates and finished product are not crystalline, so that simple methods of ensuring purity are not then available. In spite of this it is possible to get a close approximation to purity at each stage, and only by doing so can a mercurochrome approximating to the theoretical composition be produced. In the final stages of the manufacture—that is the formation of the solid sodium salt—care has to be taken to avoid decomposition as it is easily possible for inaccurate methods to cause decomposition of metallic mercury in globules from a perfectly bright solution. But we are of opinion that from the point of view of stability a moisture content of 10 per cent is not desirable in the finished product, and there appears no valid reason for its presence. In confirmation of this an examination of two samples of British made mercurochrome (Messrs. May and Baker, Ltd.) showed a moisture content of 2.8 per cent and 2.6 per cent respectively after four hours at 110°C *in vacuo* whilst another sample of a well known American brand contained as much as 12.6 per cent under the same conditions. The samples of British manufacture contain 27.4 and 25.8 per cent mercury, and 22.1 and 21.2 per cent bromine respectively. Both the mercury and bromine figures vary less than 1 per cent from the theoretical figures, and to maintain a closer approximation to theory than this in the manufacture of hundred weights of this substance is little short of impossible. The toxicity of this material is tested as a routine on rabbits and a consistent toleration of between 20 and 30 mg per kilogram of body weight is manifested.

MALIGNANCY AND THE ENZYME

LIEUT. COLONEL V. N. WHITMORE I.M.S. (Sialkot, Punjab) in a note dated August 10th writes. It would be of interest to know what, if any investigations are being made by the Cancer Research Committee as regards tissue and *in vivo* cell enzymes, both intra and extra-cellular as a likely factor in the irregular mitosis of the malignant cell. Is the "specific factor" of Gye and Barnard the malignant cell enzyme, and the ultra-microscopic virus the broken down or separated mitotic material, and is the unlimited potentiality of growth due to continued catalysis of malignant cell enzyme associated with the absence of the anti-enzyme? The vital role of the enzyme in the chemical physiology of cell life leads one to assume its importance in the equilibration essential to regular mitosis and a defective or altered enzyme to a replacement of a normal cell by a spurious prototype with the embryonic potentiality of rapid and irregular karyokinesis. The accepted fact—accepted beyond all reasonable dispute—that the origin of malignancy is local presupposes also that the normal physiological metabolic processes in the cell are being unduly stimulated by a definite factor or enzyme, that the life-history of a normal cell depends on its own ability to conform physiologically and solve its own bioplasmochemistry—in other words to activate its enzyme (and anti-enzyme) and thus ensure a metabolic equilibrium and physiological karyokinesis. It is also a fair assumption that the greater the metabolic and physiological activity of the cell the greater the liability of the normal cell enzyme to become defective. The complex physical properties of enzymes, including reversibility of action and catalysis probably due to two factors, are to some extent understood, at all events, to a greater extent than their chemical properties. It is fair to assume that the normal physiology of cell life when interfered with by any influence acting locally be it an hereditary (endocrine) factor, an autotoxin or persistent focal dehalization the result of persistent irritation, or deficient trophic influence should be so altered as to affect fundamentally the normal properties of the enzyme on which the physiological metabolism of the cell including mitosis depends. The hypothesis of such a theory appears a justifiable one and that the processes of life itself, which Sir Lancelot Cheate suggests must be probed before an adequate solution is found, is but a higher evolutionary form of a continuous biochemical reaction.

MEDICAL TREATMENT IN CHINA.

DR. O. MARRIOTT (Haywards Heath Sussex) writes in reply to Fleet Surgeon Home's inquiry (August 4th p. 228). With the experience of twenty years' practice in Hong Kong where I had a very considerable number of Chinese patients and had several Chinese families as contract patients I have repeatedly inquired especially of the intellectual classes who should know whether there were any grounds for this constantly repeated

story by Europeans—more especially by globe trotters—that the Chinese paid their doctors a fee while in health and suspended payment if they became ill. All those asked stated that there was no such custom. They sometimes admitted having heard of it, but only from Europeans asking about it. I am convinced that among Chinese in the south—that is, Kwang Tung—there is no such custom. Globe-trotters repeat such fables as this so often on their tours that when they come home and write their 'book' they really believe they are true.

DR. T. H. JUDD (China Inland Mission) writes I may say that I never came across the alleged Chinese custom of paying fees to their doctors while well and discontinuing them when ill, although I was a medical missionary in Kiangsi Province more than twenty years.

THE PREVENTION OF TUBERCULOSIS.

DR. W. HOPKINS ASHMORE (Monkstown, Dublin) wishes it to be known that the point he made in the discussion by the Section of Tuberculosis at Cardiff was that the practice of collecting sweepings of rooms in which tuberculous patients are being nursed, and the piling of this dust on an open dump, is a very definite factor in the spread of tuberculosis. He advocates the incineration of all house refuse as a remedy to the diffusion of infectious diseases. He writes: It is quite incomprehensible to me why in view of our present knowledge of bacteriology, we still persist in the daily practice of collecting the sweepings of rooms in which are patients suffering from tuberculosis, measles, scarlatina, diphtheria, and typhoid fever, and of spreading this dust on an open dump which is frequently situated in a convenient place beside the main road, or in the centre of a thickly populated suburb.

LORD HALDANE'S DEFINITION OF THE "EGO" OR "SELF"

SURGEON REAR ADMIRAL CHARLES M. BEADNELL, R.N. (ret.), writes. In your note in the *Journal* of August 25th upon Lord Haldane F.R.S., you make no allusion to his excursions into the realms of psychology. The distinguished statesman philosopher was, as is well known, an ardent Hegelian and in his Gifford Lectures of 1902-3 he made a somewhat desperate attempt to reconcile with the tenets of modern science the topsy-turvy doctrine of the great German metaphysician that reality is identifiable with thought. I think few, if any, modern scientists would admit the success of a venture which involved even Lord Haldane himself in contradictions. In his *Pathway to Reality*, the title under which the lectures were published he states (p. 31) 'In the universals of thought, and not in the impressions of sense, are to be discovered the true foundations of the world. Thought rather creates things than things thought.' *Esse was for Haldane, Intelligi, not Percipi.* I think the general verdict of modern science rather is *Nihil est in intellectu, quod non prius fuerit in sensu, nisi ipse intellectus*. Quite in keeping with his idealism was his famous definition of the subject of thought, the thinker the "Ego" or "Self" and it should be carefully contrasted with his words as quoted above. He states (p. 154) "If you look quite simply into your own bosom and try to find out what your Ego is you will find that you have embarked upon a very difficult task. Your Ego comes to disclose itself as a mere asymptotic regress towards a notional pure subject of knowledge—a thinker without thoughts an abstraction, nothing at all." Such a definition whittling away the Self into nothing is surely at variance with the contention that thought is the reality. The definition has been welcomed by a certain school of psycho-analysts, but to the average mortal will, I opine prove unacceptable. On the one hand, the most modest and self-effacing will find it somewhat unappreciative and on the other hand those who like Kipling's cat, have too much Ego in their cosmos and prefer to walk by themselves, will regard it with severe displeasure.

HOMOEOPATHIC CONGRESS

DR. F. B. JULIAN (Liverpool) writes. The British Homoeopathic Congress, which is meeting this year at Liverpool, will devote its business sessions to a symposium on gastric and duodenal ulcer. The sessions will be held in the surgery theatre of the University by kind permission of the Dean of the Medical Faculty and papers will be contributed from the general medical, surgical, pathological, and homoeopathic standpoints. The Congress meetings are on September 21st, commencing 9.45 a.m.

LITTER.

DR. H. MURDITH (Wellington Somerset) writes. Yesterday, in the Doone Valley there was—as is usual in beauty spots—a lot of paper etc., lying about. The most glaring piece was an envelope addressed to M.D. of Hendon and around were advertisements of Wampole. Surely the medical profession ought to be the first to discontinue such things. If M.D. throws his correspondence about like that I wonder what he does with his sandwich wrappings. No wonder private owners are closing their estates to the public.

VACANCIES

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 45, 46, 47, 50, 51, and 52 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 48 and 49. A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 135.

Remarks

OR

ACUTE NEPHRITIS

BY

T CHILMAN MOORHEAD, M.D., F.R.C.P.I.,
Regius Professor of Physic Dublin University

INCIDENCE

It is generally believed that acute inflammation of the kidneys is a rare disease. In civilian practice it is certainly rare, except as a complication of scarlatina. The figures given by Herringham in his book on kidney diseases (1912) are often quoted. He states that only 166 cases were treated at St Bartholomew's Hospital out of about 63,000 admissions during a period of nine years.

Reference to the Registrar-General's reports shows that in the five years 1822 to 1826 inclusive the total number of deaths from all causes registered in the Irish Free State was 314,829. Of these, the total number registered as from acute nephritis was 1,362, of which 645 were in females and 717 in males. These figures include all deaths from acute nephritis in adults and all deaths from nephritis in children under 10 years of age, but do not include deaths from eclampsia. These figures show that one death in every 231 registered is reported as due to acute nephritis. The deaths registered as due to chronic nephritis during the same period numbered 6,143.

In England and Wales during the same years (1822-26) the total number of deaths from all causes registered was 2,231,445. These included 6,964 classified as acute nephritis, of which 3,288 were in females and 3,676 in males. This gives one death from acute nephritis in every 334. The deaths registered as due to chronic nephritis during the same period numbered 56,146. If we assume that there is an immediate 10 per cent mortality from the acute disease (and this is probably higher than what actually occurs) the number of cases treated in any one year in either country can be easily calculated.

Owing to the comparative infrequency of the disease no systematic study of groups of cases was possible until the great war. Then, as is universally known, nephritis occurred in epidemic form, and under conditions where close observation, both of immediate symptoms and remote consequences, was possible. The result is that our knowledge of the disease has greatly increased of recent years, and we now perhaps realize more fully than formerly that many deaths recorded as due to chronic nephritis are the late sequelae of acute nephritis.

PROPHYLAXIS

The best way to avoid on attack of nephritis is to shun those conditions which render the individual specially liable to it, but in spite of every effort many people will continue to suffer from scarlatina and other infective conditions, and many will be far from anxious to avoid pregnancy. The question, then, arises as to whether anything can be done to decrease the incidence of nephritis in such conditions. It is quite unnecessary to refer to the common sense precautions which ordinary clinical experience will dictate, and which should, above all, be observed by those already suffering from chronic renal disease.

The recently acquired knowledge that septic tonsils and septic nasal sinuses may be the source of toxins which can produce acute damage in the kidneys suggests at once that the removal of such tonsils and adequate treatment of such nasal diseases may be looked upon as a preventive measure. In scarlatina it was the fashion some twenty years ago to prescribe urinary antiseptics of the hexamine type, and many statistical records were published to show that the incidence of nephritis was lessened in cases in which these drugs were given. The passage of time has not confirmed these records, however, and few clinicians now believe these antiseptics to be of any value.

A new impetus to preventive measures has been given by the researches of Osman, who, as a result of careful study in collaboration with others, has stated recently that the incidence of nephritis after scarlatina is greater in those whose urine is unduly acid and in whom the alkali reserve of the blood is diminished. He and his co-workers also claim to have reduced the incidence of nephritis after scarlatina to 0.6 per cent in 620 cases treated by alkalis, as compared with 5.5 per cent incidence in 316 cases not so treated. If these results are confirmed it may be advisable to employ alkalis in future in all cases of scarlatina, and to extend Osman's observations to other diseases, not excluding pregnancy, in which nephritis is a frequent incident. Large doses are, however, required, and it is possible that many patients will object to their consumption. At present Osman's conclusions must be received with hope, but with caution. Peters, in an analysis of nearly 8,000 cases treated between 1910 and 1927, found no significant difference in the onset of complications in those treated with and without alkalis respectively, and Stigglitz goes so far as to say that excessive intake of alkalis may actually predispose to nephritis instead of the reverse.

The value of scarlatinal antitoxin is still *sub judice*, but the reports up to date are fairly satisfactory. Gardner Robb states that in 100 cases of average severity treated by serum no case of nephritis occurred, and there is no reference in his paper to even the occurrence of albuminuria. On the other hand, Dr Burns, a former pupil of mine, tells me that the experience at the City Hospital, Liverpool, is that scarlatinal antitoxin does not diminish the incidence of complications.

CLASSIFICATION

Innumerable attempts have been made to classify the different forms of nephritis, but fortunately the limitation of my subject to acute nephritis renders it unnecessary to attempt anything but the very simplest, indeed, from my point of view, much time has been wasted in the attempts that have been made to divide and subdivide, instead of recognizing the unity which underlies the varying pathological manifestations of the acute condition. It is, however, necessary to state that under the term "acute nephritis" I include not merely acute non-suppurative inflammations of the kidney, but also acute non-suppurative degeneration. In short, I do not intend to use the word "nephrosis" as indicating a condition distinct from acute nephritis. The term "nephrosis," indeed, has not been generally adopted by English writers, though it is employed largely in Europe and the United States to designate a clinical and pathological entity of acute origin characterized by primary degeneration of tubular epithelium, unaccompanied by inflammatory phenomena. Even if this condition does exist in the pure state, I am convinced that it is wiser, both for the sake of clarity of thought and also for diagnostic and teaching purposes, to include it merely as a variety of acute nephritis. This remark, of course, applies to the condition known as toxic kidney, a term which is becoming increasingly frequent in the English literature to describe a state identical with nephrosis.

Classifications have been attempted on the basis of etiology, pathology, clinical symptoms, and on that of disordered function. Provided, however, that we remember that the kidney is composed of four elements—glomerular, tubular, interstitial, and vascular—and that each element may be involved in a varying degree according to the cause of the inflammation, its severity, and its duration, and provided we remember that the functional changes are likely to vary also with the degree of involvement of each of these structures and the severity of that involvement, we will do better as clinicians to recognize one form of acute nephritis only. The only exception that I can see to this view is the acute nephritis which is met with as a complication or symptom of ulcerative endocarditis. It must, of course, be remembered that acute inflammation may attack not merely a healthy kidney, but also a kidney damaged to a greater or lesser extent by previous disease.

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SYMPTOMATOLOGY

The symptoms are too familiar to require enumeration. They vary in severity from transitory febrile albuminuria to the most acutely fulminant manifestations. It is customary to distinguish a variety characterized mainly by oedema from a variety in which haemorrhagic urine is the predominant symptom, and it is even contended that parenchymatous lesions with resultant oedema are more particularly likely to be produced by staphylococcal toxins and glomerular lesions with haemorrhage by streptococcal toxins. The evidence for this is, however, far from convincing, and my own experience is that oedematous and haemorrhagic cases are by no means invariably clear-cut. A rise in blood pressure was at one time regarded as almost certain evidence of old-standing nephritis. It is now, however, universally recognized that even in primary acute attacks of every variety the blood pressure may rise rapidly. As a fall in blood pressure accompanied by diminution in size of the heart is a favourable sign, it is important to take systematic sphygmomanometer readings throughout. Diagnosis can hardly ever be in doubt, except in the very rare cases of complete anuria with palpable swelling of one or both kidneys, and with delayed appearance of oedema. This was met with in the cases described by Reginald Harrison in which surgical treatment was undertaken under the impression that cases of acute hydronephrosis were being dealt with. One case of this type was that of a lady, aged 35, whom I saw in consultation some years ago. Her history was as follows:

After a day of active exercise she woke in the middle of the night with severe pain in the back and much restlessness. The next morning she was slightly feverish, was unable to pass urine, and presented a distinct tumour in the right renal region. I saw her two days later in conjunction with her medical attendant and a surgeon. In the forty-eight hours since the beginning of her illness not a single drop of urine had been passed nor could any be obtained by catheter. She was feverish and restless and on her right side a tumour, diagnosed as an enlarged kidney, was easily detectable and was extremely tender on pressure. X-ray examination was out of the question; the diagnosis reached was acute calcareous hydronephrosis with reflex cessation of function of the left kidney. As no improvement had taken place next day and as no further symptoms had appeared, operation was agreed to, but on exposing the right kidney, no stone and no hydronephrosis was found. The kidney was much enlarged, and on incising the capsule bulged out as if under extreme tension. On the next day a small quantity of urine was passed; it was found to be loaded with albumin and contained blood and granular and epithelial casts. After a hesitating course uraemia developed ten days later and the patient died. Prior to death she developed generalized oedema and other ordinary nephritic symptoms. It was only possible to remove the right kidney for examination and this was found to show pronounced glomerulotubular nephritis.

CHEMISTRY

In a case of average severity the condition of the urine is familiar. It is scanty, probably owing to the diminished blood flow brought about by the general vascular congestion, and contains blood, casts, and abundant albumin. It is generally assumed that the albumin is entirely composed of blood protein filtered through the glomerular membrane, but a recent study by Kellaway, Davies, and Williams suggests that when the cells are severely damaged much of the protein present consists of kidney substance. Further work on the proteins of urine is desirable. The quantity of albumin diminishes as the patient improves. Acute nephritis is, indeed, one of the few conditions in which regular estimation of the amount of albumin passed is of value. Incidentally, however, it may be stated that estimations by the Esbach albuminometer are even less reliable than is generally believed. In a recent study Geoffrey Bewley has reminded us that the readings of that instrument vary widely according to the temperature. Thus, the same specimen of urine on two successive days will vary as much as 25 per cent according to the temperature of the day. In fact, the ordinary heat and acetic acid test in most cases enables one to judge just as satisfactorily as does Esbach's instrument. The men present is diminished in the early stages, and chlorides may be reduced almost to vanishing point. Diastase also is lessened, except in the nephritis of eclampsia.

In conformity with the condition of the urine certain blood changes are found. Urea is almost invariably increased, and in cases which do not progress favourably very high levels of blood urea may be reached. As improvement sets in and diuresis occurs the urea rapidly returns to normal. It is admitted that the progress of the case and the immediate prognosis may be better determined by blood urea estimation than by any other laboratory examination.

The chloride in the plasma is probably increased in the early stages, although opinions vary greatly on this matter, and the whole question of chloride excretion and chloride retention is one that must be approached with much humility. Some writers believe that chloride retention in the body is due to a definite renal failure to excrete chlorides. Others regard it as merely secondary to the failure on the part of the kidney to excrete water. Still others believe that chloride retention arises in a totally different way. They hold that in acute nephritis the permeability of the capillaries throughout the body becomes increased as the result of the presence of toxins in the circulatory system, and possibly as a result of diminished surface tension of the serum, and that this increased permeability, combined with the hydraemia resulting from oliguria, leads to a great outpouring of fluid into tissue spaces. This fluid must contain its normal quotient of sodium chloride, and hence there results a locking up of chlorides in the body, due to tissue demand rather than to renal failure. The actual chloride is of importance, and many now feel that the sodium ion is more important than the chlorine ion. In favour of this view the beneficial effect of calcium chloride and ammonium chloride in producing diuresis is often referred to.

Through these tangled views it is hard to find one's way, but the fact remains that there is considerable chloride retention in the body as a whole. Other blood changes include the existence of a slight acidosis due to a diminution of the sodium carbonate blood content. The existence of this was foreshadowed long before the days of biochemistry by clinicians, who found that it was more difficult to make the urine alkaline in acute nephritis than in health, and who believed that once it was rendered alkaline the danger of the onset of uraemia was almost certainly averted.

Fischer's theories may here be referred to briefly. He believes that local alterations in the acidity and alkalinity of tissues produce changes in hydration, inasmuch as a changed reaction alters the capacity of the body colloids to hold water. Many of the actual changes found in the kidney cells are explained by him in this way, but the theory, though attractive at first sight, has been proved untenable. In my hands the treatment of renal cases by Fischer's strongly alkaline solution has not proved satisfactory.

Blood phosphates are also increased, and are stated to be closely associated with the development of toxic symptoms. A return to normal is of favourable significance. On the knowledge that a deleterious phosphate retention exists is based the treatment by calcium salts, and von Noorden's special recommendation that large quantities of calcium should be given to all nephritic patients who are taking much milk. Milk, as is well known, is rich in phosphoric acid.

Maxwell has found that cholesterol also is increased in the blood in acute nephritis, and although other observers have stated the contrary, his work seems sufficiently definite to establish the fact. He asserts that, as the patient improves, oedema first disappears, then excessive cholesterol, and then albumin. From the practical point of view, however, cholesterol estimations are at present unimportant.

If the patient progresses from an acute into a subacute stage, further blood changes in the nature of argaemia and diminished protein content, with possible changes of albumin-globulin ratio, may take place, but these do not require discussion.

Coincident with the changes in the blood and blood pressure, various changes occur in the cerebro-spinal fluid. The actual pressure of the fluid is increased, as evidenced by the fact that when a lumbar puncture is done it squirts out under considerable pressure. Analysis of the fluid will

show increase of urea, increase of protein content, and, according to most writers, a considerable increase of chlorides, especially if uremia is threatened. It is even said that a high chloride level is diagnostic of the onset of uremia.

FUNCTIONAL KIDNEY TESTS

Since the days of Bright progress in our knowledge of the nephritides has been steady, but comparatively uneventful. Gradually improving microscopical technique has added much bulk to the literature, and has succeeded in differentiating fairly satisfactorily, and with almost painful accuracy, the stages and varying types of nephritis. With the coming of biochemistry a new chapter has been opened, and with the ever-increasing progress of this science we are now in a position to make not merely a guess at the anatomical state of the kidneys in any given case, but to estimate with some certainty the degree of impairment of their physiological function. It is, however, important for the clinician to remember that functional tests should not displace either chemical examination or judgement based on careful observation and examination of the patient. In acute nephritis, indeed, most of these tests are of little importance till the acute stage has passed, but in the recovery stage, particularly if recovery is delayed, they may be of much value in prognosis and in estimation of residual kidney damage. The tests must be repeated again and again, and found to give consistent results, before they can be relied on. A single functional test is valueless, and may be misleading. Further, these tests do not always give us information concerning one only of the four parts of the renal mechanism. For example, the urea concentration test may show defective function either because too little water is absorbed from the tubules, or because the glomerular membrane and the tubules do not permit the passage of a normal amount of urea. On the other hand, the dye tests probably afford information concerning the epithelial cells alone, and when benzoates are given with the object of testing how much hippuric acid will be formed, we are determining the power of the interstitial tissue to form that substance, and the power of the cells to excrete it.

COURSE AND PROGNOSIS

Provided no complication shows itself by far the largest number of cases of acute nephritis pursue a favourable course, though not necessarily to complete recovery. In an average case, after a few days, the original oliguria gives place to diuresis, and, coincidentally with this, the oedema begins to disappear. In my own experience in adults those cases which present the greatest amount of blood in the urine at the beginning recover most rapidly. In the most favourable cases within a month no trace of the disease may be left. The actual percentage of cases in which permanent damage—either stationary or progressive, and either mild or severe—is left has been estimated differently by various observers. Do Wesselow, for example, estimated in war nephritis that 70 per cent had completely recovered after the lapse of a year, while Humo and Nattrass, in a recent study, refer to the fact that in France 77 per cent were found normal after the same period. On the other hand, these last named state, as the result of their own observations on 281 cases seen during the years 1922-25—that is, over a period commencing four years after the termination of the war—that only 45.5 per cent had no evidence of renal disease, 9.5 per cent had advanced chronic nephritis, and 2.5 per cent had died, while 43.5 per cent showed evidence of some permanent damage to the kidneys, and were believed to be developing advanced chronic nephritis.

In watching cases one of the most important things to consider is whether the subacute or chronic process is or is not going to supervene on the acute. It has probably been the experience of everyone to meet with cases in which albumin has completely disappeared from the urine after persisting for as long as twelve months or more, but this is exceptional, and in general it may be assumed that if albumin is still present after the lapse of six months, complete restoration to health is unlikely. In estimating prognosis we must of course consider whether we are or are not dealing with an exacerbation of a pre-

existing nephritis. It is in these cases that the functional tests are of so much value. Some writers go so far as to say that, provided such tests show a normal response, the presence of albumin is of no consequence whatever. With this view I cannot agree. My experience is that no matter what response patients may show to tests, if albumin is persistent they remain below par, and are particularly liable to intercurrent infections.

TREATMENT

In the early stages rest is imperative, and should be insisted on as long as haematuria persists. In cases with oedema and fairly abundant albumin I have often found improvement follow getting the patient up. Each case must be judged on its merits, but in general I am opposed to overdoing the period of rest in bed.

As regards diet, most patients at the beginning of the illness suffer from anorexia, and some from nausea and vomiting. This automatically limits the intake of food. As von Noorden long ago pointed out, even water should not be pressed at this stage, and whatever theories we may hold, it certainly seems advisable to limit also the intake of chlorides. Small quantities of milk and water to which a little calcium carbonate has been added satisfy all necessities. As improvement sets in, carbohydrates may be added fairly freely, always having regard to the digestive powers of the patient. Grapes and fruit juices, including fruit jellies, are appreciated, and gradually proteins may be increased. The revolt against the consumption of large quantities of milk in this stage, on the ground of its large protein and water content, took place during my student days, and at once appealed to common sense. Even when almost complete recovery has taken place it is well to maintain some restriction regarding proteins, though one admits with Wordley that no direct increase of albumin results from an increased protein intake. In later subacute stages the problem may alter, and Epstein's diet be required.

As regards other measures, the old-fashioned hot pack and the more newly devised radiant heat bath seem temporarily to be under a cloud. In stating this I cannot help recalling the old-fashioned suggestion to rub the skin with bacon fat in order to prevent sweating, and so to leave more fluid in the body for the purpose of flushing the kidneys. Indiscriminate sweating is, I am sure, weakening, but when headache and other uraemic symptoms threaten, I have not the least doubt that a good radiant heat bath is beneficial. It is seldom that in any stage direct measures for the relief of anasarca will be required, but, if they are, Southey's tubes are undoubtedly preferable to multiple punctures.

No drug treatment, apart from the giving of mild diaphoretics and purgatives, is required at first. All stimulants of the kidney must, of course, be rigidly barred. Later, with hydraemia, and with excess of urea in the blood, these may be tried, in the hope of promoting diuresis. I have tried ammonium chloride, so strongly recommended from the Mayo Clinic, but without good results, and the equally strongly recommended novasural is unquestionably a substance to be used with caution. In my experience it is a much safer remedy in cases of cardiac than of renal oedema.

Decapsulation

In 1896 Reginald Harrison put on record three cases of acute nephritis in which cure had followed incision and stripping back of the capsule. Later he reported further cases, and stated that operation was indicated (1) in cases of acute nephritis in which convalescence is delayed, and in which albumin and casts do not disappear from the urine, (2) in cases where suppression of urine occurs, (3) in cases where marked cardiac and circulatory disturbances arise in the course of inflammatory renal disorders.

In 1903 Edebohl suggested a similar operation in more chronic cases of nephritis, with the object of preventing compression of the kidney and of establishing collateral circulation, and more recently Roosing (1922) has recorded 69 cases of nephropathy grouped under four headings, for which decapsulation was performed with apparently good results.

The reasons for such an operation are quite different in an acute and in a subacute stage. In an acute stage, when the capsule is incised the kidney bulges out, and therefore it might be claimed that relief from tension is afforded. In practice, however, the operation seems to have been generally abandoned, and inasmuch as most cases pursue a favourable course on ordinary lines such a serious procedure is never justified. In the subacute cases the capsule has adapted itself to the increased size of the kidney, and operation can only be justified on the plea of establishing collateral circulation, and thereby arresting a progressively downward course. Most physicians who realize that recovery from an operation does not always mean cure of a disease, and who realize the many variations in course taken by subacute nephritis, will hesitate long before recommending surgical intervention. In a recent paper, however, Fawcett urges the value of the operation in a specially selected group of subacute parenchymatous cases, the sequelae, for the most part, of acute inflammation.

When uraemic coma develops, either subsequent to or independent of epileptiform convulsions, and when all ordinary measures such as hot packs, the use of pilocarpine in small doses, and purging fail to produce rapid improvement, venesection should be performed. I well remember the first case upon which I performed venesection, some twenty-five years ago.

A boy, aged 18, was admitted suffering from acute nephritis. After a few days he was well on his way to recovery. At this stage his friends managed to bring in a large supply of food and the boy enjoyed a surreptitious but hearty meal. That evening he had a severe convulsion and passed into a state of coma. During the next day the coma persisted and there was almost complete anuria. The next morning thirty-six hours after the beginning of the coma he was still deeply unconscious, and apparently going downhill. I bled him to the extent of about 15 oz. a few hours afterwards he opened his eyes and that evening he again became conscious, and ultimately made a good recovery.

When bleeding a serious case, if the blood flows badly, it is worth remembering Landei Brunton's tip that inhalation of oxygen will make the blood less treacherous and greatly facilitate procedure. It is curious that some writers, such as Tweedy, regard bleeding as dangerous in eclampsia, but most gynaecologists are in favour of moderate venesection.

During the war I practised lumbar puncture in addition to venesection for the repeated convulsions that were so frequently encountered. The most recent writers seem to regard lumbar puncture as a mistake, but I am convinced that no harm ever resulted in my own cases, and, judged as a clinical procedure, it appeared to have a beneficial result. It seems, indeed, to be a common-sense method of treatment. The cerebro-spinal fluid, as already stated, is under high pressure, and contains an excessive amount of urea and of chlorides. Removal of fluid is often good for the headache of chronic renal disease, and I therefore find it hard to believe that relief of tension will not be beneficial in acute renal disease accompanied by nervous phenomena.

The giving of saline injections intravenously, subcutaneously, or into the colon in uraemia is of doubtful value. For a couple of years I employed Fischer's solution both intravenously and by the rectum, but could never satisfy myself that it was of value, and the rectal injection of the highly alkaline solution which he recommends, containing as it does 10 grams of sodium carbonate per litre, is extremely irritating. The injection of plain sodium chloride and of sodium citrate solution can be justified only as a diluent of retained toxins, and may be useful in this way, even though it is realized that the kidney finds difficulty in excreting both chloride and sodium ion. On the whole, I am inclined to recommend their use in the form of colonic injections after thorough evacuation of the colon.

As regards drugs, morphine, so long under suspicion in uraemic cases, is now recognized as both safe and satisfactory in checking repeated convulsions. It is hard to realize why this remedy was so long under suspicion, having regard to the fact that in the allied condition of eclampsia it has been employed for many years.

ACUTE NECROSIS OF THE PANCREAS*

BY

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THE term "pancreatitis" as the subject of this discussion was deliberately chosen so that it might cover the wide range of conditions usually included under that heading, many of which are but little understood in order that those taking part in the discussion should not be tied down to any particular type, but might be able to give their views and experience of the many varieties of the condition, and especially of the less regular types or "formes frustes" of this somewhat rare disease.

In the few remarks that I have to offer, largely based on six cases of which I have had personal experience in the last two years, I propose to limit myself to the condition known as acute necrosis of the pancreas, which is a better term than acute haemorrhagic pancreatitis, as it does not beg the question of its primarily inflammatory origin, a view which is not held by a very considerable number of observers. Nor is the term "haemorrhagic" entirely satisfactory, as in a certain proportion of cases haemorrhage is not always strikingly in evidence.

THE PECULIAR FEATURES OF DISEASE OF THE PANCREAS

The pancreas has been well described as a laboratory of chemical physiology. In addition to its internal secretion, it forms the most powerful proteolytic ferment, the fat-splitting and the amylolytic, in addition to others of less importance. Another feature of this gland in which it differs from other secreting glands is that it possesses two ducts, sometimes in anastomosis, sometimes not, and of which, to use an Irishism, the lesser—the accessory duct of Santorini—is sometimes the greater. The latter duct has no valve at its entry into the duodenum, a fact the importance of which will be seen later. The main duct of Wirsung in the majority of cases joins the bile duct before it pours its contents into the duodenum, the distance of this junction from the intestinal opening varying from zero to 11 mm., averaging about 4 mm. All these facts have a bearing on the canalicular theory of pancreatic necrosis.

In the view of many writers on the subject the varying forms of acute pancreatitis as described in the textbooks are simply stages of the same process, and are described by Brocq¹ as acute oedematous pancreatitis, acute haemorrhagic pancreatitis, and gangrenous and suppurative pancreatitis, the rarity of the first being due to the fact that the surgeon seldom sees cases at this early stage.

As regards the suppurative varieties, probably some are primarily infective, whether the infection is due borne or by way of the lymphatics, but many are simply secondary infections following on the necrosis of the gland.

In studying the various papers and case reports of acute pancreatitis one cannot but be struck by the varying types of the disease which they describe, the great difference in the mortality of different clinics, the diverse views held as to its etiology, and in some degree also as to the appropriate treatment.

This is perhaps not to be greatly wondered at, when in a condition relatively uncommon, it can only fall to the lot of any individual surgeon to meet with a limited number of cases. Further, in many of the necropsy reports there is no account of a minute examination of the ducts which would throw some light on the etiology. In reading the papers of Deaver and other supporters of the theory of lymphatic extension from the gall bladder it would appear that, as is well put in a paper by Fiske Jones,² they are describing a condition different altogether from that of acute pancreatic necrosis, and that whilst that theory may well account for chronic pancreatitis and some of the suppurative varieties, it is not applicable, at any rate, to the majority of cases of the former condition.

ETIOLOGY

The immediate cause of the production of the *drame pancreatique* is the setting free of the secretion of the

* Read in opening a discussion in the Section of Surgery of the Annual Meeting of the British Medical Association, Cardiff, 1928.

pancreas and its activation in the ducts of the gland. In order that this may take place it is necessary first that the gland should be in the phase of secretion, secondly that the proferments should be activated by some agent or other. When these conditions are fulfilled we have all the factors required for the production of pancreatic necrosis. On the extent to which this takes place and the duration of the process depends the varying severity of the different types of the disease.

The importance of the first condition is shown by the experiments of Brocq, in which bile was injected up the duct of Wirsung, it being found that haemorrhagic necrosis resulted only in those cases in which the dog had received a full meal some hours previously. Clinically it is often noticed that the sudden onset of the disease occurs after a heavy meal.

The second condition, activation of the proferments, may be fulfilled in one of several ways. Brocq found that normal bile would do this if the first condition was fulfilled. Archibald found that bile deprived of its mucus, or in which the salts were concentrated, was efficient. Succus entericus, the normal activant, as might naturally be expected would also activate the secretion and might gain access to the gland through a patent duct of Santorini. In addition to these the products of the cytotoxicity of gland cells and leucocytes, calcium salts, and bacteria may have the same result. For those who hold the theory of Deaver of a lymphatic extension of inflammation from the gall-bladder and a primary inflammatory pancreatitis, these would furnish the activating agent and may give an explanation of some of those cases which are unassociated with disease of the biliary tract.

It is therefore probable that acute necrosis may be produced in more than one way. At the present time there are three main theories of its causation.

1. That it is due to a vascular lesion—embolism of pancreatic arteries or thrombosis of pancreatic veins.

This theory, defended by Gilbert, Chahrol, and Lapine has probably few adherents, and little can be advanced in its support. That in certain cases thrombosis of pancreatic veins may be found *post mortem* is what might well be expected with a sloughing or suppurating mass of tissue. As regards an arterial origin, with the rich vascular supply and anastomosis of the pancreatic arteries, this does not appear a very likely cause (Brocq). Experiments on dogs in which arteries have been blocked by inert powder injected into the arteries have failed to produce the lesions of pancreatic necrosis.

2. The infective theory, strongly upheld by Deaver and Mangeret, and lately supported by Gilman, Judd, and Mann, of infection spreading by way of the lymphatics from the gall bladder to the head of the pancreas, to what Deaver terms the triangle of infection.

Against this theory it may be said that in the vast majority of instances the haemorrhagic fluid in the general abdominal cavity and in the lesser sac is sterile. Kaufmann, in a series of experiments on cats, in whom he infected the liver with staphylococci and traced the infection to the gall bladder and through the lymphatics of the common duct to the pancreatic lymph gland, found no lesions in the pancreas resembling acute necrosis.

As infections of the gall-bladder, accompanied or not by calculi, are common enough, it is difficult to see why this spread of infection and its resulting acute pancreatitis does not occur more frequently. Again, it is by no means uncommon to find posterior ulcers of the stomach perforating on to the pancreas, which in some cases actually forms the floor of the ulcer, but in a series of 340 cases of acute pancreatitis collected by Brocq in only 2 was a gastric ulcer, and in 3 a duodenal ulcer, mentioned as a possible cause of the condition, and yet one would imagine that this would furnish a ready means of conveying infection to the pancreas.

3. The theory that necrosis is caused by regurgitation of bile up the pancreatic ducts.

Since the classical work of Opie this view has been held by many, and the investigations of Brocq and Binct and of Archibald have greatly strengthened it. The pancreas is protected from self-digestion by several safeguards. The proteolytic ferment is inactive in the gland

in the state of protrypsin, and remains so normally until it encounters the enterokinase of the succus entericus in the duodenum. Of the condition of the lipase less is known, but it is known that it bile is not necessary to activate the lipolytic ferment to very greatly increase its action in splitting fats.

In experiments by Brocq and Binct it was found that when the duct of Wirsung in the dog was divided and left open in the peritoneal cavity fat necrosis did not ensue, but if at the same time the gall bladder was opened and the bile and pancreatic secretion were allowed to mix, haemorrhage and stent necrosis followed. Further, whilst the injection of normal bile into the ducts of a fasting dog had no apparent effects on the gland when injected after a full meal the typical appearances of acute haemorrhagic necrosis followed in due course. It was further found that the active agent was the glycocholate of soda, whilst the taurocholate and the pigment gave a negative result.

As regards the mechanism by which bile may gain access to the gland, there is that first described by Opie, where a small calculus was found impacted at the bile papilla, the bile duct and the duct of Wirsung thus being thrown into a common channel. A considerable number of such cases have been reported, and many more have probably escaped observation, the stone having either passed on during the course of the illness or having been dislodged in the manipulations of the necropsy. Incidentally it is worth noting that in quite a number of reports it is stated that the stones in the gall bladder were very small, this being so in 4 out of 6 of my own cases, where the stones were of such a size that they would be competent to block the opening at the bile papilla without at the same time blocking the duct of Wirsung. This can only occur in cases where the length of the ampulla is at least twice the diameter of its opening into the duodenum. Such a condition, it is said by Judd and Mann, can only occur in 9 of 200 individuals but Opie found in 100 cases at necropsy that it could take place in 30 out of 100. Even taking the former view as correct, in a comparatively rare disease 9 in 200 possible persons would not be an argument against this method of production. Spasm of the sphincter of Oddi has also been invoked as a means by which the two channels can be thrown into one. Against this it has been said that this sphincter also encircles the duct of Wirsung and so would tend to close it. As regards the low pressure of bile in the ducts, Judd and Mann found that vomiting would raise the intraductal pressure to 1,000 mm. of bile.

There are other ways by which the secretion in the ducts of the pancreas can be activated, and the normal activant is the succus entericus. In 10 of 100 individuals Opie found the duct of Santorini larger than, or equal in size to, the duct of Wirsung. The opening of this duct has no valve, violent vomiting would therefore be competent to force duodenal contents into the substance of the pancreas.

Archibald, in his experiments on cats, in which animals the duct of Wirsung joins the common duct as in man, used (1) infected bile, (2) human bile sterilized and deprived of its mucus, (3) solutions of bile salts. Spasm of the sphincter of Oddi was produced by the application of hydrochloric acid to the bile papilla after opening the duodenum, and the fluid was injected into the gall-bladder at graduated pressures. Infected bile in one instance, caused death in an hour, but whether this was due to a definite pancreatic lesion is doubtful. With the second two substances where the animals died or were killed at varying periods, he found cytotoxic necrosis of masses of secreting cells. In those animals which survived and were later killed it appeared that the necrotic foci were in process of absorption and repair by formation of fibrous tissue. He points out that it is probable that bile may enter the pancreatic ducts in some cases without doing harm, in others that focal necrosis may occur as the result of cytotoxic but without activation of the ferments and autolysis, and that many cases probably occur of mild attacks of pancreatitis which are undiagnosed and go on to the condition of chronic pancreatitis.

The conclusions he draws from these experiments are that infected bile enters the pancreatic duct owing to spasm of the sphincter of Oddi, such spasm resulting from

passage of gall-stones, a duodenal ulcer, etc., with or without increase of pressure in the biliary system, caused by vomiting.

As an inference from this he considers that the correct treatment of the condition is to decompress this system, and suggests that this may be effected by transduodenal exposure and division of the sphincter of Oddi, pointing out that cases of impacted stone in the ampulla in which this operation is performed usually do well. It is doubtful if a patient suffering from acute pancreatitis would stand such a heroic and time-consuming procedure, and if the immediate result would be more readily obtained by cholecystostomy or choledochus drainage. If, later, division of the sphincter seemed desirable, it conceivably might be done from within by an instrument on the lines of a urethrotome.

As regards his view that the retrojection of bile is due to spasm of the sphincter, it appears highly probable that this is the cause in a certain proportion of cases. The sphincter may embrace the common duct distal to the junction of the duct of Wirsung, in which case spasm would throw the ducts into a common channel. In others, fibres of the sphincter also surround the duct of Wirsung, and spasm would close both ducts and prevent the retrojection of bile (Judd⁴). Judd states that the former arrangement only holds in 4.5 per cent of bodies examined, but as Moynihan⁵ says, "Is it not possible, indeed probable, that they are present in a large proportion of those patients who suffer from acute pancreatitis?"

The tone of the sphincter is 100 mm. of water, but when thrown into spasm can resist probably 600 mm. (Judd¹¹). The maximum secretory pressure of the bile is 300 mm., but vomiting will raise the pressure in the ducts to 1,000 mm. It is known that after removal of the gall-bladder the extrahepatic ducts first dilate, and that only subsequently does the sphincter become incompetent. Is it not possible that some cases of acute pancreatitis which have followed on a cholecystectomy are due to the resulting spasm of the sphincter of Oddi and the rise of pressure in the common duct, especially in cases where there has been previous damage to the pancreas?

Among the rare causes of pancreatitis, one of some interest, and of which 50 instances have been collected from the literature, is that of the entry of an ascaris into the common duct and thence into the duct of Wirsung. The ascaris itself is not digested because it contains an antitrypsin, but it carries into the duct some of the duodenal contents. The factors of trauma and activation are here both present. An interesting picture of the worm lying in the duct of Wirsung, and the resulting pancreatic necrosis, is shown in a paper by Schmieden and Sebenius.⁶ In this same paper, based on a series of 2,137 cases of pancreatitis during the past eight years, obtained by a questionnaire addressed to 100 clinics, a list is given of 145 cases which followed on various abdominal operations. These cases consisted of acute pancreatitis, purulent pancreatitis, abscess, and fistula.

As the operative procedures that they followed are very suggestive and of importance to the surgeon, I may briefly mention some of those given by these authors. Especially to be noted is burying the duodenal stump in the pancreas, or damage to the duct of Santorini by sutures in the same procedure after gastrectomy, or in mobilizing the duodenum or resecting a duodenal ulcer, including the tail of the pancreas in the ligature of the splenic vessels in splenectomy or of the kidney pedicle in nephrectomy, pushing up a calculus impacted in the ampulla, and the retrograde passage of a sound in transduodenal choledochotomy. They also state that although a piece of pancreas may be excised with impunity in 99 per cent of cases, in the hundredth it may be followed by pancreatitis. It is interesting to note that they suggest that leakage at the suture line in gastrectomy after technically perfect suturing may be due to unrecognized injury to the pancreas and digestion of the catgut. In a case of gall-stones with cholangitis in which I washed out the duct with saline, although at operation there was no trace of pancreatitis the patient died two or three days later, and at necropsy a purulent pancreatitis was found.

That pancreatitis may arise from a chemical substance in the blood stream is shown by a fatal case after cholecystography, although another explanation is that the bile containing the concentrated dye reached the pancreas by way of the ducts.¹²

DIAGNOSIS

Regarding the pre-operative diagnosis, that this appears to have been correct in a restricted number of cases is due, in the words of Korte, to two reasons: first, that one does not always bear in mind that a sick person possesses a pancreas, although lesions of the gland are more common than is generally supposed, secondly, its symptoms are easily confounded with other more common acute abdominal conditions, acute intestinal obstruction, and the various conditions of the gall-bladder which so often precede or accompany the attack of pancreatitis. But I think it is rather that the idea of pancreatitis is so associated with the fulminating variety, the symptoms of which are well known and where the failure to diagnose is less likely to occur. It is in the "formes frustes" of pancreatic necrosis that the real difficulty arises.

During the past two years I have had six cases of pancreatic necrosis under my observation. Two of these I may briefly refer to as illustrating this difficulty.

One an unmarried woman, aged 32 was brought to hospital as an emergency case and was sent home. She was admitted a week later on my receiving day. I then saw her, diagnosed gall stones, and she was put on the list for my next operating day, as her condition appeared in no wise urgent. When the abdomen was opened a gangrenous gall bladder was found with two families of gall-stones, one moderately large, one very small. There was extensive fat necrosis in the omentum and mesentery. The gall bladder was removed and the abdomen drained. Three days later a large abscess formed and was opened up. At necropsy a week later the pancreas was found almost totally necrotic.

The following case illustrates the fact that the condition may be missed at operation.

A man, aged 55, who had had an attack of biliary colic a year previously, was suddenly seized with severe abdominal pain and became jaundiced. When the abdomen was opened the gall bladder full of stones was found to be perforated, the perforation being sealed off by omentum. There was some blood in the upper abdomen which was thought to have come from a vessel in the omentum. There was no fat necrosis and the pancreas was not exposed. The gall bladder was removed. A few days later the wound opened up and an abscess burst the entire pancreas forming a black slough lying in the abscess cavity.

These and other cases have made me feel that the current teaching that acute conditions of the gall bladder, empyema, etc., should be allowed to settle down and be operated on *à froid* is entirely wrong. In my opinion they are almost equally urgent with the acute appendix. Further, that where there is the slightest suspicion of the condition of the pancreas, it should be exposed to direct vision through the gastrocolic omentum.

Regarding laboratory methods of diagnosis, these are seldom available, the diastatic index, obtaining pancreatic secretion by the duodenal tube, and the estimation of blood sugar might be carried out in the less acute cases, while Loewi's test is readily performed, and if positive might help to confirm the diagnosis, although in one case it misled me.

A woman, aged 70 was admitted as a case of acute abdomen with an indefinite previous history. She had a sudden attack of generalized abdominal pain, moderate rigidity, and tenderness most marked in the epigastrium and left costo-vertebral angle. Adrenaline in the right conjunctiva gave a most marked dilation of the pupil. The abdomen was full of sero-purulent fluid, which was found at the necropsy to be due to peritonitis following on carcinoma of the bladder.

TREATMENT

In respect to treatment, the case records of various clinics differ. In some cases abdominal drainage of the region of the pancreas only, in others incision of the gland, ganze tamponage, and drainage, have given good results. In others, drainage of the biliary tract through the gall bladder or common duct is added, and it is difficult to see which has given the best results.

It appears certain that under no conditions should the gall-bladder be removed, and I should say that even a gangrenous gall bladder should be simply drained.

Two drugs, aspirin and hexamine, are secreted by the pancreas, and their administration theoretically might be

supposed to have some action in disinfecting the gland, and could at least do no harm.

Ohno and Schonback have immunized animals to trypsin, and have suggested immunization by an antitryptic serum, but I do not know if this has ever been carried out on human beings. The administration of nitrogen might be worth a trial on account of its inhibiting action on pancreatic secretion.

It is not impossible that some of the milder cases of this condition recover without operation, since pancreatic cysts may take their origin in a limited necrosis of the gland and escape of small quantities of secretion.

The indications as regards operative treatment are, in my opinion, to expose the pancreas through the gastrocolic omentum, to incise the peritoneum over it, and to place rubber drains to the swollen area and gauge tampons around to wall off the peritoneum and prevent the diffusion of the escaping secretion. It appears that more harm than good may be done by incising the pancreas itself, which might divide ducts and set free more ferments. If the gall-bladder was distended I should do a cholecystotomy, and if the common bile duct appeared distended I would drain this. Neither of these procedures should take much time or involve much disturbance of the parts or increase the shock. The result would then depend on the extent of the original damage to the pancreas.

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THE CONTROL OF SMALL-POX.

BY

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The manifestations of small pox in recent years have been characterized by (1) a very marked decrease in incidence, and (2) an almost universal decrease of the case mortality rate.

The case mortality rate has decreased partly through (a) the spread of alastrim, or a very mild type of small-pox, which seems quite unaffected by the trend of the ordinary small-pox, and partly through (b) a more favourable course of ordinary small-pox cases in many countries. It must be added that important outbreaks of severe small-pox have not ceased to occur, a fact of which we are reminded by the Rio de Janeiro outbreak in 1926, and that of Algeria in 1926-27.

In regard to the decrease of incidence in Europe it should be emphasized that this is not the first time it has fallen to a very low level, and also that the decrease is not universal. Though there were only 652 small-pox cases in Europe in 1927, outside the United Kingdom, the Iberian Peninsula, and Russia, 280,000 cases were notified that year in the whole world. If we add China and parts of Africa and South America, where cases are not reported, the total number of cases must certainly have largely exceeded 300,000. In India alone small-pox causes 50,000 deaths in an average year.

It must be borne in mind that small-pox is of a more truly epidemic character, in its year-to-year movements, than most other diseases. It attains a high incidence for some years, and falls then to a very low level. It is only

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in India that small-pox appears to be endemic at a constant level, but the size of the country accounts for this seemingly paradoxical phenomenon.

Even in the twentieth century very marked fluctuations in the incidence have been noted. A first epidemic wave occurred during the years 1901 to 1903. In England, London and the neighbouring counties were chiefly affected in 1901 and 1902, Lancashire and the northern counties, in which the mild small-pox was later to become prevalent, were affected during the following two years. Small-pox caused more than 4,000 deaths in England in these four years, when the classical type of the disease prevailed.

In other European countries it was no better, in Belgium there were 2,938 deaths from small-pox during the three years 1902 to 1904, with a maximum in 1903, in French towns of over 5,000 inhabitants, 4,903 deaths from small-pox were reported in 1902 and 1903. In Italy small-pox was epidemic from 1901 to 1904, during which years it accounted for 14,951 deaths.

Further east in Europe the wave had come a few years earlier, in Austria and Hungary its maximum occurred between 1897 and 1899, in Rumania in 1896 and 1897, and in Russia in 1898 and 1899.

Although a high endemic level persisted in Russia, Spain, Italy, and, probably, in the Balkans, with the exception of Rumania (maximum in 1906, 1909, and 1913), there were no further serious outbreaks in England and in northern and central Europe until 1920. In Italy there were new outbreaks in 1911 and 1912, 8,164 deaths having been attributed to small-pox.

Small-pox of severe type was widespread from 1901 to 1903 also in the United States, 3,578 deaths were reported during those three years in the registration area, which then only included about one-third of the country. The incidence fell subsequently, and from 1906 to 1909 it was as low as, or lower than, it had ever been.

Small-pox was widely prevalent in Japan in 1892, 1893, and in 1897—the same years as there were extensive epidemics in eastern Europe. During the first-mentioned two years 22,261 deaths were ascribed to small-pox, and in 1897, 12,276. Its incidence subsequently fell, and in each of the years between 1900 and 1903 only from four to seven deaths from small-pox were reported, indicating a much more favourable situation than in any of the years subsequent to 1915. There was a new epidemic in 1908, which caused 5,838 deaths. The incidence of small-pox increased again in 1917, and, although it has decreased considerably in recent years, there were still 92 deaths from small-pox in 1927.

We have to wait for the years of the war to witness a renewed increase of small-pox in southern, eastern, and central Europe. In the United Kingdom, the Netherlands, France, and northern Europe there was no increase, in Germany it was moderate, 448 deaths being ascribed to small-pox in 1917, and 704 in 1919. In Austria (pre-war territory) there were, on the other hand, about 50,000 cases in 1915 and 1916.

In Italy the incidence was low during the war, and reached a minimum with only 16 deaths in 1916, but in 1919 and 1920 there were severe epidemics causing 27,417 deaths. It is interesting to note that this epidemic occurred almost exclusively in southern Italy, which was the case also with the outbreak of 1901 to 1904. The provinces particularly visited on both occasions were Apulia with Basilicata, Campania, and Sicily.

The crest of this wave of small-pox which affected mostly eastern, southern, and central Europe, was in most countries reached in 1919. The incidence was still very high in 1920, but after that there was a general decrease, which has continued ever since. In certain countries the fall has been quite exceptional. Thus, in Rumania, where there were 20,523 cases in 1919, only 2 cases were reported in 1927. In Italy there were 34,363 cases in 1919, and only 69 in 1927. The number of cases reported in the Ukraine decreased from 34,730 in 1920 to 189 in 1927.

In 1927 fifteen European countries were altogether free from small-pox, while seven reported less than five cases each, in only eight countries were more than five cases reported. Exceptions to this general decrease have been extremely few. Besides England and Wales, where a mild form of small-pox began to spread in 1922, and Switzerland, where a similar mild type of small-pox was prevalent from

1921 to 1926 but has now entirely disappeared, only the returns for Franco show no decrease

In France the number of small-pox cases fluctuated during the last nine years between a minimum of 172 in 1922 and a maximum of 572 in 1919, with 554 in 1926. It may be added that, in contrast to England and Switzerland, the severe type is prevalent here. The incidence of small-pox in France decreased markedly, however, during the early months of 1928. For Portugal returns are not available until the second half of 1927, when 1,169 cases were reported, with 140 deaths. This, however, is considerably less than in the years immediately after the war, in 1919 small-pox caused 8,864 deaths.

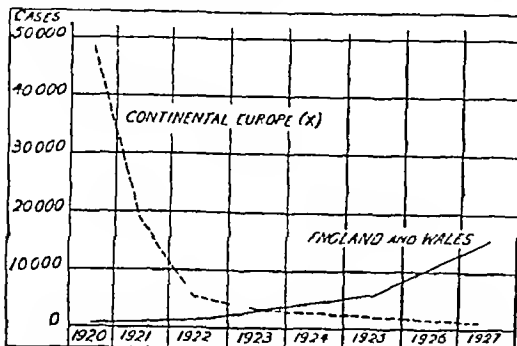


Fig 1—Small pox cases reported in Europe, 1920-27. (x) Without Greece, Portugal, Spain, Switzerland and U.S.S.R.

The numbers of small-pox cases reported in European countries between 1919 and 1927 are shown in the accompanying graph (see Fig 1). It is noteworthy that the cases, if exception be made of the epidemic of mild small-pox in northern England and that of classical type in Algeria, have occurred entirely sporadically. An investigation of these cases, carried out at the request of the Health Organization of the League of Nations by the sanitary administrations of the various countries, has proved that, with the exception of France, where at least a part of the infection seems to be traced back to Algeria, no connexion between the various cases has generally been apparent. This is particularly noteworthy in regard to the few cases that have occurred in central Europe and the Balkans.

The case mortality of small-pox varies greatly, not only from one country to another, but also from year to year.

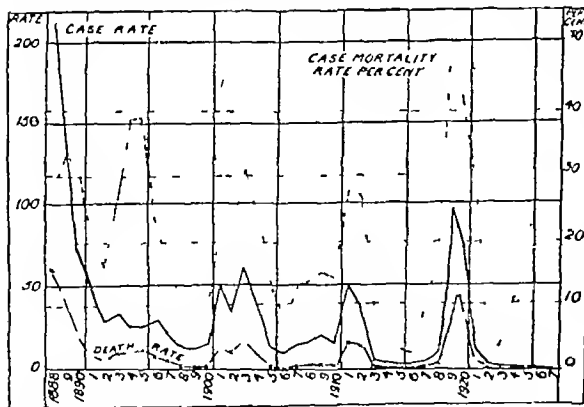


Fig 2—Small pox case rate and death rate per 100,000 in habitants and case mortality rate per cent. in Italy, 1888-1927.

Italian statistics are very instructive in this regard. Reports, which are undoubtedly reasonably complete, are available both in regard to cases and deaths since 1888, and the number of cases and deaths have in every year been sufficiently high to establish a significant case mortality rate.

It is seen from these returns that the case mortality rate has moved in waves, generally corresponding to those described by the incidence, but even more regular in character. The accompanying diagram (Fig 2) shows, for

example, that the maxima of case mortality occurred in Italy in 1889, 1893 to 1894, 1903, 1911 to 1912, and 1919, the movement of this rate was entirely regular during the intervening years, the minima being reached in 1892, 1899, 1906, 1915 to 1916, and 1923. It would seem that a cycle of seven or eight years existed in the height of the case mortality rate.

The minima have gradually become lower, that of 1892 being 15.8 per cent, that of 1899, 7.2 per cent, that of 1906, 6.8 per cent, that of 1916, 2.5 per cent, and that of 1923, 3.2 per cent. The maxima were 33.8 per cent in 1889, 38.5 per cent in 1895, 31 per cent in 1903, 25.3 per cent in 1912, 47.7 per cent in 1919, and 41.7 per cent in 1920.

Two explanations of this phenomenon are possible: (1) the fluctuation in the degree of severity of classical small-pox, and (2) that classical small-pox might tend to disappear in certain periods, and be replaced by the milder forms. The second explanation is unlikely, however, so far as Italy is concerned, as the minima of the case mortality rate have mostly been reached in years when small-pox is relatively rare. There is no reason to believe that changes in vaccinal conditions could produce such periodical changes in the case mortality rate. Statistics of deaths are not, as yet, available for 1926 and 1927, but a special report prepared by the Italian Health Service states that the type of small-pox prevailing during these two last years has not been very severe, and the fatal cases have been rare.

Japanese statistics for the years 1881 to 1927 also show marked fluctuations of the case mortality rate. These

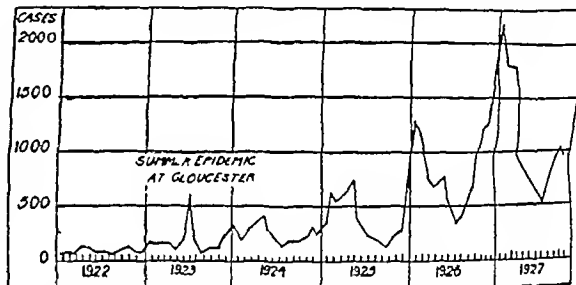


Fig 3—Small pox cases reported in England and Wales, by four weekly periods, 1922-27.

fluctuations have been less regular than those observed in Italy, but this may partly be due to the fact that the number of cases in Japan during several periods, notably from 1900 to 1906, and from 1909 to 1916, has been very low, and chance fluctuations of the rate have to be taken into account. Clearly defined maxima, however, have occurred in connexion with the epidemic outbreaks of 1886, 1893, 1897, and 1908. On the latter two occasions an increase of the case mortality rate to a maximum occurred in a year preceding the epidemic. The case mortality rate fell markedly from 1919 to 1926, but in 1927 it increased again, and it is obvious that the average rate is not lower now than it was forty or fifty years ago. It is evident that the fall of the case mortality rate which occurred after 1920 in England and Wales is not of the same nature as the fluctuations which we have just shown for Italy and Japan.

The case mortality rate was 11.4 in 1920 in England and Wales, it fell during the following year to 1.6, and to 2.8 in 1922, after which it decreased to 0.3, it has remained between 0.2 and 0.3 ever since. The figure of 2.8 for 1922 is really misleading. It is due to an outbreak of classical small-pox in the London area, comprising 78 cases with 24 deaths, giving a case mortality rate of 31 per cent. There were thus in the remainder of the country 895 cases with only three deaths, giving the case mortality rate of 0.3 as in the following years.

The mild type of small-pox is said to have made its appearance in England in 1919. It was evidently not until a few years later that it entirely overshadowed the isolated outbreaks of classical type and it is clear that from that moment the case mortality rate fluctuated around a level different from that of former times. (See Fig 3)

The statistics for the United States Registration Area for deaths show that the fall in the case mortality rate preceded that of England. While, up to the end of the nineteenth century, the case mortality is known to have been about 20 per cent in the States belonging at the time to the registration area, it had already fallen to between 3 and 4 per cent during the first five years of the twentieth century. A sudden and decisive fall below 1 per cent was recorded in 1906, and it has remained at this level with a few sharp variations. When the case mortality rate rose above 1 per cent in 1910, 1922, 1924, 1925 and 1926, it was due to fairly isolated outbreaks of small pox of severe type, believed to have been imported from Mexico. The outbreaks in Detroit in 1924, in Minneapolis in 1925, and in Los Angeles in 1926 were of this type, and operated much in the manner of the 1822 London outbreak in swelling the general rate for the country as a whole.

In continental Europe the case mortality rate appears to have fluctuated on the level typical for classical small-pox, with the exception of Switzerland, where the mild type of the disease between 1921 and 1925 gave a figure of 0.2 per thousand cases, similar to that for England and Wales.

In Germany the rate varied between 12 per cent and 16 per cent during the years 1919 to 1922, when the disease was fairly widespread. From 1923 to 1927 only 68 cases were reported in Germany with 26 deaths, a rate of 39 per cent. For France the figures were between 28 and 29 per cent from 1919 to 1921, and 24.8 per cent in 1925. Statistics of deaths for the years 1922 to 1924 have not yet been published. In Portugal the figure was 12 per cent during the second half of 1927, although it had been considerably higher in previous years, in 1925 it was 34 per cent in Lisbon and Oporto. In Rumania the figure stood at 28.4 per cent during the severe epidemic of 1919, it decreased gradually as the incidence became lower, and was 12.4 in 1923. It has not fallen appreciably since, 5 deaths having been reported for the 46 cases notified during the last four years. In the kingdom of the Serbs, Croats, and Slovenes the figure was between 22.6 and 22.8 during the years 1920 to 1922, 19.1 in 1923, and 18.4 in 1924. No further increase has occurred, 5 deaths having been reported with the 21 cases notified in these last three years. The type of small pox prevailing in Greece is said to have become milder than formerly, 2,101 cases with 683 deaths were reported in 1923, giving a case mortality rate of 32 per cent. In 1927 there were 22 cases, with 3 deaths, reported as small pox, and 93 cases, without any deaths, reported as varioloid.

The figure in extra-European countries falls generally between 10 per cent and 30 per cent. In India it was between 24 per cent and 25 per cent in relation to the reported cases in 1926 and 1927. In Korea it was between 23 and 24 per cent during the same years.

Interesting fluctuations have occurred in Java, where the figure decreased from 25 per cent in 1912 to 12.1 per cent in 1917, rose again to 26 per cent in 1918, and gradually decreased to 12.3 per cent in 1923, to rise once more to 21.8 per cent in 1924. There has since been a decrease and it was only 2.7 per cent in 1927—an exceptionally low figure for a tropical country.

The reported rate in Egypt has usually fluctuated between 20 and 30 per cent, and has become lower during recent years, as it was 14.2 per cent in 1927. Statistics for various African colonies such as the Gold Coast, Nigeria and northern Rhodesia, show that small-pox epidemics with a fairly low case mortality rate (2 to 10 per cent) are not rare. There are, however, occasionally epidemics of a much more severe type having a case mortality rate of 30 per cent or more. For the southern part of Africa the rate is certainly influenced by Kafir-pox, which is distinctly of the benign type.

The general impression gained as to the case mortality rate actually obtaining in the various parts of the world is that two entirely distinct types prevail: (1) the classical type the rate of which is fluctuating in long waves generally between 10 per cent and 30 per cent, and (2) the mild type, with figures between 0.1 per cent and 0.3 per cent. The periods of minima presented by the classical

type do not appear, in any way, to be intermediate between that and the mild type.

Small-pox deaths have been too rare in recent years in most European countries to establish reliable death rates by age. Italian statistics for 1918 to 1921 show very marked excess in the female death rate at ages between 20 and 44 (see Fig. 4), the low incidence among males at this age may be explained by vaccinations during military service. At ages under 15 the difference in rate between boys and girls was very slight, at ages over 55 there was

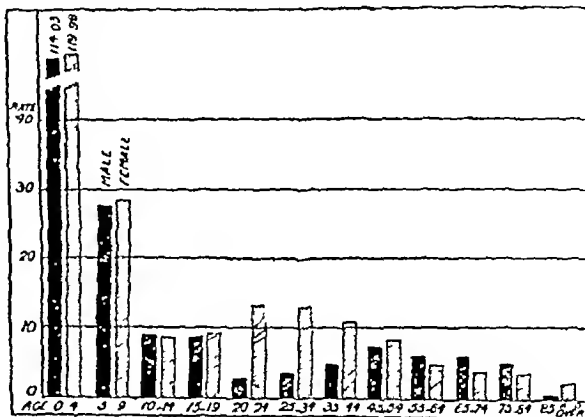


FIG. 4.—Small pox death rate by sex per 100,000 population in Italy, 1918-21.

an excess of male mortality. These figures correspond to the rates for 1901 to 1905 except that the excess of female mortality as shown in 1918 to 1921 was not noticeable.

The age distribution of small pox deaths is greatly influenced by the racial condition obtaining in a given country, and it is difficult to determine whether fluctuations due to any other cause occur.

The seasonal distribution of mild small pox does not appear to differ materially from that of the severe type. Both have usually their maximum in winter or early spring, although one or two notable recent exceptions are on record.

THE SERUM CALCIUM IN EXPERIMENTAL TUBERCULOSIS*

BY

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TUBERCULOSIS has long been recognized to be associated with changes in calcium metabolism. For example a close relationship exists between arrest and calcification of lesions, and, apart from this, tuberculous tissues often contain many times the normal amount of calcium. Earlier observers held that a "demineralization" occurred during the disease, due to increased excretion of mineral elements. This has since been disproved repeatedly, and, so far as calcium is concerned, there is no sound evidence of any decreased retention during tuberculous infections, except possibly in the terminal stages.

During recent years reliable methods for estimating the serum calcium have been found, and a number of investigations in clinical tuberculosis have been published. Several workers found no changes,¹ but the balance of evidence shows that in active phthisis the serum calcium is lowered, and in arrested disease is raised on the average. No attempts have been made to explain the cause of these results whether the fall is associated solely with the tuberculous infection or is due in part to superimposed secondary infection remains doubtful. Some evidence strongly suggests that secondary and septic infections lower the serum calcium,² and I propose to offer further proof of this. Clinical observations on phthisis

* Read in the Section of Tuberculosis of the Annual Meeting of the British Medical Association, Cardiff, 1928.

cannot exclude the influence of secondary infections nor the effect of such infections on the tuberculous lesion, but this difficulty does not obtain in experimental animals.

The present paper deals with the changes in the serum calcium level found in rabbits during experimental bovine tuberculosis, using intraperitoneal and subcutaneous inoculations. In all experiments serum cultures fourteen days old were used for inoculation, and the dose given was estimated by the method used by Griffith in his work for the Royal Commission.⁴ Clark and Collip's modification⁵

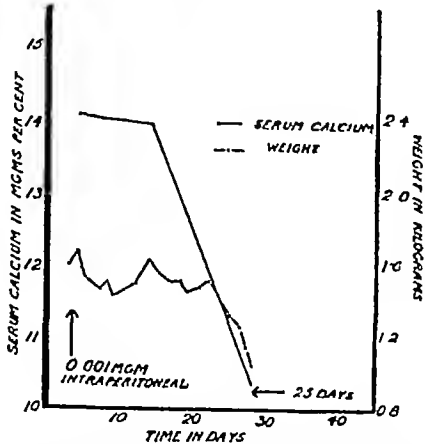


FIG. 1.—The serum calcium and weight curves during experimental bovine tuberculosis in the rabbit (Rabbit 78). Intraperitoneal inoculation of 0.001 mg. bovine tubercle bacilli.

of the Kramer-Tisdall method⁶ was used for the analyses. The normal physiological range of the serum calcium in individual animals is about ± 5 per cent over a period of a few weeks.⁷ Taken over a longer time than this the range is greater, about ± 10 per cent, due to a seasonal factor.⁸

Intraperitoneal Inoculation

The rabbit has a low resistance to bovine tuberculosis. With intraperitoneal inoculations the disease becomes generalized, consisting of widespread miliary or submiliary lesions which show a varying extent of caseation. The animal dies in from a few days to a month or two, depending upon the dose of organisms and the individual susceptibility of the animal. The infection remains throughout a pure tuberculous infection. If the animal dies in less than thirty days, the serum calcium only falls in about a third of the experiments. Where no fall occurs the lesions show relatively little caseation, and in every case where the fall is considerable caseation is striking. Rabbit 78 (Fig. 1) shows this, and also the close correspondence between the serum calcium and weight curves. The normal serum calcium was 13.95 mg. per cent. Four days after inoculation of 0.001 mg. of bovine tubercle bacilli it remained steady at 13.99 mg., on the eleventh day it was 13.66 mg., on the eighteenth day 12.12 mg., and on the twenty-fifth day 10.35 mg. per cent. The animal was then killed and *post-mortem* examination showed generalized miliary disease, confluent in places, throughout the peritoneum. Both lungs were packed with caseating tubercles (tubercle bacilli +). Such experiments suggest that a determining factor in producing the fall in serum calcium is the degree of caseation in the lesion. It was mentioned above that caseous tissue has a high calcium content.⁹ Whether the drain upon the circulating calcium by progressive storage in the lesions is responsible for the fall in serum calcium remains to be decided.

When the animal survives longer, the course of the infection can be divided into three stages, according to the changes in the serum calcium. During the first three weeks of the disease it usually rises about 10 per cent, with a subsequent fall to a level of some 10 per cent below the pre-inoculation values. The total range during this time is thus some 20 per cent, or about twice the average variation in normal animals. During the fourth week a very constant rise in the serum calcium occurs of 10 to 20 per cent. Later, until the death of the animal,

there is usually a progressive fall, and very low values, such as 7 to 8 mg. per cent, may be found in the last week or so. No evidence for the cause of these changes can be offered at present. The fall in the third stage, however, may be due to progressive withdrawal of calcium to the lesions during caseation.

Subcutaneous Inoculation

With subcutaneous inoculation the disease is more chronic than with intraperitoneal. During the first three weeks a caseous lesion forms at the site of inoculation and the regional lymphatic glands become palpable. If the inoculation is superficial the local lesion ulcerates, leaving a discharging ulcer with undetermined edges and caseous floor. With the secondary infection the regional glands enlarge rapidly. Later, about the eighth to tenth week, the ulcer improves, and may almost heal before the animal dies from the generalized disease. Lesions in the lungs may be established as early as the third week after inoculation, and later are so extensive that normal lung tissue hardly exists.

It has been found that the serum calcium shows definite changes corresponding to these stages in the progress of the disease. These are shown diagrammatically in Fig. 2. While the local lesion is forming, but before it ulcerates, the serum calcium invariably rises to the upper limit of the physiological range, and in about half the cases exceeds this by 15 per cent. During this time there are no lesions in other organs of any significance. This shows that so long as a tuberculous infection remains purely local the serum calcium is well maintained, and if anything is rather above normal. Whether this rise is "compensatory" in response to the demand for calcium by the caseating local focus is not known.

Immediately the local lesion ulcerates the serum calcium begins to fall, and this continues until the ulcer shows improvement. The extent of the drop varies in individual animals from 16 to 37 per cent. In one experiment the low value of 9.3 mg. per cent was found. The fall is associated with, and probably due to, the presence of secondary infection. If the inoculation is given deeply

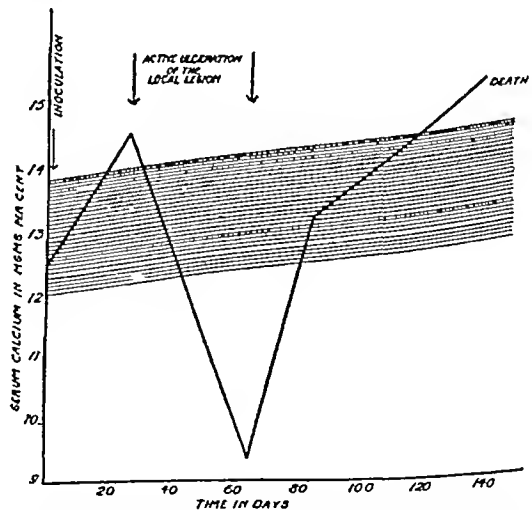


FIG. 2.—Diagram of the typical changes in the serum calcium of the rabbit following subcutaneous inoculation of bovine tubercle bacilli (black line). The shaded area represents the normal range and rises slightly owing to the influence of the seasonal factor at the time the experiments were performed.

and no ulceration of the local lesion occurs this fall is absent. Moreover, septic infections in normal rabbits—for example, on the ears—result in a comparable drop in the serum calcium. How secondary infection produces this fall is not known. It appears unlikely that it is due to loss of calcium in the discharge, as there is evidence to show that septic infections in which there is no discharge are associated with a similar fall in the serum calcium.¹⁰ Conceivably it might be due to endocrine dysfunction, but no evidence is available at present to substantiate this.

After about the tenth week, when the ulcer improves, the serum calcium returns to normal, usually in about three weeks. If the animals survive much longer, during the remaining weeks it continues normal or slightly higher. This is in striking contrast with the results obtained after intraperitoneal inoculation. In the latter experiments the pulmonary lesions were mainly sublobular in character. With subcutaneous inoculation they were always much more extensive, and the weight of the lungs, generally, was over 80 grams (normal 8 grams). They consisted entirely of solid caseous masses, and such extensive disease must inevitably interfere mechanically with pulmonary gas exchange, and give rise to alterations in the acid-base balance. Evidence exists to suggest that necrosis results in an increase in the serum calcium.¹¹ How far this may be operative during the later stages of my experiments, and thus mask the fall that might be expected, remains for further investigation.

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THE MODERN TREATMENT OF VARICOSE VEINS

THE HISTORY OF ITS EVOLUTION.

BY

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THE passing of the operative treatment of varicose veins may be regarded as a merciful release for the surgeon, but a tribute is due to those who made the modern operative treatment eminently effective in male, and on the whole fairly effective in female, subjects, and so led directly to the success of the injection treatment.

Briquet¹ in his famous thesis of 1824, showed that varices were most common where the deep veins communicate with the superficial, and many French surgeons at the time confirmed this fact. Callender,² in addition demonstrated that the united capacity of the communicating vessels was relatively very large. Verneui³ from twenty-one dissections concluded: (1) That whenever spontaneous superficial varices existed in the lower limb the corresponding deep veins (intra- or inter-muscular) were also varicose. (2) That the correlative position was not proved. (3) That phlebectasis in the lower limbs began in the deep veins in general. These vessels first dilated, the valves then became inefficient and the lesions extended to the second and third rank of subcutaneous veins. (4) That phlebectasis never began in the trunk of the internal saphenous, but in its secondary and anastomosing branches. (5) That deep varices were more common than subcutaneous varices. Specimens illustrating these points are found in the Musée Dupuytren. Gay,⁴ in an exhaustive review of the whole subject showed that ulceration was not a direct consequence of varicosity alone, but of incompetence of the circulation as a whole. He noticed that in many cases the blood disappeared from the veins of the leg, but not from those of the thigh on elevating the limb. From his injection experiments on the cadaver he concluded that tegumentary (veno-capillary) injection denoted obstruction of the femoral

vein, and began round the patella, while subtegmentary (venous) injection denoted obstruction of the sphenous. The intramuscular veins were not found to be injected in the experiments, and appeared to be difficult to inject.

THE PHYSIOLOGY OF TREATMENT

Trendelenburg's Sign

Sir Benjamin Brodie,⁵ at least fifty-four years before Trendelenburg's⁶ publication, gave a lucid description of the patient with Trendelenburg's sign. He said:

If the veins are but little dilated or dilated only in particular places the valves will still continue to answer the purpose for which they were designed. If the vena saphena be not at all dilated, while the smaller veins of the leg are dilated the valves of the vena saphena not perfectly and take off the weight of the column of blood pressing on the veins below. But if the vena saphena be itself considerably dilated, its valves of course are rendered inefficient. Now observe the result of this. I had a patient in whom there was an unusually large cluster of varicose veins on the inside of the leg while the vena saphena major was of enormous diameter so that the valves were evidently good for nothing. If I put on a bandage and squeezed the blood out of the veins below, and then put my thumb on the vena saphena above, so as to stop the circulation through it I found on taking off the bandage, the patient being in the erect posture that the cluster of veins below filled very slowly and only from the capillary vessels. But if the patient being in the erect posture I removed the pressure from the vein the valves being of no use the blood rushed downwards by its own weight contrary to the course of the circulation and filled the varicose cluster below almost instantaneously.

Jennel,⁷ in his masterly summarizing of the whole of this part of the subject in 1910, stated that no one clearly comprehended the importance of valvular insufficiency or its consequences and operative indications until the publications of Sobolev (1889)⁸ and Trendelenburg (1890)⁹ which gave us the conceptions of the passive or superficial reflux (abdominal or superior of Delore),¹⁰ and of the active or deep reflux (inferior or muscular) from the deep veins of the leg towards the superficial veins. V. Meisen¹¹ finds the venous pressure in the valveless saphena to range from 25 cm. of water in the thigh to 80 cm. in the leg just below the knee, and to be increased by static muscular action.

THE MODERN OPERATION

Coming as it did at the time when complete sphenectomy was being made easy by the new anæsthetic methods, Jennel's summary was helpful to surgeons everywhere. Keller¹² in 1905 published the first inside-out extraction method, and Mayo¹³ in 1906 the enucleation method. Birkbeck¹⁴ in 1907 introduced an important modification by means of which the vein is not turned inside out, but is removed in a bunched-up state on one end of the wire. This method, with certain modifications by Sir Henry Gray¹⁵ in 1909, being more certain than inside-out avulsion became the operation of choice in the great majority of cases. O'Sullivan¹⁶ and Mannuram¹⁷ were early advocates of the method in England. Combined with ligation and ligature of the remote ends of the tributaries especially at their junction with the deep veins and with the external saphena system, the whole of the internal saphena system is put out of action with ease and rapidity, thus greatly simplifying and shortening what is otherwise a very tedious procedure, and one involving absurdly long incisions. The trunk of the internal saphena is seldom very tortuous, whereas the tributaries are so that the efficiency of the method is very great, and the results, in males at any rate, are distinctly good. Thus for example, out of 22 cases¹⁸ operated on in the Aberdeen Royal Infirmary by this method since the war, and in which it has been possible to trace the patients, the results are as follows. In 9 male cases traced up to six years after operation, 6 results are very good and 3 are good whereas in 13 female cases traced up to four years, only 3 results are very good 6 good, and 4 moderate or bad, 7 of the female patients have since had further treatment by injection. The differences in the results seem to be due to three chief factors: (1) Pregnancy and the harder forms of work in the female. (2) The greater degree of fatness, so that the tributaries are not well seen before operation. (3) Postponement of operation. (The question of hyperthyroidism

* A post-graduate lecture delivered at Aberdeen University during the summer term 1928.

For some of this material I am indebted to Professor Sir John Macninch K.C.V.O. under whose care the patients were treated when I was his assistant surgeon.

is omitted here) One of the chief factors in this type of operation is its early performance before the superficial reflux has caused extensive disease in the smaller veins. Thus the soldier patient comes under treatment early as a rule. In five such patients traced thirteen years after operation it is apparent that a good result at the five-year period is likely to be permanent. On the whole, the trial of the method which was begun in August, 1914, has fully justified the work of the older surgeons. In the 94 consecutive cases, representing 149 limbs and involving the extraction of about 112 yards of vein, there has been no mortality, no pulmonary embolism, no infection, and little suppuration, but a fatal case of embolism is recalled before 1914, in which a venous cyst in the groin was excised in a female patient who had been in bed for a fortnight after an operation for femoral hernia on the opposite side. Both wounds had healed by first intention. There was no *post-mortem* examination. It is very remarkable that embolism is so rare in an operation in which large numbers of deep communicating venous channels are broken across and left open. Before 1914, also, one case of extensive varix in a male treated by Balcock's method and local excision turned out a complete and absolute failure, due apparently to a duplication of the internal saphena and perhaps other veins. Many authors mention this duplication, but we do not know the frequency of its occurrence or whether it has any bearing on the causation of varicose veins. It has been present at least three times in the last 37 cases operated upon.

TREATMENT BY INTRAVENOUS INJECTION

The injection treatment* may be said to date from the invention of the Pravaz syringe in 1851.²⁰ Septic phlebitis, sloughing, septicæmia, and embolism frequently followed the earlier injections of iron perchloride. Socquet in 1854 discovered the iodotannic solution, which Desgranges²¹ and Barrier adopted, and reported six successful cases without accident. Large hard clots formed in twenty-four hours with considerable pain, and took several months to disappear. The patients had to lie up, and relapse sometimes occurred owing to the clot dissolving in the alkaline plasma. In 1876 began the era of perivenous injections for the cure of varicose veins and ulcer, varicocele, hæmorrhoids, and rectal prolapse by the injection of solutions of ergot, alcohol, iron perchloride, chloral, or carbolic acid, notably by English at Vienna in 1875 with 5 per cent alcohol. Trouble arose from sloughing, scarring, and recurrence, but there were many successful cases. Delcroix²² in 1894 defended the intravenous iodotannic method, and showed that its efficiency depended on the chemical endophlebitis set up with the thickening of the wall of the vein. Tavel of Bern²³ in 1904 tied the saphenous vein and injected 5 per cent carbolic acid below the ligature. Schiassi of Bologna²⁴ in 1903 similarly injected 30 to 50 c cm of 1 per cent iodine in a 1 per cent potassium iodide solution, and resected the part of the vein where the cannula had been. About this time Zirn²⁵ was trying mercurial preparations with success, 1 to 2 c cm of a 1 per cent solution of sublimate being injected into the internal saphenous vein above the knee. Borchers²⁶ in 1910 injected 300 c cm of salvarsan into a varicose vein with the patient recumbent. Three days later the vein was not to be seen, and the patient has remained well ever since. He has obtained the same effect with galyol, kharsivan, neo-kharsivan, and novarsenobillon. Scharff²⁷ in 1912 used weak perchloride solutions. Hanschell²⁸ noticed the cure of a varicose vein in 1913, after the injection of 10 grains of quinine in 10 c cm of water. There was thrombosis and periphlebitis, he noticed the same effects with salvarsan. In 1916-17 Professor Sicard²⁹ observed obliteration of the veins following numerous intravenous injections of luargol in which there was free soda, and in March, 1918, began to inject varices with neutral sodium carbonate in doses of from 5 c cm of 5 per cent solution to 15 c cm of 15 per cent solution, publishing his results in 1920. On account of the scarring which may follow escape of the soda into the subcutaneous tissues, a solution of sodium salicylate in strengths of 20 to 40 per cent was later adopted.

* Bazelin³⁰ in his thesis gives an admirable summary of the whole of this subject up to 1924.

Genévrier and Cibrion³¹ employed a 13 per cent solution of neutral quinaao hydrochloride with 6 per cent urethane as an analgesic. Other solutions tried with success are sodium citrate 100 per cent, sodium chloride 20 per cent (Luser³²), 50 and 66 per cent grapo sugar (Nobl³³)—the last in 2,960 cases after having used sublimate 1 per cent with success in numerous others. The chief objection to the mercurial preparations is their toxicity, we must also remember that quinine sometimes produces blindness³⁴, the risk is said to be about 1 in 1,600.

CLINICAL PATHOLOGY OF THE INJECTION METHOD

There seems to be a general agreement among those who have examined the veins after injection with various solutions that for about the first hour there is no naked-eye change in the endothelium. The vein contracts, and the walls may stick together, giving a splendid result surgically. With some solutions sudden clotting occurs, resulting later in a thick fibrous cord, which takes months to disappear. Gradual thrombosis allows the excess of blood to be slowly removed, and this, surgically speaking, is greatly to be preferred. In twenty-four hours the endothelium is tumefied, and there may or may not be infiltration and peripheral clot. The clot, when formed, is always firmly adherent from the start. In one of V Meisen's cases it was not separated by strong massage, which is comparable with the degree of molecular adhesion found between an aseptic clot and a piece of dull-gilt wire inserted into an aneurysm. The clot in this case in the recent state has actually to be scraped off the wire. In forty-eight hours the vein is still contracted, the endothelium swollen and covered with fibrous deposits. In seventy-two hours the endothelium is proliferating strongly. In a week the clot is undergoing organization and the lumen of the vein is greatly narrowed. At this stage one can gauge fairly accurately the most suitable site for the next injection. In a fortnight the clot is well organized. Later it does not soften or degenerate, but becomes a firm fibrous cord. Sir Sidney Alexander³⁵ suggests that the term "chemosis of the intima" would be better than "endoventitis." The vein may die, the tissues around it may necrose. Both remain aseptic if protected from infection, the dead tissue forming a scab which separates in about six weeks and leaves a slowly healing ulcer, or healing may take place under the scab.

VARIATIONS IN THE EFFECTS

Douthwaite³⁶ states that thrombosis produced by the quinine solution does not spread rapidly, as it may do with the salicylate solution, and that the risk of persistent ulceration from faulty injection is less. Hanschell's²⁸ experience differs from this, and Hopworth³⁰ noticed phlebitis extending downwards from the site of injection. Sometimes the walls of the vein adhere at once with immediate and permanent obliteration of the channel, sometimes there is an extensive reaction in both directions from the site of puncture, sometimes no reaction occurs at all, and yet on repeating the injection a week later in the same way a marked reaction occurs. There is therefore little doubt that the chief variables—namely, the blood volume and the blood current at the site of injection—have a great effect. We know that in a horizontal varicose vein the blood may be moving slowly in either direction, or that it may be stagnant. In the vertical position, or even raised 45 degrees, the circulation is centrifugal. These facts have been confirmed radiographically.³⁷ We do not know, and apparently have no certain means of finding out, the effect at any given moment of the anastomoses close to our point of injection. Although most who practise the treatment try to empty the vein of blood after the needle is in the lumen and before making the injection, so as to bathe the endothelium with the concentrated drug, and then either let the patient lie or stand a few minutes or a pad and bandage is applied, they have no sure knowledge that the injection has not gone quickly into a deeper loop of vein or been rapidly diluted by blood from another channel. It seems to me unnecessary to blame the keeping properties of a solution when these other obvious variables are present. These variables also help to explain the excellence of the results in general, because the injection

reaches though doubtless in a less concentrated form, the smaller tributaries, and especially the anastomotic and perforating branches which join the deep veins. At that moment the dilution becomes excessive. The respiratory change noticed by Barber²² may also be intimately related to the matter. That we have not got the whole truth yet is also clear from the case recorded by Wilson²³ of the disappearance of a group of varicose veins below the knee six weeks after six punctures had been made for the withdrawal of blood. Sir William Bennett²⁴ recorded six cases of the spontaneous disappearance of large varicoeas after injury to them. Both these observations are interesting also in view of the treatment of aneurysm by scratching the inner wall of the sac with a needle, for in such cases the amount of clot formed has been minimal or nil, and no embolism has ever occurred in the absence of sepsis.

The danger of embolism in aseptic cases of varix treated by injection is evidently very small. Olson²⁵ records one in a woman, aged 33, on the fifth day after the second injection of salt solution and calurose. At the necropsy the thrombosis in the internal saphena was found to have its end broken off and pulmonary embolism was present. McPheeters²⁶ noted that two deaths had been recorded up to October, 1927, one due to fat embolism and one due to mercurial poisoning. Hohlbaum²⁷ had a fatal case in a man, aged 54, who was injected with 80 c.c. of an isotonic solution of iodine, and had been kept in bed. A Meisen²⁸ up to January, 1927, had seen two cases of pulmonary infarction, both in association with doses which he considered to be too large, and two others in patients with phlebitis. There were three sloughs in his series and one severe haemorrhage, but as 133 out of 135 ulcerated legs healed, many of the ulcers being of long clinical duration, and as eczema cleared up rapidly, the complications are hardly worth considering. Jorgensen²⁹ has seen symptoms resembling serum sickness after sodium salicylate, and others have had similar experiences, but they are rare. As an offset we have the many thousands of cases of excellent results now recorded everywhere, and apparently likely to be permanent.

Jeannel concluded his report in 1910 by insisting that it was of the first importance to determine in each case whether either the superficial or the deep reflux, or both together, were concerned. Trendelenburg's operation was indicated in the first case, and femoral or crural excision in the second. When both refluxes were concerned total saphenectomy was required. Diagnostic errors were the cause of disappointing results. As suggested in 1921,³⁰ we need a clinical plethysmographic method to give us more accurate information about the carrying capacity and general state of the deep venous circulation than do the Trendelenburg, Perthes,³¹ or other muscle pump and clastic stocking tests. This is particularly required in women and in patients with a history of deep phlebitis. The hydrostatic treatment of ulcer by Unna's paste depends upon it. In the meantime, by applying the injection treatment in the manner indicated by Jeannel's collected results, we shall attain a much larger measure of success than by operation, and at very much less risk and inconvenience to the patient.

RESULTS OF THE INJECTION TREATMENT

It is quite common now to obtain an almost complete obliteration of a valveless internal saphena system after one injection. The procedure is as follows:

The patient stands on a chair near a table and a single band tourniquet is lightly applied around the upper part of the thigh, to help to prevent the veins from emptying too rapidly during recumbency. The patient then lies down on the table and the vein is entered preferably above the knee or in the main trunk of it below the knee. The tourniquet is loosened, the vein is emptied of blood near the needle, and a finger is placed on it above the middle of the thigh 2 to 6 c.c. according to the size of the veins, of 30 per cent sodium salicylate with 10 per cent sodium chloride solution (P.D. and Co.) are injected preferably towards the groin. The limb is elevated to 30 degrees for three seconds, and then the patient rises slowly and stands on the chair. The finger is removed and the charge of solution sweeps downwards into the saphena system. This is painful for half a minute. The patient describes the pain as continuous and stinging or as cutting, lancing or cramp-like and feels it travelling down the leg to the foot. These omens are favourable. By letting the patient lie down at this stage and again elevating the limb for

a few seconds the solution may perhaps be tipped back again or kept a little longer in the saphena. Active muscular movement as once sucks the solution away and dilutes it rapidly. No bad effect has been noticed. Sometimes the solution must miss out living varicose groups because these may require separate injections a week or a fortnight later, when the effect of the first injection has become manifest. At this time also the external saphena system, or the large anastomotic vein from the external to the internal system which is often present in front below, or above or behind the knee may be injected. A week after the first injection the internal saphena system is generally hardening from the middle of the thigh to the lower third of the leg. Exceptions seem to be explicable by the well known common sites of the chief deep anastomosing channels which dilute the solution.

Taken as a whole this method has answered very well and seems to me to be better than beginning at the distal radicles and working against gravity with multiple injections. The results have been as follows:

In the first seventeen limbs sixty injections, each of seldom more than 3 c.c., were used and one small scab formed. In the next twenty limbs only forty seven injections were required of 4 to 6 c.c. seven of which were in a limb in which the excessive blood volume diluted the solution quickly. Three small scabs formed in these limbs. In nearly all the limbs the degree of varicosity was marked and there was an impulse to the ankle on coughing. Tiredness, weight fullness and cramp had been the chief symptoms.

In one limb with a vein of small blood volume an injection of 2 c.c. was sufficient to cure. In one with a large blood volume one of 6½ c.c. cured. In three limbs with large blood volumes one 5 c.c. injection cured in each case. In one case an injection of 6 c.c. cured the internal saphena and one of 3 c.c. the external. In another case an injection of 6 c.c. (and 5 c.c. for a large cyst) cured. In one instance the walls of an anastomotic vein stuck together with no sign of thrombosis after the introduction of 2½ c.c. In two cases with large blood volume injections of 5 c.c. above the knee and 5 c.c. near the ankle resulted in cure. In one case injections of 6½ c.c. and 5 c.c. cured and in another instance the introduction of 5 c.c. and 3 c.c. cured the condition. By cured is meant that the whole of the visible internal saphena system which was the one chiefly involved became thrombosed in a week or a fortnight from the middle of the thigh to near the ankle and that in five weeks there was, for practical purposes, no sign or symptom of the disease.

These results show clearly that the hydrostatic principles of Trendelenburg (Brodie) and the operative indications of Jeannel are the lines along which the injection method should be practised when using salicylate-saline solution. Whether this method is possible with smaller injections such as with the quinine solution or not remains to be settled. The larger volume of the salicylate-saline solution is certainly more manageable in this respect and is yielding the results with negligible risk and little inconvenience, results which are so much better than were possible by laborious and somewhat risky operations that operation seems to be no longer justifiable except in certain very isolated cases.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE TECHNIQUE OF INJECTIONS FOR
VARICOSE VEINS

INJECTIONS for varicose veins should not be undertaken in a haphazard manner nor by one who is unfamiliar with other intravenous injections, he should, preferably, have watched the procedure in the hands of others before attempting it himself. Should that not be possible the following description of the essentials may be of help to him.

After a complete examination of the patient, including the heart, lungs, urine and internal organs—especially the pelvis in women—the legs should be observed first in the upright and then in the recumbent position. Ask the patient to take a deep breath and look for the effects of respiration in the enlarged veins of the thigh—if they are present—and note its effect either by sight or touch with the finger applied over the vein.

Select the lowest dilated vein or swelling in it this corresponds to the site of incompetent valves. With a pledget of cotton wool dipped in tinct iodine paint the skin over the proposed site for injection and well beyond it. Remove the iodine with spirit. Disinfect the hands with soap and water, and rinse with spirit.

Use an all-glass 5 c cm syringe with a nickel needle 0.45 mm. in diameter and having a very sharp, short, bevelled point. It must be boiled before use.

To insert the needle exactly into the lumen of the vein is of primary importance. Two methods can be used—namely, the patient either stands or is lying down. The former position will be useful for small veins, which are often associated with ulcers or eczema, they cause greater pain and give rise to more symptoms than do the larger ones which are easily punctured with the patient lying down. If the patient is standing, the needle is alone inserted as soon as blood begins to drip from it he lies down. Connect the already filled syringe to it and inject the fluid while the patient is taking a deep breath (*British Medical Journal* April 7th p 594). If the vein is large insert the needle already attached to the syringe, and watch for blood to flow into the barrel, then—and then only—inject. In very large veins I sometimes put the patient in the Trendelenburg position after inserting the needle and then inject. The injections are always given towards the trunk often, however it will be seen that the vein has been blocked below the site of puncture, and not, as one might expect, above it. Three or more injections can if desired be given at the same sitting but it is well to test the reaction obtained at the first one by giving only one injection of from 2 to 5 c cm of the solution.

As the injection proceeds ask the patient repeatedly if he feels any stinging or burning if he does stop the injection at once, for either the needle has become displaced or the fluid has ruptured a dilated vas vasorum causing leakage into the surrounding perivascular tissue. Should a swelling appear over the vein during the injection, with or without pain, stop the injection at

once. This pain however, must not be mistaken for cramp, which is felt in many cases and is of good omen as regards end results, it only lasts a few minutes and passes off—the “wasp sting,” on the contrary, increases. As soon as the injection has been given wait for a full minute, then remove the needle quickly, and apply at once firm pressure over the site of puncture with a piece of cotton wool to prevent any of the blood charged with the solution from escaping into the tissues. This detail is of great importance, it is one way of preventing pain and a possible slough.

After the injection the patient should be quiet for ten to fifteen minutes while the site is dressed. The puncture is closed with a drop of newskin or collodion. Five or six inches of a 3 or 4 inch bandage is soaked in a solution of zinc oxide, glycerin, and mucilage of acacia in 2 or, and applied, folded three or four times, to the part injected. This is kept in place by a few turns of the bandage and a safety pin, and is not removed till the next visit, the object being to lessen any inflammatory reaction.

The number of injections required varies considerably in some cases one or two in others ten to twenty are necessary. The length of the vein occluded is also variable. I have seen one injection of 5 c cm, given below the knee, obliterate the whole of the great saphenous vein as far as the femoral ring. In other cases the same amount only blocked 3 or 4 cm of the vein, on an average 5 to 8 cm are dealt with by each injection.

The injection itself is painless except for the prick of the needle. Cramp is fairly frequent on the whole but gives no indication from its severity as to the amount of vein acted upon it, however, proves that the injection has been effectual. Stinging or burning should never occur if it does, withdraw the needle at once and inject 5 or more c cm of sterile water into the surrounding soft tissues in the hopes of diluting the caustic solution and preventing a blister the forerunner of a slough which, if formed takes some weeks to heal. Sloughing is the only serious complication likely to happen most often it is due to some fault in technique but at times it seems to be unavoidable even while taking the greatest care. Periphlebitis (aseptic), also endophlebitis may occur, although these are painful they are sure signs that the vein has been obliterated. The same condition can result without pain. If the reaction is acute prescribe rest for a day or so the application of heat to the part gives relief and the redness and swelling quickly disappear, especially if liberal applications of the zinc lotion are made several times daily. Some patients are liable to feel faint at the first injection though not subsequently as a rule, this does not prevent the injections being given.

I have used this technique with most gratifying results for more than three years in a considerable number of cases, employing at first a solution of pure NaCl of from 15 to 20 per cent, but latterly of 15 per cent. My reason for using this substance to the exclusion of all others is that (1) it is very effectual, (2) it can easily be prepared, (3) it can hardly be called a drug, and precludes any possible idiosyncrasy on the part of the patient, (4) if required, from 5 to 15 c cm can be given at one sitting without fear, and (5) the solution is self-sterilized. Small or large veins can be injected and cured by its use. I can see no advantage gained by using other substances, which can and have caused untoward symptoms of a more or less serious nature.

T H TREVES BARBER, M D, B Sc

“HERNIA” INTO THE BROAD LIGAMENT

ALTHOUGH there are many possibilities of strangulation of the bowel through intra-abdominal peritoneal sacs, the following record of a case to which I have found no parallel in the literature may be of general interest.

A multipara had been operated upon nine years previously for a strangulated left femoral hernia. The bowel then implicated was found to have two perforations which were infolded. A complete recovery was made and the patient regained good health. Recently she was admitted to the hospital again with abdominal pain, distension, absolute constipation, fecal vomiting and other signs of acute obstruction, but no cause for the condition could be deduced. Owing to the rather prolonged period of onset (the symptoms had been coming on for four days) it was thought that adhesions might be responsible.

An exploratory abdominal section was performed through a left paramedian incision. The major part of the small intestine was found to be greatly distended. The obstruction proved to be situated in a lower loop of the ileum, a portion of which approximating to a Richter's hernia was found to be strangulated at the neck of a peritoneal invagination into the posterior aspect of the left broad ligament. The neck of the sac was incised thus releasing the bowel which could not be withdrawn otherwise and was then sewn up. An uneventful recovery was made by the patient.

I am indebted to Mr Reid for permission to record this case.

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THE DURATION OF STAPHYLOCOCCUS AUREUS SEPTICÆMIA

The reference in the *British Medical Journal* of August 25th (p. 348) to the Bundaberg disaster is such as to make the duration of *Staphylococcus aureus* septicæmia a matter of considerable clinical interest. The Commission appointed to investigate the disaster expressed the view that forty-eight hours was the usual minimum duration of fatal staphylococcal septicæmia, whereas certain of the children at Bundaberg who were inoculated with what was to all intents and purposes a strong culture of *Staphylococcus aureus* died in twenty-four hours. Children, of course, would tend to succumb more quickly than adults, as the dose per kilogram of body weight would, *pro facto*, be relatively greater. But that *Staphylococcus aureus* can kill quickly even an adult the following instance will show.

G.D., a female patient of the East Sussex County Mental Hospital suffering from recurrent mania was noticed by one of us (W.D.) to have a boil on her neck on the evening of August 21st. On August 22nd at 2.30 a.m. she complained of pain was excited and noisy and was given a draught of paraldehyde at 5.40 a.m. She slept until 6 a.m., and then again complained of pains all over. She was found to have a temperature of 100° F. There was some coughing and the pain persisted; the latter was especially referred to as coming from under the left breast and she expectorated a little from then onwards. She was removed to the infirmary at 8 o'clock that morning. Her temperature never rose higher than 102° F. She became seriously ill and very livid in colour and the medical officer on duty was called to her at 6 a.m. on August 23rd when her temperature fell to 99°. She died two and a half hours later; the duration of illness being thirty hours.

Autopsy Features of Note

Lividity of face, lips and ears; a recent crop of medium-sized boils on the back of the neck, one of which was sloughing.

Head.—Sero-sanguinous exudate below the scalp, having a circular but larger area with a centre corresponding to the sloughing boil. Intense pink vascular congestion of the meninges. Wasting of the cerebral convolutions. No abscesses.

Thorax.—The right pleura was adherent at the apex. Sparse scattered petechiae were present over the visceral pleura. The left pleura showed similar petechiae. One superficial area of necrosis was seen a quarter of an inch in diameter. The lungs were of a deep red colour and showed here and there darker coloured patches suggesting early infarction. The pericardium showed petechiae on the visceral aspect. The heart was of the renal type, the muscle being hypertrophied and fibrotic, and the aorta showed early atheroma.

The blood was fluid.

Abdomen.—The peritoneum showed intense pink engorgement. The liver was soft and fatty and the spleen diffusely and slightly enlarged. The kidneys showed changes usually associated with chronic interstitial nephritis; the capsule stripping with difficulty, reduction of the cortex and an enlarged pelvis full of fat. Signs of fatty cortical degeneration were also noted.

Cultures taken with due cauterizing precautions from the spleen and lung showed a pure heavy growth of *Staphylococcus aureus*.

Comments

The mental patient has notoriously poor resistance and often succumbs early to infection. The general metabolism is usually upset, and most patients suffer from mild chronic acidosis. At the same time it is unusual for a staphylococcal septicæmia to be so quickly fatal, thirty hours being a remarkably brief illness for an adult. In the light of the Bundaberg fatalities the case has, however, a topical interest.

We are indebted to Dr. F. R. P. Taylor, medical superintendent of the East Sussex Mental Hospital, for permission to publish the case.

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TROPICAL LIVER ABSCESS ACQUIRED IN ENGLAND

The occurrence of a case of tropical liver abscess in a man who had not travelled outside Great Britain appears to be of sufficient interest to merit recording.

The patient, a man aged 49, was caretaker at the Burnley public abattoir. He became ill ten or eleven months before admission to hospital. The first signs of infection were diarrhoea (four to six motions a day) and the passage of much mucus. About two months later he noticed a quantity of blood and slime in his stools and complained of pain and tenesmus; the straining did not relieve the pain, but tended to make it worse. Restriction to milk diet for six weeks relieved the diarrhoea for a period of eight weeks, during which time he felt quite well. Then followed another attack of diarrhoea (five to six motions a day), but this

time there was no pain, tenesmus, or blood in the stools, only a little mucus at the end of the motion. He had no pain, but there was slight tenderness over the liver, and probably slight enlargement of this organ, since a diagnosis of gall-stones was made. Later he was suddenly seized with severe pain over the liver, as if someone had stuck a knife in him; he also began to complain of pain in the right shoulder and upper arm. The pain over the liver came and went for about six weeks after its appearance and frequently woke the patient at night. The diarrhoea also came on in attacks. Hypnotics were given to subdue the pain and finally the patient was admitted to the Victoria Hospital, Burnley. During his illness he had lost weight.

On admission he was thin and emaciated, the skin was muddy, and he looked very like a man with advanced carcinoma. The skin had lost its elasticity. The abdomen was very thin, but a bulging was seen in the right hypochondrium extending into the epigastrium. There was no pain over the liver, but there was slight tenderness. The liver was greatly enlarged and its edge extended half an inch below the level of the umbilicus. The enlargement was uniform and the edge was smooth on palpation. Nothing else of note was found in the abdomen. A rectal examination disclosed no tenderness, and no growth was felt. The examining finger returned covered with mucus.

He subsequently complained of such intense pain over the liver and in the epigastrium that he could not sleep without morphine. The diarrhoea persisted and a large red oedematous tender swelling developed over the right costal margin. On x-ray examination a large shadow was seen in the tender area, the shadow being nearly all the liver area, on palpation. Screening showed that the shadow was pushed up and did not move with respiration.

Entamoeba histolytica were found in the stools. At an operation a large liver abscess was opened and about two pints of chocolate-coloured pus was drained off. No amoebae or cysts were found in the pus which was examined three times during the next six days. After the operation he was given saline solutions, farinaceous diet, pulvis ipecac. co. and emetine bismuth iodide grain 1 i.d. The diarrhoea grew worse, and injections of emetine hydrochloride were tried. Two days after the operation leucop developed which was temporarily relieved by oil of cloves, but in spite of all treatment the patient went rapidly downhill and died seventeen days after the operation.

This case was especially interesting in that the patient had never been abroad and did not know anyone who had suffered from or been in contact with amoebic dysentery. The source of infection was not traced. Another point was the difficulty of diagnosis, and this was only finally accomplished after a microscopic examination of the stools had been made. At different stages of the illness, the condition appeared to be gall-stones, carcinoma, and subphrenic abscess in turn. It would seem well to make a routine examination of the stools in all cases of obstinate diarrhoea, which persists without obvious cause in spite of the usual treatment.

I am indebted to Mr. Callam, honorary surgeon to the Victoria Hospital, and also to Dr. Haworth, honorary physician, for their permission to publish this case.

Bradford

J. CAMPBELL GILROY, M.B. Ed.

LARGE OSSICLES IN BOTH KNEE-JOINTS

The following case of ossicles in apparently healthy knee-joints seems to be worthy of record.

A soldier while performing his duties in his company kitchen, was suddenly seized with acute pain in the right knee-joint. He was a tradesman from Westmorland and though accustomed to travel over rugged hillsides and moorland, had never had any previous trouble with either knee-joint.

On examination, some hours after the attack of pain, a slight effusion was present in the right knee-joint and a large bony body was felt in the outer and anterior portion of the suprapatellar pouch. This body could be moved across the synovial pouch from side to side. Examination of the left knee revealed a similar body in the same position.

As soon as the slight synovitis of the right knee had subsided the ossicle was removed by an incision on the outer side of the patella; the joint was then closed in layers in the usual manner. For convenience of nursing the left ossicle was removed a few weeks later.

Both ossicles were lying quite free in the joints and had no connexions or adhesions whatsoever. They were oval somewhat the shape of a Brazil nut in section, a little more than one and a half inches in their longest diameter and eburnated on their posterior faces where they came into contact with the femora. The synovial membrane in contact with them was vascularized and velvety in appearance.

Convalescence was rapid and the patient walked perfectly as soon as allowed to do so.

The interest of this case lies in the size of the ossicles and the fact that the condition was bilateral. No current theory of the genesis of intra-articular bodies seems adequate to explain such a condition arising in a healthy man with perfectly healthy joints.

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Reviews.

WILLIAM BATESON

To all British biologists the death of William Bateson seemed at the time calamitous. It left us leaderless, and as yet there is no one who can worthily fill his place. We knew him to be a really great man, but we did not know the quality of his greatness. And so it was that for us this book, *William Bateson, F.R.S., Naturalist*,¹ was necessary. It explains so much. Mrs. Bateson, in giving a finely drawn sketch of her husband, unwittingly allows us to recognize the fact that much of the encouragement and practical help which made his pioneer work possible and successful came from her. The book is inspiring reading for the professional scientist. In its pages it can be seen that really first-class scientific work can be done under the most unsatisfactory circumstances, provided that the man who does it is himself first-rate. But we would specially recommend it to the wives, actual or prospective, of the men who serve science, for it will explain to them, as no other book can, the kind of personality that is exhibited by the man who loves his work more than anything else in life, and the need that such a man feels for spiritual companionship and practical help.

The book is built up of a memoir, fourteen selected papers, described by Bateson himself as "more or less lawfully begotten by Monodism out of Common Sense *me obstetricante*" and classified as digestible, for the eupeptic only, and indigestible, five educational essays, and three reviews, the whole constituting a vivid portrait of a rare personality. "To observe with him was an instinct, and to reflect and criticize, a lifelong habit. Never for one moment in the interest of detail did he lose sight of the central quest. For him no method, nor any branch of research, was an end in itself or more than a useful tool to chip away with. He dreaded the pedantry and increasing narrowness of each branch of biological research almost more than he dreaded and despised the public ignorance." How magnificent an epitaph and how well deserved! "Faith in great work," he wrote, "is the nearest to religion that I have ever got, and it supplies what religious people get from superstition. There is also this difference, that the man of science rarely hears the tempting voices and very seldom needs a stimulant at all, whereas the common man craves it all the time. Of course, there is great work that is not science—great art, for instance, is perhaps greater still, but that is for the rarest and is scarcely in the reach of people like ourselves. Science, I am certain, comes next, and that is well within our reach." How fine a creed and how splendidly arrogant! The scientist shares in the glory of his science and is proud in his humility.

The story of the earlier years spent in the experimental study of heredity and variation is fascinating. Surely no one ever met with so much discouragement. Bateson saw in this new science of genetics—he coined the word in 1905—the most promising means of advancement of pure science, and quickly recognized that such knowledge, if pursued, must ultimately lead to amelioration in the conditions of human life. It is true that he himself was entirely engrossed in the purely scientific aspect and interest of the work, and that he was bored rather than pleased by the practical application of the knowledge he was acquiring, since he feared that the application of genetics to agriculture would attract to research the wrong kind of worker, whose motive was gain or profit for someone. It has! But he was alone in his vision. Application after application for grants-in-aid was unsuccessful, rebuff followed rebuff, and at length he learnt to be wary in giving expression to his natural hopefulness. It is of interest to note that he declined an invitation to transfer his activities to America in 1902 for the reason that at that time he was still hopeful of starting an experimental

breeding station in England, and that he had to wait eight years before he got it. He, like the rest of us, was forced to spend much of his time and energy in seeking adequate endowment, for he recognized that this was as important as extending the compass of the work.

There is a letter (p. 102) which illuminates much in Bateson's history that invited explanation. It records his emotions on hearing of Weldon's death. He acknowledges his great indebtedness to Weldon, and then goes on to say, "if any man ever set himself to destroy another man's work, that did he do to me." This statement, we think, is justified. The bitterness of this war between biometrician and Mendelian has not yet completely evaporated.

In 1926, in a letter to the council of the John Innes Institution, Bateson touches upon two matters of the greatest interest to those of us who knew him. The chief centre of activity in genetics had shifted from where Bateson was to America—to Morgan and his school—a real calamity for British biology. The reason is a simple one. The amazing rate of development of genetics in America was determined primarily by the unique suitability of *Drosophila* as experimental material. Bateson was handicapped by the reaction of his many failures to obtain a proper recognition for his science in this country, and by the fact that he had become accustomed to work with a material that could not compare with *Drosophila*. Mendel was permitted to solve the riddle of heredity because the edible pea revealed the clue to him. In this letter he refers also to the fact that there was at Merton no one to succeed him. He who had given a name to a science had failed to form a school. The reasons for this would seem to have been that Bateson would have no one but men of first rate ability around him, and that these were attracted to genetics but rarely. He meant to repair the deficiency, but died a month after the letter was written. His body was cremated and his ashes scattered. In ten years or so the monument to Bateson's greatness will have taken shape. His labours, seemingly unproductive at the time, have made the path of those who follow him not more smooth but indeed pleasant.

This is a fine book, absorbingly interesting and delightfully written. It may well be prescribed for any intelligent patient suffering from debilitated faith in the possibilities of human development.

C

PHYSICAL DIAGNOSIS

Books on clinical diagnosis too often consist of a rather dreary catalogue of the physical signs which may or may not be elicited in health and disease while most authors who elect to write dissertations on this subject devote so much attention to the thorax and the abdomen that scant notice is given to other regions of the body. In presenting *Physical Diagnosis* Professor C. P. JEMESON has made a welcome break with the usual traditions, and the result is a very comprehensive and at the same time readable volume which covers all the organs and systems of the body and directs attention to the organism in its entirety. At the same time he has enlivened his chapters by brief references to regional anatomy and historical notes on the original discovery and application of different physical signs. He maintains strongly that physical investigation is, and must remain, the primary fundamental method of diagnosis. The increase of laboratory and instrumental aids to diagnosis has made the accurate determination and interpretation of physical signs of even greater importance than was formerly the case, and has increased rather than diminished the responsibilities of the man personally responsible for the individual patient.

The introductory chapter is devoted to a short review of the contributions to clinical methods of such masters as Sydenham, Laennec, Skoda, Flint, Corrigan, Graves, Mackenzie, Osler, and others. There is a useful hint on the importance of ensuring that the examination of the patient should always be undertaken in a sufficient light. Then follows a chapter on general physical characteristics.

Physical Diagnosis, By Charles Phillips Emerson. A.B. M.D. London: J. B. Lippincott Company, 1928. (Med. 8vo pp. xv + 551; 324 illustrations 35s. net.)

¹ William Bateson, F.R.S. *Naturalist*. His Essays and Addresses together with a short Account of his Life by Beatrice Bateson. London: Cambridge University Press, 1928. (Demy 8vo pp. ix + 475; 4 plates. 25s. net.)

in which the types of growth, abnormalities of growth, and apparent ages, and the general attitude of patients are discussed and commented upon. Succeeding chapters deal with the regions of the body taken in order, the general body surface including a review of the more common affections of the skin, the head, spine, thorax, abdomen, and the extremities. The descriptions as a rule are clear, and the explanations as to how and why a given condition produces a certain sign are sufficiently definite to stamp them on the memory of the reader.

We might have expected to find in a work of this kind some reference to the theories of the causation of visceral pain—work which, initiated by Mackenzie a good many years ago, has been elaborated by other investigators, but no mention is made of this fascinating field of study, for the clinical observer. Such other criticism as we might be disposed to offer would be that perhaps the author has attempted to cover too much ground in his interpretation of the title chosen, physical diagnosis, that his book might almost be described as a textbook of medicine compiled from a new point of view. If this be a fault it is decidedly a fault in the right direction. The book is liberally illustrated with charts, diagrams, and reproductions from photographs. The photographs, on the whole, are very successful, except those illustrating diseases of the skin, in this instance photographs can never convey an intelligible message to the student, and only very rarely do they do so to one who is familiar with the characteristics of the lesion it is sought to depict.

PEDIATRICS

It is always refreshing to find a familiar subject approached on unusual lines, and in *Recent Advances in Diseases of Children* Dr W. J. PEARSON and Dr W. G. WYLLIE have certainly a great number of fresh ideas to bring forward. The book differs in some respects from other members of the series, for it really covers the whole field of pediatrics, and is from this point of view a well documented and up-to-date manual of the subject. Its unconventionality begins in the first chapter, where, under the heading of "A philosophy of disease," the authors take stock, as it were of the present position. They describe two contrasted types, the "lymphatic" and the "acid," basing the classification on clinical and biochemical data. The normal child, they say, "presents a mean between the two," and these two tendencies are present in every child, representing the "soil" wherein the reaction to disease processes takes place. This view, along with a very interesting analysis (at times difficult to follow) of the chemical reactions of the body, is worked out in some detail in this introductory chapter. The impression is left that the logic is a trifle daring even if the chemistry is sound—of which we are not always quite sure. Thereafter the book follows the usual programme so far as subject matter is concerned, it is in their return to the theories and implications of the introduction that the authors' unconventionality breaks through. At times, indeed, the views expressed become rather startling, and we find it impossible to follow such a statement as occurs on page 321, dealing with fibrosis of the lung: "The main reason for non resolution and fibrosis lies in a chemical fault, an excess of acid in the blood." The rest of the section on this subject is very good, and it is typical of the whole book to find a mass of sound teaching in the middle of which appears a loose phrase of which common sense rebels. Do the authors believe that there is ever any acid in the blood, for less "excess" of such acid? The opinions on tonsils and adenoids are well balanced, and the chapter on the nervous system is good. Modern views on nephritis are well summarized, and the very complex subject of the blood disorders of children is cleverly treated. Enough has been said to indicate the scope and standard of the volume, and it should certainly be read by those interested in modern medicine. It will repay study, despite its controversial nature and its loose chemical terminology.

GASTRO-INTESTINAL DISEASES

THESE lectures delivered at the James Mackenzie Institute for Clinical Research at St Andrews on *Gastro-Intestinal Diseases* during the winter session of 1927 have now been published under the editorship of Professor DAVID WATFISTON. The honorary director of the Institute—Dr A. Matland Ramsay—opens the series with an account of the ocular manifestations of gastro-intestinal disorders, among which he includes iritis due to dental infection, and to constipation with the resulting intoxication and infection. The other lecturers were imported, and include Sir Lenthal Cheate, who applies some recent views upon carcinoma, especially of the mamma, to the colon, and Dr D. J. Spriggs of Ruthin Castle, whose lecture on the symptoms of gastric cancer is illustrated by twelve excellent diagrams, he considers that the only absolutely constant sign is arrest of peristalsis in the site of the growth, as shown radiologically. Dr J. B. Orr, director of the Rowett Research Institute, Aberdeen, in discussing the influence of diet on the physiology of the alimentary canal, gives the results of his own experience of starvation and of experiments at his Institute. Professor John Fraser's account of the diagnostic value of superficial pain is based on much thoughtful observation, and Dr Matthew's discussion of the significance of haematemesis utilizes his analysis of cases in the Edinburgh Royal Infirmary. Professor D. P. D. Wilkie's lecture on gall-bladder disease and gall-stones contains a criticism of duodenal drainage and an appreciation of Graham's tetraiodophenolphthalein method of diagnosis. Dr R. O. Adamson of Glasgow writes at length on the symptoms of dyspepsia as met with in general practice, and Professor Archibald Young enters fully into the surgical aspects of gastric and duodenal ulcers. The subject of dissemination of malignant disease, especially in the abdomen, was wisely entrusted to Professor Robert Muir, who provides much information in a suggestive manner, and Sir John Murnoch warns the reader against some of the pitfalls in the diagnosis of acute abdominal disease.

OVARIAN GRAFTS

THE publicity given of late to the grafting operations performed by Dr Voronoff has rendered it desirable that there should be some work which would summarize all the available information on this subject. A recent book by Dr PETTINARI on ovarian grafts, although not written for this purpose, does provide such a book of reference for at least a part of this subject, as its title indicates, it is concerned only with ovarian grafts and the endocrine action of that gland. The volume may be regarded as consisting of two parts. The first deals with the histology of the ovary in all its cyclical transformations, with feminization, experimental hermaphroditism, revitalizing grafts, the origin of ovarian hormones—specific and general—and their relationship with lactation and the mammary gland, sexual characters, and so on. The second part is devoted to the application of ovarian grafts, and here the author discusses in some detail the important question of the role of the ovary as a ductless gland both in physiology and pathology. Other chapters are devoted to the indications and contraindications for grafting, and the technique to be employed. Finally, the much-discussed problem of the transplantation of the ovaries of monkeys to women is reviewed. There is a large bibliography, the illustrations are numerous, and a very concise list is given of the author's own conclusions. Dr Pettinari was assistant to Voronoff for some time, and has himself had a considerable experience of gland grafting. His volume may therefore be regarded as fairly representing the views of the Voronoff school on this aspect of the subject, and not merely as a review of the literature. The book is written clearly and moderately, and seems reasonably free from bias, the reader is given a fair idea of those cases in which ovarian graft might be of use, the results which would probably be obtained, and the best

² *Recent Advances in Diseases of Children*. By Wilfred J. Pearson D.S.O., M.C., D.M., F.R.C.P. and W. G. Wyllie M.D., M.R.C.P. London: J. and A. Churchill, 1928. (5½ x 8½ pp. viii + 593, 18 figures, 18 plates. 15s.)

¹ *Gastro-Intestinal Diseases*. Lectures delivered at the James Mackenzie Institute for Clinical Research, St Andrews. Edited by Professor David Watfiston. M.D., F.R.C.S. Ed. Oxford Medical Publications. London: Milford Oxford University Press, 1928. (Demy. 8vo pp. viii + 278, 23 figures, 10s. 6d. net.)
² *Greffes Ovariennes*. Par Vittorio Pettinari. Paris: G. Dolin, 1928. (6½ x 8½ pp. 491, 181 figures, 70 fr.)

technique to be adopted. It is well produced, and contains nearly two hundred excellent figures, most of them original, illustrating the anatomy and histology of the ovary, the results of the operations both to the gland itself and to the subject, and the technique of the various types of operation.

GUY'S HOSPITAL REPORTS

AFTER some lines of verse entitled "Do Mortu Coidis, 1628-1928," reprinted from the *Times*, the third quarterly instalment of the *Guy's Hospital Reports*,¹ which contains twenty-two articles, begins with M. A. J. McNair's interesting account of James Blundell, obstetric physician 1818-34, who a hundred years ago performed the first successful hysterectomy for cancer in this country, and did much in regard to blood transfusion. A particularly thoughtful and philosophical article by Dr J. A. Ryle on anger animi or the sense of dying shows that it occurs in Gowers's vaso-vagal attacks as well as in angina pectoris, and that in a patient with the former kind of seizure it may occur over a period of thirty years without modification, although the patient now realizes that she will not die in them. There are several papers on nervous diseases. Mr A. B. Kettle writes on multiple gummata of the brain, Mr O. Plowright on familial claw-foot with absent tendon-jerks and cerebellar disease, and a case of route ascending myelitis is recorded by Dr R. L. Waterfield, who also contributes three other short papers on two cases of subarachnoid haemorrhage, Biot's respiration associated with obstruction of the superior vena cava of obscure origin, and the alternation and subsequent combination of met- and sulph-haemoglobinæmia in one patient. The last of these papers is followed by Dr M. O. Raven's report on a case of methaemoglobinæmia due to poisoning by antikamnia (acetanilide), with a note by Dr J. A. Ryle. A simplified method of detecting megalocytosis is described, with illustrations, by Dr F. A. Knott. Drs J. M. H. Campbell, G. O. Mitchell, and A. T. W. Powell give an account of their experimental investigation by way of fractional test meals on the influence of exercise and hot baths on digestion. Mr E. H. Rocho discusses the factors determining why empyema wounds heal less satisfactorily than drainage wounds in other parts of the body as a preliminary to his article on suction in the treatment of empyema. Drs E. P. Poulton and W. W. Payno describe an unusual type of insulin reaction in a diabetic woman who had a high renal threshold and frequently had symptoms of "hypoglycaemia" when the blood sugar was falling, even though the values were often over 0.25 per cent. Dr W. L. Watt gives a regional series of cases of malignant disease treated with deep x-rays, Mr J. W. Shackie figures a stage in the development of *Taenia echinococcus* seldom seen, Dr N. Burgess writes on calcium metabolism in skin diseases, and there are five cases of interest (the fifth series) from "Clinical" ward. Dr J. F. Venables records a case of Hodgkin's disease primary in the small intestine causing intestinal obstruction—an event which appears to be unique.

NOTES ON BOOKS

THE popularity of the late Professor STRÜMPFEL'S textbook of pathology and therapeutics² shows no abatement, and Professor CARL SEIFARTH, who has been for some time associated with this publication, has maintained the high standard of previous issues. We reviewed the first volume of the twenty-sixth edition in July, 1927, the second volume of this edition appeared in the following October. We have received the first volume of the twenty-seventh edition, and the second volume is expected shortly. Under such conditions it is difficult to say more than that the book deserves the favour in which it is held, though the habit of limiting the index to the second volume of each edition is a little inconvenient in the circumstances.

¹ *Guy's Hospital Reports*. Vol. 78 (Vol. 8 fourth series) No. 3, July 1928. Edited by Arthur Hurst, M.D. London: The Lancet, Limited (Med. Sec. pp. 253-378, 2 full plates, 15 figures. Annual subscription 12s. 6d. for volume of four).

² *Therapie der Krankheiten des Menschen*. Vol. 27, 1928 (Suppl. 1-4, 1928, 202 figures, 6 tables, M.50). Part 1, 10 plates, M.25).

In his book *Man and Sunlight*,³ Major HANS SURÉN, formerly chief of the German army school for physical exercise, advocates enthusiastically the value of exposure of the whole body to sun and fresh air. He supplies numerous illustrations of the various exercises and games which can be employed, and, in addition to his main argument, the book contains many practical hints and warnings. The volume may be considered a timely protest against certain unhealthy sequels of city life, but it is a little difficult to see at present how his recommendations could be adopted in this country on any appreciable scale.

A copy of the obstetrical yearbook⁴ by H. VIGNES and B. JEAN, with the collaboration of V. ROBIN, containing the important papers that appeared during 1925, has reached us. This gives a short analytical review of the papers by writers on this subject in France and other countries, and is interesting as containing a special section at the end on veterinary obstetrics. It has also some special articles by Dr Henry Vignes, which might be useful to anyone working at the subjects he takes up for critical review. They include researches on the function of the placenta, the pancreatic function during pregnancy, the Wassermann reaction in obstetrical practice, cancer in pregnancy, and the anaemias in pregnancy and the puerperium.

Major E. E. AUSTEN, Keeper of the Department of Entomology in the British Museum (Natural History), has revised, for its third edition, his pamphlet on *The House Fly: Its Life History, Importance as a Disease Carrier, and Practical Measures for its Suppression*,⁵ incorporating many minor additions made to knowledge in the two years that have elapsed since the publication of the second edition, which was reviewed on May 29th, 1926 (p. 906). The new matter relates mainly to alternative methods for the suppression of house fly breeding in municipal refuse dumps, and to the American method of utilizing hydrocyanic gas for the destruction of house flies. Attention is drawn to the way, described as little short of scandalous, in which pastrycooks' wares in Great Britain are frequently exposed to contamination by house flies.

Under the long title *Die Lagerung Verletzter und Erkrankter Gliedmassen, Leerschienen und Verbandlose Wundbehandlung*,⁶ Dr. HEINRICH BRAUN of Zwickau (Saxony) gives a short account of the uses of his skeleton splints, which he found valuable in the war and in the years of peace which have followed. He claims good results for his open method of wound treatment, and says that his splints and their use are so simple that any practitioner should succeed in treating fractures with them.

Once upon a time Dr. WIRTH KNUDSEN, then a young graduate in political economy, was asked by a Japanese: "Why do you European men treat and regard your women with such respect, often amounting to adoration?" For twenty years Dr. Wirth Knudsen has sought an answer to this question, and at length he has found it in the legend of Don Juan. This legend, he says, is the myth of the white man's pilgrimage of pain in search of a woman who is his peer in spirit and in truth. Having concentrated to himself the idealistic needs of the whole white race, Don Juan sought to find and possess them all concentrated in one woman. He was the incarnate monogamist, driven on by each fresh disappointment until he had been compelled to love hundreds of women. In support of this view Dr. Wirth Knudsen has written *Feminism: A Sociological Study of the Woman Question from Ancient Times to the Present Day*.⁷ He is not, perhaps, so crudely violent as Mr. Ludovic on the exposition of his thesis, but it is permissible to doubt whether, in the present position of the woman question, it is any longer worth while uttering these Cassandra-like prophecies. The feminist movement has reached the stage when there is little left except to watch the effect of the experiment upon white civilization. Possibly it is not yet clear what is the exact nature of the higher and fuller

³ *Man and Sunlight*. By Hans Surén. Authorized translation from the sixty-seventh edition by David Arthur Jones, M.C. With foreword by G. W. Saleeby, M.D. Slough: The Solar Publishing Company, 1928. (Post 8vo pp. x+196, illustrated 6s. net).

⁴ *L'Année Obstétricale (Travaux de 1925)*. Par H. Vignes et B. Jean Avec la collaboration de V. Robin. Paris: Masson et Cie, 1927. (Med. 8vo pp. 288, 40 fr. sans majoration).

⁵ *The House Fly: Its Life History, Importance as a Disease Carrier, and Practical Measures for its Suppression*. By Major E. E. Austen. D.S.O. Third edition. British Museum (Natural History). Economic Series No. 11. London: British Museum (Natural History), Edinburgh: Oliver and Boyd, 1928. (8½ x 8½ pp. 71, 1s.).

⁶ *Die Lagerung Verletzter und Erkrankter Gliedmassen, Leerschienen und Verbandlose Wundbehandlung*. Von Geh. Med. Rat Professor Dr. Heinrich Braun, Leipzig. J. A. Barth, 1928. (Med. 8vo pp. 118, 101 figures, M.12).

⁷ *Feminism: A Sociological Study of the Woman Question*. By R. A. Wirth-Knudsen. Translated from the Danish by Arthur G. Chater. London: Constable and Co. Ltd., 1928. (5 x 8½ pp. vii + 332, 12s. net).

life which is to result from slaking off the domination of man. Even Dr. Wieth Knudsen does not seem to have obtained an answer to this problem.

The Art of Flying,¹³ by Captain NORMAN MACMILLAN, is full of interesting and useful information about the effects of high altitudes, aerobatics, and speed on aeroplane pilots. There is a chapter on "The sense of hearing" and another on "The human factor" which will be of real value to medical officers of the Royal Air Force and to members of the profession who may be consulted by persons desirous of taking up flying as a career. The book is well illustrated, and without being technical is a complete textbook on how to fly. In this book the statements of chief interest to those interested in the physiology of flying are that inability to hear correctly is often the initial cause of many flying accidents, that the sensations received from the pilot's seat are of great importance, that vision is affected by high altitudes, and that fainting during aerobatics occurs when the centrifugal force reaches eight times gravity. We note also the author's remark, presumably based on personal experience, that if one has a bad cold and wraps up warmly in flight at 10,000 feet for twenty minutes has very beneficial effects.

Miss E. MARY HEFTER has translated into English Professor VIGAND's textbook of *Practical Serology*¹⁴ and in an editorial preface Dr. C. G. L. Wolf commends it for its lucidity and comprehensive outlook. Professor Vignand has prepared a simple practical account of the various methods used in serology generally, and the book gives a large amount of useful information compressed into a small space. The illustrations are good and there is a glossarial index to interpret the rather formidable immunological vocabulary.

Dr. HANS SCHEFFLER of Bochum (Westphalia) gives in his observations and results of five years' fracture treatment,¹⁵ his experience as a surgeon to a coal mine which will interest other surgeons similarly employed as well as practitioners generally. The tetrapod walking sticks—if we may so call them—shown in Fig. 1 strike us as having a practical value in the early ambulant treatment of fractures.

¹³ *The Art of Flying*, by Captain Norman Macmillan M.C. A.F.C. With a foreword by Sir Sefton Brancker K.C.B. A.F.C. London: Duckworth, 1928. (Cr. 8vo pp. 159, illustrated, 5s. net.)

¹⁴ *Practical Serology*, by Luig. Vignand. Translated by E. Mary Hefter. Edited by C. G. L. Wolf. Cambridge: W. Hefter and Sons Ltd. 1928. (Demy 8vo pp. x + 221, 39 figures, 4 plates, 12s. 6d. net.)

¹⁵ *Beobachtungen und Ergebnisse bei einer fünfjährigen Frakturbehandlung* von Dr. Hans Scheffler. Berlin: J. Springer, 1927. (Sup. roy. 8vo pp. 85, 18 figures, R.M.S.)

PREPARATIONS AND APPLIANCES

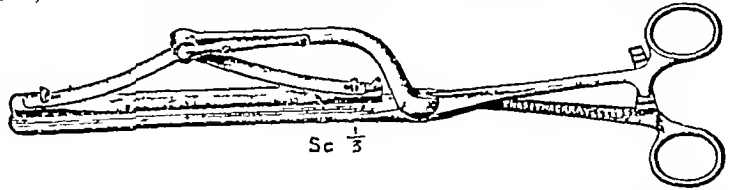
A CONTAINER FOR RADIUM NEEDLES

DR. P. CLENNELL FENWICK (officer in charge of the Radium and Deep Therapy Department, North Canterbury Hospital, Christchurch, New Zealand) writes: I send a description of a very satisfactory appliance made by my chief assistant Mr. Charles Hines. It is a device for containing radium needles, threaded ready for use and during sterilization. The trouble I always find when taking radium needles to the theatre is that, when sterilized, the threads attached to each needle become entangled and much time and patience is wasted disentangling them. Two blocks of brass 3.8 in. thick are joined by strips of brass 3/8 in. thick and 15 in. in length. One is drilled on its outer edge with a number of holes which admit the needles, which fit in and leave their ends protruding. Another block is drilled through on its face with an equal number of holes. The needle is threaded and dropped into the hole in the second block, the thread is passed over the face of this block and through the hole in the other block, and then tied tight. The needles thus secured may be kept safely and conveniently until required for use. The whole apparatus can then be placed in the sterilizer. Each needle is released individually by a snip of the scissors across the string close to the block. Any needles not required are left in the frame, and thus the danger of any loss is avoided.

A GASTRO ENTEROSTOMY CLAMP

Mr. C. A. Wells (honorary assistant surgeon to the Royal Southern Hospital, Liverpool) sends a description of a gastro enterostomy clamp which has been made for him by Messrs. Thackray, Park Street, Leeds. He writes: The instrument consists of two rigid blades, one is mounted on a leaf spring the centre of which is attached to a cranked arm which occupies the position of the second blade in the ordinary clamp. When the instrument is racked up the sprung blade is approxi-

mated to the fixed blade by a force applied to its centre, thus the pressure is evenly distributed from end to end, the grip is certain, and at no point is there any tendency to crush the bowel. The instrument illustrated has a blade 6½ in. long and an overall length of 12½ in. The sprung blade has, in the end



nearer to the lock a slot through which passes a post attached to the fixed blade to give lateral stability. For cleaning purposes the various component parts are detachable. In practice the clamp is extremely reliable in its hold, provides excellent haemostasis, and does not crush.

DIRECT STEREOSCOPIC X-RAY EXAMINATION

Some pioneers in X-ray work, notably the late Sir James Mackenzie Davidson recognized very soon after these rays were discovered that a stereoscopic method of examining the shadows was very desirable. Mackenzie Davidson himself produced an apparatus, which was shown at a Royal Society conversation for viewing stereoscopically the image on the fluorescent screen. This depended upon the alternating illumination of two tubes together with the synchronized movement of a collapsing or rotating shutter so adjusted that one eye of the observer could see only the shadow cast on the screen by the first tube and the other eye only the shadow cast by the second, each eye thus saw its own image and the combination gave the stereoscopic picture. There were many mechanical difficulties in carrying out this method which prevented it from coming into use, but the correctness of the principle as well as the realism of the stereoscopic picture and its immense aid to diagnosis have always been acknowledged. Now at length a stereoscopic installation with these difficulties overcome has been constructed. It was first demonstrated by its inventor Mr. F. E. Bornhardt, at the Medical Congress at Wiesbaden last year. One such installation has been set up in London at the offices of Stereoscopic X-Rays Limited (67A Baker Street, W.1) where a representative of the *Journal* had the opportunity of witnessing a demonstration. The apparatus necessarily a large and elaborate one produces on the fluorescent screen with the minimum of adjustment and with no doubt a shadow picture in perfect relief. Two metal tubes supplied with high tension alternating current are placed side by side in a special screened receptacle the distance between them corresponding to the pupillary measurement of the observer. The tubes are fitted to a projecting arm at the back of a movable counter balanced table stand while a similar arm at the front of the stand carries a synchronized viewing device very much like the eyepiece of an ordinary stereoscope. Before this eyepiece the observer sits and watches the image on the screen, the patient standing behind the screen and in front of the supporting table. The two tubes are switched on automatically in turn, one half phase of the alternating current passing through each. Thus in using a 50-cycle alternating current there appears on the screen a shadow picture from each tube in reciprocal succession at each fifteenth of a second. The combination of the images depends on the viewing mechanism which contains rotating screens working in synchronism with the tubes in such a way that each eye of the observer can see only one of the shadow pictures at a time. The two pictures on the screen are thus optically separated but so rapid is the movement that to the eye a perfect stereoscopic image is presented. Optical correctness is obtained whether the observer wishes to have a near or distant view and by an ingenious device on the main stand considerable lateral as well as vertical movement is possible, so that the patient can be thoroughly examined sitting or standing. In depth and perspective the view obtained is everything that can be desired. The eye appreciates the spatial relation of the shadows just as it would the planes in a landscape. The value of such a facility for the study of conditions in the chest or abdomen or in any part of the body needs no emphasizing. Stereoscopic X-Rays Limited invite medical practitioners to witness a demonstration of the apparatus at their showroom, where also cases can be examined.

ABDOMINAL SUPPORTS

We have received from Messrs. H. E. Curtis and Son Limited (7 Mandeville Place, W.) a copy of their new illustrated catalogue containing particulars of abdominal supports, belts, and corsets. A glance through the pages detailing the different models and grades designed to suit as far as possible every individual requirement shows to how fine an art the making of such appliances has been carried. Directions are given for self measurement where it is not possible for the firm as they prefer to do this themselves. There are suggestions also for the wearer of the support with a view to adding to the comfort and usefulness of the fitting. The catalogue illustrates many kinds of trusses and colostomy appliances and of elastic hosiery in which every garment is knitted in one piece with an elastic spiral interwoven on the principle of the puttee so that the limb receives an even pressure throughout. The purpose of all these mechanisms is to provide an efficient and comfortable appliance which will allow the wearer to have a normal carriage and appearance.

THE IMPORTANCE OF ZOOLOGY TO MEDICAL SCIENCE*

BY

WILLIAM COLIN MACKENZIE, M.D.,

PROFESSOR OF COMPARATIVE ANATOMY AND DIRECTOR OF THE NATIONAL MUSEUM OF AUSTRALIAN ZOOLOGY

DURING the past century the problem of human development has overshadowed all others in biology, round the question of human origin a great battle has waged. Zoologists, physicians, geologists, and theologians have entered the arena, but to-day from the conflict three great names emerge—namely, John Hunter, medical practitioner and founder of the Hunterian Museum at the Royal College of Surgeons of England, Jean Lamarck, comparative anatomist, the centenary of whose tragic death will be commemorated in Paris next year, and Charles Darwin, naturalist. Hunter and Lamarck based their principles on function, while Darwin was primarily a structural biologist.

What to-day do the problems studied by these great scientists mean to the man in the street regarding himself as healthy, to the sick person seeking hospital admission for treatment of his disease, or to the mother of the paralysed child faced with a lifelong crippledom? Our ultimate judgement on these problems, regarded unfortunately by many as purely academic, depends on their relation to bodily health and disease. It is to this aspect that I particularly wish to direct attention.

STRUCTURE AND FUNCTION

It is undeniable that in the past too much attention has been paid to structure and too little to function, on which structure depends, and of which it is the register. As Sir Berkeley Moynihan, the President of the Royal College of Surgeons, said last year at King's College Hospital Medical School:

At the time when I became a medical student forty-four years ago to-day we were taught anatomy as we should be taught the plan of a city learning the names of houses, of main streets of then branches and turnings. But to the people who lived in the city their industries their way of life the part they filled in the community we were hardly expected to give a thought. For all we know the city might be dead.

An explanation is to be found partly in the influence of Sir Richard Owen, who, having studied at the Jardin des Plantes under Cuvier, the bitter foe of Lamarck, subsequently became the curator of the museum housed in the College of which Sir Berkeley Moynihan is the distinguished president, partly in the doctrine of a chance spontaneous congenital variation commonly called "sport" associated with the principles of natural selection, and partly as the result of the introduction of antiseptic surgery—the evil accompanying the good, as is found everywhere throughout nature.

Much consideration in recent times has been given to the demonstration of prehistoric skulls in an endeavour to fill the gap between the anthropoid and man. To-day no one will deny that the positive evidence in this direction now accumulated is overwhelming. But just as we have prehistoric skulls, so also have we prehistoric brains, which show side by side with the modern characteristics primitive features. The man becoming inebriated, the patient passing under the influence of chloroform, the child losing the use of its muscles through infantile paralysis—these all illustrate the functional history of human development. Only along developmental lines can a true interpretation of human conduct be made. The human body is a complex machine, made up of entities, and these have a functional history. A study of the human body, whether from the point of view of health or disease, must include these factors, otherwise it is comparable with the study of a cathedral by an architectural student unacquainted with the principles of construction of a two-roomed house. The humble cottage affords the clue to the architecture of the majestic cathedral and the reason for

the use of the different parts. It cannot be too strongly emphasized that no country in the world offers such a field (unfortunately fast disappearing) for the study of the human body as Australia. Its lung-fish, reptiles, monotremes, and marsupials represent a living embryology—an embryology different from that of the human body, for not only can structure be studied, but also function as well.

THE LOWEST AND HIGHEST MAMMALS—A CONTRAST

If in the study of function and structure we make a commencement with such a primitive type as the lowest mammal, the platypus, an animal corresponding to life on this planet a eons ago, and in which we see the genesis of the use of limbs not only for propulsion as in the lizard, but for support as well, we find little difference from a physiological point of view between the monotremes and man. The general structural scheme is similar in both. Each has a four-chambered heart, diaphragm, lungs localized to the chest, and the grey matter of the brain in both, unlike that of the reptile, is external to the white matter. Microscopically, we find that the organs of the platypus resemble those of man. What, then, constitutes the essential difference? It is really a postural one. We have the erect posture, the platypus has not. The principle we have to recognize is that the great advance from the reptiles through the mammals up to man is one in muscular action. The advantages, intellectual and other-wise, which the erect posture confers are actually dependent on this, to this everything would appear to be secondary. In the blue-tongued lizard (*Tiliqua scincoides*) we see progression on the belly wall, the four limbs being used for propulsion only. In the echidna we have an animal with its abdominal wall off the ground, and the four limbs used for bodily support as well as for bodily progression. In the kangaroo we find an interesting experiment, that animal having the erect posture by means of a tripod formed by the long feet and tail. In the orang, chimpanzee, and gorilla we find—thanks to an improved musculature at the hip-joint (the centre of motion of the body) and at the knee as indicated by strong patellar development—successive stages in which without the use of a tail there is lessened use of the fore limbs for support. Finally, in man we have the lower or hind limbs only used for propulsion and support, leaving the fore or upper limbs not merely hanging appendages, but structures free to obey the will of the higher brain, and capable of themselves being raised against gravity when the body is erect.

THE HUMAN ERECT POSTURE

Of all mammals man, the most intellectual, is the most erect. Erect man alone possesses the prefrontal brain, associated with which is the development of the characteristically human forehead. In the lower prehistoric type, as evidenced by the Columbian skull, this characteristic forehead development is absent. On the erect posture depend human intelligence. This posture is not a matter of equilibrium, for, as we know, the vertebral column is not the axis of the human body. It is maintained and effected by muscular action, and is actually dependent on the improved functional development, along the vertebrate series, of the extending muscles of the hip and knee joints—the strength of the latter being aided by the patellar development. If we compare the skeleton of the living anthropoids and man, we find that the patella, or knee-cap, gives us an index of the degree of erect posture and intellectual development. The patella of modern man is the best developed, and between the patella of the gorilla and that of the Australian aborigine would be the types represented by prehistoric man. A child that has lost the power of these two extending muscles from infantile paralysis, although the brain be unaffected, is unable to stand—becoming quadrupedal. The living anthropoids are regarded by many as mammals arising from a stem common to both us and them; they developed physically, we intellectually.

But it is unscientific to speak of the anthropoid as a specialized muscular type. If we regard it from the point of view of chest, neck, and upper limb development then it is, compared with man, a more muscular type, but if

* Presidential address delivered at Hobart before the Section of Zoology at the Australasian Congress for the Advancement of Science 1928.

we regard the comparison from the point of view of muscles supporting the body erect, such as those of the hip, knee, and calf, then it is an inferior type to ourselves. The living anthropoids simply represent failures to become erect, but as all human types, whether physically or intellectually, are not alike, so also among the early anthropoids there was one type in which, as the result of environment, the urge to become erect was marked. Little by little, over long periods of time, with bent body, sagging knees, and the lower limbs abducted to give a broad base, just as we see in an infant during the first two years of life, the effort was maintained by the prehistoric types we know to-day, resulting finally in the erect posture of modern man. Thus was accomplished the effort of throwing the body, unaided by a tail, from the quadrupedal to the bipedal stage. The whole of these facts were known to Lamarck. He knew that the erect posture was the ultimate goal, and also—that many scientists are only now learning—that the means were muscular. The common ancestors, the prehistoric types about which we hear so much to-day, were postulated by Lamarck over a century ago. He wrote, speaking of our prehistoric ancestors:

"If these same individuals were to give up using their jaws for biting, tearing and grasping, or as nippers for cutting grass and feeding on it and if they were to use them only for mastication, there is again no doubt that their facial angle would become larger than their snout would shorten more and more, and that finally it would be entirely effaced, so that their incisor teeth would become vertical."

He knew the advantages of the erect posture and its instability, but we go further. Just as it was a struggle for the quadrumanous to become humanous and finally erect, so also was it a struggle to the quadrupedal from the stage when the vertebrate crawled on its belly wall, and used its limbs for bodily propulsion only and not for bodily support. To-day the actual animals on the direct line are few (collaterals are numerous), but a definite sequence of animals possessing the necessary correlations for the ultimate erect posture—for example, muscular and intestinal—can be demonstrated. This I have termed the law of mammalian development. As regards these correlations, the retention, for example, of a hand with opposable pollex and foot with opposable hallux would be essential. In Australia we have in sequence the blue-tongued lizard (*Tiliqua scincoides*), the bearded lizard (*Amphibolurus barbatus*), and the common phalanger or opossum (*Trichosurus*). Then from the rodent series we pass on to the lemur, platyrrhine or New World monkeys, catarrhine or Old World monkeys, anthropoids, prehistoric man, Australian aborigine, and the modern European. By means of these can be traced a definite sequence in nervous, muscular, and intellectual development. From the point of view of comparative study I regard the common Australian phalanger (*Trichosurus*) as a key mammal, its intestinal tract gives the clue to the complex human arrangement. The two Australian monotremes—platypus and echidna—are not actually on the line of human development, though showing us the relationship between reptiles, birds, and mammals, they are collaterals, highly specialized, and so have remained. They have sacrificed vital structures which can never be regained. Similarly the kangaroo is not on the direct line, being precluded by the absence of opposable thumb, atrophied upper limb, and the long narrow foot—apart from other specializations, nevertheless, it affords a remarkable attempt on the part of Nature to achieve the erect posture by means of a tripod.

ADVANTAGES OF THE ERECT POSTURE

The immediate advantage of the erect posture, for example, to primitive man would be in defence against or attack on enemies. The stump-tailed lizard (*Trachysaurus rugosus*), crawling on its belly wall, lives within a limited horizon. It may be attacked from the air or behind. With the erect posture the horizon is extended. There is a view for miles in every direction, objects are seen at a distance. Vision and hearing are improved, memory arises—and memory precedes intelligence. With the erect

posture our primitive ancestors could easily signal to one another, and speech, which is a characteristic of erect man, was evolved in its simplest form—the child stands and walks before it talks.

With the hands free weapons for attack were fashioned and used, and the tactile sense was improved. It is a fact, with which orthopaedic nurses are conversant, that children, paralysed in the trunk and lower limbs and unable to walk, show an almost immediate improvement in mental outlook when placed in the erect position either by mechanical or operative means.

THE INSTABILITY OF THE ERECT POSTURE

As scientists refer to man as *Homo erectus*, we are apt to think of the erect posture as a power old and permanent. On the contrary, it is a power but recently acquired, and in Borneo, within a few days' steam from Australia, lives the orang, differing primarily from the human type in the undeveloped function of muscles which extend the hip and knee joints. At its present stage the posture is unstable, and a period of three years is spent by the human infant in acquiring balance. The stage has not yet been reached when the child can stand and walk shortly after birth. The medical practitioner dealing with nervous or muscular diseases recognizes its experimental nature, and hence vulnerability to attack, especially during the early years of life. If we consider for a moment we realize how little of our time is really spent in the erect attitude. We spend as much of the day as possible sitting or reclining, and, when standing, we seek relief from the efforts the erect posture demands in supporting ourselves by any convenient object, nor can we regard the time spent by the human race to-day in the motor car as conducive to improvement in muscular function. It is worth remembering that the primary functions of the upper or fore limbs were body propulsion and body support, and that the biological price of disuse is atrophy. The great variation in the lengths of upper limbs is noteworthy.

As I mentioned previously, the instability of the erect posture was well known to Lamarck. Let me again quote from his *Philosophy of Zoology*. He writes:

"No doubt the erect posture attitude is alien to the orang since it adopts it less when moving about and its organization is hence less adapted to it, but does it follow that because the erect posture is easy to man it is therefore natural to him? Although a long series of generations has confirmed the habit of moving about in an upright position yet this attitude is none the less a tiring condition in which man can only remain for a limited period by means of the contraction of some of his muscles, the erect position is a tiring one for man instead of being a state of rest."

With these pregnant remarks did the great Frenchman anticipate the principles governing the treatment of 80 per cent of wounded men in the great war. They were the victims of injury to muscle, nerve, and bone, and for them scientific rest and re-education were indicated.

A GENERALIZATION FOR HEALTH AND DISEASE

Throughout the Commonwealth of Australia to-day we find that hospital wards for medical and surgical treatment are everywhere on the increase, yet they seem unable to cope with the chronic patients who constitute the great problem in present-day hospital practice. With a perfect environment and so much attention paid to the so-called essentials—air, food, and water—why should this be? In spite of our hospitals, drugs, and preventive measures, it would seem that as old diseases disappear, or tend to lose their virulence, new ones take their place. Too much emphasis has been given to the attacker and too little to the attacked. Since human development has been on physiological and not on pathological lines, to obtain a knowledge of the factors that constitute health, as contrasted with disease, we must know the history of human development. This can only be obtained by a study of Nature's own experiments, only along these lines can a problem of cell multiplication, such as cancer, be attacked.

The great muscular epochs resulting in the erect posture and its accompanying superior intellectual development have affected every system of the body. Even the lizards of Australia are immediately divided into two great divisions,

one represented by the blue tongued variety (*Tiliqua scincoides*), and the other, in which we see the attempt to use the limbs and long tail for support, by the bearded (*Amphibolurus barbatus*) and the frilled (*Chlamydosaurus kingi*) lizards.

Underlying so many apparently dissimilar phenomena is the really one great fundamental basis, that with the alterations in posture produced by the muscular system every other system in the body is correlated. As new functions of intelligence arise, necessitating brain enlargement, so also must the abdominal organs be hitched to the dorsal wall to prevent strangulation. The heart must accommodate itself to the altered posture, having to pump blood not horizontally, but upwards against gravitation. The treatment of cardiac disease should consider the history of the acquisition of cardiac muscle function. Cell function is a compound of entities. Those last acquired are most vulnerable to attack and most difficult to regain, and when, for example, we speak of failure in action of muscle, liver cell, or heart, we have to determine whether the loss is of some or all the entities. Thus, in the case of the loss of function of the extending muscle of the knee, is it a loss of all the entities necessary for the erect posture, or has it retained the function necessary for use in the lowest mammal, the platypus? This principle is the basis of the now universally accepted muscle re-education treatment in infantile paralysis and neuromuscular diseases and injuries, and was evolved in Australia from researches on its unique fauna. Numerous operations for displacement of the human uterus, on which so much ill health depends, are in use. This only shows how necessary it is for the gynaecologist to recognize the history of uterine support. Only along comparative lines involving a study of birth through the Australian reptiles, monotremes, and marsupials can midwifery be raised from an art to a science. The bandicoot, a marsupial mammal of the greatest importance for placental study, is now almost unobtainable.

To-day we see the apotheosis of muscular development, but it is essential that physical culture should follow the lines along which the erect-posture has been acquired, and be directed towards helping those muscles on which it particularly depends. To develop a sound muscular system we must not only have rational exercise, but rational rest as well. Such exercising as golfing, tennis, or long walks may, to the city man engaged in mental activities, act as an irritant, since more often muscular repose is indicated. The cause of dullness in the school child may be the result of faulty seating accommodation. The child is compelled to sit erect on seats without backs, and is forbidden to rest the head on the hands, with the result that mental effort is expended not only on lessons, but on balance as well. How often is our enjoyment of a play or lecture spoilt through a similar cause! Do we realize how the output of a factory can be lessened through faulty posture? The laziness of the Australian aboriginal has a physiological basis, with his long arm and poorly developed lower limbs he is nearer than we to those prehistoric types who walked with bent neck and with sagging knees.

Probably no game in the world, not even excluding tennis, exercises the erect posture functions more than the Australian game of football. It is founded on sound physiological lines and has been a no small factor in the physical development of our nation.

In conclusion, if we exclude specific infectious diseases which are in the main preventable and due to segregation, we may define health as a correlation of all the bodily systems to the erect posture, and ill health as a failure of one or more systems to correlate to it. In any case of chronic ill health an analysis of the postural system should precede all other investigations.

In the hospital of the future a primary consideration in treatment should be given to Nature's methods. We are intent on surgical wards, theatrics, and equipment, but an essential in any public hospital is a great department of myology wherein a scientific examination can be made for muscular defects, and their importance assessed.

REFERENCE.

¹ *British Medical Journal* October 8th 1927 p 621.

Nova et Vetera.

THE CHINESE DOCTOR

THE Chinese quack has been so written up and has become so well known that the Chinese doctor has been eclipsed, some notes about him may therefore be of general interest. The medical student is usually trained by being apprenticed to a man in practice, he has an extensive literature to study and a vast pharmacopoeia to employ. Some eventually gain a very high reputation, and are trusted by their patients. I have come to know several, and will mention some of their cases which have come within my ken.

Tobar Pneumonia—This is well known as such to Chinese doctors. A woman in my hospital had a patch that would not clear up, she also had fatty heart. I sent for the woman's family physician, who lived thirty miles away, he was quite ignorant of Western methods and had never seen a stethoscope, but he told me, after going into the whole case with the patient, that she was weak inside and strong outside, which was his way of saying fatty heart, and that she had been insufficiently stimulated during a recent pneumonia. I asked, "Is there pus?" He said, "Not yet, but a needle would do no harm." I tapped for pus and drew only blood. He gave her three prescriptions and the patient rapidly recovered. He felt the pulse most carefully and went into the history minutely. The methods were seemingly crude, but his deductions were correct and his treatment was effective.

Enlarged Spleen—A man had been tapped twice and sent home as the spleen reached the umbilicus (I do not know the cause of the enlargement). He went home and bought his coffin, but a friend suggested that arsenic pills should be taken increasing by one daily up to twenty six and then diminishing daily by one. I saw him after this course of treatment, and the spleen could only just be felt under the rib.

Pulmonary Tuberculosis—A very advanced case of tuberculous lung was successfully treated by a Chinese doctor expert in physical culture by graduated exercises and drugs, the patient living for many years subsequently. At the time he was so ill that the father had to kowtow and beg the doctor to undertake the case before he would consent, as it seemed hopeless.

Anthrax is common. A boy, aged 8, was brought to hospital with a sore on the upper lip and a temperature of 101° F., he had fainted twice on the road while being carried. The microscope verified the diagnosis. I was very "sachcheerful," but a Chinese assistant said to me aside, that he had an uncle, an anthrax specialist, and he himself knew the treatment, so we treated the boy by stewing three herbs, using the stewed leaves as a poultice, while the infusion was drunk. The lad went home perfectly recovered on the fifth day. The herbs were verbeena, sorrel, *Carpesium abrotanoides*, and enough rhubarb root to keep the bowels acting. These herbs are very common in that locality, I had them identified at Kew. That summer we treated six bad cases of anthrax, one patient had a face swelled beyond all recognition.

Stroke—I spent two hours in a sedan chair reading up in a copy of the *British Medical Journal* an illuminating article on stroke, and arrived at the patient's house well primed in the differences between cerebral thrombosis and apoplexy. The patient, aged 35, had kala azar, and had been going the pace, so I concluded it was thrombosis causing left-sided hemiplegia. An old country Chinese doctor, who was there and knew the condition, said that purgatives must be avoided as it was the weak variety of stroke—his way of saying that it was cerebral thrombosis and not cerebral haemorrhage.

These doctors are much respected when they have acquired their reputation, and I think they deserve respect from Westerners. To class Chinese doctors and quacks together, and ridicule them all, makes enemies. By cultivating friendly relations with the native doctors we shall learn some of their secrets, which are of real worth. Livingstone, though he lived among very primitive people, always treated the native doctors with respect, and so won their friendship. In surgery, of course, we are supreme, and they know it, they have no anaesthetics and no antiseptics. Rockefeller has seen the value of a friendly gesture, and has contributed lavishly to found in Peking a first-class hospital. During the recent upset in China the Americans have escaped the systematic boycott which

has inflicted heavy financial losses on the British. A friendly gesture at this period, when the Yangtze valley is emerging from the Russian nightmare, would be of untold value as estimated in hard cash. A really good hospital built in Hankow by the great trading concerns would pay for itself over and over again. The Asiatic Petroleum Company, the Anglo-American Tobacco Company, the cotton industry—these three alone could easily erect a first-rate hospital. The ground is well prepared by the wonderful opinion the Chinese have of Western surgery. Half a million so invested would repay itself by creating a friendly atmosphere, no other form of philanthropy would do this so well.

E F WILLS, M B, C M

RECENT ADVANCES IN THE CHEMOTHERAPY OF SYPHILIS

CAMERON LECTURE BY DR. LEVADITI

The following is an abstract of the Cameron Prize Lecture given at the University of Edinburgh this summer by Dr. O. Levaditi of the Pasteur Institute, Paris. The title of the lecture was "Recent advances in the chemotherapy of syphilis."

Bismuth Therapy

The pharmacological action of bismuth was studied by Balzer in 1889, but Santon and Robert (1916) were the first to demonstrate its spirochaetocidal action in fowls infected with *S. gallinarum*. Levaditi and Sazeac (1922) showed that intramuscular injections of bismuth cured syphilitic lesions in rabbits, and these authors, with Tourner and Guenot (1922), applied this method to the cure of human syphilis. It is interesting to note that the therapeutic dose for a man weighing 60 kilograms was found to be as low as the maximum dose tolerated by a rabbit weighing 1 kilogram, whilst three times this dose was found to produce toxic effects in man.

Bismuth salts show a relatively high toxic action when administered intravenously, and therefore it is best to administer them intramuscularly. Bismuth administration produces satisfactory results in syphilis, both as regards its clinical effects and also as regards its effect in rendering the syphilis serum reactions negative.

The durability of the effects produced is a striking feature of bismuth treatment, for relapses are relatively rare. This is probably due to the tendency of bismuth to form depots in the body. Bismuth will sometimes produce a curative action in cases that are resistant to arsenic therapy. The completeness of the curative action is proved by the occurrence of cases of reinfection after bismuth treatment (Gougerot).

Bismuth is slowly absorbed from the site of injection, but is excreted even more slowly, and storage occurs chiefly in the kidneys, but also in the liver. Bismuth becomes activated during the process of absorption from the site of injection. Levaditi and Yamanouchi (1908) showed that atoxyl had no action on trypanosomes *in vitro*, but that it was activated by the organism, and a substance—trypanotoxyl—was formed which was an active spirochaetocidal agent. In the same way bismuth is activated by the body tissues (in particular by the liver), with the formation of an active product bismoxyl. This is a protein compound of bismuth.

The power of tissues to transform bismuth salts to bismoxyl appears to be proportional to their content in glutathione. Kolle (1924) advanced the theory that bismuth does not destroy *Treponema pallidum*, but that it cures the syphilitic lesion by promoting tissue reactions and general immunity reactions. Levaditi and Sanchis Bavaria (1927) showed, however, that in experimental syphilis in rabbits bismuth caused a rapid destruction of the parasites. The popliteal glands of infected animals were found to be non-infectious after bismuth treatment. This is a very severe test of the completeness of sterilization. The amount of bismuth that reaches the sites of infection is extremely small—only a few micrograms.

Bismuth probably acts as a catalyst, causing an increase in the defensive reactions of the body.

The therapeutic action of bismuth is proportional to the quantity of activated bismuth circulating in the body. This quantity is indicated by the tissue content of bismuth—tissue metallic potential (Levaditi and Manin). This factor is higher with insoluble bismuth salts than with metallo bismuth. Recent experiments with camphor-carbonate of bismuth, which is an oil soluble compound, have shown this to be very efficacious.

Spirochaetocidal Action of Metals

Levaditi and his co-workers have tested *in vivo* the spirochaetocidal action of forty-five metals. Of all these, only eight were found to be active—namely, arsenic, gold, mercury, bismuth, vanadium, ruthenium, platinum, and tellurium.

Tellurium shows a remarkable curative action both in human and in experimental syphilis (Levaditi and Manin). Unfortunately its use is limited by the fact that it forms methyl tellurium, which is excreted by the lungs and imparts a strong garlic odour to the breath. This odour may persist for months after a single dose. Tellurium causes also blanching of the hair and pigmentation of the skin. Vanadium is somewhat less active than bismuth. Gold is fairly active, and has been used in human syphilis in the form of gold and sodium thiosulphate. Unfortunately it has a relatively strong toxic action.

A consideration of the positions in Mendelejew's table of the eight active metals fails to show any significant common factor. These eight elements, however, all fall into the same group of atoms when the atoms are classified according to their electro-chemical properties (Levaditi and Longuesco). All metals showing a therapeutic action are either very feebly electro-positive or very feebly electro-negative. Their polarization tension is generally lower than that of hydrogen, and they do not decompose water at room temperature. From the analytical point of view, they all are precipitated by H₂S as sulphides. These would appear as necessary conditions for an element to be active. The formation in the tissues of proto-metallic spirilloidal compounds (bismoxyl, trypanotoxyl) depends on these conditions (Levaditi). The fulfilment of these conditions is not, however, sufficient to ensure a spirochaetocidal action, since some metals, such as copper and palladium possess these properties, but, as far as is known, have no action on spirochaetes.

ROYAL MEDICAL BENEVOLENT FUND

At the last meeting of the committee fifty applications for assistance were considered, and £225 was voted to 45 cases. Consideration of the following notes will show how sad some of the cases are and how urgent is the need of help. Unfortunately the grants were small, and the Fund appeals for subscriptions to enable it to give more adequate amounts. Subscriptions and donations should be sent to the Honorary Treasurer, 11 Chandos Street, Cavendish Square, W.1. Among recent cases were the following:

L.R.C.S. Ed. aged 74 and wife aged 72. The husband is quite unfit to do any kind of work. Their total income is £82 a year (made up of old age pension £52, and Epsom pension £30) and their rent is £26 leaving only £56 for food and clothes. Voted £40 raising their income to £122 a year.

M.D. aged 75, bedridden and has no private means but was able to earn a little last year from literary work. Voted £40.

Widow aged 73 of L.R.C.P. On the death of her husband in 1923 her house was sold the proceeds going to pay off existing debts leaving the widow only £370 as capital. She is in receipt of the old age pension, her relations have given her no financial assistance this year but cannot continue to do so. Voted £25.

Widow aged 62 of M.B. Since the death of her husband has supported herself and her invalid son by taking in paying guests. Owing to ill health has been unable to do so during the last twelve months. Her income during past year was £7 10s. from investments and £5 from a paying guest. Voted £126. The Fund is trying to get other charities to assist.

The Royal Medical Benevolent Fund Guild still receives many applications for clothing, especially for coats and skirts for ladies and girls holding secretarial posts, and suits for working boys. The Guild appeals for second hand clothes and household articles. The gifts should be sent to the Secretary of the Guild, 58, Great Marlborough Street, W.1.

British Medical Journal.

SATURDAY, SEPTEMBER 22ND, 1928

ACUTE NEPHRITIS

THE subject of acute nephritis, with its wide bearings, was debated in the Section of Medicine of the Annual Meeting of the British Medical Association at Cardiff, and the opener of the discussion was most appropriately the Regius Professor of Physic in the great school of the University of Dublin, which has been so pre eminent in advancing clinical medicine. Professor Gillman Moorhead, in his address published in this issue at page 515, draws attention to the recent numerous additions to our knowledge, due in some measure to the prevalence during the late war of epidemic nephritis, though indeed this disease was prevalent also in the American civil war sixty years ago. There were thus provided a stimulus and opportunities for observation and for the elaboration of functional tests, among which may be mentioned those of Professor Hugh MacLennan. The choice of a discussion on renal disease is historically appropriate after last year's centenary of Richard Bright's *Reports of Medical Cases selected with a View of Illustrating the Symptoms and Cure of Diseases by a Reference to Morbid Anatomy*, a consideration which may also have weighed with Dr T Izod Bennett, an alumnus of Guy's Hospital Medical School, in making "Some problems of nephritis" the subject of his stimulating Goulstonian Lectures last March.

The prophylaxis and etiology of acute nephritis are obviously dependent upon the same fundamental question—namely, the nature of the factors responsible for the renal lesion. The onset of acute nephritis is preceded in a great majority of the cases by evidence of general or local infection, thus, for example, Longcope, O'Brien, McGuire, Hansen, and Denny (1927) found that in forty cases of acute or subacute glomerulo nephritis there was in 85 per cent a previous or concomitant acute infection, such as tonsillitis, sinusitis, broncho pneumonia, or scarlet fever, which in a large proportion was due to haemolytic streptococci. It has been widely assumed that the diffuse renal change is due to the action of toxins absorbed elsewhere rather than to the existence of micro organisms in the kidney, as occurs in the focal form of glomerulo nephritis so characteristic of subacute bacterial endocarditis, in which *Streptococcus viridans* is certainly present in the glomeruli. Longcope and his colleagues did not find any evidence that streptococci caused the glomerular lesion by direct invasion of the kidney, cultures of the blood and urine remaining sterile. But although the sequence of streptococcal infections and acute nephritis is fully admitted, it has been thought by Munk and others that the actual cause of the glomerulo nephritis still remains to be established. An interesting conception is that diffuse glomerulo-nephritis is secondary to a diffuse capillary inflammation (Schlayer, Klyn), thus really reviving

the idea embodied in F A Mahomed's description half a century ago of the pre albuminuric stage of scarlatinal nephritis, which idea also laid the foundations of Sir Clifford Allbutt's hyperpiesia. This view of acute glomerulo nephritis corresponds also with Gull and Sutton's conception of chronic granular kidney as a local result of a general arterio-capillary fibrosis. With regard to prophylactic treatment in scarlet fever, Professor Moorhead points out that in the light of Peters's observations Osman's alkaline treatment must be regarded with caution as well as with hope, similarly his experience does not lead him to support the vigorous alkaline treatment of nephritis advocated by Martin H Fischer of Cincinnati, and more recently employed by A A Osman.

The term "nephrosis," introduced by Müller and adopted by Vollhard, has been used in Germany and the United States to describe degenerative apart from inflammatory changes, associated clinically with oedema and much albuminuria, but without raised blood pressure or cardiac hypertrophy. It has not been widely adopted in this country, and Professor Moorhead, while admitting that the phrase "toxaemic kidney" describes the same condition, does not propose to employ the German equivalent, since he regards nephrosis as merely a form of acute nephritis. In the subsequent discussion Drs A E Gow and Mackenzie Walls definitely indicated that there were two types of acute nephritis—namely, a diffuse glomerulo-nephritis and a toxic degeneration of the convoluted tubules. Dr H L Tidy gave an account of acute haemorrhagic nephritis, occurring chiefly in the young and in association with tonsillitis and cervical adenitis, but without a history of scarlet fever in the majority of the cases—a condition also described two years ago by Wyllie and Moncreff. This form is benign as compared with other varieties of acute nephritis, it clears up in a few days, and in 75 per cent of the cases does not cause any permanent renal impairment. Dr Tidy, indeed, after mentioning that the only microscopic change was haemorrhage into the glomeruli, was inclined to regard it, not as a true nephritis, but as a condition of increased renal permeability. Professor Moorhead's experience, on the other hand, did not separate so sharply the haemorrhagic from the other cases.

The prognosis of cases of acute nephritis does not rest on any definite basis such as that suggested by Longcope and his colleagues. Though, in the course of their investigations, they found evidence in favour of a direct relationship analogous to that obtaining between a septic focus and arthritis, the persistence of the nephritis does not appear to depend on the continued presence of a septic focus or of an infecting micro organism. As regards treatment, Professor Moorhead, while admitting the absolute necessity for rest in the early stage and as long as haematuria continues, was not inclined to insist on its rigid continuance for lengthy periods. No special form of drug is recommended, and his trials of ammonium chloride and the diuretic novasurol, strongly advocated by the workers at the Mayo Clinic, have not engendered any enthusiasm, novasurol being much more satisfactory in cardiac than in renal oedema. Professor Moorhead then considered, but only to reject, the operation of decapsulation. In uraemic convulsions bleeding

combined with lumbar puncture has proved effective, morphine—which formerly, for some now inscrutable reason, was strictly tabooed—has proved both safe and satisfactory in checking repeated convulsions, just as it does in the allied condition of eclampsia.

BACK TO HUNTER

Why is it that the leading surgeons of to-day have cold shouldered zoology? Dr W. Cohn Mackenzie, who made his high and deserved reputation as a practising orthopaedic surgeon in Melbourne, has answered this question in an address on 'The importance of zoology to medical science' which appears in our present issue, at page 534. His explanation is that zoology as taught to-day is divorced from what is vital to medical men—the study of function. As Dr Mackenzie points out, it was not always so. John Hunter studied comparative anatomy to discover function, for Hunter, structure was "the register of function." Lamarck, who worked in the generation which succeeded Hunter, was a physiological zoologist, his contemporary, the great Cuvier, on the other hand, was not interested in function. Sir Richard Owen, who was strongly influenced by Cuvier, became enamoured with the science of Form or Morphology. Then the Darwinian period followed, when the interest of zoologists was concentrated on evolutionary problems.

Surgeons of to-day grew up on evolutionary zoology and could see nothing in it which bore in any way upon the practice of medicine. Hence their present attitude towards general zoology and comparative anatomy. It is true that in these latter days there has been a revival in knowledge of economical or applied zoology. Such knowledge has become necessary for certain branches of medicine.

Dr Mackenzie contends that zoology or biology rightly taught and studied yields the key to many medical problems. He advocates a return to the methods and outlook of Hunter and of Lamarck. This return, however, must not be made empty-handed: we must take back with us what we have learned from Lister, from Virchow, and particularly from Darwin. It was Darwin who taught us to look upon the human body as having a history. The real problems of evolution as Dr Mackenzie rightly maintains relate not to structure but to function. Man's body is a huge, wonderfully dove-tailed conglomerate of functions. If we are to study aright we must direct our attention to the order, time, and circumstance in which each item of this huge conglomerate has been acquired.

Dr Mackenzie seeks to illustrate his thesis by citing the most fundamental function of man's body—that of posture. Posture is not a matter of shape of bone or conformation of joint, but of nerve and muscle, it is the result of a complex of neuro-muscular mechanisms. Dr Mackenzie sees an early stage in the rise of the postural mechanism in the lizard of Australia, a later one in the monotremes, a peculiar specialization of it in the kangaroo, a more generalized expression in the tree opossum. The final stages which lead on to man's erect posture are to be observed amongst primate forms—in lemur, monkey, and anthropoid ape. Every animal is an experiment in posture, man's posture is the accumulated results of a long series of acquisitions. Dr Mackenzie maintains that the order of acquisition is revealed by disease: disease tends to attack the latest and then work backwards. Unless we have the key which zoology provides we cannot understand what we see.

This decline of function is not only preached by Dr Mackenzie, he practises it. He is mainly responsible for a great experiment which has been launched in Australia and which we in Britain will follow with a sympathetic interest, for it is an attempt to realize the ideal of John Hunter. When it was determined to centralize the Commonwealth Government at Canberra a scheme was sanctioned for the creation of a National Museum of Australian Zoology in the new capital. Dr Mackenzie was called upon to organize and direct this great undertaking. His lecture reveals to us the lines on which he is to proceed. The museum will be arranged on a scheme which will illustrate the manner in which animals live, move, and have their being: it will follow the plan of Hunter's museum. Animals are to be studied alive as well as dead: structure both macroscopic and microscopic is to be correlated with function. The problems relating to the maintenance of animal health, as well as the prevention and cure of disease, are to be illustrated. It is to be a research museum, ever inquiring into zoological problems with an eye which is alive to those of medicine. The care of the fauna of the whole Australian continent will be centred in the directorate of the museum: the rarer forms, many of which are threatened with extinction will be protected as well as studied. Zoology is to be a handmaid to medicine. Truly Australia has launched a great experiment.

Dr Cohn Mackenzie is a declared Lamarckian, he believes implicitly in the inheritance of 'acquired characters'. It is quite true that Lamarck has supporters in all civilized countries, his is an easy way of explaining the evolution of new structures of a purposive kind. Yet as evidence accumulates as we come to know more intimately the processes which fashion the embryo and which control and co-ordinate the vital processes of the body, the less satisfactory does Lamarck's explanation seem to be. But of Dr Mackenzie's main thesis—that function rather than structure should be our main study—there can be no question and his present advocacy of the bearing of such studies on the advance of medicine is most timely.

PSYCHOLOGY IN THE MEDICAL CURRICULUM

As recorded in our last issue (p. 498), "the place of normal psychology in the medical curriculum" is the subject of a report just published by a subcommittee of the British Association. The report points out that half the medical schools in the British Isles offer no facilities whatever for the instruction of their students in normal psychology. This is in striking contrast to the provision made in the Dominions and in the United States, where all the well-known schools offer such instruction, always on an ample, and sometimes on a lavish, scale. In those countries also the course in normal psychology is the prelude to instruction in abnormal psychology, which is taught in addition to the statutory course in mental diseases. Such a consecutive scheme is seldom found in this country, and where it is found is still more rarely compulsory. One or other of the alternatives indicated by this contrast of conditions at home and abroad must be right, either instruction in normal and abnormal psychology is needed by the future practitioner very urgently, or the necessity is slight. It is now universally admitted that a large part of every doctor's practice consists of minor conditions of a "functional" nature, in the sense that the symptoms depend primarily on the state of the patient's mind. To teach abnormal psychology—which is the knowledge of such states of mind—to students who have had no preliminary grounding in normal

psychology is like giving instruction in fractures to those who have never been taught anatomy. Nor does the statutory course in mental diseases cover more than a small part of the field of abnormal psychology, and that perhaps the least important portion for the general practitioner. The subcommittee has therefore suggested that the compulsory course in normal psychology should be followed by a similar course in abnormal psychology, which would then become part of the statutory instruction in mental diseases. In this way the student may be equipped to some extent to deal not only with definite mental illness, but with the innumerable anxious and hysterical states which masquerade so often in the guise of some physical ailment, and constitute so considerable a proportion of every practice. We are of opinion, however, that if a course in normal psychology is to be a useful prelude to such comprehensive instruction in mental pathology, it must have definite regard for medical needs, and must deal primarily with the individual as a whole and as a human being. The time-honoured accounts of association, discrimination, and the like, and what has commonly passed for a description of the emotions, must be modified to fit the facts that the student will encounter in his patients. The programme outlined by the subcommittee is an important contribution to the problem of the education not only of the practitioner, but through him of the public, for if it were adopted the public would much less often seek the services of that acute but not often profound student of human psychology, the unqualified practitioner of varying designation.

CONSERVATIVE TREATMENT OF APPENDICITIS IN A RURAL AREA

From time to time most important research is carried out with the simplest of means in country districts where the general practitioner is unable to enjoy the benefits of libraries and technical institutions, and of intimate communion with the leaders, for the time being, of the medical profession. Of the value of such communion to most men there can be no doubt. But now and then it would seem that isolation helps a mind of a certain type to escape from the stereotyped ruts into which dominating personalities are apt to force their fellow beings. In his rectorial address at St. Andrews University (1926) Fridtjof Nansen said "I tell you deliverance will not come from the rushing, noisy centres of civilization. It will come from the lonely places." Thoughts such as these come naturally to the mind on the perusal of a paper by Dr. Nicolai Nissen in the journal of the Danish Medical Association with the title "Twenty years' experience of appendicitis treated on conservative lines." Some score of years ago, and after serving for several years as a hospital intern, the author settled down in general practice with a vivid mental picture of appendices hot and appendices cold, brought to the light of day by the doctrine that operation is the sovereign remedy for appendicitis. Among the hospital memories with which he entered on general practice was that of an able-bodied young man who jumped lightly on to the operation table to have an appendix removed which had been slightly inflamed several months earlier. Sepsis supervened with fatal consequences. Having settled about four Danish miles away from the nearest large hospital, Dr. Nissen proceeded to treat his patients on the conservative lines laid down by his fellow countryman Dr. With. Thanks to the careful records which were kept he was able, after twenty years, to present rather impressive evidence in favour of his unsurgical heresy. Of his 93 cases he discarded 12, because he could not be quite sure that the diagnosis of appendicitis was correct. It should be noted, however, that all these 12 patients, who

were treated as for appendicitis, recovered. So did all the remaining 81, in whom the diagnosis of appendicitis depended on the existence of the four cardinal symptoms: pain in the abdomen, vomiting, fever, and tenderness over McBurney's point. Several of these cases, as Dr. Nissen's published records show, were very severe, but in the acute stage only 3 patients were sent to hospital, and 13 others were admitted later on to hospital for operation *a froid* because relapses had rapidly followed the first attack. For the sake of comparison Dr. Nissen publishes the appendicitis records for four years of a Danish hospital which he names Q. Here 247 cases of appendicitis were treated, 58 for chronic and 189 for acute disease. Among these cases there were 19 deaths, all after operation *a chaud*, 16 being due to general peritonitis, 2 to sepsis, and 1 to broncho-pneumonia. Dr. Nissen then paints with light but lurid touches the picture of the patient hurried off to hospital for an operation. First of all there is the psychic shock of the announcement that an operation is inevitable. "There sinks into his mind a state which the English describe as 'downhearted'—a bad companion for an operation." Then there is the Calvary of the transport to hospital, during which the patient not only becomes chilled, but also jolted, he the attendants ever so careful. "Can any doctor believe that all this can happen without a loosening of the still frail barriers formed by adhesions which prevent the escape of the infection into the peritoneal cavity?" Dr. Nissen's treatment may be simple, but it also entails scrupulous care. When he considers the case serious enough he gives an injection of morphine forthwith. In other cases tincture of opium, 10, 15, or 20 drops, is given at six hourly intervals, precisely at 6, 12, 18, and 24 o'clock. A few more drops of morphine are given if the pain has not passed off in twenty-four hours. Only water, tea, and oatmeal gruel are given, and not until the temperature has begun to become normal is milk permitted. The bed-pan is used for passing urine as well as faeces, and, to avoid disturbance of the patient by the making of his bed, a tightly stretched draw sheet is secured under the pelvis. The patient is sternly told to lie still in bed, if he must needs move a little he must do so only with his arms or left leg and it is explained to him that the diseased appendix rests on a muscle passing down to the right leg, and that if it be flexed the swollen appendix may easily be torn. Hot compresses being difficult to regulate under rural conditions of nursing, a good substitute is a warm sandbag lying along, and slightly under, the right side. These, in short, are the lines on which Dr. Nissen has achieved his unbroken record of successes, they depended, no doubt, in large degree on his personality—on his ability to impress on the patient and those around him the necessity for observing conscientiously every detail of his regime. He may not, perhaps, convince all his colleagues that he is right in his conclusion "In the country With's treatment at home is the only correct treatment for acute appendicitis." But he sets a striking example to his rural colleagues in the matter of patient and consistent observation, and he has provided matter wherewith the practitioner may console himself should geographical or other conditions prevent him from sending his patient straightway to hospital.

THE HISTORY OF HOSPITALS

SOME years ago it was not unusual to find in histories of the rise of Christianity on the ruins of paganism the statement that public charity to the sick and the establishment of hospitals were unknown before the days of Constantine the Great. A wider view of the ancient world, based on a greater knowledge of ancient society in Asia, as well as Europe and Northern Africa, has shown that hospitals for the sick were established long before the Christian era.

The Vicary Lecture on this subject delivered by Dr George Parker of Bristol, has recently been published in the *British Journal of Surgery*.¹ Dr Parker has surveyed the whole field, and as a result of his studies is able to assure us that "the earliest beginnings we know of can be traced to about the sixth century B.C., in places far apart, both in the West and distant East." It is a curious and unexplained fact that there is no evidence of the existence of hospitals in Assyria, Babylon, early Egypt, or China. In the case of Egypt their absence is hardly surprising, seeing that the time Egyptian culture had disappeared by the sixth century B.C. It is, however, surprising that China, which so readily accepted Buddhist teachings, should not have adopted the Buddhist practice of founding hospitals, yet, as far as we know, there were no hospitals in China until, in quite recent years, they were established by Christian missionaries. We confess to some surprise at Dr Parker's statement that "In England, besides monastic infirmaries 577 hospitals and asylums were founded between 1100 and 1400." As the population in 1400 is not likely to have exceeded three millions, and after the ravages of the Black Death was probably much less, this would give a ratio of one hospital or asylum to every 5,200 of population, leaving out of account the monastic infirmaries which Dr Parker excludes. No doubt many, if not most of these establishments were not hospitals in the modern sense of the word, but refuges for the sick poor, just as the existing St Bartholomew's Hospital was in its earlier days. This is a distinction which Dr Parker is careful to draw, but making, as he does, large deductions on this account the number of places for the treatment of the sick and wounded, in non-Christian as well as in Christian lands, is simply astounding. It is to Gautama and his followers that we owe, apparently, the hospital idea. Buddhist hospitals in India existed before the invasion of Alexander which, moreover, only touched the northern part of that country. The Persians early founded hospitals, and at Gondishapur we are told that there was a flourishing medical school, composed partly of Zoroastrians and partly of Nestorian Christians. In Greece, as is now well known, there were numerous institutions of the Aesculapian cult, where cures were wrought more by magic than by medicine. The more scientific Hippocratic schools do not appear to have had hospitals at their disposal, although there is not much evidence on this point. We cannot follow Dr Parker in his fascinating study of the Christian hospitals, and must content ourselves with a warm recommendation of his lecture to all who care for this interesting section of the history of medicine, nor will space allow us to do more than mention his researches into the history of Moslem hospitals, which are full of instruction for most of us.

TERMINAL DISINFECTION

When in the latter half of the nineteenth century, people came to realize that the world they lived in was thronged with invisible germs, which crowded its surfaces, swarmed in its waters, and even floated on the circumambient air, and when in addition, they were credibly informed that these same germs were the probable cause of maladies of the communicable type, they naturally enough, in their then state of knowledge, with bacteriology in its infancy, supposed that since the germs were ubiquitous, diseases threatened on every hand. Lord Lister, during the pioneer stages of his methods which transmuted the art of surgery, was inevitably influenced to some extent by the outlook of his day. Believing that wound infection came

from the air, he operated for a time in an antiseptic atmosphere under the carbolic spray. When it became clear that the wound infecting bacteria were not the casual denizens of the air, but were carried directly into wounds in the net of manipulation, the carbolic spray, having served its turn, was withdrawn from the uses of surgery. Some have thought it remarkable that the science of hygiene, which has such an intimate association with bacteriology, should have been thus outpaced by the surgical art in the application of bacteriological principles to its field of work. The practice of terminal disinfection, or the general disinfection of premises after the recovery, death, or removal to hospital of a case of infectious disease, proceeds on the assumption that the germs of the disease from which the sick person suffered are not only present on the floor or walls of the apartment in which he lay, but are in these situations a source of imminent risk of transmitting the disease to others. Such an assumption is at variance with the revealed facts of biology. Most of the pathogenic protozoa—apart from such as may survive for brief spaces in natural water, as to which there is no question here—are obligatory parasites, and cannot maintain themselves outside the vertebrate or invertebrate body. The pathogenic bacteria—apart from the pathogenic-spore-formers found in the soil—habitated in the body of man to a temperature of 37° C and a moist protected existence, lose their virulence and perish quickly in the cool arid outer world. While the patient is still present in the house the germs of his disease, passing directly to another person, have the power to infect, when he goes, the risk of infection goes with him. Once he has gone, except for such material as his bedding, which has been near his person, any live bacteria on the premises are moribund, and both the need and the opportunity for disinfection have passed. Yet the costly and laborious practice of terminal disinfection is still the firmly established routine of most public health local authorities. Here and there, and from time to time, enlightened administrators, including Dr T. F. Dewar of the Scottish Board of Health, have entered protest or counselled moderation, and for certain diseases more rational measures have begun to be adopted. The case for the abolition of needless terminal disinfection will be notably strengthened by the views expressed by Professor Carlos Chagas, the director-general of public health in Brazil, whose name is well known in connexion with the sleeping sickness of South America, of which he discovered the contagium vivum. Professor Chagas's article,¹ originally published in French, is now printed in English in a booklet with a preface by Dr Dewar. Methods for the prevention of infectious diseases, he says, ought to be essentially founded on the conviction that the sources of infection are living bodies, and not places or inanimate objects. Terminal disinfection with a view to the purification of rooms and articles contained therein is an antiquated and unjustifiable procedure. It should be replaced by simple cleansing preferably by domestic methods. If current disinfection is properly performed there will be nothing left for terminal disinfection to do. The eponymous patron of Chagas's disease, a disease which is conveyed by a bug, will probably agree that the terminal disinfection of premises in England for the destruction of insect vectors of disease is still a useful proceeding. As regards the particular subject of his article, it would appear to be the case that, on the grounds alike of economy, common sense, and scientific consistency, a general halt should be called to the exhaustive terminal disinfections now employed by public health authorities for some common infectious diseases of this country.

¹ The Early Development of Hospitals [before 1348] *British Journal of Surgery* vol. xvi No. 61 1928.

¹ On the Practice of Terminal Disinfection By Professor Carlos Chagas. Edinburgh and Glasgow W. Hodge and Co. Ltd. 1928 (5) x 84 1P 4S 2s 6d. net.)

ABSENTEEISM IN COAL MINES

SOME eighteen months ago the Industrial Fatigue Research Board published the results of an inquiry into the relation of atmospheric conditions to the working capacity and accident rate of miners, an account of the conclusions reached appeared in our columns on February 5th, 1927 (p 246). In continuance of this line of inquiry the same workers have now completed a further study,¹ based on records of absenteeism relating to about 23,000 miners, with the object of measuring the relation of different kinds of absenteeism to various operative factors, and more particularly to depth of working and atmospheric conditions. The complexity of any problem arising from absenteeism will be at once apparent to all who have any experience of the working of national health insurance, the Board, in a preface to the report, emphasises the need for caution—which the authors, Dr H M Vernon and Mr T Bedford, admit—in accepting the conclusions remarking that the question involves not only physiological factors, but also a number of social ones. In the present case the importance of the latter factors has probably been reduced by taking a group of collieries in the same neighbourhood and apparently subject to the same social conditions. It is also pointed out that correlation between one variable and another, which was the principal test applied in the report, implies association and not necessarily causation. Nevertheless, after taking these qualifications into account, the report is an exceedingly interesting and suggestive document, the chief conclusions relating to “the extraordinary sensitiveness of the miner to his conditions of work and his general environment.” It has been found that “any and every change of condition affects, not only his voluntary absenteeism, but in addition the time lost by sickness and accidents as well.” It is suggested, therefore, in the report that the most valuable method of reducing absenteeism is to improve the conditions of work. Among factors considered were the depth of the workings and the underground temperature (which are closely related), the air velocity, the thickness of the seam, the labour turnover, and the age of the men. It was found that total absenteeism varied with the depth and mean temperature, a rise of 13° F in the dry-bulb temperature was associated with a 63 per cent increase of sickness in the coal face workers, while a rise of 10° was associated with a 74 per cent increase of sickness in the other underground men. Absenteeism from sickness and from accidents was related also to the air velocity, accident frequency rose sharply with a rise in the underground temperature, but accident severity was not much affected. The rate was considerably higher in the working of thick seams—through falls of coal being more numerous—while minor accidents varied in frequency with output and labour turnover. Accident rates were found to be closely related to the ages of the men, and to vary greatly at different hours of the shift, in men working at the coal face at high temperatures the maximum frequency was reached at the last full hour but one, while in those working at low temperatures it was not reached until the last full hour. Voluntary absenteeism increased with the distance walked underground by the men, with the distance separating the collieries from their homes, and with the labour turnover, and was also influenced by the proximity of large towns. The report, it will be seen, has opened up a wide field for investigation, presenting a series of problems of which only a few come within the sphere of the Fatigue Research Board. Others will presumably be regarded as matters for the consideration of the Safety in Mines Research Board,

whose new laboratories in Sheffield, as announced in the *Journal* of September 8th (p 472), are to be opened in October, while others, again, must be left to the individual units of the industry itself for solution.

THE INTRATHORACIC AND INTRAPERICARDIAL PRESSURES IN MAN

It has been generally believed, perhaps upon insufficient evidence, that the act of inspiration is an important factor in the mechanics of the circulation. The increase in thoracic volume which occurs when a breath is taken has been thought to draw, not only air into the lungs, but also blood into the heart. That this conception is open to criticism, and that our knowledge of the variations in intrathoracic tension is far from complete, has been shown by Dr Alfred Kendrew¹ in his review of the subject. Over a century ago the work of Carson established the fact that the intrapleural pressure was rather below that of the atmosphere, this finding was later corroborated by Donders, and it has since been commonly accepted that the pressure within the pleural cavity varies between -6 mm Hg in expiration and -7 or -9 mm Hg in inspiration, taking the atmospheric pressure as zero. The fallacy which is tacitly implied in most textbooks of physiology, and which the author seeks to expose, is that this negative pressure results in constant suction of blood from the great veins into the heart. He further argues, supporting the theory of Kroetz, that because the fibrous pericardium is inextensible the intrapericardial pressure must be that of the atmosphere, and that therefore the furtherance of the circulation by negative circumcardial pressure is impossible. There are, however, other aspects than these to be considered. It is clear that if any phase of the respiratory cycle promotes the venous return to the heart it must be that of inspiration, during the expansion of the thorax the additional available space must be filled by air or blood, or both. Air flows steadily into the lungs, and since the pressure in the great veins is generally rather greater than that of the atmosphere, it must be inferred that some of the blood in them helps to fill the expanding thorax. Again, during inspiration, the negative intrapleural pressure must be transmitted directly to the walls of the great veins, which are not inelastic, so that this process may also facilitate venous return. These are probably only subsidiary factors in the mechanics of the circulation, and the author certainly justifies his main contention as regards the part played by pressure changes within the pleural cavities. He regards the fall in venous pressure which occurs during inspiration as due to the increasing capacity of the lungs for blood, the right side of the heart being thereby relieved. It has been argued in the past that were it not for the intrapleural negative pressure blood could not return to the heart and the circulation would stop. That this reasoning is questionable is clear from a consideration of the volume changes in the heart. At any given phase in respiration the contraction of the heart makes more space available in the thorax. That part of this space is filled by suction of air into the lungs has been experimentally demonstrated, but it seems reasonable to suppose that blood flow into the great veins is also promoted. Dr Kendrew has raised very vital problems in his work on this subject, and has obviously given much thought, not only to the physiological and medical issues involved, but also to the underlying physical principles. It will be a pity if his very suggestive paper fails to stimulate further research into the mechanics of the circulation, with special reference to the relation between intrathoracic pressure changes and the venous return to the heart.

¹ A Study of Absenteeism in a Group of Ten Collieries. By H. M. Vernon M.D. and T. Bedford Ph.D. (assisted by C. G. Warner B.Sc.) Industrial Fatigue Research Board Report No. 51. London: H.M. Stationery Office. 1928. 2s. 6d. net.

² A New View of the Intrathoracic and Intrapericardial Pressures in Man. By Alfred Kendrew D.M. Oxford: B. Blackwell. (Cr. 8vo. pp. 8. 1s. net.)

FREE IMPORTATION OF SCIENTIFIC FILMS

The Commissioners of Customs and Excise have issued a notice to various scientific societies regarding the importation free of Customs duty of approved scientific films, and explaining the procedure to be adopted by organizations desirous of availing themselves of the concession granted in this connection by the Finance Act, 1928. An account of the incidents which preceded the movement to secure this indulgence was given in the *Journal* of July 14th (p. 63), where it was shown that the effect of the duty hitherto imposed had been to exclude, or to render difficult the importation of, films of considerable scientific importance, but of no commercial value to their owners or others. The question was raised in the House of Commons by Captain Ian Fraser, who was supported by medical members of Parliament, and the Chancellor of the Exchequer—after another representative of the Treasury had stated that the administrative difficulties were regarded as insuperable—ultimately agreed to reconsider the matter. It was suggested to him that the Customs authorities should agree to accept certification by responsible scientific bodies as evidence that certain films merited exemption from duty. The result of Mr. Churchill's deliberations has been the insertion in the Finance Act, 1928, of a proviso that "The Customs duties imposed by Subsection (1) of Section 3 of the Finance Act, 1925, on negative and positive cinematograph films shall cease to be payable in the case of a film which is certified by the Royal Society of London for Promoting Natural Knowledge to be solely an illustration of scientific investigation for exhibition before members of a recognized scientific body, and which is imported only for the purpose of such exhibition free of charge." In the Customs notice referred to above it is stated that any society or person desiring to import films under this concession should, in the first instance, apply to the Commissioners, giving the following particulars: Whether positive or negative, whether developed or undeveloped; length of film in feet; full particulars of the subject of the film; name and address of applicant; proposed method of importation (in passenger's baggage, by parcel post, or otherwise); date of proposed importation and port of entry; if known, name and address of scientific body before which the film is to be exhibited; and the date of exhibition.

INTELLECTUAL CO OPERATION

The movement towards what is known as intellectual co-operation fostered by the League of Nations (writes our correspondent from Geneva), is steadily gaining ground. The Institute of Intellectual Co-operation, domiciled in Paris but a League offspring, is now subsidized by eleven nations. The committee which takes this sphere of the League's work under its control is presided over by Professor Gilbert Murray, in succession to the late Professor Loewy, and has among its members some eminent European scientists, including more than one professor of medicine. Professor Gilbert Murray reported to the present assembly that interchanges of professors and students between universities in different countries had been encouraged, and that there was now proceeding an interchange of secondary school teachers. These interchanges are of the same character as those of public health officers, undertaken by the Health Organization, and appear to be equally fruitful. It is noteworthy that the American Council of Education has placed a sum of money at the disposal of the committee for the purpose of an inquiry into university relations in Europe and the facilities available there for American students. The question of travelling or exchange scholarships has been remitted to a committee of experts with a view—the reference is rather vague—to reaching conclusions that will be applicable not

only to scientific laboratories, but also to research institutes, in the field of humanities and social science." A draft convention has also been formulated with the object of assuring for scientists the financial benefits which are justified by the profitable use of their discoveries—in other words, to prevent the unauthorized and unacknowledged use in one country of the work of a scientist of another. The British Government, however, has found some technical fault in the convention, which as drawn up, it considers, would interfere with industrial activity, and the matter has not at present gone further than the sphere of proposal. An attempt is being made to bring libraries and universities of all countries into a scheme of co-operation whereby scientific or bibliographical information may be made mutually available. Another enterprise aims at the removal of undue hindrances, in the shape of Customs barriers and postal tariffs, to the international distribution of books. It is intended to urge that scientific works, particularly works intended for libraries and scientific institutions, should be exempt from Customs duties. The question of scientific works published in the less known languages has also received attention; it appears that in the countries where such works have been published there is already a sufficient recognition of the need of securing translations in one or other of the more widely diffused languages. The language difficulty, as anyone who has attended an international congress will agree, is the principal hindrance to full international co-operation and understanding. In spite of the skilled army of interpreters at Geneva, difference of language is a constant impediment, leading every day to embarrassment and frustration, and sometimes to even more disagreeable results. If the Committee on Intellectual Co-operation would urge a wider acquaintance with the French language amongst English speaking peoples, and with the English language among the Latin peoples, a great deal of good might be done.

INTERNATIONAL HOSPITAL CONGRESS

The first International Hospital Congress will be held in Atlantic City on June 13th, 14th, and 15th, 1929. Hospital administrators, physicians, surgeons, nurses, architects, engineers, and others interested in hospital questions are invited by the American Hospital Association, which has taken the initiative in this matter. Official invitations to the various Governments are to be sent through the intermediary of the Secretary of State in Washington, and at the same time a questionnaire on the hospital situation and hospital statistics in each country is to be circulated. The official delegates are invited by the American Hospital Association to visit the hospitals of New York, Philadelphia, and Baltimore between June 5th and 12th. Further information may be obtained from the chairman of the International Executive Committee, Dr. Reno Sand, the League of Red Cross Societies, 2, Avenue Velasquez, Paris, or Dr. E. H. Lewinski-Corwin, Secretary-General of the International Executive Committee, Hospital Information and Service Bureau, United Hospital Fund, 2, East 103rd Street, New York.

As announced in our advertisement columns, the Royal College of Physicians of London invites applications for the post of Milroy Lecturer for 1930. The course consists of three lectures, which are to be delivered on Tuesdays and Thursdays in February or March, 1930. A copy of Dr. Milroy's suggestions on the subject of his bequest, and information as to the emolument, may be obtained from the Registrar, Dr. Raymond Crawford, to whom applications must be forwarded by September 29th next, addressed to him at the College, Pall Mall East, S.W. 1.

WOMEN IN THE SERVICE OF HOSPITALS

MEMORANDUM BY JOINT COMMITTEE OF WOMEN'S
ORGANIZATIONS

In the *British Medical Journal* of May 12th, 1923 (p. 821), we reported a conference held in London under the auspices of the National Union of Societies for Equal Citizenship to consider the question of women in the service of hospitals, when a resolution was adopted protesting against the recent decision to exclude women medical students from a number of London general hospitals with training schools. As a result of that meeting a joint committee of women's organizations to promote equal opportunities for women with men in the medical and hospital services was set up, with offices at 15, Dean's Yard, Westminster, S.W. 1, and a memorandum on the subject generally has now been published in pamphlet form (price 2½d post free).

The memorandum is divided into three parts: the first on the training of women medical students, the second on equal opportunities in hospital appointments, and the third on women on hospital boards of management.

Training of Women Medical Students in London

This part of the memorandum opens with a survey of the present position as regards the training of women medical students in the metropolis. One medical school—the London (Royal Free Hospital) School of Medicine for Women—is reserved exclusively for women. University College Hospital Medical School permits not more than twelve women entrants a year, of whom eight are taken from the students of University College leaving four vacancies for students from elsewhere. The medical schools of three hospitals (St. George's, the London, and St. Mary's) which for some years admitted women students, have now closed their doors to them, and three others (Westminster Charing Cross, and King's College) have decided to admit no new women entrants while allowing those at present in training to complete their course. The numbers of women in all stages of the curriculum who availed themselves of these facilities in 1926-27 were as follows: London (Royal Free Hospital) School of Medicine 298, University College Hospital, 59, University College, 44, King's College Hospital, 67, King's College, 54, St. Mary's, 57, Charing Cross 45, Westminster Hospital, 30, making 654 in all.

While paying tribute to the admirable work done by the London School of Medicine for Women, the committee understands that the clinical facilities available for students of that school are already more fully utilized than those of most of the hospitals which have lately closed their doors to women. It feels, therefore, that the facilities to which women are now once more restricted can be regarded as adequate only on the assumption that the number of women requiring training is, and is likely to remain for a considerable period, less than the present figure.

Coming to the suggestion that the influx of women into medicine during the war years was abnormal, and that the number has diminished and is likely to diminish further, and that no hardship will therefore ensue from this drastic reduction of facilities, the committee submits that on the contrary, though the number of medical women may fluctuate from time to time, the general tendency will be towards a steady increase. The following causes are assigned for this anticipated increase: (a) the growing demand for women doctors under local authorities, (b) the strong probability that within a few years either the system of national health insurance will be extended to cover dependent wives and children, or a national health service covering these classes will be set up, (c) the steadily growing demand for women doctors not only among the above mentioned classes, but also among those employing private practitioners, (d) the growth of population, (e) the increased demand that may be expected for doctors to practise in the East, especially in India, (f) the growing need felt by the middle classes, especially the professional classes, to seek careers for their daughters.

Assuming, then, that the facilities now in prospect are inadequate, the committee submits that it is the duty of all those who share the responsibility for medical education in London to remedy this defect. The statutory obligation on the University of London to afford equal educational opportunities to all students without distinction of sex could, in theory, be fulfilled either by permitting coeducation in some of the schools now reserved for men, or by creating fresh facilities for women only.

While expressing no opinion as to the relative advantages of coeducation or separate education, upon which teaching experts, both men and women, are said to be divided, the committee is in favour of free choice, both types of schools being made available. The alleged dislike of coeducation among men students and the arguments based on this should not, in its opinion, be allowed to weigh against considerations of justice and expediency, which call for a fairer sharing, as between men and women, of the training facilities offered by the medical schools, whether this takes the form of joint or of separate education.

To the claim that because most of the existing institutions have hitherto been 'men's medical schools' women have no rights in regard to them, the following reply is made:

(a) The existing male monopoly in the hospitals and medical schools is a survival of conditions under which women were excluded altogether from the medical profession and from nearly all public offices. It cannot be held to have created a vested interest. These institutions exist for the benefit of neither men nor women doctors but of the sick and suffering.

(b) The hospitals and medical schools are supported by the public irrespective of sex. So long as these institutions were maintained mainly by individuals who could choose the destination of their subscriptions there may have been some justification for the claim of their committees and boards to administer their affairs just as seemed good to them, so long as their subscribers were satisfied. But the individual subscriber to an individual hospital is becoming an increasingly less important factor in hospital finance in comparison with funds to which men and women subscribe more or less compulsorily—e.g. through taxation or deductions from wages or contributions to street or church collections, etc.

Equal Opportunities in Hospital Appointments

It is, the committee says, plainly a great handicap to women in their medical careers if the appointments normally open to recently qualified students, such as those of house physician and house surgeon, are available for them in a much smaller proportion than to male students. We would go further and remark that equality of opportunity is also necessary with regard to the more important honorary appointments.

We urge, therefore, that whatever changes are made to provide further training facilities for women shall be made in a large-minded and ungrudging spirit. In claiming for women full equality of opportunity in this and every other part of the medical service, we wish to make it plain that we do so not merely as a matter of justice to women doctors themselves, but equally or perhaps even more in the interests of the public whom they exist to serve. Where issues of health or sickness, of life or death are at stake, nothing but the best is good enough. We believe it is generally admitted by the medical profession that women doctors on the whole have loyally upheld its standards, have never sought to use their sometimes exceptional economic position—their lesser burden of dependency—to undercut or outbid their male colleagues. We wish it were equally plain that the same spirit of loyalty and fair play was holding in check the not unnatural desire of some of the junior or less well qualified male members of the profession to limit the number and opportunities of their women competitors.

Women on Hospital Boards

Under this heading the committee expresses astonishment at that even in the sphere of lay management a considerable number of hospitals either exclude women altogether or have placed them only on subordinate committees entrusted with minor functions, seeing that the duties of boards of management are concerned very largely with questions of nursing and domestic administration. The memorandum concludes with a table showing the position with regard to women on committees of management in those London hospitals which have recently excluded women students from their medical schools.

Canada.

[FROM OUR CORRESPONDENT IN MONTREAL]

Mental Hygiene in Canada

It can hardly be said that problems of mental hygiene occupy a larger place in western Canada than elsewhere in the country, but they do exist there, as elsewhere, and keen interest is being shown in their study. This was found to be the case by the director and secretary of the Canadian National Committee for Mental Hygiene on a visit to the four western universities in June last. Each of these centres was found to have trained workers who were willing to co-operate with the committee in every respect, and to follow out suggested studies. The immigrant population provides many problems of this nature, and it is being recognized that the large proportion of the population of the mental hospitals, gaols, and charitable institutions which is being contributed by the incoming settlers may be reduced by sympathetic and intelligent study of the people on their arrival, of their capacity for education, their industrial and artistic capacities, their adaptability, and so on. Thus, naturally, is a large programme, it requires the co-operation of a mental hygienist with the anthropologist, the educationist, and the sociologist. But these formidable-sounding specialisms only serve to stimulate the irrepressible optimism of the West, and the various problems are being faced with cheerful confidence. It is no small additional stimulus to recall that Canada is spending more than nine million dollars a year for the care of end-cases of mental and social disharmony.

Medical Aspects of Immigration

It is to be hoped that immigrants will gradually come less and less to provide material for the care of the mental hygienist. A timely paper on the medical aspects of immigration into Canada has been published by Dr J D Page, chief of the Immigration Medical Division of the Federal Department of Health. In this he reviews the whole history of the medical side of the Canadian Immigration Law since its inception in 1903 and shows that while the law was well designed to protect the country from the entry of medically unsuitable settlers, its operation as regards the medical examination of the immigrants was always hampered by an insufficient number of examiners. As time went on steps were taken to remedy this lack, but it gradually became evident that the weakness of the system lay not so much in the number of men detailed to examine immigrants as it did in the fact that the examinations were made on the wrong side of the Atlantic. It was the realization of this that finally led to the appointment of medical men by the Canadian Government, by whom all intending immigrants were required to be examined before embarkation. This system has only been in operation since February last, and it is therefore too early to say how it will do, but the underlying principle is sound, and it is expected that it is only a matter of the medical examiners gaining sufficient experience to make the plan as successful as can be expected. The criticism which it produced was traced to certain shipping interests, these professed to see in the new regulations a deterrent to immigration, and in support of this it was demonstrated that the immigration to Canada for the first three months of this year was 12 per cent less than during the corresponding period in 1927. It would be almost sufficient to reply by saying that if, as was possibly the case, this falling off was partly due to stricter medical examinations then the country could hardly be regarded as having suffered much loss. There is also the fact to be considered, however, that a corresponding decline in immigration (indeed, a greater decline) was noted for the same period to Australia, New Zealand, and the United States.

Annual Meeting of the Canadian Medical Association

The annual meeting of the Canadian Medical Association has an increased attendance each year, with a continual development of interest in general medical affairs. This is all the more noteworthy because it is only within the last seven or eight years that it has been possible to feel that the organization of the Association has really taken root.

We can now see it bringing forth its fruit in increasing abundance. The meeting this year, however, was a little different from those of recent years. It was held at Charlottetown, Prince Edward Island, a new venue, and one which it was felt at first might cause difficulty in the matter of accommodation, in respect of which the modern convention is apt to be so exacting. In addition to this Prince Edward Island is at the extreme eastern extremity of the Dominion, and this would certainly diminish the number of those coming from the West. The completeness with which the first difficulty was surmounted might have been hoped for, but could not have been quite expected. The people of the island as a whole seemed to take the visitors in hand in the fully successful attempt to live up to their traditional hospitality. The second difficulty was largely overcome by an exceedingly pleasant scheme—the chartering of a steamer to bring down members from the central and western regions. Many took the opportunity of a trip which was planned to include the historic and picturesque, and the party arrived at Charlottetown in the best possible humour for the convention. It may be that the programme of the convention brought out no very striking medical developments, as the papers were chosen chiefly with regard to the ordinary problems of everyday general practice. Thus, however, in the opinion of many was a distinct advantage. To one member at least—and he probably expressed the feeling of several—the meeting this year was in the nature of a pause by the C.M.A. to gather strength for the problems which it will face in greater degree as the country develops. And no more beautiful part of Canada could have been chosen for reviewing the past and making plans for the future. What happier augury, too, for the future of the Association could there be than its gathering at this stage of its growth in a city so full of historic memories in the binding together of the Dominion of Canada?

England and Wales.

Vital Statistics for 1927

The Registrar-General's *Statistical Review of England and Wales for 1927*, Tables, Part II Civil, can now be obtained at H.M. Stationery Office (price 5s.). The volume contains statistics of population, marriages and divorces, births, passenger movement, parliamentary and local government elections, and vital statistics of the British Dominions. The estimated population in thousands of Great Britain and Ireland was

	1926	1927	Increase + or Decrease— per cent
England and Wales ..	37,067	39,290	+0.6
Scotland ..	4,897	4,892	-0.1
Northern Ireland ..	1,254	1,253	-0.1
Irish Free State ..	2,970	2,938	-0.4
Total ..	48,188	48,393	+0.4

The number of marriages solemnized in England and Wales during the year was 303,370, and was equal to a rate of 15.7 persons married per 1,000 persons living. During the three years 1919-21—following demobilization after the war—the rate averaged 19.0, which was the highest recorded since the establishment of civil registration. The rate in succeeding years showed an almost continuous decline until 1926, when it was 14.3, the lowest since 1886. The number of deaths made absolute during the year was 3,190, or 568 in excess of that for the previous year. Excluding the exceptionally high number—3,080—in 1921, the total for 1927 is the highest on record. The births registered during the year numbered 654,172, and were equal to a rate of 16.6 per 1,000 population. This is the lowest recorded rate, and is no less than 1.1 per 1,000 below the abnormally low rate recorded during 1918. Not only has the birth rate declined, but the actual number of births is the lowest

registered since 1855, when the population of England and Wales was only 18,829,000, or about 48 per cent. of the estimate for 1927. The number of illegitimate births was 29,023, or 44 per 1,000 total births, and was 568 below that in 1925. The proportion of male to 1,000 female births was 1,042. This proportion showed a great increase during the war years and attained a maximum of 1,060 in 1919, since when the decline has been almost continuous, and the proportion is now approximating that which prevailed in the period immediately preceding the war. The number of parliamentary electors on the autumn register was 19,585,872, of whom 11,094,031 were males and 8,491,841 females.

International Society of Hydrology Visit to English Spas

The first visit of an international medical party to the British spas will take place next month, on the occasion of the annual meeting of the International Society of Medical Hydrology, which begins on Tuesday, October 9th. On the evening of that day the members will be received at a *conversazione* at the Royal Society of Medicine by the president-elect, Lord Dawson of Penn, who will preside over the discussions to be held in London on the two following days. The medical subjects for discussion include the relation between the State, the health resort, and national health insurance, and the humoral factor in disease. On Friday, October 12th the members will leave London for Harrogate, proceeding subsequently to Buxton, Dronwigh, and Bath, and returning to London on Wednesday, October 17th. During the tour there will be numerous discussions and demonstrations, visits will be made to places of interest, and the members will be entertained at various social functions. It is expected that the party will number over a hundred, representing seventeen nations. A limited number of places are available for medical practitioners interested in the objects of the meeting. Particulars may be obtained from the honorary secretary of the society, 139, Marylebone Road, London, N W 1.

Post-graduate Work in Manchester

Manchester offers facilities for post-graduates of a scope that is perhaps not always realized by local practitioners. For the year 1928-29 various courses have been organized—some by the University and some by the local hospitals. Those at the University are courses on stated subjects, while those at the hospitals are generally made up of independent lectures given by members of the staff. The University is providing a short intensive course in gynaecology and part-time courses in diseases of the eye and skin, in x-ray work, and in clinical pathology. The Royal Infirmary provides lectures throughout the academic year on Tuesday and Friday afternoons, that on October 23rd—the Lloyd Roberts lecture for the year—will be given by Sir Berkeley Moynihan, on "Some problems in gastric surgery." The post-graduate lecture on pneumothorax which Dr A. Ramshotbottom had arranged to deliver on September 25th has had to be cancelled owing to illness, a demonstration of surgical cases by Mr W. R. Douglas will be substituted. The staff of Ancoats Hospital will give short courses on the sympathetic nervous system, on minor operations on the ear, nose, and throat, and on advances in antiseptics.

Resignation of Dr Noy Scott.

Dr S. Noy Scott, who has retired from the post of medical officer of health to the Plympton St Mary Rural District Council, has completed thirty-five years' service in that capacity. At a recent meeting of the council, when his resignation was announced, a resolution was adopted expressing the council's regret at his decision and asking if it was not possible for him to reconsider the matter. Dr Noy Scott, however, explained that his retirement had been forced upon him largely by health considerations. A warm tribute to his work in the Plympton district is given in a leading article in the *Plympton and South Devon Times* of September 6th, which states that "he has regarded his post in exactly the spirit which Sir George Newman has endeavoured to breathe into the whole health service of the country," and describes how he has kept abreast of every forward movement in public health, so that during his term of office "the local machinery has been made

to work up to its fullest capacity." The article concludes "A skilled, diligent, and fearless medical officer like Dr Noy Scott cannot have kept watch and ward upon the public health of a district for five-and-thirty years without having made an enormous contribution to public welfare and individual happiness. He retires with the knowledge that a sound tradition has been established, and that the great sanitary policy at which he has aimed, based on a copious and constant water supply, is now certain of realization within a very few years. His neighbours thank him sincerely for his public labours and his private friendliness and wish for him many happy years of comparative leisure in which to watch the results of his long exertions come to fruition."

Gaseous Content of Buxton Water

At a meeting of the Buxton Medical Research Society on September 7th at the Devonshire Hospital, Mr J. Race, the biochemist to the hospital, communicated to the Society the result of the recent analysis of the gases issuing from St. Anne's Well made by Dr Judd Lewis. This showed the rare gases to be 120 per cent. of the total volume and to contain 96.6 per cent. of argon, 3.4 per cent. of helium, and no neon or other such gas. The absence of neon was considered an interesting feature of the analysis, since it appeared to exclude atmospheric air as a source of the helium, and afforded a sharp contrast with the gas at Bath, which, like atmospheric air, contained considerably more neon than helium. Mr Race discussed the possibility of the helium being due to the disintegration of radium, and expressed the opinion that the more probable source was a mineral such as cleveite, which had been shown to yield helium on heating. As cleveite contained the oxides of uranium and lead, the first and last members of the uranium (radium) series, this source could not be dissociated from the general idea of radio-activity, but the nature of the relationship could only be conjectured. The output of radium emanation in the gas had been estimated at 3,000 millimicrocuries per hour, a figure which compared very favourably with that of most of the Continental spas. Photographs were exhibited showing the relative effect of various waters on the growth of mustard seeds. Seeds soaked in the radio-active Buxton water germinated quicker and grew more rapidly than in tap water or in a natural water practically identical in composition with the Buxton water but free from radium.

Ireland.

Change in the Health Insurance Medical Certification Area

THE Irish National Health Commission (Irish Free State), decided some time ago to change the area of the pool for the payment of medical certification of sickness benefits under the Insurance Acts from the dispensary district to the county. The Irish Medical Committee, on behalf of the medical certifiers, forwarded a unanimous protest to the Commission against the change, but the Commission did not accede to its request, and has now addressed a circular letter to each medical certifier. The reasons given by the Commission for the change are not considered to have much foundation. In the absence of a panel system for medical certification the dispensary area was held to be the fairest alternative, as it corresponded approximately to the actual and potential practice of the medical certifiers, who did the maximal portion of the work. The Irish Medical Committee is asking the local medical committees to consider the question. In the circular letter addressed to medical certifiers the Commission states that it has had under review for a considerable time past the method of distribution of the moneys available for this service among the doctors undertaking medical certification. While the distribution of the funds available amongst the certifier in the county boroughs and urban districts has worked out generally with equitable results to the doctors, very serious anomalies have arisen in certain other certification areas included in the counties. In these areas the ultimate basis of distribution of the money available for certification under the present scheme is the dispensary district, the amount

allocated to each county being subdivided to ascertain the portion available for each dispensary district, the basis of subdivision being the number of insured persons resident in each such district. The Commission states that it has decided to discontinue the use of the dispensary district as a basis for calculating the payments for medical certification for the following reasons:

1. The adoption of the dispensary district as the unit of distribution has resulted in certifiers in adjoining dispensary districts receiving widely divergent rates of remuneration per certificate issued.

2. The system is unsatisfactory owing to the fact that it is not possible to obtain accurate figures of the number of insured persons in the dispensary districts without incurring expense, which would be very much higher than the results obtained would justify.

3. The making of calculations on the dispensary district basis entails a large amount of work and expense in this department, and it is not possible to defend the continuance of expenditure on a system which produces such obviously inequitable results.

The Commission feels that, in the circumstances, it would not be justified in continuing the provision in the schedule to the agreement necessitating the apportionment of the moneys to dispensary districts, and it has decided that, as from January 1st next, the money available for each county area will be divided amongst all the certifiers operating in that area without any reference to dispensary districts. No alteration will be made in the present method of distribution in county boroughs and urban districts. It should be understood that the proposed change relates only to the method of distribution, and does not in any way affect the total amount payable for medical certification. Practitioners are asked, if they are willing to continue the medical certification of insured and exempted persons after the date of the alteration in the method of distribution of the moneys available under the scheme, to sign and date the enclosed forms and to return them to the department.

Correspondence.

TONSILLECTOMY AND REMOVAL OF ADENOIDS

Sir,—Sir Charters Symonds's advocacy of ether anaesthesia for safety and efficiency is one of the most instructive points brought out in the correspondence on this subject, but I would support Dr Wright Lambert's practice of open ether administration, dispensing with any Clover inhaler. This is the method we have employed in Bristol since 1887, when Dr A. L. Flemming first introduced the two drop-bottle method of open anaesthesia. True, at first the one bottle of chloroform was used to supplement the ether dropped on the mask from the twin bottle, but ere long the former was dispensed with and ether alone administered by Dr Flemming for most of the abdominal, intracranial, and other operations. Flemming's methods and experiences were published in the *British Medical Journal* for September 17th, 1910 (p. 767), and were referred to by Hewitt in the fourth edition of his classical work on anaesthesia.

For many years I have never seen a Clover or other inhaler used, and am convinced that there is no increased liability to haemorrhage from ether, and that recovery from light ether anaesthesia is as quick and comfortable as after chloroform. That ether is far safer than chloroform seems borne out by statistics as well as personal experience, and in operations on the nose and nasopharynx an anaesthetic that stimulates the vagus centre in the medulla is the more desirable, since stimulation of the olfactory nerve induces reflex cardiac inhibition.

Mr Lowndes Yates raises the extremely important subject of nasal sepsis as not seldom present and being the determining cause of adenoids and septic tonsils. I have myself frequently urged the necessity of examining for the existence of nasal sepsis, and at any rate the desirability of exploring the maxillary antra, since such a procedure need not occupy more than one minute at the end of the operation on the tonsils and adenoids. When a nasal sinus infection exists it seems to cause recurrence of adenoids, which lymphoid hypertrophy is in a measure protective. But to leave a child to grow up with an unrelieved nasal sinus infection is surely a grave misfortune.—I am, etc.,

Clifton Bristol Sept 18th.

PATRICK WATSON-WILLIAMS

THE FALLING BIRTH RATE

Sir,—In your article on the falling birth rate (September 15th, p. 499) you conveniently summarize some prepositions made in a brilliant paper by Dr F. A. E. Crew (p. 477), and I should like to comment upon them.

1. "There is a law of population growth which occurs in cycles, following in the main a curve of a definite type." This idea is, in a new garb, the old Malthusian one that whenever man made an advance in food production his death rate fell and his numbers consequently leapt up, for a time.

2. "The birth rate is falling now because we are at the end of such a cycle." This suggests that the birth rate fell at the end of previous cycles, which there is no reason to believe.

3. "Density is one of the controlling factors." If great density reduces fecundity, it is surprising that there has been no decline of the very high birth rate of India and China, and that everywhere the fertility of the slums is always the highest.

4. "Voluntary control of conception has undoubtedly prevented the birth of many individual babies, but it may be doubted whether this has appreciably affected the crude birth rate or population growth cycle." These last eight words suggest that crude birth rate and population growth are synonymous terms! And surely it cannot be doubted that the tremendous fall in the crude birth rate of England and many other countries between the years 1876 and 1914 was mainly due to contraception, the great propagandist for which started in 1876. Every big inquiry into the subject has reached that conclusion. But contraception, although it has immensely affected the crude birth rates, has, I agree, not appreciably affected the population growth cycles, because it has not affected the rates of natural increase of population—that is, the fall in the birth rate was in most countries accompanied by a very similar fall in the death rate, as neo-Malthusians have long been pointing out. One effect of confusing the birth rate with the population growth, and of suggesting that contraception does not reduce birth rates, will be to hinder the much-needed movement for encouraging the poor to have no more children than they themselves can provide for.—I am, etc.,

London S.W., Sept 15th.

BINNY DUNLOP, M.B., Ch.B.

SEA SICKNESS

Sir,—Reading the letters of the different observers who kindly noticed my paper on sea-sickness (*British Medical Journal*, May 5th, 1928, p. 752), I have been struck, not only by the facts that we are ignorant of the cause of sea-sickness, and that we have no remedy for the disease, but by the suggestion that diagnosis here has its difficulties too, and that we must discriminate between true sea-sickness due to labyrinthine irritation and sickness at sea for which some digestive trouble is to blame. This is a subtle distinction that cuts the ground from under those who have been accustomed to think that sea-sickness may be caused by any sense impressions that may affect the vomiting centre at sea. Among these impressions disturbances of the endolymph may play a part, and no doubt they are the cause of the vertigo which is an accompaniment of many cases, but few will deny that sea-sickness may happen without vertigo, and there are many who are not satisfied with the existing evidence that a purely mechanical disturbance of the labyrinth is at the bottom of those cases where it does.

It is common ground that the vestibular mechanism is vulnerable from many directions: it may be affected by gross changes, permanent or temporary, in the labyrinth itself by any discord between impressions arising in the cerebellum, or in the eye muscles, or in any sense organ, with a consequent failure to co-ordinate them, by many toxins. Poisoning by nicotine occurs to the mind, and by this is meant, not the chronic toxicæmia that results in a neuritis of the eighth nerve, but the temporary indisposition that may follow the smoking of a strong tobacco. The resemblance between the symptoms of over-smoking and of sea-sickness is very close, and in the former case it would be regarded as unreasonable to suggest that the toxin

chase the labyrinth as its first mark, whence its effects spread to the vomiting centre and the pneumogastric.

Lastly, there is the psychical avenue for attack, and while the giddiness that affects many people when climbing or looking down from a height is excluded by Baniy from the true vertigo, it is dangerous to speak of functional disturbances, and to say that a man is giddy with apprehension, or that one's head is in a whirl from bewilderment or what not, is no more figure of speech, but describes a physical condition for which there is no external senso impression to account.

For a long time, though convinced that the vertigo now in question is caused by unwonted movements of the endolymph, and believing that true seasickness could occur without it, I looked for a general cause that might affect the labyrinth and the vomiting centre, either independently or together, and I give below the results of my search for what they are worth.

The patients upon whom the experiment was made number 25—too few to dogmatize upon but numerous enough to make it possible to draw reasonable conclusions from the evidence obtained from them. All were emigrants from central Europe and Syria, adult men and women of good physique—mostly simple people, intelligent enough to understand the questions put to them, and without the imagination that makes the more cultured especially among the Latin races so liable to seasickness. Most of them had travelled for many hours in trains, and the Syrians had been a fortnight or more on the journey to La Pallice. True sickness had occurred in 8/6 of these persons being Jews. In the 6 there had been headache and vomiting and in all but one vertigo as well. The exception was a Rumanian Jew, in whose urine there was a trace of sugar but no diacetic acid. The urine of the remaining 7 contained diacetic acid, some more, some less.

Of the 17 who were not train sick 11 suffered from vertigo in addition to their other symptoms, and in 2 of these the dizziness was not felt until some hours after the attack of sea sickness began. Both patients had kept about fighting the nausea and only after lying down for some time did they complain of vertigo. One was so bad that, though he could not stay in bed but lay on the floor clinging to a ringbolt and thus when the motion of the ship was not excessive. This man was a Syrian Jew, highly intelligent and anxious between the paroxysms to discuss his symptoms. He had been to sea before and had suffered from sickness but never from vertigo.

In 9 patients vertigo was the first complaint, and it was interesting to note that in 4 of them the subsequent nausea was slight, the vomiting being more of a painless regurgitation than a cataclysm such as shook the rest. The urine of 4 of these patients contained diacetic acid.

There remain the 6 in whom no vertigo occurred at any period of the attack. There seemed to be no justification for putting them in a division by themselves (they showed all the classical symptoms—cold sweat, pallor, yawning, weak pulse and vomiting). Two were badly affected and lay like dead folk while the others were ordinary cases and could take a little interest in their condition. In all 6 the urine contained diacetic acid from the first and the blood sugar in one of the bad cases was 0.07.

Impossible as it is to generalize from so small a number of cases, from the presence of diacetic acid in so large a proportion from the very beginning of the attack, it seems fair that an acidosis should be allowed to share at least with the labyrinth in any theory of the causation of seasickness. Neither the paths from the labyrinth nor the nature of the impulses they transmit are known with accuracy, and any suggestion with regard to either must be speculative. A theory that sea sickness may be due in the first instance to an acidosis that affects the labyrinth, the vomiting centre, and the sympathetic (in the order named, or inversely), or affects one or more to the exclusion of the others—such a theory is speculative too, but it has a claim to be considered with respect. So with the suggestions of the mechanical effect of the rise and fall of the ship on the hepatic circulation by way of the varying pressure of the abdominal contents, the appearance of irregular waves in the cerebro-spinal fluid, the pious thought that sea-sickness is the effort of a beneficent Providence to fit man for an unusual environment. Who can deny the possibilities of all these?

These reflections are not without interest in regard to treatment. The public expects too much, travellers demand a drug that will prevent seasickness, or cure it when it attacks them, but few will take ordinary precautions before a voyage, and fewer still will trouble to

make that effort which can control even the raging of the endolymph, and enable them to face the sea with courage and common sense. Faith is the great thing needed, and in its light the bronchus, the belly-band, and the amulet will fulfil their destiny, occupation is a help, and many find salvation in a job of work, for others, the tablespoonful of Worcester sauce or the more sophisticated piano oyster. Lastly, the earnest person, who believes that here Providence is at work, and sea-sickness a thing that has to be, may starve himself a while, keep his bowels open, and wait hopefully for the dawn—I am, etc.,

R ALLAN BENNETT, M.D., M.R.C.P.,
Surgeon Pacific Steam Navigation Company

Havana September

SIR,—The letter of Dr A. C. Ingle of September 8th (p. 467) recalls to my mind occasions a quarter of a century ago—I was then a ship surgeon on the North Atlantic route—when the late Dr J. R. Stocker of the Board of Trade used to discuss with me ideas regarding the causes of sea sickness. He had himself had considerable experience at sea, and he maintained that the respiratory disturbance was more important than disturbances connected with the semicircular canals, the cerebellum, or other centres.

Those discussions caused me to form the opinion that, as most people inspired while the ship—or rather, the part of the ship where they were located—was rising, and held their breath till the downward motion was experienced, thereby producing a course of irregular breathing, there probably followed some irritation in the region of the throat, and, as tickling of the fauces by a feather induced nausea and vomiting, it was quite reasonable to expect that another form of irritation would produce a similar effect, the mechanism in both cases being through the glosso-pharyngeal nerve and the vagus.

Following up this idea, I frequently, on voyages from New York, formed schools of what we called “anti sea sick drill,” consisting chiefly of young American men and women who were on their first voyage to Europe, and showed them how to breathe regularly and freely in spite of the movements of the ship, with the result that—I regret I have no statistics—sea-sickness was reduced to a minimum among those who persisted in the practice—I am, etc.

Southampton Sept 12th.

D. D. F. MACINTYRE, M.B.

INTRAVENOUS MEDICATION FOR ACUTE INFECTIONS

SIR,—In the *British Medical Journal* of September 8th (p. 463), Dr A. M. N. Pringle draws attention to the great value of colloidal argentine administered intravenously in the treatment of puerperal septicæmia. He records twenty-seven cases of severe puerperal infection treated consecutively with intravenous injections of colloidal argentine with only one death. I think this a very remarkable and satisfactory result.

My own experience of the treatment of acute blood infections with colloidal argentine has been very encouraging. Several cases of severe streptococcal blood infection have made good recoveries. One case of pneumococcal and staphylococcal blood infection following a severe post-operative peritonitis was completely cured, the blood becoming sterile after repeated intravenous injection of 25 to 20 c.c.m. I consider it a most valuable agent in the treatment of such cases, which appear to be desperate. I have not found it, however, to be invariably successful, some cases of streptococcal blood infection in which the patients' powers of resistance were no doubt abnormally low have succumbed in spite of repeated doses of this agent. It has the great advantage compared with some other drugs used intravenously—for example, mercuriochrome—in being, in the dosage used, apparently quite non-toxic. I think, however, that mercuriochrome has special advantages in *Bacillus coli* infections, and in such cases I would give it the preference—I am, etc.,

HENRY H. BROWN, M.D., F.R.C.S.,
Consulting Surgeon to the East Suffolk Hospital

Ipswich Sept 10th.

HLRPS AND VARICELLA

SIR,—Dr Gray Hill is to be congratulated on his valuable contribution (August 4th, p 197) to this ever popular discussion, in the shape of eight first-cases of chicken-pox traceable to an original herpes zoster, making a percentage of 23.5, and this in spite of careful isolation.

The lower percentage (16) in Dr Cowie's report¹ need not invalidate, as Dr Hill seems to imply, the general argument for a common origin, as, after all, percentages depend to a large extent on environment. One may imagine the case of a teacher who, in spite of an attack of shingles, continues her teaching in a school of 100 young children. One child contracts chicken-pox, which spreads in the usual way until fifty have succumbed to the disease. This works out, of course, at 2 per cent. On the other hand, take the case of shingles in a mother on an isolated Rhodesian farm. She has an only child, an infant at the breast, who contracts the disease in the shape of chicken-pox.² At another farm, equally isolated, a ten-year old girl is taking arsenic for her chorea and at the same time acting as mother's help with the youngest member of the family. The arsenic induces a shingle eruption, and the baby, being in close daily contact with its sister, contracts a mild chicken-pox. The other members of the family, having all had chicken-pox at an earlier period of their existence, escape infection on this occasion.³ Taking these two cases together we get a percentage of 100, which is clearly due to the chance that no opportunity offers itself for the further spread of infection.

Some light can, I think, be thrown on the question of immunity by a study of those less common cases in which the herpetic is followed by the varicellar eruption in the same individual. The term "concurrent" in this connexion, although often used, is apt to mislead one as to the actual sequence of events. No case has been yet recorded in which the two eruptions appear simultaneously. In the *British Medical Journal*, during the period 1913 to 1927 inclusive, 176 cases of the relationship are recorded, 35 of these are instances of the occurrence of both eruptions in one patient, and in every case the shingles eruption is the first to appear, the chicken-pox following after a period of one to four days.

In Head and Campbell's classical article on the pathology of herpes zoster⁴ a case of the double eruption is mentioned with an interval of twenty-four hours only. It is noteworthy that these two careful observers had no hesitation in giving the chicken-pox eruption its true title, aording the now (may we hope?) obsolete term "generalized eruption." These cases show that a distinction, even if slight, must be made between the two eruptions, sufficient at any rate to affect the question of immunity. The rule of sequence is invariably the same in not one of the 35 cases alluded to above do we find the varicellar preceding the herpetic eruption. If we also bear in mind the difference of selective action—zoster having a predilection for the posterior nerve roots and varicella being a systemic infection—I think we have an additional reason why there need be no reciprocal immunity. The common origin, however, confirmed bacteriologically by Kundratitz⁵ can surely no longer be an open question, as some would have us believe—I am, etc.,

Capetown

W P LE FEUVRE, MRCS, LRCP

TOXIC EFFECTS OF ASPIRIN

SIR—Some three or four years ago I read in the *Journal* a letter warning your readers that ulceration of the buccal mucous membrane was frequently caused by aspirin, and my experience since then has entirely confirmed your correspondent's statement. Recently I have had occasion to attribute another pathological condition to the use of the same drug. The following is a brief note of the case.

The patient a man aged 52 has been in the habit of taking aspirin during the past nineteen years for the relief of febrile

attacks, to which he is somewhat prone, as well as for rheumatic myalgia and migraine. The amount of aspirin ingested would be, it is estimated, about ten grains per week on the average.

A very severe attack of cheilopompholyx, of both hands occurred in 1916 incapacitating him from all work for seventeen weeks. Each year elapse then he has suffered from similar attacks of varying severity, always worse in warm weather. Internal treatment and local applications were of little utility—the only remedy which gave relief from the almost intolerable itching being exposure to small doses of x rays. For the last two or three years the dysidrosis has been practically chronic with acute and subacute exacerbations and only few and brief intermissions.

Last year the patient was warned by both a dermatologist and a radiologist that further exposure to x rays might be followed by serious results, and this treatment was not again resorted to. During last winter, and until the spring of this year, the skin of the hands was never entirely normal at the best there was excessive dryness with exfoliation of the epidermis. In the spring, aspirin was suspected as a possible source of aggravation, and its use was therefore entirely discarded. The state of the skin immediately began to improve, and has continued to do so steadily despite the onset of summer. Throughout the recent warm weather there has been no recurrence of any kind, and the skin of the hands is now entirely normal though no treatment other than the relinquishment of aspirin, has been attempted.

I am, etc.,

Wylam Aug 30th.

H E DAVISON, M.D.

The Services.

INDIAN MEDICAL SERVICE
AMENDMENT OF STUDY LEAVE RULES

THE following amendment to Rule 10 of the Study Leave Rules for the Indian Medical Service published with Army Department Notification No 890, dated July 9th, 1926, has been made by the Secretary of State for India in Council.

After the penultimate paragraph of the said rule there shall be added—

Study allowance may be given at the discretion of the Government of India or Local Government for any period up to fourteen days at one time during which the officer is prevented by sickness duly certified by a medical practitioner from pursuing the sanctioned course of study.

The following have been appointed on probation to permanent commissions in the Indian Medical Service: Captain F R W K. Allen, I.A. (ret.), Messrs J S McMillan, V E M Lee, M R Simlar, G B W Fisher, R A Paton, A V O'Brien G F Coudon, S T Davies, E S S Lucas, H W Farrell, D Tennant, H S Smithwick, and F W H Cangehy.

NORTH PERSIAN FORCES MEMORIAL MEDAL.

THE War Office announces that Dr W H Dye, Colonial Medical Services has been awarded the North Persian Forces Memorial Medal for the year 1927 for his paper "The relative importance of man and beast in human trypanosomiasis" published in the *Transactions of the Royal Society of Tropical Medicine and Hygiene*, November, 1927. This medal is awarded annually for the best paper on tropical medicine or hygiene published in any journal during the preceding twelve months by a medical officer, of under twelve years service, of the Royal Navy, Royal Army Medical Corps, Royal Air Force, Indian Medical Service, or of the Colonial Medical Service, provided the Memorial Committee considers that any of the papers published has attained a standard of merit justifying an award.

DEATHS IN THE SERVICES

SURGEON CAPTAIN JOHN CHRISTOPHER DURSTON R.N. (ret.), died at Ramsgate on July 26th. He was educated at St Thomas's Hospital, and after taking the MRCS and LRCP Lond in 1893, entered the navy in the same year. He attained the rank of fleet surgeon, afterwards changed to surgeon commander, on November 14th 1907, and retired on January 1st, 1922, on reaching the age limit with an honorary step as surgeon captain. In his early years of service he acted as surgeon in China, Japan and on the Pacific station, and again served in China as staff surgeon on H.M.S. *Flora*. During the early part of the great war he served as fleet surgeon on H.M.S. *Defence*, flag ship of the cruiser squadron in the Mediterranean then in charge of the Naval Hospital at Hauboulne, and later as surgeon commander on H.M.S. *Barham*, in the second battle squadron. After retirement he became assistant medical officer of the Haine isolation hospital in Thanet, and a few months later became medical officer, resigning on account of ill health in 1926.

¹ *British Medical Journal* March 28th, 1925.

² *British Journal of Dermatology* October-December 1917 p 254.

³ *Medical Journal of South Africa* March 1918.

⁴ *Brain* 1900 p 353.

⁵ *Zeitschrift für Kinderheilkunde* 1925 p 373.

Obituary.

JOSEPH JOHN PERKINS, M.B., F.R.C.P.,

Consulting Physician to St Thomas's Hospital the Brompton
Hospital for Consumption, and King Edward VII
Sanatorium Midhurst

WE have to announce with deep regret the sudden death in London, on September 13th, of Dr J J Perkins, whose name was for many years prominently associated with the prevention and treatment of tuberculosis.

Joseph John Perkins was born in 1863, and was educated at Owens College, Manchester, Emmanuel College, Cambridge, and St Thomas's Hospital. He graduated M.B., B.Ch. Camb. in 1891, and in the same year obtained the diplomas M.R.C.S., L.R.C.P. Six years later he became a member of the Royal College of Physicians, and in 1902 was elected Fellow. Dr Perkins took special interest in tuberculosis and pathology from the commencement of his medical career. He had held the posts of pathologist and assistant physician to the City of London Hospital for Diseases of the Chest, at St Thomas's Hospital he was appointed physician and lecturer on medicine, and his quiet but keen interest in the students, together with his genuine friendliness to his colleagues, won for him a very deep and wide affection. As physician to the Brompton Hospital for Consumption he played an active part, both as regards clinical treatment and also in the general progress of this institution, until his retirement from practice. Dr Perkins was a member of the council of the National Association for the Prevention of Tuberculosis and served with enthusiasm for many years as its honorary secretary. He was vice-president of the Section of Medicine at the Annual Meeting of the British Medical Association at Portsmouth in 1923, when he opened the discussion on chronic bronchitis.

We are indebted to Dr H G TUNNEY, consulting physician to St Thomas's Hospital, for the following appreciation.

These meagre notes express, from the point of view of an old friend and colleague, some of the more personal aspects of the life which has just come to so tragic an end.

As a hospital physician and teacher there is no doubt of Perkins's success. He was an attractive lecturer on systematic medicine, and on his ward rounds he was followed by a large class. In his special line of work—that of pulmonary disease—he was a recognized authority. He acquired a considerable private practice, and showed himself most helpful and trustworthy as a consultant. His physical examination was thorough, the opinion he formed definite, and his recommendations for treatment practical, so that he gained the confidence of both patient and practitioner. But he wrote little, and very rarely took part in or even attended the meetings of the various professional societies. The majority of his hospital colleagues, though they were always on the best of terms with him, rarely saw him unless their hospital days happened to coincide with his. All this sounds very much as if he were something of a recluse, and yet nothing could be farther from the truth. Perkins was, in fact, a man with a very definite faculty for friendship. In addition to a large circle of acquaintances he had a smaller number of intimate friends. These remained the same year after year, and even decade after decade. He never married, and of course his circle did not escape the two rocks which await the established bachelor's friendships—marriage and death—but the first was avoided by the satisfactory method of the wife becoming an additional friend, the latter, however, took toll of late years, and the gaps so made were never filled. But outside these circles of friends and acquaintances, and outnumbering them manifold, there are those who feel themselves bound to him by the strongest ties of gratitude and affection. Probably their existence was hardly suspected by him—for he was the most modest of men—but their numbers have been steadily growing throughout his professional life. They include many members of the medical profession, patients (both hospital

and private), and every grade of nurse. If only it were possible for them to give their testimony it would raise the noblest of monuments to his memory.

Perkins was a most copious and attractive talker. In his earlier years he had a way of dropping in for a chat during the latter part of the evening. He was always a welcome guest, and with his cheery, vivid talk the time passed quickly. But soon the hands of the clock pointed to 1 a.m., and then to 2, and still the talk went on, until in justice to the coming day, the host—the hostess had molted away long before—had most reluctantly to dissolve the sitting. Most fluent talkers are egotists, but the noteworthy thing about Perkins's talk was his reticence about himself. It did not strike one as in the least degree egotistic, it was simply the reverse of egotism.

He was always a delicate man. During the past ten years he had at least four serious illnesses, two of which called for surgical intervention for a form of local tubercle. But through all this he always maintained his cheery aspect and never referred to his ailments, except, of course, when he was definitely asking advice about them. He never played any games, this was partly, no doubt, due to the disadvantage of having been brought up in a large town, but all through his life he was a man of the town and not of the country. He had no natural aptitude for games, and the delicacy of his constitution probably robbed him of the physical urge which might have made up for the deficiency.

Altogether he was a very lovable personality, and it will be long before his memory is lost.

Dr L S T BURRELL, physician to the Hospital for Diseases of the Chest, Brompton, writes:

Perkins was appointed assistant physician to Brompton in March, 1900, and in 1906 he became full physician. In 1921, after fifteen years on the full staff, he was granted a five years' extension, but in March, 1923, owing to failing health, he resigned, since when he has been consulting physician. During his time at Brompton he was extremely popular with patients and staff, and took a great personal interest in any new form of treatment, making a point of doing something for each individual patient and not treating them en masse. He was very keen on Trimpley Sanatorium, which he would frequently visit unofficially, and he made many suggestions for improvements. He endeared himself to the patients, who felt he took an interest in their whole lives, and he would sit on the foot of a bed and talk with a patient as a friend. Perkins had a very clear vision, and his advice was much sought by many friends, to whom he was always willing to give counsel. Personally, I shall miss his help greatly, for I never left him without feeling comforted and encouraged, and his death will leave a gap in a large circle of friends.

Dr E CHITTENDEN BRIDGES writes:

As an old friend of the late Dr J J Perkins, dating back some thirty-six years when we were appointed house-physicians at the Brompton Hospital for Diseases of the Chest, I feel I cannot refrain from adding my tribute to his memory. "J J," as he was affectionately known to all his old and intimate friends, was one of those strong personalities so seldom met with in this world, and this was associated with a most lovable nature which endeared him to all his many friends. He conducted his professional work according to the best traditions of the profession, which he guarded with pride and zeal, and he looked upon those who did not with scorn and ridicule. As a man who had made a special study of diseases of the chest he occupied a position in the profession second to none, his opinion was eagerly sought after, and he threw himself wholeheartedly into the work which he so thoroughly enjoyed and loved. If he had not been dogged by ill health for some years past he would have occupied a more prominent position in the profession. It was this continued ill health which wisely determined him to retire from consulting work a few years ago. Dr Perkins will be sadly missed by a very wide circle of friends, and the profession has lost a member who occupied it with dignity and honour. He has died respected and loved by all.

Dr J R A TOMMERTON (Knowle, Warwickshire) writes May 1 be allowed to add my humble tribute to the memory of Dr J J Perkins, whose tragic death has come as a great shock to all who knew him? I personally owed much to Dr Perkins, it was he who gave me my first lessons in clinical medicine, in the out-patient department at St Thomas's Hospital, and later I had the privilege of being his house-physician both at Brompton and at St Thomas's. To his juniors he was a cordial friend, and his shrewd advice was eagerly sought by, and readily given to, his old pupils, indeed, "See what J J P has to say about it" was almost a commonplace among us. I am sure that by all who were closely associated with him J J Perkins will be held in affectionate remembrance.

WILLIAM MACFIE CAMPBELL, M.D., C.M.,
Consulting Surgeon, Northern Hospital, Liverpool, Past President,
Liverpool Medical Institution

It is with much regret that we have to record the death of Dr W Macfie Campbell, which occurred after a brief illness at Birkenhead on September 14th, in his eighty-second year. Before his retirement some years ago he spent over forty years in practice in Liverpool, where he was intimately associated with the administration of the David Lewis Northern Hospital and played a leading part in the affairs of the Liverpool Medical Institution.

William Macfie Campbell, as his name at once suggests, was of Highland descent, he received his medical education at Edinburgh University, graduating M.B., C.M. in 1869, and proceeding M.D. in 1873, with a gold medal for his thesis. A year later he obtained the diploma M.R.C.S. Eng. After serving as house-surgeon at the Dreadnought Hospital at Greenwich Dr Campbell settled in Liverpool, where he built up a considerable practice. He was for some years honorary medical officer to the Liverpool Southern Dispensary, and at the time of his death was consulting surgeon to the Northern Hospital, on the committee of which institution he had served for many years. In early manhood he was associated with the Volunteer movement as medical officer to a Liverpool battalion, and had held office as president of the Liverpool Medical Institution. While his professional activities absorbed most of his attention, he found time to participate in educational work, and was also a justice of the peace for the city. Dr Campbell is survived by his widow, two daughters, and one son, Major Duncan Campbell, who is now chairman of the committee of the Northern Hospital, to which his father gave devoted service for many years.

A colleague, R W M'K, writes: Providence had endowed him richly. He was a king among men, in stature, in dignity of presence, in nobility of countenance, in intellectual gifts, and in the finer qualities of mind and heart. He had no ambitions either for wealth or place, he was content to do the day's work honestly. He helped every good cause that commended itself to him, and there was never any ostentation in his helpfulness. He "did good by stealth," encouraged in his altruism by that wise and gentle lady who was his loyal and understanding helpmate for so many years, and who is left to mourn him. The last few years of his life were years of suffering, but he bore his trials with quiet, unflinching bravery. He had lived on into an age when ancient landmarks have been removed and old beliefs thrown into the crucible. But, though he was alive to all these changes and keenly interested in modern speculations, he did not allow them to shake his quiet confidence. In his heart of hearts he preserved the faith of a little child.

Professor JOHN HAY (President of the Liverpool Medical Institution) writes: Others have ably voiced the more personal note in reference to the late Dr Macfie Campbell—a man who at one time had what was probably the largest practice in the south end of the city, and who was held in affectionate regard by all his patients. I should like to put on record an appreciation of the valuable work done by him for the profession in Liverpool, and more particularly for the Medical Institution—the most important centre of medical activity and interest in this city. In 1871 he

became a member, from 1875 until 1901 he was continuously in office, and during 1898 and 1899 he was President of the Institution. But, whether in office or out of office, he gave freely of his time and brains. He served the Medical Institution and the profession ungrudgingly, unselfishly, and wisely, and the vigorous health of our society at the present time is in no small measure due to his sustained efforts. He has left us a noble tradition of service.

Dr JOHN THOMLSON DUNLOP died on August 30th at his home in Newcastle-on-Tyne, at the comparatively early age of 66 years. He had a serious heart attack in August, 1927, and had been practically an invalid ever since, finally retiring from practice in May of this year. Dr Dunlop was a native of Boigne in Kirkcudbrightshire, where his father was rector of the academy there. He naturally gravitated to the University of Glasgow, and took the degrees of M.B. and C.M. in 1894. He went to Newcastle over thirty years ago, and built up a large general practice in the west end of the city. He was an honorary physician to the Hospital for Diseases of the Skin for over twenty years, and was on the staff of the Fleming Memorial Children's Hospital for the treatment of these diseases. During the war he was a member of the medical staff of the Northumberland War Hospital. Dr Dunlop found a congenial occupation as secretary of the Glasgow University Club in the North of England for the long period of twenty-five years, a post he resigned during his illness. His work was appreciated by his university and by his fellow members, and under his able guidance the annual dinner was always an intellectual and social success. His association with his patients was a happy blending of medical care and friendship, and he was greatly esteemed by them. He took his full share in the medical life of the city, was a member of the local executive of the British Medical Association, and a member of the Panel and Local Medical Committees. Any meeting for the furtherance of the social or medical life of the profession found in him a constant attender. To his fellow practitioners he was always a cheerful friend, and his genial presence will be sadly missed in the district. His funeral was largely attended by members of the profession.

Dr ALBERT WILSON, whose death took place at Fairwarp, near Uckfield on September 9th, had for many years devoted a large part of his time and thought to studies in criminology and was the author of a number of books and papers bearing on this subject. He was born in 1854 at Newcastle-on-Tyne, and received his early professional education at the University of Edinburgh, graduating M.B., C.M. in 1878, and proceeding M.D. (with gold medal for his thesis) in 1881. In 1879, when serving as house-surgeon to the Royal Infirmary, he held office as president of the Royal Medical Society of Edinburgh, and in the following year he was appointed resident physician to the Cowgate Dispensary. While a medical student he had spent many months in visits to clinics and laboratories in Paris, Berlin, Vienna, and St Petersburg, and became much interested in the psychological aspects of medicine. In 1890 Dr Wilson was appointed medical superintendent of the Essex County Asylum at Walthamstow, and after his retirement from that post he chiefly occupied himself in psychiatric practice and medico-sociological studies of criminal conduct in its relation to brain pattern and brain disease. The fruits of twenty-five years' work in this field were presented by him to the public in 1908 in a volume entitled *Education, Personality and Crime*. This book though readable and provocative of thought, and revealing deep sympathy with social misfits and congenital "wrong 'uns," inclined somewhat towards dogmatic statements on matters insusceptible of proof. A second volume, *Unfinished Man*, appeared in 1910, and he was engaged on another at the time of his death. During the war, although then past the age of 60, Dr Wilson served with the French Red Cross, and published papers on certain aspects of military medicine and surgery. He was a man of very generous instincts, whose innumerable acts of kindness were done in the most unobtrusive and self-effacing manner.

Dr EDWARD JOHN PARRY, who died on September 3rd in his seventy-eighth year, was one of the senior members of the medical profession in South Wales. He received his medical education in Edinburgh, obtaining the diplomas L.R.C.P. and L.R.C.S. Edin in 1878, and graduating M.D.R.U.I. two years later. His professional life was spent almost entirely in Glamorganshire, and he became, soon after commencing practice, principal medical officer to the Garw Valley collieries, an appointment which he held until 1916. During the war Dr Parry, who was a member of the British Medical Association, served as chairman of the county medical recruiting board. He took an active part in public affairs and was a member of the first county council elected in Glamorgan, serving also on several other public bodies and being one of the senior magistrates for the county. A keen supporter of the Liberal party in politics, he was for many years president of the Mid Glamorgan Liberal Association, efforts to induce him to become a candidate for Parliament were, however, unavailing. Dr Parry gave himself freely to the service of the miners among whom his work lay, and was a generous friend to any movement designed to advance their welfare notably in the promotion of efforts to secure the advantages of higher education for the miners' children.

The following well-known foreign medical men have recently died: Dr VINCENZO DE GRAZIA, formerly professor of hygiene at Pisa University, Dr F. ALOR, professor of medical chemistry at the Toulouse Faculty of Medicine, and corresponding member of the Académie de Médecine, Dr LAGRANGE, honorary professor of clinical ophthalmology at the Bordeaux Faculty of Medicine, corresponding member of the Institut de France and Académie de Médecine, and Commander of the Legion of Honour, Dr MANO LANDOLT, president of the French Society of Ophthalmology, Dr CABANES, the prolific and entertaining writer on the curiosities of medical history, and editor of *La Chronique Médicale*, aged 60, Dr GIOVANNI DI CRISTINA, professor of clinical pediatrics at Palermo, and author of numerous articles on splenic anaemia, chloroma, leishmaniasis, and the etiology of scarlet fever and measles, aged 52, Professor FERNANDEZ FIGUEIRA, an eminent paediatricist of Rio de Janeiro, and Professor STANKOW, a Riga anatomist, aged 54.

Universities and Colleges

ROYAL COLLEGE OF SURGEONS OF ENGLAND

DEMONSTRATIONS

THE autumn course of demonstrations of specimens in the Museum will be given in the theatre of the College, Lincoln's Inn Fields, W.C. will commence on Friday, October 19th, when Sir Arthur Keith will deal with the problems of human anatomy which arise out of the identification of a skull attributed to Lord Darnley (see *British Medical Journal* September 8th p. 456 and September 15th, p. 505). On October 26th and November 2nd he will discuss the development of the human foot and its bearings on club foot and other orthopaedic disorders. Demonstrations of surgical specimens will be given by Mr T. W. Lawrence on October 22nd and 29th and November 5th. The demonstrations, which are open to advanced students and medical practitioners, commence at 5 p.m.

Medical News.

THE inaugural address at the Westminster Hospital Medical School will be given by Mr A. C. Powell, M.A. (headmaster of Epsom College) in the board room of the hospital on Monday, October 1st, at 3 p.m. The chair will be taken by Sir William Goschen, K.B.E. The annual dinner of past and present students of Westminster Hospital will be held in the Royal Adelaide Galleries, Gatti's Restaurant, on the evening of the same day, at 7.30 o'clock, with Sir James Purves Stewart in the chair.

THE annual dinner of the Chelsea Clinical Society will be held at the Hotel Rombrandt, Tharloe Place, on Tuesday, October 23rd at 7.30 p.m. Members are asked to inform Mr L. A. Harwood (90, Sloane Street, S.W.1) as early as possible of their intention to be present and the number of their guests.

THE winter session, 1928-29, at University College Hospital Medical School opens on Monday, October 1st, when an introductory address will be delivered in the Library by Sir Thomas Barlow, Bt, M.D., F.R.S., at 4.30 p.m.

THE annual general meeting of the Medical Sickness, Annuity, and Life Assurance Society will be held at the First Avenue Hotel, High Holborn, W.C.1, on Monday, October 8th, at 4 p.m.

THE Fellowship of Medicine and Post Graduate Medical Association announces that a series of four lecture demonstrations in electrotherapy will be given by Dr C. B. Heald at the Royal Free Hospital at 5.15 p.m. on Wednesdays, beginning on September 26th. There will be an all day course in diseases of the throat, nose, and ear at the Central London Throat, Nose and Ear Hospital from October 8th to 26th, the clinical course, operative class, or pathology class may be taken separately. Courses will be given at the Chelsea Hospital for Women in gynaecology, from October 8th to 20th, at the London School of Hygiene and Tropical Medicine in tropical medicine, on Tuesday and Thursday afternoons from October 9th to November 1st, at the Hospital for Sick Children, Great Ormond Street, from October 15th to 27th. At the Royal Free Hospital Professor Louise McIlroy will give four lecture demonstrations in ante-natal treatment on Fridays at 5 p.m., from October 26th to November 16th. There will also be weekly clinical demonstrations at various hospitals in medicine, in surgery, and in ophthalmology, and a weekly demonstration at the Wellcome Museum of Medical Science. Syllabuses are obtainable from the Fellowship of Medicine, 1, Wimpole Street, London W.1.

THIS year's Galton Lecture, which was given by Mr C. J. Boud, and was entitled "Some Causes of Renal Decay," has been printed as one of the People's League of Health pamphlets, with the permission of the Engelen Society. It can be obtained from the Secretary of the People's League of Health, 12, Stratford Place, W.1, price 6d. We gave some account of this Galton Lecture in our issue of February 25th (p. 315).

THE number of convictions for drunkenness in England and Wales in 1927, as shown in the recently issued Home Office *Licensing Statistics* for that year, was 65,166—a decrease on the previous year of 1,960, or 2.9 per cent—this being the lowest since 1919. A decrease was also recorded in the number of on-licences for the sale of intoxicating liquors, and it is shown that there has been a sustained fall in the number of on-licences in proportion to population over a prolonged period. At the beginning of 1908 there were 27,244 on-licences per 10,000 of the population and at the beginning of 1927 there were no more than 20.19 on-licences per 10,000 of the population. It is stated in the report that to some extent a better distribution of licences is to be preferred to a mere reduction in the number. Convictions for drunkenness due to the consumption of methylated spirits have increased by 10 per cent—from 389 in 1906 to 428 last year. Under Section 40 of the Criminal Justice Act, 1925, which came into operation at midsummer, 1926, 1,438 persons were in 1927 convicted of drunkenness while in charge of mechanically propelled vehicles, and were disqualified for twelve months from holding a motor driver's licence. The number in the second half of 1926 was 804.

MESSRS EDWARD ARNOLD and Co. announce for early publication *Modern Problems in Neurology*, by S. A. Kinnier Wilson, M.D., and a *Text Book of Surgical Diagnosis*, in two volumes, edited by A. J. Walton, F.R.C.S.

THE total diphtheria death rate in 1927 in the large cities of the United States was higher than in either of the two preceding years. From 1923 to 1926 inclusive the total diphtheria death rate in these cities had fallen regularly every year. In all European countries also the incidence of diphtheria was unusually high in the winter of 1927-28, and in Italy and Poland it was higher than at any time during the past five years.

THE thirteenth French Congress of Legal Medicine will be held at the Paris Faculty of Medicine, under the presidency of Dr Georges Brouardel, from October 9th to 11th, when the following subjects among others will be discussed: expert evidence in social questions, introduced by Professor Balthazar; industrial accidents, comparative results of external methods and osteosynthesis in the treatment of fractures of the leg, introduced by MM. Charbonnel and Massé of Bordeaux; professional intoxication by hydrocarbons, introduced by M. Duvour of Paris; and social reactions in epidemic encephalitis, introduced by M. Fribourg-Blauc of Paris. The subscription is 60 francs. Further information can be obtained from Dr Piéchéllèvre, 24 Rue Gay-Lussac, Paris.

IN 1927 only four cases of small pox occurred in Germany. These had all been introduced from foreign countries. In the same year no fewer than 14,800 cases were notified in England and Wales.

DR ALBERT R COOK, senior physician to the Munga Hospital of the Church Missionary Society and consulting physician to the Government European Hospital, Kampala, has been awarded the silver medal of the African Society in recognition of his work in Africa. Dr Cook has in thirty-two years built up a highly efficient and extensive medical mission among the people of Uganda.

THE Department of Scientific and Industrial Research has published the thirteenth report on the investigation of atmospheric pollution (obtainable from H M Stationery Office, London, or through any bookseller), dealing with observations in the year ended March 31st, 1927, this is in continuation of the series of reports of the Advisory Committee on Atmospheric Pollution, hitherto issued by the Meteorological Office, the change following upon the transfer to the Department of Scientific and Industrial Research of responsibility for the Government's share in the work. The Advisory Committee will become a standing conference of co-operating bodies. In the report the deposit of impurity at 80 different stations in the United Kingdom is considered, a classification is made according to standards of increasing quantity of deposit, this being denoted by the letters A to D in order of quantity of pollution. It is satisfactory to note that there has been a substantial improvement in atmospheric purity in the areas covered, in 1914-15 the number of stations ranking as A and B was 54 per cent of the total, in the year under review the number was 87 per cent of the total. A steady decrease in the quantity of sulphates deposited in London and Glasgow has been observed, and it is stated that this, at least in part, due to the increasing use of coal gas, this having presumably replaced raw coal. The tables included in the report give details month by month of the deposits collected at the various stations, showing wide variations in their composition. A section dealing with suspended smoky matter in the air illustrates the effect of the coal stoppage of 1926, while the obstruction of ultra violet radiation by smoke is brought out by a curve which indicates that nearly the whole of the ultra violet rays is cut off by a comparatively small amount of smoke in the air. Much of the matter contained in this slim volume—it contains less than sixty pages—is of considerable scientific interest and should be of some practical value to those engaged in public health work, but its publication at the net price of 6s 6d will not encourage a wide circulation.

THE Commonwealth Department of Health (Central Office) will be transferred from Melbourne to Canberra, the federal capital of Australia (Federal Capital Territory), as from October 1st, 1928.

THE twenty-fifth anniversary of the foundation of the German Institute for Investigation of Cancer, which is attached to the Charité Hospital in Berlin, was recently celebrated by a special meeting under the presidency of Professor Friedrich Kraus.

SIX series of post-graduate courses in English will be held in Paris under the supervision of the University medical school, in most cases these are associated with practical work. Ten lectures on diseases of the bronchi, with pathological and radiological demonstrations, will be given by Professor Sergent, at the Charité Hospital, from October 29th to November 3rd. A course of nine lectures on diseases of the heart and vessels will be given by Dr Clerc, at the Lariboisière Hospital from October 20th to 30th. Dr Armand Dailly and Dr Weill Hailo will hold a course in diseases of children from October 8th to 20th at the Charité Hospital, and Professor Gossset will give a five day course on surgery of the digestive tract and liver, with operative demonstrations and operations on the dog, at the Salpêtrière Hospital, commencing on October 15th. Drs Morax and Lemaître will conduct courses in ophthalmology and oto-rhino-laryngology covering the period from October 2nd to 26th. Further information and detailed programmes may be obtained from the secretary of the Association pour le Développement des Relations Médicales, Salle Bechard, Faculté de Médecine, 12, Rue de l'Ecole de Médecine, Paris VI.

THE following appointments have recently been made in foreign faculties of medicine. Professor G. Katoch of Frankfurt, professor of internal medicine at Großwald in succession to Professor Stranb, Dr L. Kumor of Vienna, professor of dermatology and venereal diseases at Innsbruck. Dr Alfred Link of Königsberg, professor of oto-rhino-laryngology at Großwald, and Dr Luiz Barbosa, professor of clinical pediatrics and infantile hygiene at Rio de Janeiro, in succession to the late Professor Nascimento.

THE proceedings of the thirteenth Congress of Medicine of Northern Countries, held at Copenhagen under the presidency of Professor V. Bie have recently been published as a special supplement to *Acta Medica Scandinavica*, under the editorship of Dr A. Norgaard, the general secretary, the communications appearing in English, French, and German.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W C 1**.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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QUERIES AND ANSWERS.

DIFT IN "GALLSTONE DYSPEPSIA"

"**LOCUM**" writes: I shall be grateful if one of your readers will prescribe a suitable dietary for a patient suffering from gallstone dyspepsia. He has been operated on several times and his symptoms are now supposed to be due to adhesions in the neighbourhood of the duodenum.

CONS.

"**W J B S**" writes: In further reply to "**H A A**" (*Jan 14th*, p. 85), I use the antiseptic cannibus India corn plaster, covered again by a larger piece of adhesive plaster. This sets up a positive action. The application should be renewed each day, removing the epidermis that has been softened. In the case of an ordinary corn the corn usually comes out after the first day.

TREATMENT OF COLI BACILLURIA.

DR GEORGE WILLYTT (Barnstaple, Bristol) writes: In reply to the inquiry by "**J M S**" (September 15th, p. 513) I suggest the trial of mercurochrome bladder washes and, failing that, one of silver nitrate. As the urine is constantly acid perhaps it might help matters if, for the time, it was rendered alkaline as *B. coli* flourish in both an acid and an alkaline medium. Possibly the presence in the urine of crystals of calcium oxalate may explain part at least of the general condition and the headache.

"**P T J**" writes: I have recently had a very stubborn case of *B. coli* infection of kidney and bladder and have obtained two consecutive negative cultures at two months interval from the use of acriflavine Messrs. Bools (Nottingham) have made a tablet of this drug otherwise so inconvenient to administer, which my patient has been able to take regularly.

DR A. A. BISSET (Harrogate) writes: If treatment by intestinal douches has not been already tried they might diminish the bacilluria. Many cases of coli bacilluria show mucous colitis and swelling of the right kidney. Intestinal douches properly administered over a period of three to four weeks in most cases effect a cure. A diet containing a large amount of vitamin B is also a valuable adjunct to treatment.

"**F H E**" writes: I suggest that "**J M S**" employ mercurochrome. One ounce of a 1 per cent solution is used. The patient is put to bed. The bladder is emptied by a No. 10 catheter to which a tube and funnel are attached. The funnel is then raised and the warmed mercurochrome solution allowed to trickle in. No pain is caused. The solution is retained for half an hour. A second application is rarely necessary—perhaps in one case out of five.

VAGINITIS.

"**G L**" writes in reply to "**G A**" (September 8th p. 473). My answer is (1) Consult a gynaecologist. (2) do not resort to psychotherapy. "**G A**" states that the vagina has been twice stretched without result but he has not carried out the essential after treatment which consists in passing a vaginal dilator and showing the patient how to pass it on herself.

"**G P**" writes: I had a similar case some time ago. The vaginismus readily responded to vaseline and cocaine, smeared on to the vulva by the patient herself.

INCOME TAX

Use of Residence, Book Debts

"N II" explains that his house was acquired solely for professional use and that his family live elsewhere. Separate waiting rooms are used for private and panel patients, and one bedroom is set aside for the use of patients. He also inquires as to the necessity for bringing into the account outstanding professional book debts.

"* * It certainly seems that 'N II' uses his house for professional purposes to a greater extent than usual, and we think he should press for the allowance of two thirds of the rent rates etc. With regard to the book debts, 'N II' cannot legally claim to be assessed on the basis of cash receipts only, but a deduction should be made in respect of the debts—or portions of debts—that are considered to be irrecoverable. The dictionary definition of 'earn' does not really help the legal argument. It is settled law that the probable value of fees obtainable but not received must be brought into the income tax computation."

Expense of Indoor Assistants

"T M" employs two qualified indoor assistants. How much can he regard as expended by him on their maintenance? The inspector of taxes considers £100 each adequate, but the previous inspector allowed £250 for one assistant.

"* * Circumstances vary so much that it is impossible to lay down any definite guidance. If the £100 each is to cover share of rent and rates and domestic service, laundry etc., it hardly seems enough. Actual food costs can, no doubt, be estimated fairly closely by Mrs. 'T M'."

LETTERS, NOTES, ETC.

MEDICAL EDUCATIONAL WORK

Mr KENNETH WALKER F.R.C.S. and Dr A. H. HARKNESS (honorary medical secretaries of the British Social Hygiene Council) write: "Owing to the growing work of this council it has been found necessary to obtain the services of a whole time salaried medical secretary who is able to undertake medical educational work in connection with the general organization of the council in all parts of the country. The work of the medical department is under the direction of the honorary medical secretaries and the medical advisory board. The medical secretary would also give assistance in the general work of the council. As this entails a considerable amount of public speaking preference will be given to those accustomed to handling both medical and lay audiences. The post would give scope for anyone interested in research on venereal subjects and would probably be suitable for a younger man retired from one of the Services. [Further particulars are given in our advertisement columns]."

TREATMENT OF WHITLOW BY X RAYS

Dr W. J. B. BURKE (Bordeaux) refers to the remark by Dr A. A. Masser on September 24th, 1927 (p. 573) that he had been unable to find any reference in the literature to the therapeutic action of x rays in septic or inflammatory conditions. Dr Burke writes: "As I have had some experience of this method of treatment I wish to record a few observations. In 1907 an English lady in Manila consulted me for a whitlow in the right middle finger. The finger was considerably swollen, two or three red streaks were visible on the forearm and arm and a gland was palpable in the axilla. I made a small incision in the pulp of the finger and, after evacuating the pus, I applied x rays for ten minutes to the finger and then dressed the small incision antiseptically. The next day I applied the x rays to the bend of the elbow, the forearm being slightly flexed, hoping that the arm and forearm would thus benefit by the application. The rays were again applied to the finger on the third day and on the fourth to the arm and forearm. No application was made on the fifth day, but on the sixth the rays were again applied to the finger. Meanwhile the wound was dressed only once daily. The patient made a complete recovery. Being struck by the success of the treatment I looked up the literature and found that others had already used a similar method. Thus Pfahler (*Amer. Journ. Med. Sci.* April, 1906) reported one case of chronic paronychia onychitis cured by x ray application and Pellizzari had three cases cured in a similar manner (*Sem. Med.* January 28th 1907). The interest attached to the above case is the small amount of attention the incision required and further its small size, which was only about 1/4 in. in length. In 1919 I treated also in Manila a Spanish lady on the same lines. Here however I could not arrest the suppuration though all acute inflammation ceased in about six days. The small incision continued to suppurate for three weeks. I then probed the wound and found necrosed bone. A day or two later on making pressure on both sides of the incision, a small fragment of necrosed bone protruded and I was able to pick it out with a dressing forceps. The wound healed a few days afterwards. In 1925 I had a whitlow on the left middle finger but as I was very busy I neglected it. On the third night the pain was very severe, the whole finger had become much swollen, a red streak was present on the forearm and an axillary gland was palpable. I applied x rays over the bend of the elbow, the forearm being slightly flexed for ten minutes and then on the pulp of the finger also for ten minutes. The next day there was considerable improvement, and no further applications were required. I applied once daily 10 per cent. guaiacol in vaseline over the

whitlow. Improvement started after the x ray applications, the inflammation began to subside and in a few days the skin at the base of the nail opened spontaneously, a slight purulent discharge escaping. There was no further trouble. I do not think it was the guaiacol which effected the cure. I tried it afterwards in boils and furuncles but found the inflammatory processes were not arrested by its application."

TREATMENT OF MILD MENTAL DISORDER

Dr S. E. WHITE (Manor Park, E.) writes: "By having recourse to a common sense expedient doctors could avoid placing themselves in the predicament of having to certify doubtful cases of mental instability, with its attending risk to themselves. Such a course is in many instances forced upon them unwillingly because at the present time there exists no alternative. Let the medical profession make up its mind without delay to advocate the provision of hostels without detention and free from any link with lunacy, to be run by health committees and to serve as an alternative to asylums, for the benefit of those who cannot be proved to be dangerous or unfit to be at large. Such a provision was advocated by the Council of the British Medical Association (see *Supplement*, April 28th p. 169) where reference was made to patients with mental disorder who 'do not either in their own interests or in the interests of the public, require compulsory restriction of their liberty' and ought not to be brought before the jurisdiction of the Board of Control. The existing provision for treatment of this order especially for poorer patients, is quite inadequate and ought to be increased. Where an expedient of this nature has been tried it has proved an excellent preventive of insanity, and would in a short time justify itself in a very large reduction in the eight millions per annum now spent upon mental institutions. Pressure ought to be brought to bear upon the Government in this direction by the medical profession for not only would doctors find it an immense relief to have places to which to recommend their patients to go voluntarily, without having to undertake the unpleasant task of certifying, but the places would also prove an untold boon to the community. No legislation is needed, for the Public Health Act, 1875, gives power to borough councils to run such hospitals."

FORCE'S DELIVERY OF IMPACTED BREAST

Dr. I. H. FARM (Birmingham) writes: "I desire to report a case of impacted breast which I delivered successfully with the aid of forceps. The patient was a primipara, aged 29. When I received the message from the midwife the membranes had ruptured some hours previously but the os was not fully dilated. McConium was being passed in large quantities at frequent intervals. The patient was a strong robust woman and the pains were frequent and strong, yet there was no advance of the buttocks, even after full dilatation and a delay of more than one hour. I eventually anesthetized her and with the nurse pressing firmly on the fundus I applied forceps and delivered a live male child weighing about 10 lb."

HERPES AND VARICELLA

Dr S. WAND (Birmingham) writes: "I have read with interest Dr Hill's article (August 4th, p. 197) on the ever recurring question of the association between varicella and herpes. Although I can show no statistics my own experience brings out the following salient points: (1) I have never seen a patient with herpes infect another with herpes. (2) In a varicella epidemic adults (especially those who have had varicella) develop herpes and children varicella. (3) Much more rarely a case of herpes seems to infect with varicella. It is difficult in such cases to decide whether a case of herpes or varicella is the causative factor, as they usually occur during a varicella epidemic."

CHRISTIAN SCIENCE AND THE DOCTOR

Mr CHARLES W. J. TENANT (London W.C.2) writes: "To make statements about prominent people accompanied by the semblance of a foundation of fact is a well known form of hostile propaganda and from the article in the *British Medical Journal* of September 15th (p. 533) I observe that you have received some of the 'anti Christian Science literature' which is being circulated at the present time. The senders of the literature in question are not so much concerned in forming a church of question as in attacking Mrs. Eddy, the discoverer and founder of Christian Science, and the Church of Christ Scientist which she founded more than fifty years ago. Christian Science is a religion and the latest form of attack is regarded by Christian Scientists as only an invitation to them to cease to live and practise it. The situation among Christian Scientists is very different to that described in the article. There is no schism in the Church, nor is there any 'heresy hunt' going on among its members. May I add that Mrs. Eddy's life was always consistent with her writings, and the truth about her is to be found in them?"

HAEMOPHILIA AND DENTAL EXTRACTION

The name of the author of the first note published under the above heading in the *Journal* of July 28th (p. 182) was Mr A. S. V. Daniels, L.D.S., R.C.S. Eng. and not as stated in that issue.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 43, 44, 45, 48, 49, and 50 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 46 and 47. A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 140.

An Address

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THE BACTERIAL FLORA OF THE INTESTINE IN HEALTH AND IN CHRONIC DISEASE*

BY

JOHN CRUICKSHANK, M.D.,

Professor of Bacteriology, Marischal College, Aberdeen

In opening this discussion it is my intention to give a brief review of our knowledge of intestinal bacteria, to discuss the subject in general, and to omit as far as is possible technical matter of laboratory nature. The bacterial flora of the intestine of the adult is extremely complicated, and I think it may be approached most easily by a study of the development of these organisms in the infant. In the newly born infant the meconium is sterile, but organisms appear in small numbers within the first twenty-four hours. During the first few days the organisms most frequently found are *Staphylococcus albus*, *Streptococcus faecalis*, and members of the *Bacillus coli* group. With the first sample of meconium free faeces short, slender, Gram-positive bacilli appear, to which Tissier gave the name *Bacillus bifidus*. In the next few days there is a rapid increase in these organisms and a diminution in the coliform and other organisms until a film of the stool shows practically no other bacteria, although by cultural methods coliform organisms, streptococci, staphylococci, and spore-bearing organisms can be shown to be present in small numbers. So long as breast-feeding is the only means of nourishment the bacterial flora of the infant's faeces is predominantly of the *B. bifidus* type, 95 per cent of the organisms in a film being of this type. The flora of infants who are artificially fed shows greater complexity, and the predominant organisms are of coliform type. Streptococci are found in greater numbers than in the suckling's stool, and spore-bearing organisms are present in most cases.

The faeces of breast-fed infants are always distinctly acid in reaction, whereas the stools of the artificially fed children are alkaline or neutral. This difference in reaction of the stools of the breast-fed infant and those of the artificially fed is of considerable importance in relation to the types of bacterial flora. The alkalinity of the faeces of infants fed on cow's milk has been attributed by Miller to the action of putrefactive bacteria on the large amount of protein which is present in cow's milk as compared with human milk, while Schlossmann believes that the important factor is the protein fat ratio. The acidity of the suckling's stool has been attributed to the high content of lactose in the breast milk, and it has been shown experimentally that the addition of lactose to the dietary of rats results in highly acid contents of the caecum, whereas a high protein diet does not produce this. Clark and Marriott have suggested that the poverty of human milk in buffer salts allows of a rapid change in the reaction, and the acids produced are free to act upon the intestinal mucus causing a rapid evacuation of the contents and an acid stool. In support of this is the observation that in diarrhoeal conditions the stools are usually acid as compared with normal. It has been established that *B. bifidus* and related organisms of the *B. acidophilus* type can survive exposure to highly acid fluids which destroy coliform organisms, and the predominance of these organisms in the stool of the breast-fed infant and the poverty in coliform organisms has been attributed to the acid reaction of the intestinal contents. The absence of spore-bearing organisms in the suckling's stool is attributed to the same factor, and it has been shown that the growth of these organisms is markedly inhibited in highly acid media in which *B. bifidus* and *B. acidophilus* survive. Some workers, however, are of opinion that the acid-resistant organisms are directly antagonistic to the growth of *B. coli* and the spore-bearing anaerobes.

After the period of breast-feeding the child is quickly introduced to a variety of foodstuffs, and during adolescence and adult life many kinds of proteins and carbohydrates are ingested. Opportunity is offered for the invasion of the alimentary tract by many organisms, and the bacterial flora of the intestine becomes correspondingly complicated. The nature of the diet, the habits of the individual, particularly as regards the evacuation of the bowels, and the degree of physiological balance of the numerous intestinal ferments all affect the flora. From the bacteriological aspect great difficulties present themselves in any attempt to determine the variety of organisms contained in any one sample, and the quantitative relationships of the various types are almost impossible to determine. The majority of the organisms are facultative anaerobes and possess a wide range of saccharolytic and proteolytic activities. To isolate even a few types a considerable variety of media must be used, as the growth of one species frequently exerts an inhibitory effect on the development of others. For example, plating out on agar or similar medium gives abundant growth only of certain types of coliform organisms and streptococci. Some organisms—for example, *B. acidophilus*—can be obtained only by the use of media which prevent the growth of the coliform organisms. The use of liquid media for primary culture results in overgrowth of one or more types and suppression of others, giving a false picture, particularly of the quantitative relationship. To obtain even a partial picture a great variety of media must be used, anaerobic methods of culture adopted, spore-bearing organisms specially provided for, and the examination of one sample of stool may require many days of work.

To simplify the results for clinical purposes it has become usual to group the intestinal organisms into two types—proteolytic and saccharolytic. This division is based primarily upon the study of the organisms in the stool of the infant, the flora of the breast-fed being regarded as saccharolytic in type, while that of the artificially fed is regarded as proteolytic. Horter and Kendal first attempted to obtain a correlation between the types of intestinal bacteria and the chemical composition of the food in experimental animals. In experiments on monkeys and cats it was found that a high carbohydrate diet, especially milk and lactose, gave a flora rich in *B. bifidus* and *B. acidophilus*, whereas a high protein diet (meat and eggs) gave a predominance of coliform organisms and spore-bearers. Hall and Rettger extended these experiments to the examination of a series of common carbohydrates, and showed that lactose was the only one with the power to transform the flora to the saccharolytic type. Distaso and Schiller found that dextrin also was efficient.

The results with lactose seemed to support the theory that in the suckling infant the determining factor in the production of the saccharolytic type of flora was the lactose. Sittler in 1908 had found that the addition of lactose to cow's milk transformed the proteolytic flora of the artificially fed infant so that it approached that of the suckling in type, whereas the addition of saccharose had no effect. In 1915 Torrey reported favourably upon the use of lactose in the treatment of cases of typhoid fever, a most marked change occurring in the bacterial flora with almost entire elimination of the obligate anaerobes. The change to the saccharolytic type of flora was more difficult when the initial flora was markedly proteolytic, but was of quite radical nature when the initial flora was of more simple type. As a result of lactose feeding the cases ran a milder course, with less alimentary disturbance and few complications. In 1919 Morris, Porter, and Moyer applied similar high carbohydrate diets with success to the treatment of children suffering from a clinical syndrome characterized by lassitude, constipation or diarrhoea, anorexia, and stupor. The condition was associated with a marked proteolytic or putrefactive intestinal flora, and the improvement in the clinical condition was always found to be associated with a change in the flora to the saccharolytic type. A quicker transformation of the flora is achieved by combining lactose diets with cultures of acidophilus organisms. The strains of *B. acidophilus* used must be capable of surviving in the human intestine, and should preferably have been obtained from this source.

* Given in opening a discussion in the Section of Pathology and Bacteriology at the Annual Meeting of the British Medical Association, Cardiff 1928.

Cultures of the organism in milk give the best results. Rettger and Cheplin in 1921 compared the effect of lactose alone (300 grams), lactose (150 grams) and emulsions of *B. acidophilus*, and *B. acidophilus* milk (500 to 1,000 c cm) in six human adults. In each case there was a complete transformation of the flora to the saccharolytic type. Beneficial results in the treatment of constipation and of diarrhoea in children and adults by the use of *acidophilus* cultures, with or without lactose, have been reported by numerous clinicians. As a result of treatment there is a marked diminution in the numbers of *B. coli* and almost complete elimination of putrefactive anaerobes and other proteolytic organisms. It should be noted that large volumes of *acidophilus* milk and lactose are required to effect the transformation, and that the bacterial flora reverts quickly to the ordinary type on cessation of treatment.

From the bacteriological aspect there are several points of interest in the above experiments. The effect of the lactose is generally attributed to slow absorption in the intestines, so that fermentation occurs in the lower levels of the intestines by the action of saccharolytic organisms with the production of a high degree of acidity, diminution of *B. coli*, and development of acid-resistant (aciduric) organisms of the *B. acidophilus* type. It has, however, been shown that the administration of lactose causes a rise in blood sugar which is comparable to that obtained with glucose, but which is a little delayed. It would appear, therefore, that amounts of lactose such as are employed in blood sugar tests are absorbed comparatively quickly, and that the theory of slow absorption of lactose probably only holds for large amounts of this substance. The great majority of coliform organisms ferment lactose readily, and in the presence of both protein and carbohydrate the latter is always first attacked. In the examination of pure cultures of many strains of *B. acidophilus* isolated from human faeces I have found that these organisms are, in general, very weak fermenters of carbohydrates, and it is difficult to correlate these findings with the view that lactose is primarily attacked by these organisms so that a degree of acidity of the intestinal contents develops which is inimical to the development of *B. coli*, and may even cause suppression of the organisms. It would seem to me more probable that the lactose is attacked by *B. coli* and *B. welchii*, and that the various acid substances produced by such fermentation offer a suitable pabulum in which *B. acidophilus* rapidly develops. This is suggested by our experience that the direct inoculation of faeces into milk gives abundant growth of *B. coli* and enterococci in the first few days, but that at a later date vigorous growth of *B. acidophilus* occurs and that a pure culture of the latter may be obtained after seven to ten days' incubation. In recent years many experiments have been made on dogs and rats which demonstrate the transformation of the faecal flora to the saccharolytic or *acidophilus* type by the addition of lactose or dextrin to the diet and the maintenance of this flora so long as the diet is continued. The administration of glucose, saccharose, and maltose is associated with an increase only in the numbers of streptococci. Starchy foods, particularly potatoes, white bread, and beans, also tend to change the flora.

The administration of animal proteins, on the other hand, produces a markedly proteolytic or "putrefactive" flora. According to Kendall and Hamer the saccharolytic organisms are *B. acidophilus*, *B. bifidus*, *B. welchii*, and enterococci. The conditions in the intestine which favour the production of these organisms are more favourable to the development of acid-resistant (aciduric) organisms than to *B. welchii* and the enterococci, so that these are overgrown and appear in the faeces only in small numbers. Among the proteolytic organisms which may be present in the intestine are *B. sporogenes*, *B. putrificus*, *B. mesentericus*, *B. proteus*, and *B. pyocyaneus*. *B. coli* has both saccharolytic and proteolytic activities, but it is present in greater numbers in faeces of the proteolytic type. It has not been possible to correlate the activities of these organisms when tested in pure culture with the pictures obtained in dietetic experiments. There has therefore been an increasing tendency on the part of bacteriologists to devise methods by which the activities of the mixed

organisms of a sample of stool could be determined without consideration of the activities of each member after isolation in pure culture. In short, the methods employed are intended to give a broad distinction between saccharolytic and proteolytic type of flora.

I have dealt with the feeding experiments at some length, as they seem to me to show some advance in recent years in our knowledge of the influence of diet on the flora of the intestinal canal, and of the relation which appears to exist between the two broad types of flora and certain conditions of constipation and diarrhoea. I have repeated many of the feeding experiments on rats, and find the results substantially correct. The experiments on animals and on man show clearly that in order to change the intestinal flora to the "aciduric" type large amounts of lactose must be given combined with considerable volumes of a milk culture of a strain of *B. acidophilus* which has been shown to be capable of survival and growth in the human intestine. Metchnikoff's sour milk treatment was a failure because the organism which he used was not one which could survive in the human intestinal tract. Small amounts of culture of *acidophilus* organisms, either in the dried form or in the form of an emulsion such as is supplied by many firms for the treatment of human diseases, are practically useless. The literature on this subject conveys the impression that the proteolytic or "putrefactive" flora, because it is frequently associated with disturbed conditions of the intestine, is in itself harmful, but it should be remembered that the bacterial flora of the ordinary individual on the most varied of common diets tends strongly to be of proteolytic nature, and that in the diet of adults lactose and dextrin are almost absent. The types of intestinal flora are most probably the result of the abnormal intestinal conditions—not the cause of them.

The term "putrefactive flora" suggests the production in the intestine of poisonous substances, and immediately raises the subject of intestinal auto-intoxication. Alimentary toxæmia has been the subject of so much work in the past that I do not intend to make more than a brief reference to it. In the years which have elapsed since intestinal auto-intoxication or alimentary toxæmia was discussed by no fewer than fifty six speakers at the meeting of the Royal Society of Medicine in 1913, nothing has emerged from experimental chemical or bacteriological work which has given any support to the view that, as the result of bacterial action in the intestine, poisonous substances are elaborated, which by their entry into the tissues of the body, produce chronic intoxication. A complete and critical review of this wide subject has been made in recent years by Alvarez. Certain experimental work bearing on the subject of acute intestinal obstruction has been carried out, the results of which are important in the consideration of subacute and chronic disorders of the intestine. It has been clearly proved by Brook and Murphy, Hartwell and his associates, and confirmed by Dragstedt and others, that in complete obstruction of the intestine the intact intestinal mucosa presents an almost impassable barrier to the products of bacterial action within the closed loop. The closed loop of intestine contains, as a result of bacterial action, substances which are extremely toxic when administered parenterally, but these are incapable of doing harm until the intestinal mucosa is grossly damaged, particularly in its vascular relationships. A considerable loop of intestine may be tied off, but, provided that the circulation above and below the loop is established, the animal may remain in good health, although the loop contains extremely poisonous and diffusible substances, until, as a result of distension, the vascular supply to the mucosa is cut off, when absorption rapidly occurs or perforation results.

Dragstedt and his associates attach most importance to the toxic substances produced by the action of *B. coli* and *B. welchii* on the intestinal juices above the obstruction, while others are of opinion that the enclosed secretions of the intestine or pancreas are the real toxic agents. The nearer to the duodenum the complete obstruction is produced, the more quickly does the animal die. Saito, Sakai, and Suzuki have made important contributions to this subject. They have shown that the onset of signs of toxæmia, after complete section of the duodenum, can be

greatly retarded or even prevented by establishing a flow of fluid in the small intestine below the obstruction. The introduction of saline or the transplantation of the uricr into the portion of intestine below the obstruction results in remarkable prolongation of life in experimental dogs. The application of these results to the question of chronic intestinal toxæmia seems to me to be justifiable. The indications are that the intact intestinal mucosa is a sound barrier to the entry of poisonous substances produced by the action of bacteria on foodstuffs or on the intestinal juices, and that the results of even complete obstruction in the lower levels of the intestinal tract, in so far as they are due to bacterial poisons, are extremely slow to appear. The signs and symptoms of toxæmia in these experiments are apparently as much the result of the mechanical disturbances of the tract below the obstruction as they are of the bacterial disintegration of the contents above the obstruction. Chemical studies have shown that many extremely toxic substances are formed by bacterial action in the intestine, but the absorption of these through the intact mucosa is a different matter.

In chronic ulceration of the tract from a variety of causes there is presumably an opportunity for toxic products to be absorbed, yet there is frequently no evidence of intestinal toxæmia in many of these cases. According to d'Herelle, mucus is the most important defence against invasion of organisms, and the activities of the mucous cells of the intestinal tract is all important in maintaining the health of the intestinal wall. Bond has expressed the view, based on experimental observations, that the mucus plays a biochemical, as well as a mechanical, part in the protection of mucous membranes against infection. Cramer, in experiments on rats fed on diets deficient in vitamin A, found that the mucosa of the intestine showed atrophy of the villi, and exhibited a peculiar condition of the mucous cells. As a result of this change bacteria had penetrated between the villi, and were found deep in the crypts of Lieberkühn and even within the mucous cells. Mottram has shown that similar changes occur as a result of radiation experiments and that the first change is an increase in the mucous cells, and subsequent atrophy and a profound change in the secretion of mucus. The occurrence of numerous bacterial infections in animals on diets deficient in vitamin A has been noted by many workers, and Cramer is of opinion that this is the result of the change in the mucous cells, which permits of the entry of organisms normally held at bay by the healthy secretion of mucus. Cramer, Mottram, and Kingsbury have shown, in support of this hypothesis, that organisms of relatively avirulent type may be obtained from the heart blood of such animals. In the radiation experiments coliform organisms were obtained in the blood by blood culture, and agglutinins to *B. coli* were found in the blood of the vitamin-deficient rats. Dietary deficiencies may therefore play an important part in determining susceptibility to infection from the intestinal canal.

This is a relatively new field of investigation and requires the participation of experienced bacteriologists. Webster and Pritchett have explored a part of this field in a series of experiments on mice. Mice of the same race and stock were fed on two diets differing in their vitamin content. One diet was the ordinary laboratory diet which had been in use for years, and on which previous generations of mice had grown and bred and appeared to be in good health, the other was a diet prescribed by McCollum, and was rich in vitamins. The two sets of animals were tested with a culture of *B. aertrycke* administered with the stomach tube. The mortality rate in the animals on the ordinary diet was extremely high, whereas that of the others was very low. Similar experiments were tried with *botulinus* toxin and mercuric chloride. The animals on the McCollum diet were much more resistant than the animals on ordinary diet. These workers remark that "possibly the future may reveal the existence of a deficiency operating insidiously and over a long period of time through many generations of animals."

It has already been noted that the hydrogen-ion concentration of the intestinal contents is an important factor in the flora. It has been shown that in rickets and in animals fed on a rickets-producing diet the contents of the

cæcum are alkaline (pH 7.4 to 8.0), and that the feeding of cod liver oil results in a change to the acid reaction comparable to that of rats on a normal diet (pH 6.2), which is not relieved by feeding oils deficient in vitamins. "The diets used to produce rickets all have an appreciable excess of base over acid, and rickets is not produced when such diets are made more acid" (Zucker and Matzner). The rickets-enrning effect of light is also associated with a change in the caecal flora to normal values. It is of interest to note that disturbance in the intestinal tract has long been held as a primary factor in the causation of rickets. Bacteriological studies of vitamin deficient animals might give much interesting information bearing on the normal intestinal flora and its relationships to changes in reaction of the caecal contents. That other processes may be involved in the intestinal tract when there is a deficiency of vitamin B has been demonstrated by Fridericia and others, who, in their studies of an extremely interesting condition called "refection," have shown that under certain conditions rats on a diet totally deficient in vitamin B may grow normally and show no signs of vitamin deficiency as a result of a change in the intestinal contents, this is supposed to be due to the development of a virus which is communicable to other animals through the faeces of the "refected" rats. They suggest that vitamin B may be produced in the intestine by some micro-organism in the intestinal tract. They have also noted that the bacterial flora of the cæcum of the "refected" rats is different from that of other rats. As in the other vitamin experiments the caecal contents of vitamin-deficient rats are markedly alkaline, whereas those of the "refected" rats are acid like those of normal rats.

There is probably no disease the cause of which has been so frequently associated with bacteria in the gastrointestinal tract as pernicious anaemia. Since the time when Hunter emphasized the occurrence of glossitis in cases of this disease an enormous amount of work has been done in an attempt to find in the mouth, stomach, or intestine the causative organism. Organisms with the power to haemolyse blood have in particular been sought. Within recent years it has been shown that in pernicious anaemia *B. coli*, enterococcus (*Streptococcus faecalis*), and *B. welchii* are present in abnormally large numbers in the stool, and that the flora characteristic of the cæcum encroaches on the higher levels of the intestine. In 1906 Herter showed that *B. welchii* or its spores were present in increased numbers in the stools of pernicious anaemia patients, and suggested that the products of these organisms, which are actively haemolytic, were absorbed from the intestine, and might be the cause of the disease. At a later period, when this organism had been shown to secrete an exotoxin, Herter's findings were confirmed, and experimental work in the production of anaemia with the *B. welchii* and its products gave some support to the idea that this organism was intimately related to the causation of pernicious anaemia. *B. welchii* is, however, present practically always in normal faeces, and in the comparison of strains from healthy persons with those from pernicious anaemia patients no differences in pathogenicity or in haemolytic power could be found. It was suggested that the increased numbers and the higher intestinal levels at which the organism could be found were probably the important features in its causal relationship. The absorption of toxin of *B. welchii* from the intestine was, however, extremely unlikely, as bacterial toxins of similar character, such as those of diphtheria and tetanus, may be administered in enormous amounts by the mouth without causing specific symptoms. Further, the absorption unchanged of such a toxin as that of *B. welchii* into the tissues would, according to all experience in immunity, lead to the production of antitoxin and a pronounced degree of resistance. It has also been found that no beneficial effects result from the administration of potent Welch antitoxin in cases of pernicious anaemia, and that *B. welchii* is present in equally large numbers in the faeces of individuals not suffering from pernicious anaemia, but in whom achlorhydria is present. In the absence of hydrochloric acid in the stomach an increased alkalinity of the duodenal contents results, with the appearance in the small intestine of a bacteriological flora suggestive of that in the colon.

The study of pernicious anaemia is a good illustration of the way in which abnormal conditions of the digestive functions may cause disturbance in the bacteriological relationships of the intestinal contents, disturbances which are too frequently reported as having an etiological relationship to the condition under investigation. The theory of intestinal toxæmia is still widely held among practitioners, and has been favoured by distinguished members of the profession. The absence of comparatively simple methods for examining the organisms in faeces, and the inadequacy of our information of the effects of changes in diet or the influence of particular foodstuffs, make it extremely difficult to define the "normal" flora. Ignorance of the variations which are found in normal persons is unfortunately reflected in the numerous contributions which appear in connection with the examination of the intestinal contents in a variety of diseases, and associated with cure or relief by the administration of vaccines made from a pathological intestinal flora. It is not generally recognized that many varieties of common intestinal organisms can be isolated from the stools of healthy persons, particularly if slight adjustments of the culture media are made or if special media are used. The ordinary media employed in the laboratory for the demonstration of pathogenic intestinal organisms are of use in the isolation of certain strains of coliform organisms only. The flora of the faeces even with regard to coliform organisms becomes considerably widened by the use of fluid media with different degrees of hydrogen ion concentration, or by the addition of substances which are inhibitory to certain common types. Browning has shown that the addition of brilliant green to peptone water results in the suppression of typical *E. coli* and the growth of mesitic fermenting strains, and that this method will demonstrate the presence of Morgan's No. 1 bacillus in samples of faeces which by direct plating on ordinary media do not yield that organism. Similarly a mixed growth of faecal organisms will show changes in types as a result of development of acidity in fluid media containing fermentable carbohydrates. We have found that a synthetic medium containing sodium citrate as the source of carbon and ammonium phosphate as the source of nitrogen (Koser's medium) gives a great many varieties of coliform organisms in the stools of normal persons. The demonstration of any of these strains in a sample of stool from cases of certain chronic maladies would we believe, immediately suggest to certain bacteriologists an "abnormal flora," and call for the exhibition of a vaccine. A recent paper on the use of residual vaccines in a wide variety of conditions may be quoted as representative of many others which have been published, advocating the use of autogenous vaccines of intestinal organisms. The author regards the occurrence of *B. lactis aerogenes*, Friedländer's bacillus, and Morgan's bacillus in the stool as of pathogenic significance, and such common coliform organisms as *B. acidi lactici* and *B. coli communis* are looked upon with suspicion. Whatever may be the therapeutic results obtained with vaccines, it is not justifiable to associate these common inhabitants of the intestinal tract as standing in causal relationship to the patient's pathological condition.

An increase in the numbers of streptococci in the stool, frequently judged only by a film of the faeces, is also used as an argument for vaccine treatment. A carbohydrate diet alone or the use of a simple saline purge may determine a marked increase of these organisms in the stool. From the standpoint of immunity, vaccine treatment cannot be expected to stimulate the production of antibodies which will be efficient against chemical substances produced in the intestine by the action of bacteria, and are only likely to be of value in cases in which the organism has penetrated the tissues of the body, some degree of entry through the mucosa must be postulated before the humoral defences of the body can operate. Only those who have a very restricted view of the flora of the intestinal contents and a very limited knowledge of the wide variations which occur in health, can with confidence recognize an "abnormal flora" and prescribe accordingly. In the adult stool many varieties of coliform organisms can be found, and the demonstration of these affords an explanation of the presence of the many "unusual types" which

are frequently encountered in cases of severe diarrhoea, dysentery, or other disturbed conditions of the intestine. These "unusual" strains are probably always present, but require special methods for their detection. It has frequently been observed that strains of *B. coli* isolated from the urine in cases of pyelitis are not the same as the prevailing types in the stool, yet their presence in the kidney has always been regarded as secondary to their presence in the intestine at some time or another.

The organisms which have been described as occurring in the stool form an extensive list and include many different groups of bacteria. Many of these are ingested in the food and dust, and are passively carried by the intestinal contents. Others find in the conditions at the different levels a suitable environment in which to multiply, and at other levels find the conditions inimical to their development. Before accepting an organism found in the stool as the causative agent, even in acute intestinal disorders, much evidence, other than its presence in considerable numbers or that it shows pathogenic properties on injection into experimental animals, must be presented. The spores of tetanus bacilli are frequently present in the faeces of man and animals, but it is almost impossible to determine whether the organism is passively carried by the contents of the intestine, as seems most likely, or is actively growing. The variety of organisms in the faeces and the chemical processes which occur in the intestinal contents suggest in many ways the organisms present in agricultural soils and the changes which they produce. In both situations similar groups of organisms are found, and the flora is determined by the nature of the available food material, and by the opportunities which are afforded for infection by many types of organisms, the difference in temperature of the two environments being the important factor in determining the prevailing type in the two situations. If the intestinal contents could more frequently be regarded as material which is outside of the tissues, and separated from these by a mucous membrane which is endowed with peculiarly selective absorptive power, there would be less tendency to regard the bacterial flora of the intestine or its individual members as concerned in the causation of many chronic conditions in the human subject.

KALA-AZAR AND ORIENTAL SORE THE PROBLEM OF TRANSMISSION *

BY

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The present-day position regarding the method of transmission of kala-azar, and of the parasitologically allied disease oriental sore, centres around sand-flies of the genus *Phlebotomus*, those minute irritating flies which transmit the febrile condition known as phlebotomus fever, which have long been suspected as being transmitters of oriental sore, and which have comparatively recently fallen under suspicion in relation to kala-azar. It may be said at the outset that though there is very good circumstantial evidence that these flies are the actual vectors of kala-azar and oriental sore, the final proof of experimental transmission has not yet been obtained, though there is every reason to suppose that when an infected sand fly bites an experimental animal or man himself the parasites are injected into the wound from the proboscis of the fly. The reason for this failure is not apparent, but it may be that unless the vertebrate host used for the experiment is in a particularly susceptible condition the small dose of organisms injected is insufficient to give rise to infection. It can hardly be that the organisms are not virulent, for if a sand fly which has infected itself by feeding on a case of the disease is dissected and the bulk of the organisms it contains is injected with a syringe into a suitable animal in the case of kala-azar or into man in the case of oriental sore, infection readily occurs. Though at the commencement of the sand fly work there appeared to be

* Read in opening a discussion in the Section of Tropical Medicine of the Annual Meeting of the British Medical Association, Cardiff, 1928.

every promise that the problem of transmission of the two diseases, kala azar and oriental sore, would be quickly solved, an unforeseen obstacle has arisen in that experimental animals and man fail to contract the disease even when fed upon by large numbers of heavily infected sand flies. Whether this obstacle will be overcome or whether it is an indication that, as has happened before in connection with these diseases, we are on the wrong track future work alone can disclose.

As the problem is still unsolved it will be advisable for us to consider other possibilities. In order to do this it is necessary to have some knowledge of the nature of the parasite which is known by the name "Leishmania," or, popularly, the Leishman-Donovan body. When it was first discovered, in 1903, by the late Sir William Leishman, and again in the same year by Donovan, its exact nature was not fully realized, but Sir Leonard Rogers soon showed by the culture method that it was a flagellate of the herpetomonas or, as I prefer to call it, the leptomonas type. Flagellates of this kind are essentially flagellates of insects and other invertebrates, in which they occur both as the non-flagellated body, like the Leishman-Donovan body, and as the elongate flagellated leptomonas, which, in the case of the human parasite, is hardly, if ever, found in the human body, but which occurs in cultures and in the intestine of certain insects, particularly the sand fly and bed bug which have ingested the small round forms. In all cases in which the life cycle of an insect leptomonas is known it has been found that infection is spread from insect to insect by means of small round forms, which have the structure of the Leishman-Donovan body and which escape in the faeces of the insect. The common leptomonas of the flea, *Leptomonas stenoccephali*, is a flagellate of this type, and it is spread from flea to flea by such forms which escape in the faeces and are ingested by the flea larvae. In the insect itself the infection in all cases tends to be one of the hind gut. So essentially are the leptomonas flagellates parasites of insects and other invertebrates, that it is safe to assume that the parasites of kala-azar and oriental sore were originally insect flagellates, like that of the flea, which passed from insect to insect, and that the infection of human beings came at a later period.

It has been suggested that the parasite of kala azar might pass directly from man to man, and in support of this might be brought forward the observation of Perra, who showed that in kala azar the villi of the intestine may be packed with macrophages filled with parasites in such a manner that escape into the faeces would seem to be inevitable. Furthermore, it has been shown by Shortt that parasites do actually occur in the urine, so that contamination of water is a possibility. There are isolated observations which indicate that man-to-man infection is a possibility. Thus, Archibald in 1914, in the Sudan, infected monkeys by feeding them with infected spleen material while Adelheim, in 1924, reported that a healthy mouse kept in a jar for five months with an infected mouse contracted the disease. There is no evidence, however, that the Leishman-Donovan body can survive in water. It certainly cannot assume the flagellate stage in this medium, and, unless we are to ignore entirely the fact that the parasite can develop into a flagellate we must give up the idea of man-to-man infection as the normal method of spread of the disease.

So important to my mind is the flagellate stage which occurs in cultures and in the intestine of insects, and so characteristic is it of an insect flagellate, that there appear to be overwhelming reasons for believing that the Leishman-Donovan body must have an invertebrate host. Not the mere fact that the Leishman-Donovan body can develop into a flagellate in the stomach of an insect is not in itself proof that such an insect is the host. As first shown by Patton as long ago as 1907 in India, bed bugs fed on kala azar cases will ingest parasites which, during the next few days in the stomach of the bug, develop into the flagellate stage. There is, however, no great multiplication in the bug. If few parasites are ingested, few flagellates appear, and vice versa. If the bug had been the true invertebrate host we would have expected that if only a few parasites had been ingested, eventually many flagellates would have

developed. Furthermore, the flagellates tend to die out in the bugs, a second feed of blood being particularly fatal to them. In true insect hosts of any flagellate the organisms increase in number progressively and tend to persist for the remainder of the insect's life. Another point of some importance is that in the case of flagellates in the real insect host these show a tendency to attach themselves to the intestinal epithelial cells by their flagellated ends, the whole epithelium being sometimes covered with them. No such attachment occurs in bugs, so that, quite apart from the lack of correlation between the distribution of bed bugs and kala azar, there is good reason for believing that the bug is not the vector and that the development into flagellates which occurs in the bug's stomach is a pseudo-development and occurs merely because the stomach of the bug contains a quantity of blood. The development is comparable with that which occurs in blood media in the test tube. I myself in 1911 showed that the parasite of oriental sore would similarly develop in the bed bug but no one would suppose that the bed-bug is the vector of this disease. As a matter of fact, trypanosomes, spirochaetes, and other organisms will multiply to some extent and survive for relatively long periods in the stomach of this insect. There is no question of the bug being a vector of these various organisms. I think, therefore, we are justified in ruling out the bed bug, even though Young has recently stated somewhat casually that he and Hertig were successful on one occasion in effecting transmission of kala azar from one hamster to another by its means. Nicolle and Anderson in 1925 announced the complete failure of a laborious attempt to transmit the disease from dog to dog by the bed-bug.

In the Mediterranean region, where kala-azar occurs chiefly in the infantile form, not infrequently dogs, and very rarely cats, suffer from the same disease. Basile and other Italian workers very naturally thought that the flea might be a vector, and this idea was strengthened when it was found that fleas taken from infected dogs harboured flagellates similar to the Leishman-Donovan body and the flagellates which develop from it. It was not at first realized that fleas, as I have already mentioned, are liable to a leptomonas infection which is peculiar to themselves. It was subsequently shown that the Leishman-Donovan body would not develop in fleas and very careful experiments by myself, Pereira da Silva, and Nicolle and Anderson have failed to effect transmission of the disease from dog to dog by these insects. The flea hypothesis, like that of the bed bug, has therefore been abandoned, so far as I am aware, by all observers. Numerous other blood-sucking arthropods have been tested, with results even less encouraging than those obtained with bugs and fleas. Even the ancylostomes, which attach themselves to the mucosa of the intestine and suck blood, and thus are very probable ingesters of Leishman-Donovan bodies, have been carefully examined for flagellates or other stages of the parasites, with negative results.

The whole position of the problem of transmission of kala-azar and oriental sore reached a stage when it appeared to be more obscure than ever. Then the interesting discovery that the parasite of kala-azar would develop in the Indian sand fly *Phlebotomus argentipes* was announced by Knowles, Napier, and Smith working in Calcutta in 1924. It was also observed by Sintou that there was a relationship between the distribution of this sand fly and kala-azar in India. The observations were quickly confirmed by Christophers, Shortt, and Barrard with the same sand-fly in Assam, and by Young and Hertig, and Patton and Hindle in North China with sand-flies of that locality. Furthermore Adler and Theodor in Palestine, and Parrot and Donatien in Algeria, showed that the parasite of oriental sore would similarly develop in sand flies. The important point about this development was that it was a progressive one, and, unlike the development which had been demonstrated to occur in the bed-bug, a relatively small number of organisms ingested by the fly led to a massive infection of the stomach. Furthermore, the flagellates showed a tendency to attach themselves to the cells, so that in both these respects the organism was behaving in the sand fly as a flagellate would be expected

to do in its true invertebrate host. In one direction, however, there is a marked difference from all known insect leptomeres. As noted above, the infection in the insect tends to be one of the hind gut, from which small rounded bodies, resembling the Leishman-Danovan body, are voided in the faeces. In the sand-fly infected by feeding on a case of kala-azar or oriental sore, no such infection of the hind gut occurs. On the contrary, the development of the flagellates occurs in the stomach, particularly in its anterior part, and there they show a tendency to attach themselves to cells. Having produced a massive infection of the stomach, the flagellates may extend forwards to the oesophagus and thence into the buccal cavity. Furthermore, there is no tendency towards the production of the small round Leishman-Danovan bodies, which are so characteristically formed in the hind-gut in the case of insect flagellates. Adler has shown that if an infected sand-fly feeds through a rabbit-skin membrane on a sterile fluid, flagellates can afterwards be demonstrated in the fluid, an observation which proves conclusively that the organisms escape from the proboscis when the sand-fly feeds. The development of the flagellates in the anterior part of the alimentary tract is thus not associated with any development in the hind gut, nor with the passage of small rounded forms in the faeces, though occasionally isolated flagellates occur in the hind-gut, doubtless as a result of having been swept there from the heavily infected stomach. It seems very probable that the parasites of kala-azar and oriental sore originally lived in some insect and gave rise to an infection of the insect type—namely, infection of the hind-gut and passage of rounded forms in the faeces. If this original insect host was the sand-fly, we must assume that the infection in the fly has altered in character from one in the hind-gut to one in the anterior part of the alimentary canal. However, there appears to me to be another possibility. The sand fly may not be the original host. The flagellate, as the Leishman-Danovan body, having become established in man, it is evident that any blood-sucking insect would be able to ingest parasites by feeding on the human being, as the parasites occur both in the circulating blood and in the skin. If the conditions in the insect were favourable to the development and multiplication of the flagellate it would come about that such an insect would become infected with flagellates.

It may be that the sand-fly is an insect of this type, and that the development which occurs in the anterior part of its alimentary canal is to be explained on the assumption that it has become secondarily infected from human beings, who in the first place acquired the parasites from some insect in which the flagellates lived, as do other insect leptomeres. This does not mean that the sand-fly would be unable to transmit the infection, but it would indicate that if the original hypothetical insect host still exists the virus would be able to maintain itself by direct passage from insect to insect without necessarily infecting man.

It seems to me simpler to regard the sand-fly as a secondary insect host than to admit that an original hind-gut infection has in the same fly changed to one in the anterior part of the alimentary canal. The same difficulty occurs in the case of trypanosomes transmitted by tsetse flies, where an anterior development also occurs, and it is possible that a similar explanation will hold in their case also. If the original insect host still survives, the problem of the eradication of the leishmaniasis would be a difficult one, for there would then be a permanent insect reservoir of the virus.

The remarks which I have just made show that sand-flies can readily be infected by allowing them to feed on cases of kala-azar or oriental sore. In cases of oriental sore where the lesion is in the pre-ulcerative stage a sand-fly feeding on it readily takes up leishmania, as these parasites occur in myriads enclosed in large macrophages or clasmotocytes just below the epidermis. In the case of kala-azar, the presence of parasites in blood films made from the peripheral blood has been demonstrated, and it has generally been supposed that the sand-flies ingest the parasites in the circulating blood. Observations by Cash and Hu have shown, however, that in experimentally infected hamsters, and even in human beings suffering

from this disease, the skin may contain larger numbers of macrophages packed with parasites. They have suggested with good reason that it may be that sand flies infect themselves from the parasites in the skin, and that in many cases when parasites have been found in films of the peripheral blood these may actually have been derived, in some cases at least, from the skin. Hindle has made some observations which indicate that a relationship exists between intensity of the skin infections in hamsters and the percentage of flies which become infected after feeding on them. Cases of Indian kala-azar may show a peculiar skin eruption, first described by Bramachari in 1922 as dermal leishmanoid. In this condition, which is by no means uncommon, there occur cutaneous nodules harbouring parasites. It would be a relatively easy matter for sand-flies to take up parasites from these lesions as they do in oriental sore.

Not only do flies become infected by feeding on human beings, but also when fed on experimentally infected hamsters, and in mentioning these little rodents I must emphasize the great importance of the discovery of Smyly and Young in 1924, in China, that the hamster is very susceptible to inoculation with the parasite of kala-azar. Before this observation the lack of a susceptible laboratory animal was a serious handicap to kala-azar research. Now the virus can be maintained with ease in the laboratory, and it is a simple matter to feed sand flies or other insects on the hamsters. It is of interest to note that Young and Hertig reported in 1925 that they had examined 4,480 wild hamsters for the occurrence of natural infection. Out of this number one was found to have a heavy infection. It had come from a locality where 5 per cent of the inhabitants suffer from the disease. It would not appear, however, that the hamster can in any way be regarded as a reservoir of the virus. In experiments the hamster is much more susceptible to intraperitoneal injections of the virus than to cutaneous ones, and this may explain why workers in India and China have failed entirely to infect hamsters by allowing hundreds of infected sand flies to feed on them, while the flagellates taken from infected sand-flies and injected intraperitoneally readily produce infection. It is evident that the dose of flagellates injected into the skin by a large number of sand flies is, as far as present records show, insufficient to produce infection. It seems that recourse must be had to human experiments, and I understand that these are being carried out with volunteers in India—an experiment which is attended with little danger now that a practically certain cure is available in the various organic antimony compounds when employed in the early stages of the disease. Even these experiments may not at once give results, for the factor of susceptibility of the individual is an important one. Thus Maggione in 1925 failed to infect human beings by intracutaneous and subcutaneous injection of virus taken directly from cases of kala-azar.

Assuming that sand flies of the genus *Phlebotomus* are the actual vectors of kala-azar and oriental sore, how can the parasites in the flies be transferred to human beings? From what I have said of their presence in the anterior part of the alimentary tract, and the fact that they escape from the proboscis into a fluid on which an infected sand fly is feeding, it is legitimate to conclude that they actually enter the wound inflicted by the sand-fly during the feeding act. There are, however, other possibilities. In common with many other blood-sucking insects the sand fly ejects fluid from the rectum while it is feeding. In the case of the transmission of *Trypanosoma lewisi* from the flea to the rat it is in such ejected droplets that the infective forms of the trypanosome occur. The droplets are licked from the fur by the rat, which thereby becomes infected.

As already noted, occasional flagellates may be found in the hind gut of the sand fly as a result of having been washed there accidentally from the stomach, and this being the case it is probable that on very rare occasions flagellates would escape in the droplets ejected from the rectum. The number, however, would be very small, and in any case would hardly be greater than the number injected by the sand-fly from its proboscis. The ejected droplets fall on to the skin while the sand fly feeds, and the subsequent

scratching as a result of the irritation, might lead to infection of the skin or conveyance of material on the fingers to the mouth or conjunctiva. The dose of organisms would be so small that it hardly seems probable that infection would occur in this way when that injected directly into the skin from the proboscis fails to infect. There is, however, another consideration. The heavily infected sand-fly might be intentionally or inadvertently crushed on the skin, with the result that a very much larger dose of organisms would be deposited. In the case of the transmission of relapsing fever by the louse, it is the fluid from the injured or crushed louse which brings about infection by contamination of the skin or conjunctiva. It has been shown by Adler and Theodor that if a sand fly infected with the parasite of oriental sore is dissected and the bulk of the organisms it contains is injected into the skin of a human being, infection results, so that in the case of this disease the crushing of an infected sand fly on the skin might easily give rise to infection. In the case of kala azar, however, there is no evidence that the injection into the skin of organisms from an infected sand-fly will produce infection, though it would probably do so in some cases, as hamsters may occasionally be infected by the subcutaneous injection of the flagellates from the culture tube. Hindle and Patton have actually attempted without success to infect hamsters by inoculating flagellates from sand-flies into the skin by rubbing them into excoriations of the skin, and by introducing them into the mouth. It is possible, however, that under certain favourable conditions the scratching into the skin of a large dose of organisms from a crushed sand-fly or the conveyance on the fingers of such a dose to the mouth or conjunctiva might produce infection. If experiments designed to transmit infection by the bites of infected sand flies continue to fail, as they have done up to the present then it appears to me that the other possibilities I have just mentioned will have to be still further investigated.

As regards the particular sand flies involved in India, it is *Phlebotomus argentipes* which, as already stated, corresponds fairly well in its distribution with that of kala-azar. Another sand fly, *Phlebotomus papatasi* has also been infected in Calcutta but with greater difficulty. Thus of 102 *P. argentipes* fed on kala-azar cases by Napier in Calcutta 43 showed subsequent infections, while of 101 *P. papatasi* only 2 became infected. Shortt, Barraud, and Craighead on one occasion found a naturally infected *P. argentipes* which had been caught in a kala-azar house in Bihar. It is not probable that *P. papatasi* has any significant share in the transmission of the disease. In North China *P. argentipes* does not occur, and in fact there is no knowledge of any sand flies south of the Yangtze a distribution which is again in accord with that of kala-azar in this endemic area. Young and Hertig showed that both *P. major* var. *chinensis* and *P. sergenti* var. could be infected by feeding on infected hamsters, the former in their hands more readily than the latter. Patton and Hindle found that both these flies could be readily infected and in addition infected them by allowing them to feed on human beings suffering from the disease. In the case of *P. major* var. *chinensis* the development of flagellates in the stomach is marked, many of the organisms attaching themselves to the lining epithelium. In many flies they extend forward along the oesophagus to the buccal cavity and down the proboscis. The infection persists in the flies after the blood has been completely digested and disappeared. In the case of *P. sergenti* var., however, though development occurs in the stomach there is no extension forwards, while the infection disappears with the digestion of the blood. It is therefore less likely to be a vector than *P. major* var. *chinensis*. It is thus apparent that as in India *P. argentipes* is a more efficient host than *P. papatasi*, so in North China *P. major* var. *chinensis* is more efficient than *P. sergenti* var.

There is as yet no information available regarding the relationship of kala-azar to sand flies in other endemic centres of the disease, such as the Mediterranean region, Transcaspia, the Sudan and Kenya, the districts around Lake Chad, and South America. It will be sufficient to state that Adler and Theodor, working in Palestine, have

succeeded in producing infections in *P. papatasi* by feeding them on cultures of various strains of leishmania, but I do not think the results so far obtained throw much light on the problem of transmission in the localities I have just mentioned.

Turning now to oriental sore, the sand fly has long been considered to be a possible vector. In 1912 I described a leptomonas which occurred in sand-flies in Aleppo. This flagellate was not rediscovered till Adler and Theodor found it in 1925 in *P. papatasi* in Jericho, unless the claim of Laveran and Franchini, about which there appears to be some doubt, that they found it in these sand-flies in Italy in 1920, is substantiated. Flagellates from naturally infected sand flies were inoculated by Adler and Theodor into the skin of human beings. Oriental sore developed, and from these lesions other laboratory-bred sand flies were infected. The flagellates in these flies were again injected into the skin of a volunteer, who contracted the disease. Previous to this Seigent, Parrot, Douatiou, and Begnet in 1921 inoculated into the skin of a human being the crushed up bodies of seven *P. papatasi* which had been sent to Algiers from Biskia, an endemic centre of oriental sore. Though no flagellates were seen in the material inoculated, a typical oriental sore containing leishmania developed. Parrot and Douatiou in 1926 found naturally infected sand flies of this species in Biskia, and succeeded in infecting sand flies by feeding them on the tail lesions in infected mice. The evidence connecting *P. papatasi* with oriental sore is parallel to that associating *P. argentipes* with kala-azar in India and *P. major* var. *chinensis* with this disease in North China, with the exception that naturally infected sand flies have not yet been found in the last-named area. Adler informs me that during a visit to Baghdad he has found there, amongst other sand flies, *P. sergenti*, and that it is also a possible vector of oriental sore as he has succeeded in infecting it. The only evidence of the method of transmission of cutaneous leishmaniasis in South America where the disease is very prevalent, is afforded by an experiment described by Aragão in 1922. This observer fed some specimens of *P. intermedius* on a human lesion and later inoculated the crushed up sand flies into the skin on the nose of a dog, which developed a characteristic sore.

Time will not permit of a discussion of the leishmania and leptomonas infections of vertebrates other than man. As already noted, dogs in the Mediterranean area are liable to suffer from kala-azar, while in various endemic centres of oriental sore these animals not infrequently contract the disease. There is no reason to suppose that the organisms infecting dogs are different from those which produce the diseases in man. Lizards, such as the gecko and chameleon, may be infected with flagellates of the leptomonas type, and at one time in North Africa it was thought that the gecko, on which sand-flies readily feed, might be a reservoir of the virus of oriental sore. Experiments did not support this view, though the recent statement of Young and Hertig that the flagellate from the gecko will infect hamsters and produce lesions similar to those caused in these animals by the virus of Mediterranean kala-azar opens up another possibility—namely, the identity of the gecko flagellate with the parasite of North African kala-azar. Some observers have tried to connect with oriental sore the naturally occurring leptomonas infections of euphorbias and other plants. Strong has even suggested that in Central America, where these plant infections occur, the plant bugs acquire an infection by feeding on the plants, and a certain lizard an intestinal infection by devouring the bugs. Flagellates from the lizard inoculated into the skin of a monkey produced a lesion in which leishmania-like parasites occurred. These and many other aspects of leptomonas infections open up fields of inquiry which still await exploration.

In conclusion, it may be stated that if the sand fly is not the transmitter of the leishmania infections of man we are as far off the solution of the problem as we ever were. The remarkably intense infection produced in this insect is difficult to regard as an accident, and the mass of experimental evidence is in favour of the view that both kala-azar and oriental sore are transmitted by species of

Phlebotomus On account of the failure of experimental animals, on which infected sand-flies have been allowed to feed, to develop the disease, Young and Heity, have begun to doubt if the sand-fly is really the vector of kala-azar in North China. Woakes should not, however, be discouraged by such a temporary set-back, and until every channel has been thoroughly explored it would be foolish, in face of all the evidence, to abandon the theory of sand-fly transmission of this disease.

CHRONIC ETHMOIDITIS *

BY

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WHEN a foreigner offers a treatise before a gathering of this sort which is really international in its scope, it is more or less understood and expected that his presentation will be rather in the form of a compilation taken from every available authority, and will in the end leave the listener to draw his own conclusions as to the relative efficacy of the various methods described. Now I propose to deviate from this custom and present the subject entirely from our own point of view—in other words, give it as we see and understand it, with the treatment that we have found most suitable for that particular case or condition.

Chronic infections of the ethmoid, as is now well understood, can broadly be divided into the suppurative and non-suppurative. In the first instance an infection is present characterized by the formation and exudation of a purulent secretion, accompanied by the appearance in the ethmoid region of a more or less widespread catarrhal inflammation. The purulent secretion varies in its consistency, at one time being thin, acid, and almost watery, and at another time assuming the characteristics of a thick yellow discharge, the same as that which the older surgeons were wont to term *laudable pus*. In the ordinary case variations between these extremes were the rule rather than the exception, depending upon, as the patient would say, the acquisition of a fresh cold, which usually was not the case, but in reality, represented rather an acute exacerbation of his chronic condition. This would naturally account for the changes in the consistency of the secretion, sometimes thick and profuse, sometimes thin and scanty, and often inducing an erroneous belief that a cure was in progress. As the infection spread, the discharge, particularly that collecting during the night, became more constant, resulting finally in that condition of a chronic purulent ethmoiditis which is so well known to us all as to obviate the necessity of further description.

The other form of ethmoiditis—the non-suppurative type—is a much later development, although it was recognized in a way by some of the early pioneers—as, for example, Woakes of this country and Bosworth of my own—but it was not until after Uffenord published his treatise that it obtained universal acceptance. The type I refer to is that form characterized by polypoid hypertrophies, and even true polyp formation, unaccompanied by true leucocytosis. Hitherto Zuckerkandl's postulate, that the polyps were the products of the purulent secretion, had been accepted without question. Even after the publications of the microscopic pathology, both in Germany and the United States, much doubt was expressed as to the proper interpretations of these findings, many months, I might add years, elapsed before this doctrine was accepted at even its face value. I think we all now recognize hyperplastic ethmoiditis as a separate and distinct pathological entity, in contradistinction to the earlier known suppurative infection. The fact that these two can and do occur as separate forms does not preclude the possibility of them being combined and occurring as hyperplastic infection with suppuration. As a matter of fact the probability of suppuration is directly related to the extent of the hyperplasia, the greater the polyposis the more likely is it that the commoner forms of saprophytic micro-organisms will

find a suitable site for their growth with the formation of their suppurative products. When suppuration once gains a foothold I have never seen it disappear.

Since the ethmoid labyrinth is not only divided into two portions (the anterior and posterior) by a complete partition, but these are also subdivided into numerous chambers (cells), and since these may be individually affected, it would be well before taking up the treatment to make a more comprehensive classification. Following this the indications for surgery, with special reference to certain methods, will be greatly clarified.

Suppurative

- (a) One or more of the anterior cells
- (b) One or more of the posterior cells
- (c) Combined, affecting both anterior and posterior cells

Hyperplastic

- (a) Localized hyperplasia (small polyps)
- (b) Anterior labyrinth
- (c) Posterior labyrinth
- (d) Intracellular
- (e) Extracellular
- (f) Combined
- (g) Suppurative infection

The three types (d), (e), and (f) may merely represent an extension of the inflammatory process and can occur equally in any part of the labyrinth. The last type represents the final stage, when either a new infection occurs or the old one has advanced so far, and the tissues have become so infiltrated, as to invite leucocytic diaporesis, with the formation of a purulent secretion.

Suppuration in One or More of the Anterior Cells—This intranasal type, so far as I am concerned, as an individual entity is non-existent, with one exception.

Of course, when an orbital ethmoid cell situated behind or external to the frontal sinus and outside the nose is present, it may easily become infected and simulate a frontal sinusitis, but as we are concerned only with that portion situated within the nasal cavities this lies beyond the scope of our presentation. The remaining anterior cells (with the exception noted above, which I will come to later) are those known as the infundibular, which includes the frontal bulla, when present, and that one lying within the angle of the nose. I do not recollect ever observing a circumscribed chronic purulent infection of the mucosa of these cells unaccompanied by infection of the frontal sinus. Presumably this is possible, but, as it has never come under my own observation nor that of my colleagues, its occurrence is, so far as I am concerned, only of academic interest.

The exception referred to is a purulent infection of the living membrane of the bulla ethmoidalis. Formerly abscess in the bulla was considered an event of no common occurrence, but this was probably due to the fact that when present it so overshadowed other infection as to cause the latter to be entirely overlooked. However, other things being equal, the evacuation of a badly diseased bulla will bring about a cure, despite the fact that the infection has embraced other cells in the immediate neighbourhood.

Purulent Infection of the Posterior Cells—That these cells are more frequently the seat of chronic disease is due to a number of conditions. In the first place, they are larger and more numerous, and, secondly, they are so situated as to be less amenable to aeration. Their drainage can easily be interfered with by slight swellings of the nasal mucosa, and, lastly, their anatomical situation prevents easy access to exact diagnostic instrumentation, even with the aid of the nasopharyngoscope. Being but slightly disturbed by the inspiratory air currents they offer a fine site for micro-organismal growth once infection has taken place. This extension may be so gradual and insidious that the patient is unaware of the seriousness of the condition until a well marked infection has occurred, he has, it is true, noted the unwanted post-nasal discharge and stuffiness in the nose, particularly on arising, but, as the inconvenience is not great, he attributes the whole matter to a particularly tenacious cold. This, however, is noted more in the hyperplastic variety than in the suppurative.

The combined form affecting both the anterior and the posterior cells, is always more open in its course, and it

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usually represents (in contradistinction to the other types) the direct sequels of an acute infection, or perhaps a series of acute inflammatory disturbances. In the event of such a widespread infection the symptoms are so apparent as to obviate further elaboration.

The Hyperplastic Types.—These pathologic conditions appear when a portion of the ethmoidal mucosa undergoes hyperplastic changes, they may range from a condition of slight degeneration in a small portion of the lower border of the middle turbinate to the formation of actual sessile polyps the size of a small oyster. While the lower edge of the middle turbinate appears to be most frequently affected, nevertheless the actual polyps, when present, appear to take their origin higher, having their bases in the body of the ethmoid or along the uncinate process. I do not recall ever having observed large single polyps originating along the lower edge of the middle turbinate. The anterior labyrinth is usually the seat of the large extracellular hypertrophies which hang more or less loosely in the nasal cavities, while in the posterior labyrinth the intracellular variety, hidden from view, is the rule. This is probably due to the fact that there is more room for growth anteriorly beneath the turbinate than posteriorly between the body of the ethmoid and the nasal septum. The large so-called choanal polyps do not as a rule originate in the posterior cells, but if traced to their source will be found to spring from the mucosa of the maxillary sinus forcing their way out through the pars membranacea and extending into the nasopharynx through the medium of a long pedicle. Of course in either labyrinth the primary affection, whether it be intra- or extra-cellular, may become combined, this, after all, only represents in either case an extension of the pathological process from within outward, or without inward, as the case might be. This is well illustrated in those old chronic cases where the entire ethmoid, from the uncinate process to the anterior sphenoidal wall, is one mass of polypoid degeneration. All of us have seen such cases continuing for years accompanied by a profuse watery secretion which would dry on the handkerchief, causing a stiffness, but not staining the linen. When infection by the *Staphylococcus aureus* occurs the secretion becomes thick and yellow, with the characteristics of true pus, but this seems to appear in cycles, particularly on the acquisition of every fresh cold. The true combined form only becomes permanent when the micro-organisms find lodgement deep in the mucosa. Even then the suppuration appears to be different from that caused primarily by the influenza bacillus, for in the first instance the secretion seems to be more profuse and is easily discharged—the nasal passages are comparatively clear—while in the latter the pus is thicker, more tenacious, and exhibits a great tendency to form into crusts.

TREATMENT

The successful treatment of all sinus infection, particularly where the ethmoid is concerned, has for its basic principles aeration and drainage, with emphasis on the former. We have long since felt that the old dictum of removing all infected ethmoid tissue, irrespective of the kind and extent of the inflammatory process, was as unnecessary as it was radical, for more recent experience has shown us that with proper assistance nature will do much to bring about a resolution of the mucosa in diseased cells after proper aeration has been established. This tendency of nature is of no little importance when we call to mind some of our earlier ethmoid cases which were in the beginning perhaps mild, but after our well-meaning surgical intervention were transformed into a disorganized suppurating mass with landmarks obliterated and with augmented subjective discomforts instead of relief. Observing these results, not only in my own practice but in that of my colleagues, I was prompted to seek the solution, and found that over-enthusiasm was the cause of my undoing. Instead of sending a boy to do a man's work, I went to the other extreme and sent a man to do the work of a boy. In other words, I was prone to overdo the removal of ethmoid tissue rather than to conserve it, thinking that to leave even the slightest amount of diseased mucosa behind would result only in a nidus from which the infection would gradually spread until the condition became as bad or even

worse than before the operation. In those days drainage was our duty, the *sine qua non* of a successful treatment. Ventilation, it is true, was looked upon as a desirable but not necessarily an indispensable adjunct. A suppurating cell should not only be opened but completely eradicated, encroaching upon healthy neighbouring tissue if necessary, in order to bring about our purpose. Now, thanks to our experiences with the sphenoid, in which we saw hyperplastic tissue almost filling the cavity shrink down in a few days under our very eyes until in a short time it was again normal, all this has changed. We know now, and confidently expect, that nature, with a little assistance, will effect a far better and cleaner operation, and procure a physiologically functioning area of tissue in the ethmoidal region, while we, with our widespread and oftentimes haphazard procedures, only leave an area of debris, which soon becomes reinfected and degenerates into a disorganized fibrous suppurating mass.

It is to anticipate this very eventuality that I propose to lay before you for your consideration the various forms of treatment as practised by us at the present time. It is not in the form of a recommendation, but rather as a communication, that these are presented, not to be taken as dogmatic in any sense, but rather at their face value for what they may be worth.

Let us begin with the mildest of the suppurative type, and ascend until we have the severest complicated form to deal with, applying their appropriate treatment as each is met.

Simple catarrhal infection is characterized by mild headaches, stuffy nose, and a fairly constant thin mucoid discharge, becoming thick and yellow at times, the patient being apparently very susceptible to attacks of acute coryza. Rhinoscopic examination often shows little more than hyperaemia and congestion of the mucosa when compared with the opposite side. Pus is conspicuous by its absence, at least so far as the examiner is concerned. However, the patient often states that considerable discharge, particularly post-nasal, is in evidence during the morning hours. This form yields slowly to the old shrinking and cleansing treatment, but shows a great tendency to recur. To obviate this I have found the removal of the swollen and often infected middle turbinate almost a *sine qua non*. The purpose of this is, first, to permit thorough aeration and ventilation of the diseased cells, and, secondly, to furnish sufficient space to make possible the applications of cotton poultices, which are saturated with certain medications. In given cases, where the nasal passages are congenitally narrow and the mucosa of the septum greatly thickened, I have found it necessary to resect that part of the septum in its entirety, making a large perforation so that these membranes could no longer swell and compress that of the ethmoid on its respective side.

After the middle turbinate has been removed and the roughened edges smoothed, nothing further is done, even though the temptation be severe, the parts are allowed to heal. After five days have elapsed the treatment by means of the tampons is instituted. This consists of the application of a cotton tampon saturated with a 10 to 20 per cent solution in half water, half glycerin, of a non-irritating silver preparation, which covers the ethmoid from the anterior sphenoidal wall to the uncinate process. This should be allowed to remain *in situ* at least five hours. I use a preparation called *silvol*, but there are others which to all intents and purposes are identical. These applications deplete the tissues of their inflammatory content by the hygroscopic action of the glycerin, thereby permitting the silver to penetrate partially the cellular interstices and bring into action its germicidal and astringent effects. In order to obtain the maximum effect three things are essential: the solution should be freshly made, it should be warm, and the tampon should remain in place five or more hours. These treatments are instituted at first every other day gradually tapering off directly in accordance with the improvement noted. This usually requires only a few weeks, since the affection readily yields to this form of treatment.

Purulent infection confined to the anterior cells, as a disease *per se*, is one of the rarest we are called upon to treat. It is true that occasionally one sees an infected and

suppurating bulla ethmoiditis, and even an orbital ethmoidal cell which simulates a frontal infection, but when the anterior cells are suppurating we have an infected frontal sinus which is also secreting pus. In these circumstances a cure of the underlying ethmoid depends upon first ridding the frontal sinus of its infection. Sometimes after this is accomplished the bulla will continue to secrete owing to the ostium becoming partially occluded from the inflamed and swollen mucosa, thereby seriously interfering with the normal drainage and pinetically eliminating aeration. When this eventuality occurs it will be necessary to open the floor of the bulla and reinstall both drainage and aeration. If this is the sole remaining focus of infection a cure speedily follows.

Suppuration in one or more of the posterior cells, although not uncommon, is one of the most difficult of sinus infections to detect or to diagnose early. The reason for this is apparent when we consider the mild and oftentimes vague symptom-complex together with the almost inaccessible location, even to the nasopharyngoscope, of these posterior cavities. We can study with a fair degree of accuracy the cells emptying into the superior nasal passage, but those which lie to the outside of these and those lying in the depth of the sphenoidal fissure are beyond our inspection. Indeed, many of these cases, consisting of a low-grade infection in one or more of the cells, have escaped detection for years, having been considered to be merely a chronic catarrhal condition, until the sudden appearance of a severe ocular disturbance invited immediate attention, which then resulted in the discovery of a latent sinusitis. One clue, however, is always at hand if we are sufficiently astute to take advantage of it, and that is the appearance of the middle turbinate. The body of this structure appears slightly hypertrophied, and often has a mottled appearance. While to the casual observer this may escape notice, yet if one carefully compares the turbinate with its fellow on the opposite side, the difference will at once be apparent.

The logical treatment is, of course, to secure better aeration and drainage, which can only be accomplished by the total removal of the middle turbinate. This resection not only aids materially in contributing to these therapeutic advantages, but incidentally brings under our view those cells which subsequently may necessitate opening. Unless the suppurating areas have been disclosed accurately, or unless symptoms are pressing, it is well to wait for a few days in order to determine definitely the exact seat of the infection before attacking these cells. The silver poultices will be of great advantage in this determination. I have often seen an apparent general suppuration under this treatment localize itself into one or two defined regions, which lent themselves admirably to instrumental procedures. Formerly it was our practice to excavate completely all these posterior cells when infection was discovered in their midst, but now we open with the hook, and with the Grünwald forceps remove only the diseased portion until healthy tissue is reached. In this way we have not only procured quite as good end-results so far as a cure was concerned, but we have conserved tissue which certainly possesses a normal functioning activity. After these cells have been opened and exposed to thorough aeration, nature speedily effects a cure which is in direct relation to the thoroughness of the operation.

Combined suppuration affecting the entire labyrinth is usually an old one where the middle turbinate has long since been sacrificed, but from one cause or another the infection has gradually spread until both the anterior and posterior cells are more or less involved. Nothing but a so-called complete exenteration will be of the slightest permanent avail in these cases. In our experience the crux of this situation lies in the preliminary removal of the uncinate process, for by this step we gain from 1/8 to 3/16 inch of room, which may prove of inestimable value in reaching the agger and infundibular cells, to say nothing of the depths laterally to the sphenoidal recess. This can be readily accomplished with a flat chisel without particular danger in careful hands.

After the mucinate has been removed the posterior-living cells may be methodically attacked and resected, keeping close to the orbital plate until the anterior sphenoidal

wall is reached. It is well to leave a certain amount of the inner wall of the ethmoid *in situ*, particularly that portion which houses the terminal filaments of the olfactory nerves. While it has been shown that infection may travel through the cut sheaths of these nerves and enter the meninges, nevertheless I do not fear this so much as I desire to preserve the sense of smell in this locality. Regarding the occurrence of meningitis following the severance of these nerves, it must be a very infrequent occurrence, otherwise all of us would one time or another have met with such a tragic misfortune. Even though I have had fatalities I do not believe any of them have been due to this cause. As a matter of fact, I have on several occasions removed diseased bone which exposed the pulsating dura in the immediate vicinity of the olfactory fissure, this in one or two cases was followed by the escape of a quantity of cerebro-spinal fluid. Most of these patients, however, despite my anxiety, recovered without any untoward symptom. Notwithstanding these fortunate sequels, it is nevertheless better to be safe and shun this dangerous region by conserving the olfactory area with its mucosa, since ventilation and drainage should obtain quite as well as though it had also been removed. Following this procedure I know of no condition that reacts more favourably to the silver tampons as an after-treatment than this one.

Hyperplastic ethmoiditis may next be considered, and firstly localized hyperplasia (polyps). The surgery of polyposis and polypoid conditions affecting the ethmoid is so well known that the procedures need not be detailed. I will, however, touch upon some of the more prominent factors concerned in the permanent ablation of these growths. The localized hyperplasias or separate polyps springing from the naso-frontal region and beneath the anterior end of the middle turbinate are usually removed with the snare. Unless, however, the bony attachment is also resected, these are almost certain to return, therefore emphasis should be placed on this phase of the operation in order to ensure a permanent disappearance of the growths. The preliminary resection of a portion of the middle turbinate depends upon the accessibility of these bases to instrumentation. I have often noted in the presence of these moderately large sessile polyps that the hyperplasia is usually confined to the mucosa outside the cells, it being rare to find coexisting intracellular polyps. The one exception to this is afforded by the old chronic cases where the entire labyrinth has long since been diseased. While polyposis of the anterior cells is nearly always extracellular, the opposite obtains with the posterior cells, since one rarely encounters large polyps hanging down into the choana which take their origin from this region. (The large solitary choanal polyp in nearly every instance comes from the maxillary sinus, a fact which I have been able to demonstrate time and time again.) This does not mean that the external mucosa is not also affected, for it, too, shows marked change, but more in the nature of a polypoid degeneration rather than large pedunculated polyps.

When the anterior and posterior labyrinths are jointly affected we have, therefore, both an intracellular and extracellular condition to deal with. As a rule these combined cases have progressed insidiously over a number of years until the entire ethmoid capsule has become a mass of polypoid degenerating mucosa. This is the type of case which is so often associated with asthma and hay fever, or, at least, its symptom-complex can be attributed to the presence of this polypoid tissue. We have found that the only rational treatment from a curative point of view is the complete removal, as far as humanly possible, of the polypoid degenerated tissue.

Several methods lie at our disposal, and we always try to select that one which seems to be particularly suited to the individual case. In this way exigencies such as abnormal anatomical configurations are met with and successfully overcome. Ignoring the ordinary procedures adapted to the simpler conditions, those commonly used in the United States when complete exenteration of the ethmoid is under consideration are the Grünwald, the Hayek, the Mosher, the Sluder, and the Ballenger methods in their various modifications.

CONCLUSION

A brief retrospect over the intranasal methods of operating upon the ethmoid shows us first of all that, to accomplish successfully any operation worthy of the name, an intimate knowledge of the anatomy, both regional and surgical, is essential. This knowledge, like a two-edged sword, cuts both ways, for it not only gives the operator confidence to remove tissue fearlessly, but also the wisdom to exercise caution when approaching a dangerous area. All of us who have concerned ourselves to any considerable degree with intranasal ethmoid surgery must have been convinced that it is impossible in every case to expose completely the mucosa of each and every ethmoid cell—at least, such holds good in my own experience. There exists, unfortunately, no anatomical configuration of these cells which can be used as a normal model, but in operating (despite all the stereoscopic skiagraphs we might have had made) it is the ideal normal that we must keep in mind, and if in the midst of the extirpation we encounter great variations, they must at once be considered anomalous, and we proceed with the operation accordingly. Small wonder is it then that certain deep-lying cells escape our attention, this being the reason why in these cases our ultimate results are not 100 per cent perfect. Indeed, it is now my custom to try to impart this knowledge to those patients of better understanding before attempting any operation, and to state that in my opinion the improvement should be measured by a certain percentage according to the severity and condition of the case—say from 60 to 85–100 per cent representing of course the perfect result. While all of my patients have by no means been restored to their original normal functioning activities, I have, nevertheless, long since become convinced that, when properly executed, the intranasal operation on the ethmoid offers the least dangerous, if not the most facile, opportunity to the patient for relieving him of his distressing and oftentimes dangerous infection.

THE CONSERVATIVE AND SURGICAL TREATMENT OF CHRONIC ETHMOIDITIS *

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THERE is, I suppose, no subject that is so fraught with difficulties and doubts for the rhinologist as the problem of chronic ethmoiditis. In the first place, the ethmoidal labyrinth varies enormously in anatomical configuration and complexity, so that, like finger-prints, no two ethmoids are exactly alike. In the second place, the position that the ethmoidal capsule occupies in the nasal cavity and its close relations with other sinuses make it difficult to determine precisely the extent of actual disease. The varieties of infection and the reactions of the individual to them provide further stumbling-blocks in the path of exact diagnosis and a proper line of treatment. Moreover, there is a curious lack of unanimity about the classification of chronic ethmoidal disease, so that in many cases it is by no means clear to what particular condition a suggested method of treatment may refer.

It is I think, of the utmost importance that we should at the outset determine what kinds of inflammatory processes we are prepared to recognize as affecting the ethmoidal labyrinth. Few will, I imagine, dispute the fact that clinically we may recognize two varieties: (1) chronic catarrhal inflammation (polypoid degeneration), and (2) chronic suppurative inflammation. Whether these are distinct pathological entities, whether the one can progress into the other, and whether both varieties may be combined in the same ethmoid, are questions upon which there are so many opinions that discussion of them would only tend to obscure our main issue. I am, however, prepared

to take my stand on the existence of these two clinical varieties of inflammation and to deal with the matter from this aspect.

In the first instance let us consider a case of moderate polyposis, this has occurred as a result of prolonged inflammatory irritation of the ethmoidal mucosa, and the polyps are to be regarded as the product of hyperplastic inflammation of the covering of the ethmoid bone. That they are commonly seen on the free edge or from the under surface of the middle turbinate is due to the fact that this structure, which is simply a folded over portion of the ethmoid, is the most prominent feature in the upper part of the nasal cavity.

Then obvious presence may, or may not, lead one to suppose that similar changes may be present in neighbouring tracts of the ethmoidal mucosa, which may for the moment be out of sight, the possibility is not excluded that the source of irritation may be found in discharge from a neighbouring sinus as opposed to the possibility of purely superficial irritation of the mucosa from a variety of definitely local causes.

It is possible for the mucous membrane covering the ethmoid to become primarily diseased and for the hyperplastic mucosa, owing to its favourable milieu of warmth and moisture, to manifest itself as polypus formation. This is the simplest condition, it might, in its early stages, yield to such conservative measures as nasal lavage and the occasional application of mild caustic or astrigent solutions, or in slightly more advanced cases, to the correction of any obstruction which was causing undue congestion in the region of the middle meatus, together with the removal of the polypoid hypertrophy with suitable forceps. This latter procedure should not cause the fact to be overlooked that the inflammatory process has probably spread to the deepest layer of the mucosa, which is the periosteum of the underlying bone, and that the correct removal should always involve a portion of this bone. The snare is an unsuitable instrument for this purpose, and has been abandoned in my clinic for many years.

It is not, however, likely that measures such as these will often suffice, since the cases do not usually come under our notice until they are more advanced and the inflammatory process has definitely spread into the ethmoid cells themselves. When this has occurred it is all but impossible to estimate the extent of the disease and for that reason it is incumbent on the surgeon to proceed circumspectly.

The chief aim should be to ensure a free airway and free drainage. If this is assumed we may expect that a certain number of cases will undergo resolution. Can we attain this object better than by the removal of the middle turbinate? I think not. I am not myself amongst those who regard the middle turbinate with great veneration, and I would far sooner remove it in its hidden polypoid bulk than burrow blindly beneath it in a vague endeavour to open the operculum or break through the bulla. Simple removal of the turbinate without any further intervention will improve the drainage and will cure a certain number of cases.

These conservative measures may suffice for a small proportion of our cases, but in the majority the disease has spread too deeply and the bone has already become friable from osteoporosis. These cases demand more severe measures if a cure is to result.

The problem now is so to plan our operation that definitely diseased tissue is removed with as little interference to healthy structures as is possible. Every surgeon will have his own method of achieving this. Some may rely on repeated "nubbings" with a variety of forceps, whilst others may tent cells open with hooks and remove the debris with a sharp spoon. Others, again, may direct their attention to a particular group of cells that experience teaches them to suspect, and by encompassing their destruction not only remove an area of disease, but also free the ostia of neighbouring sinuses.

Thus far one may go with comparative safety in the belief that little or nothing has been done to destroy healthy tissue or spread infection broadcast through the

* A paper read in a discussion in the Section of Laryngology and Otology at the Annual Meeting of the British Medical Association Cardiff 1928.

labyrinth At this point, then, let us leave this type of inflammation and turn our attention to the chronic suppurative variety

Here we have a different clinical picture in which polypus is usually absent, whilst crusts and purulent discharge take their place, along with a group of symptoms—pharyngeal, laryngeal, or gastric—due to irritation by or absorption of the septic secretion It is clear to our mind that the ethmoidal cells are infected, though how extensively we cannot say

We should therefore once again adopt our conservative attitude and by removal of the middle turbinate do our best to ensure efficient aeration and drainage This may be followed some considerable time later, if necessary, by a limited morcellement of the area from which the discharge appears to come Some cures undoubtedly result from these procedures, and it will be well to allow a fair margin of time for this to occur There will inevitably remain a not inconsiderable residue of cases in which we have done apparently very little to alleviate the patient's symptoms When this impasse is reached in either type of inflammation (and it is at this point that they converge and we may consider them together), we are confronted with the question whether to hold our hand lest worse befall or whether there is a possibility that a more complete surgical procedure may result in the eradication of the disease

We are at the parting of the ways The moment has now arrived when the thought of complete exenteration crosses our minds, and we may well consider what is the best way to achieve it Several ingenious intranasal operations have been devised Attention might be drawn to the merits of Mosher's method in which, beginning at the agger cell, the curette is passed through an anatomical void lateral to the main mass of the ethmoid, and, after hitching up against the anterior face of the sphenoid, breaks the whole ethmoidal capsule into the nasal cavity This might be compared with Sluder's procedure, where the same result is achieved by two skilfully directed cuts with special knives, the one vertically from back to front beneath the turbinate, and the other horizontal from within laterally and just below the base of the skull

Can these or any similar operation effect the desired object? After many years and extended trials of such operations I am driven to the conclusion that by no intranasal procedure that I know of can the ethmoidal labyrinth be completely exenterated

It is for this reason that I wish to bring to your notice and in some way to urge the claim of an external operation If, for the moment, I pass over the possible merit of any transnasal operation such as that recently advocated by Hoigan, it is merely because my experience of it is limited to so few cases

More than twenty years ago, when I had the privilege of assisting Killian in some of his frontal sinus operations, I saw the ethmoid exposed through the external incision, but it was not until 1913, when I saw Dr Conkley operate in New York, that I appreciated how much of the ethmoid could be dealt with through a very small external incision Since that date I have practised a similar operation, in some ways modified and in some ways extended, in an ever-increasing number of cases

I know that there is nothing new about an external operation, I merely claim that it has not been, and is not, performed nearly so often as it should be, and that in obstinate cases it gives a considerably higher percentage of cures than any other operation I have employed it for fifteen years in purely ethmoidal cases, and, as I regard the ethmoid as the key to the frontal sinus, it naturally has formed the basis of my frontal sinus operation.

Through a very small incision in the delicate skin, just internal to the inner canthus, which leaves an almost invisible scar, practically the whole ethmoid can be dealt with, and particularly the fronto-ethmoidal and orbito-ethmoidal cells which are so often at fault, and which tend to keep up the ethmoidal disease These cells cannot be safely and satisfactorily removed by the intranasal method

If an infected high ethmoidal cell is found to be producing a mound in the floor of the frontal sinus, and is

affecting this cavity, it is the work of a few moments to remove a portion of the floor of the sinus, and thereby improve its drainage Moreover, it gives excellent access to the cells of the superior meatus, and especially to that large posterior cell which is plastered on to the anterior face of the sphenoid and which so often remains unopened by any intranasal procedure It is always quite remarkable to see how many cells remain unopened after what was thought to be a complete intranasal exenteration

I do not wish to claim too much for this operation, for there remains a small percentage of cases in which apparently we cannot remove every infected cell, and these cases, though relieved, are not cured I can only say that after an extended experience I regard this operation as of the utmost value, and the main point that I should like to make to-day is that, in well-established cases, the possibilities of the external operation should not be lightly dismissed or its performance unduly delayed

THE HEREDITY OF DEMENTIA PRAECOX.

BY

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PRACTICALLY all authorities agree that, in common with other varieties of insanity, some defect in the heredity of the individual is at all events a predisposing cause of the dementia praecox (schizophrenia) from which he suffers. Given this "predisposition" it is further generally assumed that some additional factor is necessary for the actual lighting up of the psychosis, and that this necessary exciting cause may be one of apparently very slight degree if the predisposition is intense. In spite, however, of the most eager statistical research into the histories of tainted and untainted stocks, we know at the present date no more than this about the etiology of dementia praecox. The difficulties in the way of any accurate conclusions are apparently insurmountable, and the results of the inquiries which have been made show little similarity the one with the other. The long intervals between human generations on the one hand, and the unreliability of "family" information on the other, are the chief obstacles to conclusiveness. Further, inquiry is obviously useless except among the educated classes, but here secretiveness as to any known taint is especially pronounced. Then, again, the question is unsettled as to what abnormality is to be considered a "taint"—many writers include genius, and some immorality!

Kraepelin¹ considered "with all reserve" that the disease, though often "familial," was the result of an auto-intoxication due to a "disorder of metabolism," basing his theory on the fact that the first symptoms tend to appear at puberty and adolescence, and his views have received support from the work of Mott,² Lewis,³ and Gibbs, among others. It may, however, be very reasonably contended that the degenerative changes found in the sex glands are secondary to some deeper and earlier defect in the organism.

My experience of the peculiar incidence of dementia praecox among the Parsees of Bombay compels me to the opinion that "inbreeding" is a very definite cause of the disease. By "inbreeding" I mean, as the dictionary puts it, "breeding in and in"—not merely the occasional mating of cousins, especially of those of the first degree. The experience of the ages has led to various rulings against the marriage of cousins. These have been many, but I would mention especially the prohibitions of the Levitical degrees, of the Roman Law, of the Council of Agde (A.D. 506), and of the Canon Law, as evidence of this experience, as also the enactments of many American States at the present time.

Clouston⁴ when discussing his "insanity of adolescence," which approximates to the more recently differentiated dementia praecox of Kraepelin, refers to its marked incidence in Newhaven, and to the notorious "frequency of insanity among the old families of the Society of Friends,

the most self-contained and virtuous of all religious sects," which, I may add, undoubtedly discouraged marriage outside the limits of the society. The conditions at Nanhaven are similar to those of most remote seaside villages in Scotland and Ireland, in which dementia praecox is relatively common.

The Parsees constitute a small and very clearly differentiated group in the Indian population, and among them intermarriage with outsiders, and proselytism, are strongly discouraged. They are the descendants of the Persian Zoroastrians who came over in the eighth century on the conquest of their country by the Mohammedans. These settled in the small island of Diu off the south coast of Kathiawar and the adjoining mainland, and gradually spread over the neighbouring districts of Kathiawar and Gujerat, being, as a rule, hospitably received, and their abilities utilized, by the Hindu and Mohammedan rulers of the States. To this day their language is Gujerati, which, owing to their activities, has become the commercial language of Bombay, far to the south. At first (and to some extent still) they were cultivators of the soil, but later on their peculiar aptitude for commerce came to the fore, and at present the Parsees are the richest race in the East considering their numbers.

In all India at present there are about 100,000 Parsees, and of these about nine-tenths live in Bombay Presidency (which includes Gujerat and Kathiawar), the remainder being scattered widely about India as traders in the principal towns. Their religion is a very strict monotheistic Zoroastrianism, popularly referred to as fire worship. In a short note such as this it is impossible to enter into the teachings of Zoroaster, but the faith inculcates sobriety and benevolence as first principles, with the prospect to the sinner of a very horrible hell or bliss. The Parsee's chief occupation, as I have said, is business, and for this his capacity is notorious. I have never seen a Parsee beggar, and the large hospitals and similar institutions built by the liberality of Parsees in Bombay bear convincing evidence to their benevolence. From the Western point of view the Parsees are far more in touch with our civilization than any other Indian people, and a large proportion of their well-to-do merchants spend a good deal of their time in Europe. In their treatment of their womenfolk especially, they, of all Indians, approximate closest to European ideals. It is notoriously difficult to get at the correct family histories of mental cases in England, and I must confess that I found it impossible among Parsees, whose jealous family secretiveness is proverbial. Not only was one countered by denials of facts which one knew through other sources, but any inquiry on these lines was apt to be considered "insulting" to the family, owing, probably, to the partial absorption of European ideas. At the same time, I could not help noticing that a large number of my patients were closely related. The average Parsee can give one a list of his cousins to the fifth or sixth degree—if he so wills—and refers to all degrees equally as "cousins." As I have pointed out in my *Clinical Handbook of Mental Diseases* (Butterworth, 1925), the marriage of cousins is usual among the Parsees of Bombay, and this custom has gone on since they reached India in the eighth century. It certainly attains its object in "keeping the money in the family," though, owing to it, the Parsee population of Bombay city might now almost be considered as "the family." Of course it is possible that some families may not carry out this custom, but it is generally admitted by Parsees.

The original number of refugees from Persia could not have been very large, but the figures have been most variably stated, and I have not been able to find any reliable statistics on this point. Of the Zoroastrians left in Persia at the time of the eighth century migration the descendants in 1923, according to Sir Percy Sykes,* numbered only about 10,000, and he remarks in regard to the present-day Persians

Unfortunately the custom prevails of marrying cousins in order to prevent the property going out of the family, and also because a relation will naturally be happier than a stranger in the house of her mother-in-law. The results are very bad from a physical point of view, as has been proved in many parts of the world. Persians are loath to give up their old customs, and it is still usual for brothers to arrange intermarriage on the largest possible scale, cases being common of large families intermarrying entirely with their cousins.

Unfortunately there are no statistics of insanity in Persia, and those of India are not worth any consideration, being obviously inaccurate. I have, however, no doubt whatever that the incidence of dementia praecox among Parsees is peculiarly high. The following figures show the types of mental disorder in my last 100 Parsee admissions at the Central Hospital for Mental Diseases, Poona, and of my last 50 private cases.

	Hospital Cases			Private Cases		
	Male	Female	Total	Male	Female	Total
Dementia praecox	35	17	52*	13	11	24
Mania-depressive	11	6	17†	1	2	3†
Insanity with epilepsy	3	0	3	2	1	3
Dementia (secondary)	10	11	21	4	3	7
Paranoia	1	0	1	1	0	1
General paresis	1	0	1	2	0	2
Insanity due to ganja (cannabis indica)	1	0	1	—	—	—
Idiots and imbeciles	4	0	4	5	5	10
Totals	66	34	100	23	22	50

* Including all varieties.

† Including involuntional melancholia.

In addition to the above I would note 11 cases of epilepsy and 15 of the psychoneuroses.

Some of the above cases grouped under secondary dementia were probably originally schizophrenics, but the history given was too vague for any such diagnosis. I was rarely consulted about cases of mental deficiency unless the condition was such as to warrant some hope of recovery or to require hospital care, but have seen many obvious defectives, incidentally, in Parsee families. Many of the cases grouped under other heads showed praecox symptoms, and the recovery rate suggests that these may have been really cases of that disorder.

The percentage of discharges as recovered among these Parsee hospital cases was 6, although the annual average for all classes was just over 50 per cent,* and it was a common subject of inquiry among members of my staff as to why no Parsee ever recovered.

Though their admissions show a high proportion of dementia praecox I have no reason to think that insanity in general is especially prevalent among Parsees. Inquiry is very difficult as most, even of the Parsee medical men, object to the term "insane" being applied to one of their race.

The incidence of dementia praecox among Parsees is peculiarly noticeable in India, as it is a comparatively rare disorder among Hindus, and is rarer still among Mohammedans. Among these two groups the disorder occurs mainly in the educated classes, or rather in the persons of boys who have undergone the intensive system of education or memory training by which only can an Indian hope to obtain admission to Government service. Next to the Parsees, the group or race in which the incidence of dementia praecox is, in my experience, highest among the domiciled Anglo-Indian community.

I desire to bring to notice the fact that in the Indian Parsees we have an example of a sober and industrious race, sprung from a small community of Persian refugees of the eighth century, who have very rarely intermarried with outsiders, or proselytized, whose environment is far superior to that of most Oriental races, and who show a peculiarly high incidence of dementia praecox.

Of course I quite realize that, granted the facts I have stated, it will be argued that the "taint" must have existed among the original refugees. Such a view, however, simply begs the question. However difficult it may be to obtain evidence of the original "taint," such taint is easier of proof than is, for instance, the conception that in the admixture of similar germ plasmas lies the

* This high percentage is largely due to the high recovery rate of ganja cases, of which many were admitted from among the lower classes of Hindus and Mohammedans.

real cause of the trouble. It is curious that the majority of inquirers, who discredit the reputed ill effects of consanguineous mating, consider any suggestion of it similarly "begging the question," and this view of the matter is either ignored or derided by recent writers on the subject. The idea is, for instance, only touched upon at one point by Myerson,⁸ who writes:

I scoff at the implication that because the paternal great grandfather and great grandmother were first cousins that we have any clue whatever to the gross defect in their great grandchildren, their father and mother being superior people.

He would probably similarly scoff at the suggestion that the continuous mating of cousins—irrespective of any imaginary common "taint"—could tend to produce dementia praecox, but such a result is surely possible.

Some writers accept as ancestral "taints" such conditions as, for instance, heart disease, blindness, and neuralgia. These inquirers do not apparently realize that we are all imperfect, and that the fact of such imperfection in an ancestor is not, after all, a satisfactory proof of the likelihood of mental disease occurring in a descendant.

L. Rudin⁹ considers that dementia praecox is transmitted according to Mendel's law, and is increased by inbreeding. Myerson,⁸ after able analysis of many family groups, agrees with Rosanoff,¹⁰ Jolly,¹¹ Luther,¹² and Krueger,¹³ and states that "dementia praecox breeds true and in an ancestor is usually followed by dementia praecox in the direct insane descendant. Moral imbecility, feeble-mindedness, and epilepsy are also found in the descendants and frequently in combination with dementia praecox." In other words, he considers dementia praecox a Mendelian recessive character. The writers I have mentioned find, further, that insane descendants of persons who have suffered from the involution psychoses are cases of dementia praecox, as are also often the insane descendants of manic-depressives. As Myerson⁸ puts it, "All roads seem to lead to dementia praecox and from thence to imbecility. As the disease gets worse from generation to generation it ends in dementia praecox." Dementia praecox in an ancestor, on the contrary, does not appear to be a precursor of manic-depressive in the descendant, but as deterioration becomes more marked dementia praecox appears, and I can imagine no condition showing such obvious all-round degeneration as this syndrome presents.

If many of the original refugees had been schizophrenics, it is very doubtful if a Parsee race would now exist in India. But 100,000 do exist (among some 320,000,000 Indians of all races and classes), and include a large proportion of very able persons. At the same time most of those who become insane suffer from dementia praecox, and the custom of the marriage of cousins has persisted since the eighth century in this community, which is not a large one. Judging by the results obtained by Myerson and others, it is therefore probable that any original taint which, by its transmission through inbred generations to present-day Parsees, might breed in them dementia praecox, was itself a very much less serious form of mental disease, or, at best, if indeed it could be classed as such at all.

Our present-day differentiation of mental deficiency from insanity is surely merely one of convenience, and few will, I think, argue the impossibility of the consideration of schizophrenia as being a variety of the former rather than of the latter group of disorders. In most cases the degenerative tendency appears to be inborn in the individual.

As I have previously written, the disorder has a predisposing and an exciting cause. In the case of the Parsees the former is contained, presumably, in the heredity, but it is, I think, a question whether the heredity acts as a cause solely by means of an inherited taint or whether consanguineous mating in some way itself lessens resistance to the stresses of life, and helps to produce the disorders of metabolism that are possibly the most usual exciting causes of the breakdown. As White¹² puts it:

Every individual born into the world has, if it could be determined a definite potentiality for development. The force or the impetus which starts it on its path is sufficient to carry it a certain definite distance in the subject of this disease the original impetus has been weak and when its force is spent [mental] development stops and the retrograde process is hastened or inhibited by some special physical or mental stress occurring at the critical point of puberty and adolescent evolution.

What is, however, the cause of the failure to carry on? Tredgold¹⁴ comes to the conclusion that feeble-mindedness results from a vitiated germinal vitality which prevents normal development, and most authorities are, as Myerson⁸ writes, "firmly convinced that there is a familial transfer once of certain types of feeble-mindedness, and there is very distinctly appearing the belief that these familial cases originate in injury to the germ plasma." One may perhaps speculate on the kind of injury he adumbrates. It is possible that "similar" germ plasmas may be in some way detrimental to each other.

Most authorities insist on the view that the marriage of cousins conveys no danger to the offspring, if the common stock is sound. There is, however, no reason to suppose that the original refugees were in any way more unsound than any similar group, and, as no stock appears to be absolutely sound, the contention that consanguineous mating should ever be approved is very doubtful, as it must tend to intensify in the offspring any taint common to both parents. Nowadays at all events, the common Parsee stock is seriously tainted with dementia praecox, and the propriety of the abandonment of the custom of the mating of cousins should be definitely considered by them. Perhaps research into the results of such mating may be possible in some other field, but I am certain that little further result can come of inquiry in this one, unless it is carried out by a Parsee of an unusually altruistic type. The subject is one of immense importance sociologically and eugenically, as dementia praecox is the form of mental disorder which, owing to its relative incurability, keeps our mental hospitals full.

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AUTO-TRANSFUSION

WITH THE ACCOUNT OF A CASE

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ALTHOUGH auto-transfusion may often be the best and most readily available means of saving life in a surgical emergency it has not received the notice which it deserves, and the object of this communication is to draw attention to so useful a measure. Our interest in it was aroused by the following case:

A boy aged 12, fell from the balcony of his home to the pavement beneath. He was perfectly conscious although he had a very local assured fracture of the skull, subsequently revealed by x-ray examination, and both bones of each forearm were broken. His pulse rate was slow. The abdomen was soft and not tender and the patient assured us that he had received no injury in that situation. Under ether anaesthesia the fractures of his forearms were reduced. A few hours later signs of severe intra-abdominal haemorrhage definitely showed themselves. He rapidly became blanched and pulseless, and was in a desperate condition when brought to the operating theatre. The haemorrhage came on insidiously because its early signs were doubtful and obscured by the other injuries and the anaesthesia.

Always ready in our operating theatre, even to the smallest detail is what we call our "transfusion tray." Realizing the possibility and value of auto-transfusion in such a profound bleeding this ready-to-use tray was requisitioned, and proved the great value of such a precaution because of the short time at our disposal. The abdomen was opened by Mr. Devine, this found to be full of fluid blood containing a few clots, this was quickly ladled out and dropped into citrate solution. Mean time a vein had been opened by Dr. Kinsella and reinfusion of the citrated blood was begun even while the blood was being removed from the abdomen. The source of bleeding was found to be a tear near the pedicle of the spleen. The abdominal wall showed no sign of trauma the injury having been inflicted apparently in some indirect way.

The bleeding appeared to stop as the transfusion was given and gauze packing was gently introduced over the tear. Thanks to the large quantity of blood which had been infused a dramatic change now took place. The patient became quite warm, his colour improved and the pulse became easily palpable. The packing was watched for a time with a degree of equanimity impossible in the early stage of the operation. The abdomen was closed and the patient returned to bed. No reaction followed and convalescence was rapid and uneventful.

This gratifying result suggests the advisability of using reinfusion in the more severe cases of acute intraperitoneal bleeding, in which the patient urgently needs an addition to the circulating fluids. It is not uncommon to see such patients given various solutions by different routes while the most suitable fluid of all their own blood, has been thrown down the sink. Experience has shown that blood can be safely reinfused, even after lying in the abdomen for a considerable time. The question of changes taking place in the blood does not arise in the acute haemorrhage for which this measure is advocated, for the blood is comparatively fresh in these cases. The hurried subcutaneous saline given in the operating theatre, or perhaps in the ward may sometimes lead to undesirable infection, but we have not seen an infective complication following an intravenous injection. Probably the reason is that blood is not only an unsuitable medium for the growth of bacteria, but has marked bactericidal effect, as shown by Altmouth Wright, Culebrook, and Storer.¹ It is known that germs may enter the blood stream, and their growth be kept in check until they are finally excreted by the kidneys or by the liver. The slight infection possibly present in acute ruptured ectopic gestations is not necessarily, therefore, a contraindication to reinfusion.

A German gynaecologist, Thies is given the credit of introducing auto-transfusion in 1914. Burch published a survey of the literature in 1923.² Up to this time 164 cases had been reported, 160 of these in Germany, made up chiefly of acute ruptured ectopic gestations and severe injuries and wounds with haemoperitoneum and haemothorax. In these cases there were 14 post-operation deaths, only one of which could possibly have been caused by an infusion. The method was proved to be valuable and safe.

Sir William Taylor of Dublin suggested a further use for reinfusion in splenectomy.³ This operation may be very difficult, and attended by much blood loss and shock, especially when the spleen is large and the patient is already suffering from blood dyscrasia. As soon as the spleen is removed it is held by an assistant over a vessel containing citrate solution. The clamp is removed from the pedicle, and the blood is allowed to drip into the vessel the flow being aided by squeezing the organ. This citrated blood is then reinfused.

Loyal E. Davis and Horner Cushing found reinfusion a most valuable and life-saving device in the major cranial operations.⁴ The blood is removed from the field of operation by suction rather than by swabbing, citrate solution is sucked up from a basin, swabs and towels are wrung out into the solution, and the mixture is re injected. The authors show impressive graphs of very severe surgical shock in which immediate and marked improvement followed this reinfusion.

Scant attention has been paid to this method in British literature, in discussions on blood transfusion it is summarily judged and condemned without trial. Thus, in a recent discussion its only notice was a brief reference by Sir Humphry Rolleston to Blain and Brines, who believe that reinfusion is inadvisable.⁵ But Blain and Brines record no more than their beliefs give no reasons, and have apparently no experience of the method.⁶

Technique

In giving intravenous injections of large volumes of fluid every effort should be made to prevent those reactions which the patient so often suffers after this treatment. In auto-infusion we are relieved, of course, from every anxiety about the compatibility of the donor.

Probably the next most important point in giving any intravenous injection, whether of blood or of saline or of glucose, is to exclude not only living but also dead organisms. The importance of keeping out dead bacteria is once suggested by experience with intravenous vaccinations—for example, in the treatment of typhoid

fever and of rheumatoid arthritis. The reactions following such treatment and the usual post-transfusion reactions are similar in every way. They appear a few minutes to half an hour after the injection, the patient feels cold and has a rigor, which may be very severe. In practice, therefore, it is not enough that the water used in making the solution should be sterile. It should be freshly distilled before sterilization. Whenever possible it is our practice to have the water distilled on the same day that the injection is given. For emergencies a supply of water, first distilled, then sterilized and sealed, is kept on hand. This should keep indefinitely without bacterial contamination but, as a routine, it is boiled before use. In two and a half years we have experienced only three marked rigors after infusion of blood or glucose. In one of these glucose dissolved in ordinary tap water had been given in an emergency, and in another blood transfusion had been performed with sodium citrate dissolved in the chemist's stock distilled water. The importance of using freshly distilled water in blood transfusion has not been sufficiently emphasized in the literature, this probably accounts for the unduly high proportion of reactions which follow the use of citrated blood. Even Lewisohn the great protagonist for this method, reports 23 per cent of reactions.⁷

Burch states that the use of citrate solution in auto-transfusion is not necessary, for the blood has been given mixed with saline, or defibrinated, or even unmodified. But the citrate method is the most certain, for it eliminates the possibility of clotting, which might cause serious delay or even failure in desperate cases. Moreover, it enables one to give the infusion slowly, and this point is most important, not only to avoid overloading the heart, but also to help to prevent undesirable reactions. French observers (Cruchet and Ragot) declare that even if agglutination and haemolysis take place, no ill effects need follow if the injection is given slowly.⁸ An ounce a minute is the maximum speed permissible when using compatible blood or a suitable solution.

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Memoranda :

MEDICAL, SURGICAL, OBSTETRICAL

TRAUMATIC ASPHYXIA

TRAUMATIC asphyxia is rare, and some of the standard text books on surgery and medical jurisprudence do not even mention it. The following details of a case may therefore be worthy of record.

In 1926 a tall powerfully built young man aged 28 presented himself at my consulting room. His face was deeply cyanosed and the subconjunctival tissue of both eyes was suffused with bright red blood giving him a most startling appearance although he did not appear to feel ill and had walked half a mile to see me. He stated that except for a headache he had been in good health when he went to bed two nights previously. He awoke the following morning in his present condition. He and his family absolutely denied that he was subject to fits and they could give no clue as to the cause of the seizure. He mentioned that he had suffered from a similar though less severe attack two years previously. He had consulted me seven months before for a small subconjunctival ecchymosis of one eye for which he could ascribe no cause.

On examination it was found that above a line running round the neck from the level of the upper margin of the cricoid in front to the fifth cervical spine behind, the skin of the head and neck had a deep cyanotic tint, with a few small points of ecchymosis in the scalp behind the ears and over the cranium. The mucosa of the palate tongue and pharynx was also of a purplish blue and showed several small extravasations of blood. Below the line of demarcation the skin was perfectly normal. There was no mark of any constricting band.

In the absence of information as to the mode of onset I could not explain the condition until a few days later I learned from

neighbours that the patient had suffered from occasional epileptic fits since boyhood. On further inquiry the brother with whom he shared a bedroom admitted that he had been awakened in the early hours of the morning by his brother having a fit. I found also that the patient slept in an ordinary shirt with a rather tight collar band fastened by a stud. The upper margin of the collar band coincided with the line of demarcation of the cyanosis. The case then appeared to be one of traumatic asphyxia, the strangulating agent being the unyielding collar band operating during the congestion and partial asphyxiation of the epileptic fit. An interesting sequel was the development of severe exophthalmic goitre in the patient's mother aged 60 within a few months of the shock occasioned by her son's seizure.

I sent an account of the case to the late Professor Harvey Littlejohn of Edinburgh who expressed the opinion that it was undoubtedly a case of so-called traumatic asphyxia caused by the collar band compressing the jugulars together with the partial asphyxia, high blood pressure, and fixation of the chest caused by the epileptic fit."

The few other cases of recovery which have been recorded have occurred likewise in patients between the ages of 15 and 35. The usual cause is severe compression of the thorax and abdomen sufficient to prevent respiration for an appreciable length of time, as when individuals are crushed in dense crowds. In these cases the discoloration extends to the root of the neck and ceases more or less abruptly about the level of the clavicles. A striking example of this was illustrated in an article by Beach and Cobb in the *Annals of Surgery*, April, 1904. Betham Robinson also reported a case in the *British Journal of Surgery*, 1914-15, vol. ii, p. 173, in which the discoloration ended abruptly half-way down the neck at a line corresponding to the top of the collar. On this occasion the thorax was crushed by a lift, and the collar acted, as in my case, as the actual agent of strangulation of the congested and swollen neck. So far as I can ascertain my case is the only one on record which did not originate in compression of the chest and abdomen by external violence.

The limitation of the cyanotic discoloration to the face and neck is due to the absence of competent valves in the jugular and facial veins. This, under certain conditions, permits mechanical over-distension of the smaller veins and capillaries with stasis of de-oxygenated blood. The cyanotic tint of the skin depends on this latter factor and not on petechial haemorrhages into the cutis. It is usually stated that there is no extravasation of blood except under the conjunctivae. In my case, however, there were several distinct extravasations into the cutis of the scalp and under the buccal mucosa.

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POLYSEROSITIS IN LATER LIFE

POLYSEROSITIS or Concato's disease, is a widespread affection of the pleurae, pericardium, mediastinum, and peritoneum. It occurs, as a rule, in young subjects, and the causal factors are unknown. The following case appears worthy of record in that the patient was aged 60, he had been an habitual drunkard.

The patient was admitted to hospital complaining of abdominal pain, progressive weakness, constipation and vomiting. He was a thin wasted man, with a dirty sallow complexion and watery eyes. His facial expression denoted anxiety and continual pain. His skin was dry and hot, the temperature was 100° F. and the pulse rapid. He was dyspnoeic. The duration of the illness was said to be four years, during which time he had had attacks of pleurisy. There was no history of rheumatic fever.

Upon examination his abdomen was found to be much distended, and the movement poor. There was a generalized doughy resistance to palpation and vague, irregularly defined masses could be felt. Percussion showed scattered areas of dullness and resonance. There was shifting dullness in the flanks. Neither the liver nor the spleen was palpable. No abnormality was detected upon rectal examination. There was a systolic retraction at the cardiac apex which was fixed, and retraction in the eleventh interspace posteriorly. The cardiac impulse was marked from the third left space to the apex. The area of cardiac dullness was increased. There were no murmurs. There was poor expansion generally over both lungs. Resonance was impaired, with indications of thickened pleurae especially at the right base. Vocal fremitus was diminished particularly at the right base and vocal resonance was diminished generally. The breath sounds were much impaired, but there were no accompaniments. Generalized arterio-sclerosis was present and the blood pressure was high. The urine was increased in amount and there was troublesome nocturnal micturition. The specific gravity of the urine was 1005, the water was pale, the urea content was low, and there was a slight trace of albumin.

Diagnosis of this case was easy in view of the adherent pericardium, the evidence of old thickened pleurae, the doughy abdomen with its areas of dullness and resonance and shifting fluid, the chronic interstitial nephritis, with the history of chronic alcoholism.

The course of the illness in hospital was short. The patient was in considerable danger from uraemia, which, however, did not develop. Symptomatic treatment only was possible, and paracentesis was performed when this was indicated. The evening before he died the patient developed Cheyne-Stokes breathing. Death resulted from exhaustion and cardiac breakdown.

At the necropsy there was found an adherent pericardium with thickening of the mediastinal tissues. The heart was greatly hypertrophied but there was no valvular disease. The pleurae were thickened and adherent and there was a small collection of fluid on the right side. The pleura was adherent to the diaphragm, the lungs were otherwise sound. The peritoneum was much thickened and pearly white, the omentum was rolled transversely across the abdomen. Adhesions of all degrees were generalized throughout the abdomen, binding the intestinal tract and causing considerable linking. Much free fluid was present and there were many collections of encysted fluid. The liver was of the sugary character and contracted. The capsule stripped with some difficulty, it was adherent to the diaphragm and slightly fibrotic. The spleen showed similar changes. The stomach was characteristic of chronic gastritis. Adhesions involved the stomach, pylorus, gall bladder and pancreas. The caecum and appendix were greatly thickened. The kidneys were small, each weighed 2 oz. They were red and the capsules were adherent. On section they were found to be tough with a reduced cortex and prominent vessels.

In so late a case of polyserositis there was, of course, no difficulty in diagnosis, in early stages the diagnosis cannot be easy. It is hard to believe that this generalized polyserositis could have been caused by chronic alcoholism, though alcohol is a certain factor in the production of perihepatitis and diffuse peritonitis, with interstitial nephritis. In this case the disease may have spread from a local area. It is held by some that interstitial nephritis, by its toxic effect upon the patient, may cause polyserositis, some physicians consider that, in the absence of jaundice, "sugar-ice" liver is associated with, and the consequence of, interstitial nephritis.

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TOTAL CONCEALED ACCIDENTAL HAEMORRHAGE SIMULATING OVARIAN TUMOUR

SINCE total concealed accidental haemorrhage only occurs on an average once in fifteen thousand pregnancies the following case appears worthy of record.

A multipara with five children was admitted to hospital as an acute abdomen with the history of an operation for perineal repair three months previously at a metropolitan hospital where she was not considered pregnant although two periods had been missed at that time.

After five months amenorrhoea without any other symptoms of pregnancy—though these had been very marked in former gestations—the present illness began with a week's malaise and then sudden sharp pain of a stretching character which was referred to the lower part of the abdomen especially on the right side. The patient's normally rather sallow face showed little loss of colour, but was of the typically abdominal type, the pulse was only 88. The abdomen was distended and rigid with an indefinite fluctuating tumour extending above the umbilicus and to the right side. The os uteri was hard and "pin point" and there was no bleeding, both fornices were intensely tender and there was a hard mass in Douglas's pouch. The most obvious symptom was the pain which was constant and intense. The diagnosis of a twisted ovarian right-sided tumour with haemorrhage into it appeared to be justified by the presence of a painful swelling after five months amenorrhoea without other signs of pregnancy, the mass in Douglas's pouch was thought to be the retroverted fundus.

At the time of operation forty-eight hours later a trace of blood was found for the first time on vaginal examination. The abdominal incision exposed a thin walled, flabby, greyish-red tumour extending from the right side of the pelvis to beneath the liver. The tumour was still thought to be ovarian and it was only after drawing off about two pints of blood from the apparently thin walled cystic tumour that its true nature was revealed by feeling the foetus. The placenta situated over the internal os and the foetus were removed through an incision in the uterine wall which was so thin that only one layer of sutures could be introduced. Injections of hot saline solution and pituitrin directly into the uterine wall caused good contraction and the subsequent recovery was uneventful.

Proof that the uterine wall had recovered its thickness and tone was seen recently in a subsequent labour of nearly a week's duration, a 12 lb full-time child had to be delivered by internal version.

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Rebels

BRAIN AND MIND

PROFESSOR R. J. A. BERRY'S treatise, *Brain and Mind*, falls naturally into two divisions—the larger part of his work, which is devoted to a description of the structure and functions of the human nervous system, and the part in which he seeks to apply this knowledge to the solution of present-day psycho-sociological problems.

Professor Berry's worth as an anatomist and histologist is sufficient warrant for the scientific accuracy of his descriptions. He proceeds from the consideration of the simplest phenomena of the nervous system to the more complex, making full use of the findings of modern histological research, associated especially with the names of Golgi and Cajal, Shaw Bolton, and Watson. His presentation of the subject is clear and comprehensive, in its avoidance of non-essentials and its skilful continuity it makes pleasant reading. Many of the numerous diagrams and photographs illustrating the text are original, and the rest are eclectically taken from Luciani, Morris, and others. The unit of nerve structure—the neuron—is described, and its functional working considered. Particular stress is laid on the importance of the short interneuronal neurons in the interpretation of the phenomena of mind and its aberrations. The developmental history of the autonomic and the cerebro-spinal nervous system and that of its component parts are traced. Throughout the histological descriptions are clear and authoritative. The sensory and motor pathways in the cord and brain are outlined. Professor Berry speaks of the olfactory sense as of little importance in the human economy. The extensive ramification of the olfactory memories, however, probably accounts for much in the life of man as yet unexplored, but of undoubted psychical significance. The importance of cortical structure in health and disease is emphasized, and the arguments for regarding the granular, association and commissural neurons as the physical instruments of mind are set forth. Professor Berry's anatomical observations lead him to believe that the study of cortical histology is of supreme importance in the interpretation of aberrant mental phenomena. The thalamo-striate and the ventricular systems are adequately dealt with. The acquisition of speech and its loss by disease are discussed in a chapter in which the author insists on the need for a fuller study of cortical histology if the problems of aphasia are to be rightly apprehended.

It will be seen from what we have said that this part of Professor Berry's work calls for nothing but praise. In the second part there is much that is helpful and suggestive, much that is debatable, and a number of statements with which many of his readers will wholly disagree. In drawing attention to the importance of neurone deficiency as the basal factor of much mental disease, apart from the anemias proper, Professor Berry does a real service. His method of examination of suspected anemias deserves close study. In addition to carrying out the routine clinical examination he estimates the cubic capacity of the brain, the standing and sitting stature, the weight, the grip and vital capacity, and the Binet and Porteus reactions. These, in his opinion, form the minimum for an adequate ascertainment of the presence of such defect. The technique is fully described.

"No neuron, no mind," is the ever-recurring theme of these pages. Medical men will not feel inclined to dispute this tenet. Every person of intelligence regards the cortical grey matter as the chief organ of psychical life, and the activity of its tissues as the medium whereby physiological sensations are converted into psychical reactions, but it is a far cry from such a belief to complete acceptance of a doctrine which would identify the physical with the psychical. And yet, says Professor Berry, "If the ideas are not in the brain cells, where are they?" Elsewhere he states that neurologically it is quite impossible for a dream to be an inspiration towards a higher form of intellectual and spiritual life because it is compounded only

of previous experiences, not future ones." This will surely strike many readers as a *reductio ad absurdum*. Neurologically it is impossible for a dream to be a dream. A dream is a psychological phenomenon, not a neurological one, although it may well be that its physical basis is neurological. The following quotation from the *British Medical Journal* of March 3rd, 1923, appears in the foreword to Professor Berry's book: "The re-establishment of the spiritual interpretation as the supreme interpretation of our universe is in no way inconsistent with the mechanistic interpretation of the living body." The wisdom of these words is not to be gainsaid, but it seems strange that Professor Berry, who apparently denies the reality of "experience," should quote them.

GYNÆCOLOGY AND OBSTETRICS

It is four years since Dr J. S. FAIRBAIN published his combined volume on *Gynæcology with Obstetrics*, and during this period the book has taken a definite place amongst the standard British textbooks on the subject. In the second edition, which has recently been published, there is comparatively little change of any substantial nature.

The most important improvement is undoubtedly the increase in the number of illustrations, which are for the most part good, and will serve to make the book more interesting and more helpful to both students and practitioners. The text generally has been revised, and in regard to certain subjects in which research has enabled us to make progress, rewriting has been called for—for example the subject of ovarian function. The sections on the development of the early ovum and embryo and the midation of the ovum have been largely rewritten and a number of Professor Teacher's lucid and helpful diagrams have been included, which simplify a subject that the student always finds difficult. A brief outline of treatment by radium has been included owing to the important part which it now plays in gynæcological therapeutics, but we are disposed to regard this section as too brief and meagre to be of any real value in guiding the practitioner. The statistics of maternal and infant mortality have been brought up to date, while references are also made to more recent administrative enactments such as those governing the registration of stillbirths and the notification of puerperal prexvia.

The favourable opinion which we formed of this book upon its first appearance is fully confirmed upon renewing acquaintance with it in this second edition. As a student's textbook it is adequate, but it is probably practitioners and those who are engaged in teaching nurses or students to whom the volume will make its chief appeal. There is always something suggestive and thought-stimulating about Dr Fairbairn's writings which makes them particularly valuable to those who are thinking about matters gynæcological and obstetrical, and in this respect the volume is no exception to the author's other writings.

ANATOMICAL FOUNDATIONS

DR LUBOSCH'S *Outlines of Scientific Anatomy*, a translation of which has been published by Dr WOOLLARD, professor of anatomy in the University of Adelaide, is designed to supplement the usual textbook teaching with matter of additional interest. Students, in Dr Lubosch's experience, have a longing for a more stimulating presentation of anatomy, in other words they find the subject dry, and it is for those who suffer from this very common defect—observable not only in connexion with anatomy, but in all forms of study that call for prolonged concentration—that the book has been written.

The table of contents gives a general idea of the material which it is hoped may serve to focus the interest of the student. An introductory chapter explains the extent and content of the conception of science. The part dealing with

² *Gynæcology with Obstetrics*. By John S. Fairbairn, B.M., B.Ch., F.R.C.P., F.R.C.S. Second edition. Oxford Medical Publication. London: Milford Oxford University Press, 1928. (Demy 8vo pp. xxix + 310, 157 figures, 5 plates, 25s. net.)

³ *Outlines of Scientific Anatomy*. By Dr Wilhelm Lubosch. Translated from the German by H. H. Woollard, M.D. London: J. Bale, Son and Danielson Ltd., 1928. (Roy. 8vo pp. xlii + 392, 66 figures, 21s. net.)

¹ *Brain and Mind*. By R. J. A. Berry, M.D., F.R.C.S., F.R.S. Ed. New York: The Macmillan Company. London: Macmillan and Co. Ltd., 1928. (Crown 8vo pp. xii + 606, 139 figures, 31s. 6d. net.)

generalities has chapters on life and its appreciation and objectivation, on the principles of change, the laws of permanence, of form, and transformation, and the transformation theory. The special part deals with man as an individual, as a member of a race, and as a member of a higher category, under which is considered his promorphology, his morphogenesis, and the experimental analysis of the formative processes, including the development of intellectual concepts from experimental embryology. The final chapters deal with histomorphology, extomorphology, and leptomorphology.

Briefly stated, the suggestion is that the teaching of the bare facts of anatomy should be supplemented by references to embryology, anthropology, zoology, biophysics, philosophy, and other subjects. It used to be considered that the obvious practical importance of the study of anatomy was sufficient in itself to rivet the attention of any serious student, without any special prompting. Views have shifted somewhat in recent times, the study of human anatomy from a purely medical aspect is discountenanced, and its relation to biology generally is beginning to be insisted on. There is nothing to be said against the change, but it should be realized that, for students of medicine at least, the practical and utilitarian view of the study remains the important one, and they will wisely avoid anything tending to divert them from the main subject into interesting by-paths.

There is an impression that the present-day student has not such a thorough grounding in anatomy as his predecessors had, and that the altered standpoint from which the subject is regarded is partly responsible. We are glad, however, to note that Professor Lubosch advocates that detailed study of individual structures (of the humerus, for example, as explained on page 126) which is now often regarded as old-fashioned.

FASCIAL GRAFTING

MR H C ORRIN's little book on *Fascial Grafting in Principle and Practice* has a subtitle, provided, one may suppose by the publishers, who, like parents, are apt to think all their geese swans. For this is not "An illustrated manual of procedure and technique", its content would make a valuable contribution to a surgical journal and requires some padding to fill it out to eighty-eight pages. There is a bibliography, but it is very imperfect. Such a reference as "Halstead, *Ann Surg*, Phila," is irritating, of thirty entries only eighteen are dated, and of these twelve are of 1913 or earlier. The author speaks of the "results of his own continued experimental work," but in the chapter summarizing this subject gives no indication as to which is his own and which that of others. For example, he says that oesophageal defects were "successfully repaired by fascial grafts functional and anatomical results appeared equally satisfactory." When he says this without a precise reference, the statement has little value. A very important point, that fascia lata does not necessarily die even when grafted into an area still infected, is illustrated by cases, but it is not quite clear whether they are his own or other people's.

The really useful part of the book is that devoted to a description of the fascia lata, to the technique of its removal and preparation, to its use in the repair of tendons and tendon sheaths, and to the investment of nerve trunks. The directions as to these points are, for the most part, clear, at any rate with the help of the diagrams. The use of fascia lata to form new tendon sheaths is dependent, presumably, on the absence of a tendency for undamaged surfaces of the fascia to adhere provided early movement be instituted, but since the same fascia, when needed for the cure of ventral hernia, "seems to have the power of inducing a growth of strong fibrous tissue" one looks for very dogmatic and detailed guidance in the immediate after-treatment of sheath-formation cases, whereas that given is scrappy and slightly contradictory. Of the use of fascial graft for filling defects in hollow viscera, in the genito-urinary tract, in arterial walls, for

visceroplexy, for diaphragmatic hernia, for arthroplasties, for Dupuytren's contraction, for "trapezius separation," to "support relaxed or paralysed facial tissues," to all of which space is devoted, there is scarcely one example of which it can be said that the directions are adequate, and that is the least that can be expected of a "manual of procedure and technique." The illustrations are for the most part good, but surely an error has crept into figure No 35.

A TREATISE ON KALA-AZAR

THE second edition of Dr UPENDRANATH BRAHMACHARI's book on kala-azar and its treatment was published in 1925. A new book, entitled *A Treatise on Kala-azar*,² by the same author, is based upon the article on this disease contributed by him to Mense's *Handbuch der Tropen Krankheiten* (1926). According to the preface it embodies "all the latest facts known about the probable transmission of the disease by means of the sand fly, the description of dermal leishmanoid, a new form of cutaneous leishmaniasis due to *Leishmania donovani* (first discovered by the author), and the latest advances in the treatment of the disease by means of the aromatic antimonials, some of which were discovered by the author in the course of his researches." Mediterranean infantile leishmaniasis, which was not dealt with in his previous works, but which the author now holds to be identical with kala-azar, has been incorporated in the present volume, but the American disease and local forms are not included, and little is said of the disease in China. The first eight chapters discuss the history and distribution of the parasite, the probable modes of transmission, animal experiments, and the relationship of canine leishmaniasis. In describing the morphology of the parasite it might have been useful for the student if some of the terms used had been defined, and a text figure illustrating some of the rarer forms would have been an advantage. We note that the author adopts the term "parabasal," using this adjective in place of "parabasal granule," a usage which unfortunately appears to be creeping into protozoological literature.

Dealing with transmission the author discusses all the possible means and gives an account of the work in connexion with *Phlebotomus argentipes*. The question remains unsettled, and the author does not appear to be impressed by the arguments which have been brought forward to incriminate the sand-fly. In chapters 9 to 12 an account is given of the clinical course, prognosis, and diagnosis along the usual lines. Under pathology there is little new since Christopher's original description, except that the author lays stress on infection of the reticulo-endothelial system with the specific tissue reaction in the form of appearance of clasmocyte tissue.

The chapters on treatment, and what has been called dermal leishmanoid, are perhaps the most interesting. Treatment since the introduction of urea-stibamine and allied aromatic antimonials has been revolutionized, and the whole subject is very fully dealt with. The appearance of the odd skin lesion occurring in cases about a year after apparent cure with antimonials, first described in 1922, is well set out and figured, and the histo-pathology is given in detail. At the end of this monograph will be found 55 pages of bibliography containing some 1,600 references to the literature.

DIETETICS

IN the preface to his *Handbook on Diet* Dr MARCOVICI explains that he has endeavoured to fill the gap which exists between the full-blown medical textbook and the small volumes dealing with dietetic matters which are intended for lay consumption. We cannot congratulate him, however, upon the success of his attempt. The first chapter—on digestibility of food—contains references which can be comprehensible only to a medical man fairly well versed in the latest vagaries of the classification of the

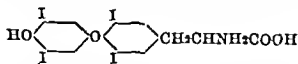
¹ *Fascial Grafting in Principle and Practice: An Illustrated Manual of Technique* by H. C. Orrin, O.B.E., F.R.C.S. Ed. Edinburgh and London: Oliver and Boyd, 1928. (Demy 8vo pp. 92, 47 figures, 21 plates, 7s. 6d. net.)

² *A Treatise on Kala-azar* by Upendranath Brahmachari, A.M. (gold), Rai Bahadur, M.D. Ph.D. London: J. Bale, Sons and Danielsson Ltd. 1928. (8 x 11 pp. xv + 252, 38 figures, 12 plates, 21s. net.)
³ *Handbook on Diet* by Eugene E. Marcovici, M.D. Philadelphia: F. A. Davis Company, 1928. (Demy 8vo pp. viii + 325, 3.50 dollars net.)

types of digestive disturbance, and we believe to such a one only after some difficulty, so badly expressed are some of the remarks. On the other hand, the discussion on the theoretical aspects of cooking is serviceable, and deals with matters which might well receive more attention than they usually obtain. The fundamental aspects of diet, such as the energy value, the degree to which foodstuffs are mutually replaceable, and the elementary chemical facts of metabolism, are treated in a brief and stereotyped manner. Yet surely it is of the utmost importance that these fundamental facts should be understood by the medical man, and appreciated by his patients: they are neither obscure, nor difficult to grasp, and an acceptance of them would help the patient to co-operate with the doctor in carrying out orders. The bulk of the book is taken up by a rather tedious discussion of the special dietary requirements in various diseases. Much of what is said might be left to the imagination, and some at least of the remainder is debatable. The author expresses the hope that physicians may feel inclined to recommend the volume to the perusal of their patients. We can hardly imagine a book that most medical men would be more reluctant to see their patients reading. Even to the well-educated mind the printed word, as such, carries a certain weight, if it deals with the unfamiliar and technical, and the unfortunate doctor would find himself constantly taken to task for not pursuing some course to which, as likely as not, he would feel himself heartily opposed. Again it is unfortunate that Dr. Marcovici has chosen to discuss "gland diet." Medical men are well aware of the very great value of certain gland preparations. They also know that there are few fields in which commercialism and charlatanism reap a richer harvest. The fruit is certainly not yet ripe for lay consumption. On the whole we feel that this volume does little more than make confusion worse confounded.

NOTES ON BOOKS

In their small volume on basal metabolism and its clinical applications, Drs. CLAUDE GAUTIER and RENÉ WOLFF have succeeded in compressing a great deal of useful information. They deal briefly, but effectively, with the meaning and physiological significance of basal metabolic rate, and with the variations met with in health. They discuss the methods and equipment used in research and in clinical work, a considerable section of the book deals with the diagnostic importance of the variations which may be encountered in disease. The arrangement of the data and of the discussions is clear and concise. One rather serious error must be noted. The authors state that Harrington and Barger have synthesized triiodo trihydroxy propionic acid, and that this substance is identical with thyroxine. Thyroxine synthesized by Harrington and Barger, is, of course, represented by the following formula



The *De Lamar Lectures** for 1926-27, which represent the sixth series, consist of eleven addresses delivered at the School of Hygiene and Public Health of the Johns Hopkins University. Professor F. Henfeld, director of the Robert Koch Institute for Infectious Diseases, Berlin, contributes a paper on natural immunity in its significance for epidemiology, illustrated by references to anthrax, typhoid, typhus, malaria, tuberculosis, and syphilis. The same author also deals with variability in bacteria, and shows that micro-organisms may, on the one hand, lose their virulence and viability, and on the other hand in exceptional cases, acquire new pathogenic properties. Dr. Alfred E. Cohn of the Hospital of the Rockefeller Institute for Medical Research, in his lecture on heart disease from the point of view of public health, shows that the problem of heart disease includes disability from infectious diseases such as rheumatic fever and syphilis and disability incident to the process of ageing. Professor G. H. F. Nuttall of Cambridge gives an interesting account of some pioneers in parasitology, including Alexander Kircher, Robert Boyle, Redi, Leeuwenhoek, Spallanzani,

Pasteur, Leuckart, Leidy, Giard, Koch, Manson, Laveran, Metchnikoff, Walter Reed, Loeffler, von Boetting, Ehrlich, David Bruce, Crassi, Ronald Ross, Theobald Smith, and Arthur Looss, illustrated by their portraits. The history of tularemia forms the subject of a lecture by Dr. Edward Francis of the United States Public Health Service, who gave the name to this disease on account of the presence in the blood of the causative organism, *Bacterium tularense*. Dr. William H. Park, director of the Bureau of Laboratories, New York City Department of Health, discusses the etiology and prevention of measles. While, like all other observers, he is convinced of the prophylactic value of convalescent serum, he is not satisfied as to the etiological connexion with measles of the organisms described by Tunnichiff, Fisher and Terry, or Dr. Cristina and Caronia. Professor A. R. Dochez of the College of Physicians and Surgeons, Columbia University, describes the preparation and use of scarlatinal antitoxin, the early administration of which either prevents the development of complications, or in certain cases at least lessens their severity.

Dr. WALDEMAR UNGER has contributed a useful handbook dealing with the psychoneuroses, functional neuroses, and exhaustion states* to the series of volumes on differential diagnosis which is appearing under the editorial direction of Professor HONIGSMANN of Giessen. In this well arranged and interesting book a comprehensive survey is given of neuroses, neurasthenias, psychasthenias, migraines, and epilepsy, this is followed by a simple practical account of the various methods of diagnosis. The differential diagnosis of the various conditions is lucidly described. Although in a volume of this size full details of so extensive a subject can hardly be expected, Dr. Unger certainly contrives to combine a wide outlook with many useful clinical hints. The book is indexed, and contains a short bibliography of German literature on the subject.

A ninth edition (which represents the fifty seventh printing) of *Gould's Pocket Medical Dictionary** has now appeared, and we learn from the preface that over 700,000 copies of this and the other two dictionaries compiled by Dr. GEORGE M. GOULD have already made their way into the bookshelves or overcoat pockets of medical practitioners and students. So far as we can judge, a wise selection has been made from the many new words which are coined every year by workers in medicine and the collateral sciences. It is no easy task to keep a small volume like this within reasonable bounds, and at the same time to do justice to an ever growing terminology. The care taken by Dr. Gould in choosing new words for inclusion and in defining them adequately will no doubt be repaid by a further lease of popularity for this useful little reference book.

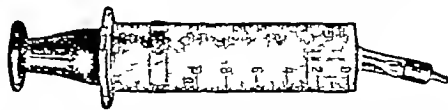
* *Praktische Differentialdiagnostik*. Herausgegeben von Professor Dr. Georg Honigsmann. Band II. Neurologie. Teil II. Psychoneurosen. Funktionellen Neurosen, und Erschöpfungszustände. Von Dr. Waldemar Unger. Dresden und Leipzig: T. Steinkopff. 1927. (Med. 8vo pp. 165-300. 3 figures. R. 18.)

* *A Pocket Medical Dictionary giving the Pronunciation and Definition of the Principal Words used in Medicine and the Collateral Sciences*. By George M. Gould, A.M., M.D. Ninth edition, revised. London: H. K. Lewis and Co. Ltd., 1928. (Fcap. 8vo. 10s. net.)

PREPARATIONS AND APPLIANCES

A SYRINGE FOR INJECTING VARICOSE VEINS

VARIOUS improvements—the result of experience in the use of the earlier model—have been incorporated in the new type of syringe for the treatment of varicose veins devised by Drs. Katherine Cellan-Jones and C. J. Cellan-Jones and described in the *British Medical Journal* of May 5th (p. 763). The syringe



is now made in capacities of 3, 5, 10, and 20 cubic centimetres, and the length has been reduced by increasing the diameter of the barrel and using only one ampull in the capillary tube instead of two as previously. The syringe is obtainable from Adair Dutt and Co., 47 Victoria Street, S.W.1.

CALMITOL

* Calmitol dermal lotion (H. R. Napp, Ltd., 3 and 4, Clements Inn, Kingsway, W.C.2.) is an ether alcoholic solution of camphor aldehyde which also contains menthol and a very small amount of lysozone. It is recommended for the relief of itching in such conditions as eczema, pruritus, etc. It is stated to be a strong disinfectant. An ointment is also supplied.

* *Le Métabolisme Basal ses Applications en Clinique*. Par Claude Gautier et René Wolff. Collection des Actualités de Médecine Pratique. Paris: G. Doin et Cie. 1928. (8½ x 7 pp. vi + 172. 11 figures. 15 fr. net.)

* *De Lamar Lectures 1926-1927*. Baltimore: The Williams and Wilkins Company. London: Baillière, Tindall and Cox. 1928. (Roy. 8vo pp. 224. 22s. 6d. net.)

SILICOSIS ON THE WITWATERSRAND
GOLD MINES

[FROM OUR CORRESPONDENT IN PRETORIA]

MUCH the most important industrial disease in South Africa is the silicosis produced in extracting gold from the conglomerate of which both the pebbles and the matrix consist of quartz. This conglomerate, which contains over 90 per cent of free silica, is called blanket. During the first decade of the gold mining industry there was no compensation of miners contracting the disease, and the incidence was high. The medical commission on miners' phthisis in 1911 estimated the prevalence at 26 per cent, which probably represents the situation during the whole of the period 1902 to 1912, since there is no reason to suppose that any decline occurred during that time. Thereafter legislation for the compensation of sufferers and the elimination of siliceous dust was introduced, and the prevalence of the disease very rapidly diminished. The most important and obvious reason for this was the automatic removal of silicotic miners from underground work after compensation.

In 1916 a medical bureau was appointed by the State to examine all miners previous to employment and at intervals not exceeding six months throughout employment. Since then the prevalence of silicosis and the amount of the disease annually produced has been accurately ascertained. The figure for the year 1916-17 was about 8 per cent. A further notable drop occurred in 1920-21, when the number of cases among the 13,682 miners examined was found to be only 467, a prevalence of 3.4 per cent. This diminution was partly owing to a genuine fall in the production of cases as the result of improved conditions, and partly to the limitation of benefits imposed by the Act of 1919 on any miner who does not make a claim for an award within three months of being notified that he has silicosis. In 1922-23 only 425 cases were found among 12,691 miners examined.

Recent Increase in Prevalence

Since that date, however, there has been a steady rise in prevalence. In the year 1925-26 there were 621 cases among the 12,883 miners examined—that is, 4.8 per cent. This rise in "prevalence" is due to a definite rise in "production" of the disease, and is discussed by Dr L. G. Irvine, chairman of the Miners' Phthisis Medical Bureau, in the latest report upon the work of the Bureau, covering the two years ended July 31st, 1926. The delay in its preparation was due to the ill health of the former chairman, Dr W. Watkins-Pitchford, which ultimately resulted in his resignation and retirement in July, 1926. The present report, therefore, deals with the last two years that the work remained under the direction of Dr Watkins-Pitchford, and thus completes the record of the ten years during which it was carried out under his supervision.

Since 1917 it has been possible to ascertain the annual "production" of silicosis with reasonable accuracy. Dr Irvine estimates the annual average production from 1917 to 1920 at 4.2 per cent, from 1920 to 1923 at 2.1 per cent, and from 1923 to 1926 at 3.5 per cent. The rise during the last three years was steady, the figures being 2.8, 3.7, and 3.9 per cent respectively. This statistical increase in the production rate for silicosis certainly does not reflect any deterioration in the occupational and hygienic conditions which produce the disease; these conditions have progressively improved since compensation was first introduced. The most important factor determining the production rate in any group of miners is the duration of time during which the members of the group have been exposed to underground conditions. Other things being equal, the liability of any miner to contract silicosis depends directly upon the number of years he has spent in underground work. Consequently the incidence of silicosis amongst any group of miners will also be in a direct relation to the number of years which the individuals composing that body have worked underground. It has been shown¹ that the proportion of new cases of silicosis among "long-service miners"—that is, those who have worked for more than

six years underground—was very much greater than among the "short-service miners"—those who have worked for not more than six years underground. Further, it was shown that the proportion of "long service miners" has steadily increased since 1918. The average number of years worked by the individuals composing the "long service" group is also increasing. The extent of the increase in recent years of cases of compensatable silicosis which cannot be accounted for by such an analysis into short and long service groups is explained by increased refinement of the Bureau's standard of selection of cases.

Improvement in Diagnostic Methods

From the outset of its work the Bureau has relied in making a diagnosis upon (1) clinical examination, (2) radiographic examination of all cases, being able not only to compare the radiographs of very large numbers of individuals with the results of their clinical examination, but also to obtain a systematic series of successive radiographs taken at regular intervals in each case, both prior and subsequent to the development of signs of silicosis, and (3) pathological examination of the lungs of deceased miners, the results of which are compared with the evidence derived from clinical and radiographic examination of the same individual, made during life. The correlation of data derived from these three sources has become increasingly exact with each advance in radiographic technique. Definite improvements in the already high technical quality of the radiographs resulted in 1924 in a fresh systematic investigation with the object of obtaining on even more exact correlation between the conditions found *post mortem* in the lungs of deceased miners and the radiographic appearances shown in negatives taken from the chests of the same individuals shortly before death. The different types of radiographic appearance which are found in normal and abnormal chests have been carefully standardized. Definite criteria of the pathological appearances found in the lungs after death have also been determined, so that the pathologists are able to make a definite and consistent report in each case regarding the presence or absence of silicosis, and of the different degrees of that disease. The results of this investigation during the past two years have enabled the Bureau to refine further its standard of diagnosis of "the earliest detectable specific signs," known legally as the "ante primum" stage of silicosis. This stage, which is compensatable, is deemed, according to the Miners' Phthisis Acts Consolidation Act of 1925, to be present, whether or not capacity for work is impaired.

Effect of Initial Examination on Silicosis Incidence

Since 1916 all persons who desire to enter for the first time upon underground work in a scheduled mine as full time miners have to submit to an initial examination. The great majority of these recruits have not been engaged in mining work elsewhere. Such mining recruits who have not previously been exposed to underground conditions are referred to as "New Rand miners." This is an interesting group to follow, since its members have not only not previously been exposed to silicosis-producing conditions, but they have been carefully selected as being specially unlikely to develop tuberculosis or silicosis as the result of exposure to underground conditions. The examination is necessarily a very strict one. Of the 6,126 candidates who presented themselves for the initial examination in the year 1925-26, only 32.84 per cent passed, 31.03 per cent being permanently, and 36.12 per cent temporarily, rejected. The great value of this examination is indicated by the fact that of all the "New Rand miners" who commenced work since 1916 only ten had up to the end of July, 1926, become the subjects of simple silicosis. The low incidence among this group is brought out strikingly when they are compared with the "Old Rand miners"—that is, those who have worked only on scheduled mines, but commenced work prior to August, 1916—and even more when compared with the "Miners, Rand and elsewhere"—that is, those who have worked in scheduled mines and also in other mines, either in South Africa or overseas. On comparing the returns for these three classes the incidence for silicosis is found to be much lower for each year of service among the "New Rand miners" than among the "Old

¹ See regarding "Contributions to the Study of Silicosis" Publication of the South African Institute for Medical Research No. 19, 1926.

Rand miners," and very much lower than among those miners who had worked on the "Rand and elsewhere." These facts appear clearly in a table showing the number of cases of silicosis detected at periodical examinations among working miners during the two years 1924-25 and 1925-26. It reveals that while the incidence of simple silicosis among the "New Rand miners" who had worked for any period not exceeding six years was nil, the incidence among "Old Rand miners" was 0.88 per cent, and among the "Miners, Rand and elsewhere" 2.51 per cent. Among the miners working in their seventh, eighth, and ninth years the incidence in the three classes was 0.44, 3.73, and 8.33 per cent respectively. This result was, of course, to be expected, for not only have the "New Rand miners" had to survive the stringent initial examination of the Bureau, but they were never exposed to the hygienically unsatisfactory conditions which obtained in the early days of mining on the Rand.

Native Labourers

Some 180,000 natives are employed on the Witwatersrand mines, but only 400 of these are technically miners, the remainder doing the unskilled labouring. The few native miners are usually included for statistical purposes among the native labourers. The Miners' Phtisis Acts Consolidation Act of 1925 made the medical service for natives on the mines a whole-time service, subject to a power of exemption in the Minister under special circumstances. This has effected an extensive change in the service. Previous to the coming into force of the Act the service consisted of fourteen whole-time and twenty-two part-time medical officers. On July 31st, 1926, it comprised thirty-one whole-time and only eight part-time officers. This transformation is making for greater uniformity of procedure and generally for all round efficiency.

The native labourers are submitted to "initial," "periodical," and "final" medical examinations. These examinations are conducted by the mine medical officers in their capacity of "examiners" under the 1925 Act, the Bureau exercising a general supervision and control over this work mainly by means of periodical visits of inspection. That the amount of work entailed by these examinations is tremendous will be appreciated when it is realized that the total complement of labourers is replaced, on the average, to the extent of approximately 90 per cent during each year. The native recruits before commencing work on the mine undergo in most cases three medical examinations. At the time of recruitment in the native territories they are subjected to a preliminary medical examination for fitness at the recruiting centres in these territories. On arrival at Johannesburg they undergo, at the Central Hospital of the Witwatersrand Native Labour Association, the official "initial" examination, a stethoscopic examination conducted by the medical staff, which consists of six examiners. During the year 1926-27, of the 160,000 initial examinees slightly over 5 per cent were rejected. On being drafted to the individual mines they are again stethoscopically examined and weighed by the mine medical officers who may further reject any they consider unfit. The "periodical" examination, which is made at intervals not exceeding three months, consists primarily in weighing each native. If he is found to have lost 5 lb or more in weight between two consecutive weighings, or 6 lb or more between three such weighings, he is set aside for individual stethoscopic examination by the mine medical officer. That these figures are suitable has been demonstrated by special investigation, which showed that in 65 per cent of bacteriologically verified cases of simple tuberculosis in mine natives there is a loss of weight of these amounts at the periodical examinations. In addition, the regulations require that any native who on inspection appears to be in ill health shall be reserved for special stethoscopic examination. The medical examiner is responsible for the proper conduct of both the weighing and the inspection.

An investigation by the Bureau in 1924 showed that there existed some 5 per cent of undetected cases of tuberculosis with silicosis among long service natives—that is, labourers who have worked upon any one mine for five years or more. A three-monthly stethoscopic examination

of these long service natives was therefore introduced by regulation under the 1925 Act. The Chamber of Mines has supplemented this statutory examination by an annual radiographic examination. It is hoped that these various examinations will assist greatly in the effort to eliminate from underground workings all native carriers of tuberculosis. Silicosis is not infrequently discovered at the initial examination. This is explained by the fact that a considerable proportion of all the natives employed have previously worked in the mines.

Natives found by the examiners to have indications of silicosis or tuberculosis are sent for confirmatory examination to the Bureau. Of the average number of 178,000 natives employed on the scheduled mines during the year 1925-26 and of whom the average number of 133,260 were employed underground, simple tuberculosis was found to be present in 566, simple silicosis in 231, tuberculosis with silicosis in 446. The prevalence rate per 100,000 of all native labourers was for silicosis in all forms 380, and for tuberculosis in all forms 568. Whereas the immense majority of cases of compensatable disease among European miners have always been cases of simple silicosis, among native labourers the great majority have been cases of tuberculosis, mostly without silicosis. As compared with the European miners the incidence of simple silicosis among native labourers is low, a phenomenon which appears to be mainly due to the migratory habits of the latter silicosis, which takes time to develop, is much less likely to occur among them.

ROYAL COMMISSION ON LOCAL GOVERNMENT

EVIDENCE ON BEHALF OF THE MINISTRY OF HEALTH

THE evidence of Sir W. Arthur Robinson, K.C.B., Secretary of the Ministry of Health, given before the Royal Commission on Local Government, has just been published. Most of the previous evidence has had only an indirect medical interest, but Sir Arthur Robinson dealt with the need for accelerated progress towards whole-time appointments of medical officers of health, as well as with the distribution of health functions between local authorities. His statements and suggestions therefore, call for the special attention of the profession. This was Sir Arthur Robinson's second appearance at the witness table, his earlier evidence was directed to showing in what respects the existing organization of local government appeared to the Ministry to be defective, and on what principles improvement might be secured. In the Minister's view the most important question before the Commission is a reduction in the number of existing local authorities, with an extension of local areas of government, which will make possible economies in administration. The second part of his evidence was consequent upon evidence since submitted by bodies representing county councils, municipal corporations and urban and rural district authorities.

Progress towards Whole-time Appointments of Medical Officers

Sir Arthur Robinson stated that the general effect of the evidence given by those entitled to speak for groups of local authorities appeared to be that the employment of whole time—as distinct from part-time—medical officers of health was desirable in all areas, and should be practicable in almost all areas when an effective reorganization of county districts had taken place, but that the rate of progress during the last fifty-five years towards a general system of whole-time appointments had been undefensibly slow. In 1873 the proportion of whole-time to total appointments in England and Wales was about one-fourth, it was now slightly more than one-third. While local authorities of all types agreed that whole-time appointments should be encouraged, some of them objected to being compelled in any circumstances to make such appointments, especially if they had to share the services of the medical officer with the county council.

The Minister recognized, Sir Arthur Robinson continued, that it was impracticable to institute immediate general compulsion to make whole-time appointments of medical officers of health and even after the reorganization of county districts, which is contemplated in forthcoming legislation, regular means

would still be needed to remove some of the obstacles to those appointments which county district councils have failed to surmount in the past. The Minister's suggestion, therefore, is that statutory provision should be made so that on a vacancy in any post held by a medical officer of health also engaged in private practice, it should be the duty of the county council, after consultation with every district council affected, to make suitable arrangements for the appointment of a medical officer of health by the county district council in whose area the vacancy had occurred. These arrangements should preclude the medical officer of health appointed from engaging in private practice, but it would be open to the Minister to decide, on representations being made to him, that, owing to the special circumstances of a particular locality, it was unreasonable, for the time being, to attach such a condition to the appointment.

In reply to the Earl of Onslow, the Chairman of the Commission, Sir Arthur Robinson pointed out that the real question would always arise upon vacancies. He insisted that the only way of getting accelerated progress towards whole time appointments was by securing that these vacancies, as they occurred, should be brought into the scheme for whole time appointments. The matter had to be picked up on each vacancy. On a vacancy occurring no permanent arrangements should be made until it could be filled as part of the duties of a whole time officer. To the Chairman's suggestion that whenever there was a vacancy a whole time medical officer of health should be appointed unless there was good reason to the contrary, Sir Arthur Robinson said that he would go further than that, whenever there was a vacancy nothing should be done to compromise the principle that there should be a whole time officer in that area, whether in combination with the county medical service or with other areas. He stated:

You see what happens now. You get one county district where the doctor leaves or where he dies or something of that sort. Now as it stands they can bring quite a good case. They can say 'Our area is not big enough to carry a whole time man. We have Dr So-and-so. He is a very good man indeed and we want to appoint him. We do not like the county medical officer of health and we do not like the county service. We have to do something, therefore we want to appoint Dr X who is a part-time man.' That happens over and over again."

The witness agreed with the Chairman's suggestion that what it came to was that a part-time medical officer of health was to be a locum tenens, and that directly arrangements could be made to appoint a whole time officer then the part-time officer should have no grievance in being turned out. The witness was ready to admit the utmost latitude, Dr X might be taken on for a year, or whatever the term might be, but gradually, as vacancies arose and the thing got organized there would be a whole time service throughout the country. He agreed that if a reorganization of districts came about as a result of the Commission's report a number of vacancies would automatically be created which would furnish an opportunity of dealing with the question much more extensively than in the past.

Sir Seymour Williams, a member of the Commission, said that he knew there was a general view in favour of the whole time officer, but he thought there was a contrary opinion among medical men themselves. Sir Arthur Robinson replied that he had never come across it himself. Lord Strachie, another member, then raised the question of comparative cost, which, the witness said, would depend on the size of the combined areas, the number of districts, and the sort of scale of salary. The examination of the witness by Lord Strachie then proceeded.

"I suppose, too it might depend on whether the British Medical Association come in and fix the standard as they wish to do for county council appointments?—They have never come in and wanted to impose a standard. They have never done that."

"Do you not think that it might be rather different under your proposals?—I do not think so. I think that what would happen would be that there would be discussions about the sort of pay these people ought to have, very much in the same way as we discussed the sort of pay that doctors ought to have under the National Health Insurance Act. I think it would not alter the situation at all the situation would be just the same as it is now. The fact that you have more whole-time officers does not alter the relation that you may have now with the British Medical Association."

"Of course that does not apply to part-time officers at all?—No."

"When you change your part-time officers to whole-time officers may not the same difficulty come in which happens now?—In so far as the British Medical Association concern themselves with the salaries of whole time officers now they would have more chances of doing it if there were more whole time officers but that would not increase the difficulty except in the sense that there would be more cases to deal with."

"I take it that you think they would probably come in and interfere?—They come in now."

"I know but under the new scheme?—Yes now and under the new scheme."

"Therefore probably it would mean increased cost?—No not necessarily. I think that is wrong."

Sir Seymour Williams suggested that a complete system of whole time medical officers of health must result in very considerable additional expenditure. He instanced the case of a part-time officer of two or three adjoining districts. The salary paid would not come to anything like the salary which it would be necessary to pay to a whole time man. Sir Arthur Robinson agreed that such cases would occur, but added that the present situation was that many of the district councils were paying an insufficient fee to a part-time officer, and, that being so, there would be an increase.

Distribution of Health Functions

The remainder of Sir Arthur Robinson's evidence was concerned with the rational distribution of functions between local authorities. He first pointed out the anomalies which at present occurred, whereby different functions were assigned in no consistent way to local authorities of different types. The first principle stated by the County Councils Association was that for certain purposes counties were the best areas of administration, the Minister's opinion was that there would be no advantage in giving statutory effect to such a principle because that action in itself would secure no advance towards agreement on the particular local government functions under discussion. Sir Arthur Robinson agreed, however, that for certain purposes counties were the best areas of administration—for example, when it was a question of managing institutions, such as tuberculosis sanatoriums or infectious diseases hospitals. The same consideration applied to some extent to the maternity and child welfare service, though this service was only in part institutional, and therefore here there was some difficulty in assignment.

The Minister's suggestions to the Commission, following upon the evidence already given, were that the school medical service should remain in the hands of the local education authority as already determined by the Education Act, and that the maternity and child welfare service should be dealt with by the authorities which administer the school medical service. At present there are 159 maternity and child welfare authorities which are not school medical authorities, and 26 school medical authorities, outside London, which are not maternity and child welfare authorities. It is also proposed to assign responsibility for the administration of Notification of Births Act and of the maternity and child welfare work to the same local authority in every area. It has been represented in other evidence to the Commission that the supervision of midwives should be made the responsibility of the same local authority in each area as that which controls the school medical service and the maternity and child welfare work, but certain restrictions upon the application of this view must, in the Minister's opinion, follow from the characteristics of the existing local education authorities, some of which have too small populations under their jurisdiction and too limited financial resources to be made responsible for providing a separate establishment and staff for the supervision of midwives. The suggestion of the Minister accordingly is that there should be statutory provision to enable urban authorities to which functions have been delegated under the Nursing Homes Registration Act to represent to the Minister that it is desirable that they should also be constituted into local supervisory authorities under the Midwives Acts. Notifications with respect to ophthalmia neonatorum, it is suggested, should be sent to the local authority providing treatment for the disease, whether or not that authority is the one which has the supervision of midwives.

As to the provision and maintenance of infectious diseases hospitals, this should be concentrated, in the Minister's opinion in the hands of county councils, and existing hospitals of this kind for which local authorities of other types are at present responsible should be transferred to county councils on equal terms. Sir Arthur Robinson pointed out to the Commission that there was in the country a serious shortage of accommodation for infectious diseases, including small pox—"roughly a 10 per cent shortage. That is too much in providing against infectious diseases, you may have an epidemic any day. The right way of meeting the danger was for the county councils to survey their own counties, find out where the shortage was, and prepare a county scheme. Whether, having got the scheme, the county council took over any existing hospital run by a combination of authorities, or left that hospital to be run by those authorities in connexion with and as part of the county scheme, was a detail. What he wanted was to ensure that the provision was made in other words, he would lay the duty upon the county council of providing this accommodation, but would allow it to do so in collaboration with other authorities if it thought fit."

We publish in the *Supplement* this week, on page 142, a further memorandum of evidence, dealing particularly with whole-time public health appointments, submitted to the Royal Commission by the British Medical Association.

British Medical Journal.

SATURDAY, SEPTEMBER 29TH, 1928

THE BACTERIAL FLORA OF THE INTESTINES

ONE of the most useful functions of a sectional session during the Annual Meeting of the British Medical Association is the open debate by experts of a question which, though of everyday interest to all medical men and women, needs some specialized training for its intimate understanding. This function the Section of Pathology and Bacteriology at Cardiff exercised very profitably by encouraging discussion on the influence of the bacterial flora of the intestine in health and in chronic disease. That an unrestrained airing of opinion was desirable on this matter is shown by recurring claims to the successful detection among the host of intestinal bacteria of the cause of some human disease and to the curing of acute and chronic ailments by administration of a vaccine prepared from faecal micro organisms. Three instances of therapeutical practices based on inadequate criteria of bacterial pathogenicity were cited by Sir Thomas Horder—namely, the employment of vaccines containing the late lactose fermenting bacilli the so called serum resisting *B. coli*, and streptococci incriminated only because they were present in excess of the normal. Later in the discussion, however, Sir Thomas Houston joined issue with these sweeping criticisms, and put in a word for the enterococci as being probably pathogenic.

In no branch of bacteriology are common sense and experience more essential than in the study of the bacterial flora of the intestine. Common sense is needed in order to keep continually in mind the fact (or some would say the paradox) that the microbes within the lumen of the large intestine are nevertheless outside the body, separated from the deeper tissues by what Professor Cruickshank has called the impenetrable barrier of the intact mucous membrane. Experience is needed because of the great complexity of the intestinal flora. Most of the microbes within the intestines are useful scavengers and their numbers and variety depend on the diet and habits of their host. Then distribution in the intestinal canal may, moreover, be determined by a disturbance of digestive function—by the presence, for example, of achlorhydria—a fact which bears considerably on the alleged etiological relationship between an abnormal distribution of *B. coli*, enterococcus, and *B. welchii*, and cases of pernicious anaemia. Therefore, no opinion on the relative proportions of different groups of bacteria is of any value unless it takes into account the condition of the intestinal tract and the diet of the subject investigated. As examples of the effect of diet on the intestinal inhabitants may be mentioned the relative simplicity of the bacterial content of an infant's stool when breast milk is the only food, and the rapid change to a more variegated flora on artificial feeding or weaning. In like manner simplification of the bacterial flora to microbes of the aciduric group can be brought about by adding lactose or dextrin to the diet. A corresponding phenomenon may be found in the large excess of streptococci in the lower bowel

often observed after rapid emptying of the intestine by a saline purge. The work of Cramer, Mottam, McCollum, and others suggests, moreover, a close relation between diet and alimentary toxæmia: a diet deficient in vitamin A appearing to break down the barrier of the intact mucous membrane, possibly (as suggested by Cramer) by altering the permeability of the mucous cells.

As will have been seen from the report published in the *British Medical Journal* of August 11th (p. 252), nearly all the speakers who took part in the discussion at Cardiff two months ago were in general agreement with the views expressed by Professor Cruickshank in his opening paper, of which the text appears in our present issue at page 555, but it is curious that little if any mention was made of the value of the test diet before bacteriological examination of the faeces or of the importance of examinations for blood and pus. The conclusion that seems to be justified from this discussion is that the importance of the bacterial flora of the intestines in relation to health and disease has been exaggerated in the past, and that the attention paid in recent years to alimentary toxæmia is now on the wane. This attention fulfilled its function by provoking a considerable amount of work, some of abiding value, but it also created hopes that have not been fully realized. The present decline in the administration of alleged intestinal antiseptics may be regarded as an instance of the tempering of enthusiasm by knowledge and experience. At the moment all the clinical and laboratory experts are, however, by no means agreed in regard to the importance of intestinal micro organisms. It is possible, indeed, that a joint discussion of this topic by the Sections of Medicine and of Pathology and Bacteriology would have been attended with a little liveliness.

In the meanwhile signs are not wanting that hence forward the direction of progress is likely to be towards a better understanding of the effects of diet on intestinal disease rather than a continuation of the search for individual pathogenic bacteria among the intestinal contents. The value of a dietary rich in lactose in the treatment of typhoid fever, the efficacy of lactose and dextrin in some types of constipation, and the possibility that changes in the permeability of the intestinal wall may be caused by vitamin deficiency, are indications of the future usefulness of intestinal bacteriology in practical medicine.

LIMITATIONS OF MEDICAL BENEFIT

TWO recent letters in the *Times* from Dr. Graham Little, M.P., with the correspondence to which the earlier letter gave rise, deserve some attention, lest the confusion of erroneous detail and deduction that encumbered the first letter should obscure the real and more important points which seem to have been in Dr. Little's mind and on which there is substantial agreement among those members of the medical profession who are concerned with national health insurance practice and administration. These relate to the limitations or restrictions of medical benefit, and are two in number. One of them is the real limitation of medical advice and treatment of insured persons to that which can properly be given them by general practitioners as a class. This is not, however, a narrow service, as Dr. Little (who does not seem to be very familiar with the work of general practitioners) would appear to think, it is a very wide service, and requires and receives a high degree of knowledge

and skill. With fuller knowledge he would have refrained also from suggesting that insurance practitioners give this service reluctantly and grudgingly, with a desire to escape from the whole business at the earliest opportunity. The attempts made from time to time on their behalf, usually with success, to alter and improve certain of the arrangements or regulations of the insurance scheme and to secure a satisfactory remuneration are no proof at all of any such general attitude. Nevertheless, it is true that medical benefit is seriously restricted and rendered less beneficial to its recipients than it might be, by reason of the fact that no consultant and specialist services and no pathological laboratory facilities are provided within the scheme. Such provision is desired and has long been urged by the medical profession. It was declared by the recent Royal Commission on National Health Insurance to be the most immediate need, and its cost to be relatively small. The Ministry of Health was anxious to pass legislation to make this provision. Nothing but the opposition and obstruction of the approved societies themselves has prevented it from being in existence to day. The need for the creation of a public opinion which will enable this opposition to be overcome is evident, and it is to be hoped that Dr Little will lend his valuable aid to this end.

The other limitation referred to is rather an apprehended than a real one. The financial arrangements lately made with the retail pharmacists do not in fact in any way restrict the liberty of an insurance practitioner in prescribing whatever he thinks it necessary for his patient to have, but the fear is lest they should have a tendency in that direction. The arrangement is that the pharmacists take the whole of the residue of the medical benefit fund after all other claims upon it have been satisfied, and in return for this total sum undertake to supply insured persons with whatever is properly proscribed by insurance practitioners. This was only suggested by the Ministry of Health in an emergency from which no other means of escape was apparent, but such an arrangement has obviously undesirable features. The Conference of Panel Committees has declared that it is 'against public policy', and it is clear that it may put temptation to improper economy in the way of pharmacists themselves and may at least induce them to try to bring undue pressure on Insurance Committees or insurance practitioners. There is no evidence at present that this has been done, though individual Insurance Committees, both before and since this arrangement was entered into, may have acted unwisely with reference to particular pharmaceutical preparations. There has from the beginning of national health insurance been provision for dealing with any wantonly extravagant prescribing on the part of medical practitioners, but this provision has not been altered in any material way in consequence of the new arrangement with the pharmacists. So long as this reasonable liberty of practitioners to order what they think necessary is maintained the bargain with the chemists is not directly their concern, but there is every reason why Dr Little and other members of Parliament should keep a watchful eye upon the working of a dangerous and undesirable agreement.

The remedy for limitations of medical benefit such as these is not the abolition of the national health insurance scheme, which has been approved in principle by public opinion and by both the great representative conferences of the medical profession. The remedy is rather the removal of the limitations and the extension of the scheme. Nor do they call

for inquiry by a Royal Commission, such as Dr Graham Little appears to think necessary, every three or four years. The need is rather for the carrying into early effect of the more important recommendations made by the Royal Commission which reported only two years ago.

THE LEAGUE OF NATIONS AND THE DRUG TRAFFIC.

THE traffic in opium and other dangerous drugs (writes our correspondent at Geneva) has taken a larger place than usual in the proceedings of the League Assembly. The report on this subject was made by Dr Witold Chodzko, director of the State school of hygiene at Warsaw and former Minister of Health for Poland, who said that the manufacture of harmful drugs continues to be greatly in excess of legitimate requirements, and new methods of manufacture are rendering the supervision of the international traffic increasingly difficult. With regard to the situation in China, Dr Chodzko congratulated the British Government on its decision to withdraw its protection and withhold the right to fly the British flag from any vessel proved to have been engaged in smuggling in navigable Chinese waterways. He went on to say that the Advisory Committee on Opium had been very much concerned at the efforts of certain manufacturers to find substitutes for morphine since this alkaloid was made subject to control. One substitute is benzoyl-morphine, already manufactured in comparatively large quantities, which has been shown to possess all the properties of a drug of addiction. Moreover, the morphine content in benzoyl-morphine can readily be recovered, and hence quantities of morphine which escape supervision can be placed on the market, in addition to this there is a whole series of other morphine esters having the same properties. The attention of the Council of the League is being drawn to the necessity of placing benzoyl morphine, and possibly other substances, under control forthwith. Twenty-seven Governments have accepted the principle that eucodal and diacode should be included among drugs coming under the 1925 convention, but the efforts of a number of the signatory countries are said to be intermittent and wanting in vigour. It was noted with satisfaction that the Spanish Government has decided to institute a monopoly system for the trade in drugs. A further scheme for the limitation of the manufacture of drugs has been transmitted by the United States Government to the League of Nations, and will be examined by the Advisory Committee on Traffic in Opium at its next session. The debates in the Assembly on this subject were chiefly noteworthy for the protestations of Eastern delegates. The Japanese delegate declared that his own country was not an opium producer, its annual output was only 3,000 kilograms, all of which was used by the Government for medicinal purposes and none exported. The Siamese delegate similarly protested that his was not an opium-producing country, it was even obliged to import opium from India, and the Government had established a monopoly for drug imports. The Indian delegate thought that his country's sacrifices for the suppression of the opium traffic had not been recognized, the Indian Government had always made opium a monopoly, both as to cultivation and sales. It had steadily followed a policy of reducing the area under poppy, and the total loss of revenue it had sustained amounted to something like 72 million pounds in eighteen years. The licensing system had been at work since 1923, and care was taken to see that all exported opium reached its proper destination.

* As announced in the *Journal* of August 25th (p. 351). Part III of the Dangerous Drugs Act 1920 which provides for the control of morphine, heroin, and cocaine has been applied by Order in Council to benzoyl morphine, dihydro-oxycodone (eucodal), dihydro-codone (diacode), and their respective salts and to any preparation admixture and extract containing them.

exports for Persia and Macao were already prohibited, and no exports of opium from India would be allowed after 1934. Finally, the Persian delegate declared that as great sacrifices had been made by his own country, much had been said about India, but opium amounted to only 1 per cent of India's total exports, and to 20 per cent of Persia's, so that Persia's efforts to cut down the traffic were correspondingly virtuous. His country, he said, had fulfilled all the obligations to which it had subscribed, and had just passed a law making opium a State monopoly. So all the Governments are arrived in white robes, and yet, says Dr Chodzko, the situation is extremely serious, if not alarming. A proposal was made to the Assembly by Dame Edith Lattelton, on behalf of Great Britain, to appoint a commission of three independent persons to inquire into and report on the situation as regards opium smoking in the Far East. It is intended that the commission shall visit the Straits Settlements, Java, Siam, Hong-Kong, Japan, and possibly Korea, China, and Burma. The British lady delegate, in urging her proposal, said that there was in existence a large illicit traffic in opium in the Far East which nullified the efforts of all the Governments concerned to control and restrict consumption, the difficulties were illustrated by the case of Hong Kong, where the Government of the colony estimated the consumption of illicit opium to be many times that of Government monopoly opium. The commission would report on the actual position at the present time in regard to control, the difficulties encountered, and the possible means of remedying them. The principle of the proposal met with general acceptance, except from the Chinese delegate, who said that while there had been a recrudescence of poppy cultivation in China, the Chinese Government was far more seriously perturbed by the organized smuggling of opium derivatives and cocaine from European countries. He contended that the field of investigation should not be limited to the countries of the Far East, but should include all countries which produced or manufactured opium and other dangerous drugs. Opposition to the British proposal was forthcoming, however, on the ground of expense, and the proposal, like other proposals initiated or supported by Great Britain, has had to run the gauntlet of the Finance Committee of the League, which this year has ground the League budget "exceedingly small." Not the least resolute economist of all has been the British representative on the Finance Committee. With regard to the proposal for an opium inquiry, this was finally placed upon a less expensive basis, and the League Budget Committee eventually agreed to grant £4,000 towards the cost. It is expected that this will exceed £8,000 the British Government has offered to contribute £2,000, and other States whose territories the inquiry will cover will be asked to contribute the balance. Among the delegates who voted against the proposal in the Budget Committee were those of Italy, Portugal, China, and Japan.

INFANT MORTALITY AND WELFARE WORK.

WHENEVER a reduction in the mortality rate of a disease follows some specific effort, it is always open to someone to assert that the disease was changing in its character and becoming less virulent, and that the reduction in mortality would have taken place in any case or could have been produced by other means. This argument is not easy to apply to the reduction in infant mortality rates, because there is more than one disease concerned, and in any case nobody will assert that infantile disorders when they occur are much milder in character than they used to be before infant welfare work became such a prominent feature in the public health programme. It may be said that no one wishes to deny the value of welfare work, but it must be remembered that there is a certain body of opinion which views with suspicion the inter-

ference of public authorities in the private health of the individual citizen and his children. It is necessary, therefore, that the value of welfare work should be firmly established upon a sound scientific basis so that there is no argument left on the score of its not being necessary for the health of a nation. Such a basis will be found in Dr R. M. Woodbury's book *Infant Mortality and its Causes*,¹ and in particular the chapter on infant mortality and preventive work in New Zealand. It is well known that the infant mortality rate for the white population in New Zealand was in 1924 the lowest for any country in the world—namely, 40.2. Dr Woodbury analyses the position on a strict statistical basis, and he shows beyond any shadow of doubt that the progress in infant welfare work in that Dominion is directly responsible for the remarkable position which New Zealand has won in her control of infant mortality. The different types of work concerned under this general term of "infant welfare" also receive attention. Beyond the welfare clinics the good results have also to be in part attributed to such influences as the establishment of State maternity hospitals, the registration of births, the newspaper health articles, and the work of infant life protection, which comprises supervision of babies boarded out apart from their mothers. The part played by these various activities has recently been analysed for a neighbouring region of the world, and in the Health Bulletin of the State of Victoria, Australia, Dr Vera Scudlbury deals especially with early notification of births and the importance of natural feeding. In the last decade there has been a very rapid growth in Victoria, as elsewhere, in infant welfare work, both in the towns and more importantly in the rural areas the latter being aided by an infant welfare section on the "Better Farming Train" run by the railway and agricultural departments during the past three years.

-NOISE AND NEURASTHENIA

IN a paper read to the recent conference on welfare in industry at Oxford, and published in the September issue of *Industrial Welfare* Dr Vilhjálmur Culpin makes the point that, while certain influences, such as overwork and noise, are often cited as causes of neurasthenia, this condition is more correctly to be ascribed to the reaction of the patient. Such unpleasant things as noise are, in short, convenient pegs on which the nervous subject hangs his symptoms, the problem is one of personal adjustment, and will not be solved by removing the alleged cause. Dr Culpin remarks that he can find no evidence that noise causes nervous breakdown, those who complain about it present other nervous symptoms, the emotionally stable man can adjust to noise very quickly. To some highly strung people (and, we would add, to the over-fatigued) some noises are very distressing, but this, while admittedly a sound argument for diminishing noise, is not necessarily evidence that nervous breakdown can be directly caused thereby. Dr Culpin adds that there is no proof that occupations in which there is noise, overwork, or monotony show a higher nervous sick rate than others, indeed, there is, he says, at least some evidence in the contrary direction. But noise by day and noise by night seem to us two different things. A man who has learnt to disregard the roar of day-time traffic or to ply his job without discomfort amidst the din of a workshop may suffer acutely from intermittent assaults upon his ears in the night hours—sudden fierce sleep-destroying noises against a background of comparative silence. The hardened evolutionist may view without regret the gradual elimination of the nervously unfit by

¹ *Infant Mortality and its Causes*. By Robert Morse Woodbury. Ph.D. London: Baillière Tindall and Cox. (Extra post 8vo pp. x + 204 16s. net.)

² No. 13, January-March 1928.

electric motor horns, open exhausts, rattling lorries, and pneumatic drills but the practising doctor will continue to look upon noise as an evil, and will support any measures to mitigate the pandemonium which engineers have let loose upon us. Thus while agreeing with Dr. Culpin that too much emphasis is still laid on environment and too little on personal reaction to it we shall continue to hope for less stimulation of the auditory centres along our uphill path to Utopia.

NOTIFICATION OF MENTALLY DEFICIENT CHILDREN

THE Board of Education has now issued its new Mental Deficiency (Notification of Children) Regulations, the draft regulations a summary of which appeared in the *Journal* of August 4th (p. 220) having been published for the required period, and having been confirmed by the Board with a slight amendment. These regulations were necessitated by the recently passed Mental Deficiency Act, 1927, and merely carry out the amendments made therein of the original Act of 1913, so far as the work of the Board of Education is concerned. These amendments provide that mentally defective children in all appropriate cases may now be dealt with in any one of three ways—by being placed under supervision or guardianship, or sent to an institution—whereas under the original Act those cases in which the Board of Education certified that there were special circumstances could be dealt with in the first two of these ways only, and those who shortly before leaving a special school or class were notified by the local education authority to the local mental deficiency authority could be dealt with only in the last two of these ways. These changes are of great practical importance, the latter should result in the notification of all children leaving a special school or class (provided that the diagnosis of mental deficiency in the technical sense has been correct), though the degree of supervision found to be necessary will of course, vary considerably in different cases. The change in the definition of the classes of mentally defective persons made by the amending Act is naturally also of great importance in this connexion, though it does not of itself necessitate any alteration of the notification regulations of the Board of Education. With the regulations and the accompanying memorandum (Circular 1399) is issued a revised "Form of Report on Child Examined for Mental Deficiency" (Form 306 M), but, apart from slight modification of the heading, this form does not differ from the old one. It may be pointed out that the power of a local education authority to certify "special circumstances" in particular cases is a very valuable one, and may well be interpreted more widely and used more frequently than has sometimes been the custom.

LAENNEC

DR. GERALD B. WEBB of Colorado Springs has done well to reprint with additions his article on René Théophile Hyacinthe Laennec from last year's volume of the *Annals of Medical History*. In the preface he quotes a warmly enthusiastic appreciation of Laennec's work and originality from Thomas Addison of Guy's Hospital, who was his junior by a dozen years. The origin of the name Laennec is doubtful, and may be either "lenn" a reader, or "laen" a pond or lake, and according to W. S. Thayer was pronounced Lennec. History does not record any hints of juvenile precocity, and he lived the wholesome open-air life of a boy interested in natural history. When little more than 14½ years old he began to study medicine at Nantes, and five years later went to work at the Charité in Paris under Corvisart, whose alertness and keenness attracted though his brusqueness and sarcasm

repelled him, and led to his collecting and subsequently publishing his teacher's aphorisms. In 1802 Laennec's first published article, on ossification of the mitral valve, appeared, and he became an active morbid anatomist, writing much on the abdominal viscera, while having a hard struggle to get a living. The story of his quarrel with Dupuytren, "the greatest of surgeons but the least of men," is well told, and then his gradual rise to practice is unfolded. Laennec apparently had many ailments to contend with—asthma and headaches when a student, cholera at the age of 27, gout when 33, angina pectoris both before and after the gout, and finally pulmonary tuberculosis which carried him off at the early age of 45 years. Dr. Webb describes the invention of the stethoscope, the publication of the *Traité de l'auscultation médiate* (first edition 1819, second edition 1823), and illustrates his attractively written memoir with thirteen full page plates. Our readers will recall that the centenary of Laennec's death was commemorated in Paris eighteen months ago and that this country was fully represented at the official celebrations organized by the Académie de Médecine.²

CONVALESCENT CARE IN GREAT BRITAIN

A REFERENCE to the importance attached to the provision of facilities for convalescent treatment in Britain, made in a review of *Convalescence: Historical and Practical* by Dr. John Bryant of Boston, Mass. (August 11th, p. 265), has been taken to suggest that the existing state of affairs in this country can be regarded as entirely satisfactory. While it appears that provision for convalescence is generally more extensive than in the United States—as described by Dr. Bryant—there are certain areas where a number of the leading hospitals have neither a convalescent home nor a convalescent fund as an integral part of their organization. In many cases, however, their almoners are charged with the arrangement of convalescent care, and facilities for this are obtainable through homes which, although not owned or controlled by the hospitals, work in friendly co-operation with them. It should also be remembered that many convalescent homes are maintained by charitable bodies and by trade societies for the benefit of members and their dependants. A tentative survey shows that of the larger hospitals in Great Britain (those with about 100 beds and over), 17 out of a total of 30 in London have a convalescent home or fund; in other parts of England and Wales 56 out of a total of 117 have such provision; in Scotland 10 out of a total of 16 have a home or fund. These figures relate only to cases in which the home or fund has a definite connexion with a particular institution, and take no account of the numerous anonymous units which exist to meet the needs of convalescent patients.

ORGANIZATION OF CHILD GUIDANCE CLINICS

DR. R. H. CROVIFY, senior medical officer of the Board of Education for England and Wales read a paper in the Section of Educational Science at the meeting of the British Association at Glasgow, in which he discussed the organization of child guidance clinics in the light of knowledge gained from his visit to the United States last autumn on behalf of the Child Guidance Council. After describing the clinics he saw in America, he drew several conclusions of considerable importance with regard to the possibility of multiplying such clinics in Great Britain. He emphasized the importance of associating closely child guidance clinics with the highly developed school medical service, and took the view that, though in the United States there were two organizations of educational psychology and child guidance, developing to a large extent independently of each other, yet in this country it seemed unlikely that such a dual

¹ René Théophile Hyacinthe Laennec. A Memoir. By Gerald B. Webb. M.D. New York: Paul B. Hoeber Inc. 1928. (Post 8vo pp. xix + 146, 13 plates. 2 dollars net.)

² *British Medical Journal* January 1st 1927 p. 29

service would be adopted. He did not suggest that no development of these clinics should take place apart from the local educational authority, but rather that there should be a close co-operation. Thus the active interest of the local authority should be won for a clinic, even though not directly initiated, financed, or controlled by it. Dr Crowley paid high tribute to the child guidance work already existing in Great Britain, mentioning clinics at various hospitals and institutions, both medical and educational. He referred particularly to the outstanding work of Professor Cyril Burt as psychologist to the London County Council, and to that of Dr Robert Hughes, school medical officer of Stoke-on-Trent. We have previously referred to the inauguration of the Child Guidance Council, which proposes to establish next year a clinic in London through the generosity of the Commonwealth Fund of New York. The clinic has secured the full co-operation of the London County Council, which will be represented on the managing body. Dr Crowley hoped that effective clinics on a less ambitious scale would be established before long to serve the needs of smaller institutions. These would doubtless be the outcome, as a rule, of voluntary initiative in their early stages, and later on the time would come to consider how this work could best be related to other already existing activities.

THE DEATH PENALTY

THERE is a National Council for the Abolition of the Death Penalty, which has Lord Buckmaster as its president. The council has determined upon a forward movement for the attainment of its object, and in a letter to the *Times* Lord Buckmaster sets out the propositions (1) that recent events—notably the result of the Slater appeal and the Home Secretary's eleventh hour reprieve, because of an 'element of doubt' of the three men convicted of the Brighton murder—have raised the capital punishment issue in an acute form", (2) that "its abolition by Parliament without the assurance of public support would be premature", and (3) that "there remains but one constitutional way in which public opinion can find expression" on this subject—namely, "a national petition to Parliament." He appeals to "all those whose considered opinion it is that the death penalty could be dispensed with" to sign such a petition. With the form of petition his council has issued a memorandum giving eleven reasons in support of it. The matter is a serious one, and Lord Buckmaster's support is very weighty. It may nevertheless be doubted whether there really exists any strong public opinion upon this question which requires expression, whether recent events, important as they are, can be said to have made the issue an acute one, and whether any petition to Parliament can really be taken to indicate either the volume or the intensity of such public opinion as there is. Individual reasons for signing a petition are numerous, and the signature can by no means usually be regarded as the result of a "considered opinion." The public mind on this matter is probably in a condition of indifference or uncertainty. It seems unlikely that if any Government proposed to abolish the death penalty there would be any great volume of opposition to such proposal. On the other hand, a great deal of propaganda is necessary if Governmental action is to be undertaken only as the result of public pressure. The petition and accompanying memorandum now before the public may be regarded as useful propaganda, though of the eleven stated reasons against capital punishment some are much less weighty than others. A further excellent piece of propaganda recently published is a little book by Charles Duff entitled *A Handbook on Hanging*. Its title-page, in the old style, describes it as

"a short introduction to the fine art of execution containing much useful information as well as data and wrinkles for hangmen to which is added a Haugman's Ready Reckoner." It is a remarkably effective sustained piece of irony, not unworthy to be mentioned with those masterpieces in the same line, Fielding's *History of Mr Jonathan Wild the Great* and De Quincey's essay on *Murder Considered as one of the Fine Arts*, and can be strongly recommended either to those who do not object to gather their facts and arguments in a somewhat gruesome medium or to those who can enjoy an ironic effort purely for its literary merits.

THIS year's Norman Lockyer Lecture, arranged by the British Science Guild, will be given by Professor J. Arthur Thomson on the afternoon of Wednesday, November 28th, in the Goldsmiths' Hall, London. The subject will be "The culture value of natural history."

USE OF CLOVER'S INHALER IN TONSILLECTOMY AND REMOVAL OF ADENOIDS

BY

SIR CHARTERS J. SIMONDS, K.B.F., C.B., F.R.C.S.,
CONSULTING SURGEON TO GUY'S HOSPITAL

IN response to personal requests and an invitation from the Editor of the *Journal*, I give a brief description of the employment of Clover's inhaler for inducing anaesthesia in the removal of tonsils and adenoids. In doing so let me first say that my communication (September 8th, p. 455) was in no way intended to suggest that ether was not widely used for the open method is now generally employed, though there are advocates for chloroform and ethyl chloride, nor do I presume to instruct the anaesthetists, to whom all methods must be familiar.

First one must gain the confidence of the child and eliminate fear as far as possible. Let the child blow up the bag as it would a balloon, then adjust the face-piece, and ask the child to blow it up, removing the face-piece two or three times so as to get the bag filled. The second and important stage is to allow rebreathing of the air until the face becomes dusky, by which time the child will be rendered so far unconscious as not to detect the admission of ether, which is now gradually admitted. If the child struggles after a few inhalations of ether, this is due to the CO₂, and will be checked by admitting air, not by increasing the ether. If there be no struggling, remove the face-piece when the cyanosis increases, and allow three breaths of air, when the immediate return of colour is evidence that it is due to the CO₂ and not ether.

At this time the child will be so far insensible that the ether can now be admitted without a check until full anaesthesia is obtained. It is necessary to remove the face-piece and admit free air from time to time, for in this stage there should be no cyanosis. Air must also be admitted in this stage should there be any struggling.

When the conjunctiva has become insensible and has remained so for a minute or longer, the face-piece is removed, and if after three or four full breaths it remains insensible the anaesthesia should last for four minutes or more. Should the child move or the conjunctiva become sensitive more ether should be given. It requires some practice and judgement to know when to admit the ether, and how long to continue before removing the face-piece and admitting air.

It will be noticed that rebreathed air produces the first stage of unconsciousness, and there being no objectionable odour the fear of suffocation is almost eliminated. One great advantage over open ether is the absence of mucus, with the associated coughing and congestion. Many children cannot submit without fear and struggling, and must be controlled, but it is remarkable how quickly they settle down under the rebreathed air.

The same procedure answers in adults, omitting, of course, the preliminary play.

¹ *A Handbook on Hanging*. By Charles Duff. London: Grant Richards and P. Sainsbury. The Cymex Press Ltd. 1928. (Fcap 8vo pp. 127.)

POST-VACCINAL ENCEPHALITIS

REPORT BY THE LEAGUE OF NATIONS COMMISSION.

THE Commission on Small-pox and Vaccination of the Health Organization of the League of Nations has issued a memorandum reporting the findings of two of its sub-committees, one on post-vaccinal encephalitis, and the other on the preparation and preservation of vaccine lymph. The former report derives much of its information from English sources, and quotes extensively from the Rolleston Committee's report that was summarized in the *British Medical Journal* of August 11th, 1928 (p. 266).

The Commission emphasizes the fact that post-vaccinal does not necessarily imply pre-vaccinal, that in view of the millions of vaccinations that are carried out in any given year there must always be present in the community very large numbers of people subject to the ordinary chances of life, and *incidentally* under the influence of the vaccine virus. Such people are no more immune from disease of the brain and nervous system than anyone else, and there is therefore, no reason why the coincidence of vaccine with a true encephalitis should not be expected to occur. Encephalitis, moreover, occurs as a complication of numerous infections—for example, measles and various forms of toxæmia—and in so far as vaccine is an infection it might be considered legitimate to regard the cases under consideration merely as instances of ordinary post-infective encephalitis. The Commission, however, is of opinion that there are at present practical reasons for considering post-vaccinal encephalitis as a separate pathological and clinical entity. Particularly in Holland and in England have the cases been numerous enough to merit collective consideration.

The Comparative Incidence of Cases

The risk of post-vaccinal encephalitis may easily be exaggerated; indeed, in Holland it has been considered sufficiently grave to cause temporary suspension of the laws relating to the vaccination of children, and in England it has received the attention of two separate Ministry of Health Committees—the Andrews Committee of 1924, and the Rolleston Committee of 1926. In actual fact, during the whole period 1923-27, only 139 cases of disease of the central nervous system following vaccination were reported in Holland, 41 being fatal. In England and Wales 62 cases, with 36 deaths, occurred between November, 1922 and November, 1923, and a further 25 cases, with 12 deaths, between January, 1926, and September, 1927—the periods reported on by the two committees.

The age distribution in the incidence of post-vaccinal encephalitis is of particular interest. The bulk of the cases occur in children between the ages of 3 and 13—infants and adults being almost wholly immune. Moreover, the disease follows the revaccinations of older children and of adults with the utmost rarity, a fact which, taken in conjunction with the almost complete immunity of the first two years, provides ample reason for emphasizing the value of undertaking prophylactic vaccination against small-pox as early as possible in life.

Outstanding Clinical Features

In nearly every instance the complication has occurred in cases of vaccine of normal appearance apparently running a normal course. No single method of vaccination has been specially implicated, nor have any particular strains of lymph or methods of preparation been concerned. A noteworthy fact is that both in England and Wales, and in Holland it has been especially in the less populous rural areas that vaccination has been followed by encephalitic complications.

The correspondence observed in the early Dutch cases between post-vaccinal encephalitis and the local distribution of true encephalitis lethargica has not been observed in England or maintained in Holland, indeed, the clinical history and pathological findings of cases of post-vaccinal encephalitis justify the conclusion that one is dealing with two separate diseases. Interesting clinical features of post-vaccinal encephalitis are the incubation period—which is between the ninth and thirteenth day following vaccination, with marked preference shown for the eleventh day—and the sudden onset with four cardinal symptoms

of headache, vomiting, drowsiness, and pyrexia. The extremes met with are mild cases which apparently recover completely in a week (though in a few of these mental deterioration and residual paralysis have been reported) and severe cases which develop extensive spastic paralysis and pass rapidly into coma and death. Between these extremes are met cases of every grade of severity. The cerebrospinal fluid is commonly under pressure but is sterile. Pathological examination of fatal cases shows the presence of diffuse encephalo-myelitis with perivascular infiltration and oedema. In some cases the histological changes resemble those of acute disseminated sclerosis, and in all cases they differ essentially from those met with in true epidemic encephalitis.

The general conclusion of the Commission is that the virus of vaccine cannot of itself be considered responsible for encephalitis. It considers rather that some unknown factor—perhaps a filter-passing virus or a latent virus—determines the occurrence of the complication in question.

PREPARATION AND PRESERVATION OF LYMPH

The sub-commission on the preparation and preservation of lymph dealt with the factors which may favourably or unfavourably affect its value as a vaccine. It concluded that only the treatment to which the lymph seed is subjected determines the quality of the lymph, the origin of the strain used being of no significance in this connexion.

The virulence of the vaccine virus is sometimes maintained when it is carried in unbroken series from calf to calf, inoid usually it is found necessary to interpolate some other passage in the series, commonly the rabbit or to secure a retro-vaccine, commonly a lymph obtained from man. These methods appear to be unobjectionable. On the other hand, neurolymph obtained by intra-cerebral injections into rabbits, and testicular lymph, sometimes display properties that differ from ordinary vaccine, and conclusions as to their effects on man cannot yet be formulated.

Veterinary Control

The Commission, while not dealing with the technique of preparing lymph ready for issue, emphasizes the vital need for veterinary control of the animals used such control involving examination of the living animal before inoculation and the slaughter and *post-mortem* examination of the animal as soon as the vaccine has been obtained. The lymph should be used only when the results of these examinations are unexceptionable, and, in particular, when there are no signs of tuberculous lesions.

Preparation and Employment of Lymph

Questions relating to the employment of diluted vaccine have been specially considered. Dilution of lymph does not necessarily imply loss of virulence, it being better to employ a strain of more than minimal standard, diluted, than one of weak virulence undiluted. But investigations still need to be made into the durability of dilution, the nature of the diluent, the degree of dilution and the actual clinical results obtained from diluted lymph.

The Commission is strongly of opinion that the medical officers of vaccine institutes should themselves undertake human vaccination in order to study the potency of the lymph they make. The bare report "successful or unsuccessful" is of no value when the vaccine reaction is not described to them in detail. In primary vaccination the percentage of *insertion successes* should be noted in revaccinations the reaction should be described in official records as one of three classes:

- 1 Reaction of the primary vaccination type (Jenner's pustule)
- 2 Accelerated reaction (vesicular reaction), modified vaccine
- 3 Allergic or early reaction (papular reaction)

The Commission recommends that the technique and methods of vaccination permitted and recommended in different countries should be carefully defined the results duly recorded, and then judged in respect of actual immunity afforded on exposure to small-pox or on revaccination. In this way a satisfactory technique for universal adoption may ultimately be evolved. It concludes by reasserting its conviction that vaccination remains the most powerful weapon against small-pox we possess, and strongly advocates primary vaccination in early infancy rather than at the later ages of childhood.

Scotland.

William Mackenzie Medal

THE presentation of the William Mackenzie Medal "for valuable contributions to ophthalmology" to A. Maxfield Ramsay, M.D., LL.D., consulting ophthalmic surgeon to the Glasgow Royal Infirmary, will take place at the Glasgow Eye Infirmary, on Tuesday, October 9th, at 8 p.m. Dr Ramsay will deliver an address on the importance of general methods in the treatment of eye disease.

Health of Glasgow in 1927

Dr A. S. M. Macgregor, medical officer of health, in his annual report for 1927, gives the population of Glasgow, based on inhabited houses, as 1,130,675. The density of population of the city is 38 persons per acre, the highest ward density being 222 persons per acre in Woodside Ward, which is almost wholly occupied by tenement property. The birth rate of the city in 1927 was 20.85 per 1,000—lower than last year and the year before—while the death rate of 13.66 per 1,000 was also lower than the last two years. The death rates from pulmonary and non-pulmonary tuberculosis, 838 and 301 per million, were the lowest on record. The ultra-violet ray clinics of the corporation are continuing to do good work, at the Cochrane Street clinic better results have been obtained by the use of the carbon arc followed by the mercury vapour lamp than by the use of either lamp alone. In rachitic children under 24 years straightening of the legs is commonly observed, and even in older children, who have been followed up, a progressive diminution of deformity has taken place. Impetigo, furunculosis, and septic lesions have cleared up quickly under the vapour lamp, pregnant women and nursing mothers have derived much benefit from the clinic. An outbreak of paratyphoid B fever in Possilpark was traced to a milk supply. Under the maternity and child welfare schemes 34 syphilitic expectant mothers received anti-syphilitic treatment, and 20 of these bore healthy children. There were 2 stillbirths, 3 infected children, and 1 miscarriage, while 8 pregnancies had not terminated at the time of writing. Eight pregnant women suffering from gonorrhoea were rendered non-infective before the onset of labour, and their children escaped ophthalmia. The pressure of the common communicable diseases, including pneumonia, measles, and whooping-cough, made it necessary to divert a phthisis ward from its normal uses, and also to employ the country homes at Scotstoun and Mount Blow to relieve the hospitals by taking in convalescent children. Acknowledgement is made of assistance received from the officials of Glasgow Parish Council, who without demur made their hospital wards available for patients with acute pneumonia. For a brief period during the year all cases of pneumonia and measles could not be taken into the hospitals of the city. Those on the waiting list were visited daily at home by nurses specially detailed, and very urgent cases were selected for priority of admission. The policy of the general hospitals of restricting admissions of pneumonia cases threw further pressure on the accommodation of the local authority. Bronchitis, too, was being sent in as pneumonia, and medical practitioners were invited to exercise the utmost discrimination before making a request for the admission of such cases. Under the bacteriological section of the report attention is drawn to the superiority of the naked-eye method of carrying out Widal's reaction over the microscopic method. The medical practitioner should send in 2 to 3 c.c. of blood, and not the content of the capillary tube. At the same time, the value of the blood culture during the first week of suspected typhoid fever should be kept in mind. Illness was produced in several members of a family by tin dissolved in the juice of tinned apricots. Symptoms of poisoning in three young children, alleged to be due to the eating of apples, were traced to aconite contained in cascara sagrada, given out by an institution in a bottle which had previously held ABC Liniment. Among many other matters of interest dealt with in the report are the natural presence of arsenic in shellfish, the use of hydrocyanic acid gas as a fumigant

for flour, the standards attained by designated milks, the use of gas firing for smoke prevention in one of the metal trades, the incidence of bone tuberculosis, and the standardizing of scarlet fever antitoxin. The housing question, too, is carefully explored on its social side, and views as to the standards of cleanliness which should be expected from tenants suddenly transferred from a slum to a rehousing suburb are expressed in a considerate manner.

Voluntary Patients in Mental Hospitals

In his annual report for the year ended March 31st, Dr W. D. Chambers, physician superintendent of James Murray's Royal Asylum, Perth, discusses the policy followed at this institution—and other royal mental hospitals in Scotland—of encouraging voluntary admissions. The increasing proportion of such admissions has, he states, proved the success of this policy, and he believes that when the method comes into use in the country mental hospitals, where for the time being its development is hindered by certain technical difficulties, its success and value will be even more obvious. Figures covering the past seven years are quoted showing that of voluntary patients admitted in this period 39 per cent were discharged as recovered and 29.1 per cent as improved, the corresponding figures for certified patients being 30.1 and 27.5 per cent. Dr Chambers expresses the opinion that the more favourable results among voluntary patients are only partly due to the illness being less severe and to the earlier entry which is common in this class. He believes these results are to some extent attributable to the feeling of spontaneous co-operation which is induced in voluntary patients by the knowledge of their status and to the absence of irksome feelings of compulsion and restraint. After recalling that not long ago certain patients were certified who would willingly and most suitably have entered the institution for treatment spontaneously Dr Chambers states that it is now more common to encounter patients, brought by their friends for admission on a voluntary basis, who are quite unsuitable for this. He remarks that this attitude is often found in the lay mind, and emphasizes the fact that there will always be a considerable number among mental invalids who urgently need care and treatment for their own safety and welfare and the protection of the public, and who, owing to lack of insight, are quite unfit to exercise judgement or control in the matter of their own disposal. Some form of legal machinery is indispensable in these cases, and attempts to provide for them without their own consent and without proper legal authority will, he believes, undoubtedly lead in due course to the appearance and growth of "homes," under private and anonymous proprietors, where such patients can be received, secluded, and detained. Dr Chambers points out the difficulty of securing adequate care by such means, stating that the right place for the treatment of a case of mental illness of average severity—a condition which is likely to require special treatment for from two to six months, or longer—is within a special hospital established, equipped, staffed, and structurally designed for the purpose, having a spaciousness and general atmosphere very different from the environment which makes for the successful treatment of acute but transient medical and surgical conditions.

A Medical Family

In August, 1828, Matthew Baillie Gairdner became a licentiate of the Royal College of Surgeons of Edinburgh, at the early age of 19, he graduated M.D. at the University of Edinburgh two years later, and became F.R.C.S. Ed. in 1858, he died in 1888. His oldest son, James, graduated M.B., C.M. Ed. in 1857, proceeded M.D. in 1873, and has acted as medical officer of Crieff Parish in Perthshire for more than sixty years. The professional practice of father and son has thus covered more than a century. It would be interesting to know if this record can be approached by any other medical family. Dr James Gairdner's younger brother, Matthew William Gairdner, graduated M.B. Ed. and obtained the diploma of L.R.C.S. Ed. in 1871, he resides at Cheltenham and his son, Alan Campbell Gairdner, is a medical graduate of Oxford and obtained the F.R.C.S. Eng. this summer.

England and Wales.

Tuberculosis in Birmingham

THE report on tuberculosis in Birmingham in 1927, issued from the public health department, contains, in addition to the usual statistical information, detailed reports by the chief tuberculosis officer, Dr G B Dixon, on the antituberculosis centre, sanatoriums, and treatment in the light centre. Dr Dixon refers to the contention that it is inadvisable to admit to a sanatorium any patients but those whose circumstances and clinical condition suggest that arrest of the disease is probable, and to the persistent advocacy of hospitals for the segregation of advanced cases of tuberculosis. In practice, he says, it has been found that the most suitable solution of those two problems lies in the provision of pavilions or wards for the "hospital" type of case in most of the sanatoriums. Experience has shown that the advanced and bedridden patient is, as a rule, willing to enter such a pavilion when it is attached to a sanatorium, while a large majority of those who fall within the category of "hospital" cases not only refuse to enter an institution set apart solely for advanced cases, but resent the suggestion that they should do so. Hospitals provided for this purpose quickly acquire a sinister reputation from the large number of deaths recorded, and this is repellent to the sufferer and to those from whom the medical, nursing, and domestic staffs are recruited. There has been a marked decrease during the past decade in the number of cases of patients notified in Birmingham as suffering from pulmonary tubercle, which is regarded as very satisfactory. At the same time the number of suspects notified has increased, suggesting that the diagnosis of this disease is being left more and more in the hands of the medical staff at the centre. The tables show that during the past ten years the number of new cases of all forms of tuberculosis recorded has been reduced to less than half, while the number of deaths has fallen by about one-third. In regard to pulmonary tuberculosis, the number of new cases in 1927 was equal to 1.39 per 1,000 of population, against 3.42 per 1,000 of population in 1917, the death rate from this disease fell from 1.30 per 1,000 in 1917 to 0.69 per 1,000 in 1927.

Royal Victoria Infirmary, Newcastle-upon Tyne

THE report of the Royal Victoria Infirmary, Newcastle-upon-Tyne, for 1927 again refers to the need for increased accommodation to relieve the overcrowding which exists in the wards and to afford improved facilities for the treatment of special cases. Large numbers remain on the waiting lists. It is suggested that extended convalescent accommodation, adequate and suitably situated to permit continued and rapid transfer from the infirmary, would solve many of the present difficulties. In the course of the current year certain premises adjoining the main buildings, and occupied by the Ministry of Pensions, revert to the infirmary, and consideration is being given to the question of their utilization. It has been suggested by the honorary medical and surgical staff that part of the premises should be adapted as wards for paying patients. Meantime it has been decided to proceed with an extension scheme, and a public appeal for £150,000 has been launched. This sum is intended to provide for the adaptation of these buildings for civil requirements, for the extension of the out-patient departments, and for increased accommodation for the nursing and domestic staff. The appeal is addressed to the counties of Northumberland and Durham, and to Newcastle-upon-Tyne, all of which are served by the infirmary, and attention is directed also to its importance as one of the twenty-two great teaching hospitals of Great Britain. Motorists and road users are reminded of their special interest in the infirmary, it is stated that road accidents dealt with recently have amounted to an average of twenty per week, sufficient to occupy the greater part of a ward throughout the year.

University of London Medical Graduates' Society

A dinner for members of the recently formed University of London Medical Graduates' Society will be held in London towards the end of October, and it is expected that dinners in Birmingham and Leeds will be held some time in November. The society, membership of which is open to all medical graduates of the University, was formed last year, and held its first annual dinner in May last, with Sir Berkeley Moynihan in the chair. Nearly two hundred life members have enrolled to date, but the society hopes soon to secure the adherence of a much larger proportion of the 4,500 graduates in the medical faculty of the University of London. The constitution provides that it shall have no political activities, but shall be chiefly social, its objects being to bring medical graduates of the University into closer relationship with it and with one another, to keep in touch with overseas medical graduates of the University, and to promote the interests of the University and its medical members. Sir StClair Thomson is president for the current year, the vice-presidents being Sir John Rose Bradford, Sir Berkeley Moynihan, and Dame Mary Scharlieb; the honorary treasurer is Mr W McAdam Eccles, and the honorary secretaries are Dr C A H Franklin and Dr Dorothy C Hare, to whom applications for membership and requests for information should be addressed, at 11, Chandos Street, Coventry Square, London, W 1.

The Middlesex Cancer Hospital

THE Cancer Charity of the Middlesex Hospital, founded as long ago as 1792, has been for many years housed in a special wing with its own separate cancer wards, its own equipment, organization, accounts, research work, and records. In the report for 1927, recently presented to a Court of Governors, it is recorded that the name of "The Middlesex Cancer Hospital" has now been adopted to emphasize the special nature of the charity and to enable the public to distinguish the special work against cancer which continues to be the main object of the institution. The honorary staff of the parent hospital attends the "Cancer Hospital," and the cancer research work is closely linked up with all the pathological work of the Bland Sutton Institute in the Medical School. In patients are admitted in the incurable stage "until relieved by art or released by death," and operable cases are admitted under the same system as obtains in the general wards. There were 555 patients admitted during the year 1927 with an average length of stay of just over seven weeks and new patients attending the out-patient department numbered 176. At the end of 1927 a special appeal for the Middlesex Cancer Hospital was launched, and donations have already shown an increase.

Correspondence.

ALKALIS AND NEPHRITIS

SIR,—Professor Gillman Moorhead in his opening address on acute nephritis in the Section of Medicine at the Annual Meeting of the British Medical Association, published in your issue of September 22nd (p 515), refers to some observations of mine concerning the use of alkalis in the prevention of scarlatinal nephritis. Since the publication of the figures quoted by Professor Moorhead, Dr Carter and I have continued the investigation, the latest results being as follows: Of 1,280 cases of mild scarlet fever treated throughout the illness (five to six weeks) with alkalis, 5 developed nephritis—that is, 0.4 per cent. Of 914 control cases of scarlet fever, observed simultaneously with the former, not having alkalis, 43, or 4.7 per cent, developed nephritis. In very few cases was it necessary to give more than 200 grains of alkali in the twenty-four hours, often less. No objection to this dose was made by any of the patients, and really large doses—that is, over 400 grains a day—were never given. Professor Moorhead also quotes Dr Peters's figure claiming that alkalis did not lessen the incidence of nephritis in 8,000 cases of scarlet fever observed by him.

I have already pointed out¹ that Dr Peters's figures cannot be compared with ours, because in his cases alkalis were only given during the first week of the disease, whereas nephritis rarely occurs until later.

With regard to Stieglitz's statement that excessive doses of alkalis may actually cause or predispose to the onset of nephritis, I quite agree, although I may perhaps be allowed to point out that I have never advocated the giving of excessive, but only of sufficient, doses. Incidentally it should be noted that Stieglitz's general conclusions concerning the danger of giving alkalis in nephritis, which have been extensively quoted, were based on experimental work which has not been entirely confirmed.²

Lastly, in your leading article in the same issue, Professor Moorhead is stated to have said that "his experience does not lend him to support the vigorous alkaline treatment of nephritis advocated by Martin H. Fischer of Cincinnati, and more recently employed by A. A. Osman." It is not quite clear from the context whether this opinion refers to the vigorous alkaline treatment of acute or chronic nephritis. This is a point of the greatest importance, as I have never suggested the giving of large doses of alkalis in the routine treatment of acute nephritis, on the contrary, I have been careful to point out³ that such a procedure may be dangerous. In certain cases of chronic (tubular) nephritis, on the other hand, there is abundant evidence that large, but carefully controlled, doses of alkalis will often prove effective where all other methods have failed—I am, etc.,

London S.E. Sept. 24th.

A. A. OSMAN

PULMONARY ASBESTOSIS

Sir,—Pulmonary asbestosis has become a question of international interest and importance, and it is essential that every statement concerning the disease should be carefully considered in the light of known facts. Renders of Professor M. J. Stewart's letter in the *Journal* of September 15th (p. 509) will carry away three impressions that are not in accordance with the results of my own work on asbestos and the "curious" bodies.

The first impression given by the letter is that the curious bodies found in the lungs are diagnostic of pulmonary asbestosis, the second, that these bodies are actual derivatives of asbestos, and the third, that these bodies are emphatically not vegetable in origin. The work is not yet complete, but Professor Stewart's letter necessitates this preliminary note.

The first case actually proved to be due to the inhalation of asbestos dust was published in the *British Medical Journal* in 1924.⁴ The proof did not include the presence of the curious bodies, but rested upon the demonstration of actual particles of asbestos fibre and dust in fibrotic and necrotic areas of the lungs. I have examined scores of samples of asbestos from different countries, and can make this definite statement: the curious bodies do not exist in asbestos nor can they be produced from asbestos by any known chemical means.

The curious bodies can be isolated from the lungs in a practically pure state either by pulling portions of the lungs into small fragments and extracting with water or saline, or, as Professor Stewart himself suggested, by the action of trypsin. They are present in enormous numbers, and sufficient material can be obtained for analysis. During the work three facts have been brought to light. They do not polarize light; they contain less iron as Fe_2O_3 than the erythrolytic dust in which the patient worked, and—this is the important point—they do not give a distinctive x-ray pattern by the method devised by Professor Bragg.

These results completely negative the theory that the bodies are asbestos or actual derivatives of asbestos.

If cultures of organisms—staphylococci, for example—are incubated with a colloidal solution of asbestos they become silicated, and their appearance and staining reactions completely changed. The cocci appear 2-3 μ in diameter,

of a golden brown to a light yellow in colour, and do not stain by the usual methods. They closely resemble the discs and separate particles of the curious bodies found in the lungs. The silicated organisms are being subjected to the action of currents in the hope that replicas of the curious bodies will be produced. Work is continuing on colloidal silica solutions made from substances other than asbestos, and I do not see any reason why they should not act in the same manner.

There are fewer than ten cases of pulmonary asbestosis on record, and although the curious bodies have been found in all of them, much more work is necessary before definite views can be expressed. So far the experimental results suggest diametrically opposite conclusions to those drawn by Professor Stewart. They suggest the possibility of the curious bodies being present in other conditions connected with silica, they negative the idea that the bodies are asbestos or actual derivatives of asbestos, and strongly point to the main bulk of the bodies being actually vegetable in origin. The nucleus upon which the bodies are built is possibly asbestos in these particular cases, but even this remains to be proved—I am, etc.,

The Pathological Department
Wigan Infirmary, Sept. 18th.

W. E. COOKE

SAFETY IN ANAESTHESIA

Sir,—The very interesting controversy in regard to the best anaesthetic for the guillotine operation for tonsils and the removal of adenoids has gradually centred itself, as seems right and proper, upon the question of safety and efficiency. This is very satisfactory to those of us who were rather appalled by the account of the method (with speed as the primary consideration) which "permitted of thirty patients being operated on in an hour" by use of ethyl chloride. It is still more refreshing to see the advocacy of ether, advanced first by Sir Charters Symonds with his long experience, and later by Dr. Wright Lambert and Dr. Watson-Williams.

For some years we have used open ether alone, preceded always by atropine, for all such operations, and I would contend that

- 1 It is the only really safe anaesthetic for such cases.
- 2 It gives the operator plenty of time to do his work efficiently and to minimize haemorrhage.
- 3 It tends directly towards the prevention of shock, whereas chloroform and ethyl chloride rather encourage it.
- 4 The patient remains largely oblivious to pain for a much longer period than with other anaesthetics.

In general I believe profoundly that the employment of ether for all operations, except in the rare instances where it is contraindicated, is the only way by which the anaesthetist can secure peace of mind for himself and safety for his patient. I am referring, of course, only to those cases where the issue is between ether on the one hand and chloroform and ethyl chloride on the other.

Personally I always use ether, by the open method or in a Clover's inhaler, in obstetric practice, and, although I am aware that many would regard the abandonment of chloroform in midwifery as a heresy, I strongly advocate the use of ether for the following reasons:

- 1 It is safer, especially where rapid induction is necessary, and it is then that a Clover is invaluable.
- 2 It does not abolish the uterine contractions to nearly the same extent as does chloroform.
- 3 It does not interfere with retraction, and therefore is much less likely to be associated with severe post partum haemorrhage than is chloroform.
- 4 There is no fear of 'delayed poisoning' with prolonged administration.
- 5 The patient often remains analgesic for a considerable time after administration has ceased, and lesser degrees of perineal tears can often be dealt with without more anaesthetic.

The two special conditions where chloroform would seem to be more advantageous are in rigidity of the cervix and in tonic contraction of the uterus—I am, etc.,

MIM HUI, Sept. 22nd.

A. H. MORLEY

¹ *Lancet*, December 17th 1927.

² *McMaster and Elman Journ. Exptl. Med.* xlviii 787.

³ *Cuny's Hospital Reports* [xxvii] 411.

⁴ *British Medical Journal* 1924, ii 147.

ANAESTHESIA FOR TONSILLECTOMY AND REMOVAL OF ADENOIDS

SIR,—Dr P Watson-Williams has asked me to correct an error in his letter published in the *Journal* of September 22nd (p 547). It was in the year 1897, not 1887, that the "two-hotto" method of administering ether and chloroform was introduced in the Bristol Royal Infirmary. The method was based on the belief that there was some admixture of these drugs, suitable for each and every occasion, and that this could only be obtained by a system, such as the above, which enabled the administrator to vary the proportions, from time to time, as indications demanded.

It was soon found that in most instances, chloroform was not needed after anaesthesia had been established, and that in many cases ether alone on the open mask was sufficient even for induction. The claims for this method were not only that it produced a minimum of toxic saturation, but also that it provided a safe and easy stepping-stone to open ether for those administrators who hitherto had been accustomed to use chloroform alone upon the open mask. By substituting the open for the closed method of giving ether it was found that the tendency to haemorrhage was practically obviated, a finding which we have confirmed in a large experience of open ether in general and nose and throat anaesthesia, showing that with the closed method the greater tendency to bleed should be attributed to some other factor than ether, such as engorgement of the mucous membrane and the accumulation of CO₂.

This subject seems worthy of very careful consideration, and I am glad to have this opportunity of endorsing Dr Watson-Williams's views as expressed in his letter—I am, etc.,

Clifton Bristol Sept. 22nd.

ARTHUR L FLEMING

* * We publish at page 581 this week a note by Sir Charles Symonds on the use of Clover's inhaler in tonsillectomy and removal of adenoids.—ED W W J

INTESTINAL AMOEBIASIS IN BRITAIN

SIR,—I was much interested in the case, reported by Dr J Campbell Gilroy, of tropical liver abscess occurring in England, published in the *British Medical Journal* of September 22nd (p 529).

In a communication by Dr P H Manson-Bahr and myself, published in the *Transactions* of the Royal Society of Tropical Medicine and Hygiene, vol xxii, No 2, August, 1928, we reported five cases of intestinal amoebiasis occurring in Northern Europe, four of which occurred in France and one in Germany. None of these was complicated by liver abscess.

It would be interesting to know of other indigenous cases occurring in this country as it seems highly probable that with the presence of so many ex-service and other "carriers" cases do occur here but pass unrecognized.

As Dr Gilroy points out, the importance of routine examination of stools in all cases of persistent diarrhoea cannot be over-emphasized—I am, etc.,

HUGH WILLOUGHBY, M R C S, L R C P,

Gravesend Sept. 22nd

D T M and H

STEREOSCOPE AND BINOSCOPE

SIR,—There seems to be difficulty in recognizing the difference between the stereoscope and the binoscope as a means for treating cases of squint even a distinguished ophthalmologist has written pointing out that the difference is not apparent. Will you kindly allow me to make a short statement in the *British Medical Journal* to render the subject clear?

In the use of the stereoscope two objects (pictures) are employed, and each eye sees only the picture which it is intended to see. The field of vision of each eye is thus completely screened from that of the other, and no real object is seen by both eyes, which can be fixed by both in binocular vision. To supply such an object the two pictures are made to appear to occupy the same place and to

appear as one, and it is this fictitious object, formed by the fusion of the two pictures by the apparatus itself, which the two eyes are able to fix in binocular vision. When a person with normal vision looks through a stereoscope he is able to adjust it by means of his binocular vision so that the two pictures appear as one object.

In squint and other defects of binocular vision it is doubtful whether adjustment is ever accurate, and the stereoscope fails as a means of treatment. The binoscope, by presenting to both eyes in the central unscreened part of the field of vision the same actual objects, instead of the fictitious substitute employed in the stereoscope, induces binocular vision without difficulty, and succeeds as a means of treatment.

In using the binoscope the screened lateral parts of the field of vision bring about simultaneous vision, and binocular vision of objects in the central unscreened part of it readily follows in most cases of squint, so that the squint at once disappears for the time, and its permanent disappearance is effected by systematic daily use—I am, etc.,

KENNETH R SMITH, M D

Richmond Surrey Sept 13th

THE REPRINT PLAGUE

SIR,—The invention of printing has been attended with many evils, but its advantages are so great that we must put up with its disadvantages. But not much can be said in favour of the more modern invention of reprinting. No sooner does an author—especially a scientific author—have the good luck to get his paper printed in some reputable journal (the adjective is not essential) than he proceeds to splash with a cataract of reprints, not only his friends, who have to grin and bear it, but also crowds of persons upon whose forbearance he has no claims whatever.

It is true that these persecuted people generally "lose no time" in reading such effusions, and it may be doubted whether an author gains a commensurate advantage for his expenditure of so much hard cash in postage. Here I had better confess that I am an offender myself, or someone may give me away. An editor recently offered me a hundred reprints of an article of my own, and I was base enough to take fifty. My friends don't spare me, and I see no reason why I should spare them. But this does not affect the morality of the proceedings, moralists can generally give good reasons for condemning a practice in which they themselves indulge.

I calculate that about 4 per cent of those to whom reprints are sent actually read them, and they belong to one or other of two classes. (1) kind hearted and conscientious men and women who think it their duty to read and acknowledge these inflictions, (2) friends. As to the first class, these kindly persons lead miserable lives and, since they are the salt of the earth and so few, it is our duty to do something to protect them. Even friends deserve some little consideration. It is an awkward moment for both when first one meets a friend after having sent him a reprint. He is not a liar or one would not have chosen him for a friend, but neither is he usually a saint, and if he can persuade us that he has read and admired our lucubration without actually saying so, it does not weigh very heavily upon his conscience, for self-preservation is Nature's first law.

It is to be feared that the two main causes of the "reprint plague" are vanity, and a desire to extend our fame into regions where it would not otherwise have penetrated. But the dividing line between vanity and laudable ambition is so thin that it is difficult to suggest a remedy which will scotch the one without hurting the other, and I am not sure we want to abolish even vanity altogether, the vain man certainly does more useful work than the one suffering from a sense of inferiority. The plague is, however, so virulent and widespread that something ought to be done to check its ravages or we shall all sooner or later be victims.

First, then, a few words to the vain man, these can be given without offence because no one who reads this will think that the remarks apply to him. A denunciatory

sermon is always enjoyed for the same reason. As I have said, only about 4 per cent of those who receive reprints will read them, and very few even of these will take the trouble to send flattering remarks to the author. Let him remember that we are speaking of averages. If he sends out a hundred reprints, it may be that these four persons, plus four more, are in the next hundred whom he has not circulated, why take so much trouble to court a possible tragedy?

On the other hand, the man who is merely afflicted with laudable ambition may possibly point to Mendel's fate, and contend that if he had judiciously planted a few reprints where they would have done most good, he would not have had to wait till he was dead before receiving proper recognition. Well, of course, there is something in this, though he should have sent his paper to a journal with a decent circulation.

Because, however, there is something in it, we should not attempt to suppress the plague by abolishing reprints altogether, we must choose a remedy which if not pleasant, is at least harmless. Why not take a leaf out of the procedure of the film trade? I would suggest the setting up of a competent board of scientific censors, whose duty would be to license reprinting by issuing "certificates for universal exhibition" in the case of papers of sufficient merit to warrant it. Having obtained this licence, the happy author could, with a clear conscience, send his reprints to as many people as he liked in the sure knowledge that they ought to read his paper, even if they don't want to.—I am, etc.,

Surbiton Sept 1st

E W ADAMS, MD

THE ERECT POSTURE

Sir,—Many of your readers must have perused with pleasure Professor Colin Mackenzie's interesting and suggestive lecture on the importance of zoology to medical science (*Journal*, September 22nd, p. 534). With regard to the acquisition of the erect posture by infants, may I recall what Harvey says in his *Generation of Living Creatures* (1653), "their first venture to foot it represents them a prone kind of cattle which can scarce exalt themselves to the erection of a cock."

I would like to thank the lecturer for his praise of football, of the benefits of which it is proposed to deprive our police.—I am, etc.,

London W Sept 21st.

HENBERT R SPENCER

SECURITY OF TENURE IN PUBLIC POSTS

Sir,—I notice in your Educational Number that there are given particulars of the various public services open to members of the medical profession. The prospects are, in many cases, enticing, embracing as they do a pleasant, care-free life with gradually rising salary and a pension at the end. But a word of warning should be given to those who think of entering any public service: first of all, inquire what security of tenure is offered.

In services such as the army and navy there need be no doubt. No one can be deprived of his position without a full and open inquiry, and then only for grave misconduct. A large number of public appointments are nowadays held under local authorities, and here, though the doctor is compelled to contribute to a pension fund, there is no security of tenure whatever. A doctor may be given three months' notice at any time, no matter how many years he may have been in the service. If the authority be so minded it can give the doctor three months' pay in advance and tell him to clear out at once. A doctor in one of these services is in just the same position as one's housemaid, to whom one may give notice or give pay in lieu of notice. In entering the service he places his professional reputation in the hands of the authority and there is none to whom he can apply for help if he is suddenly dispensed with. Though the authority is a public body it functions as a private employer, and it cannot be forced to give any explanation for its action. There is no legal redress whatever for the doctor, no matter how seriously his reputation may have been damaged. That the danger of such an occurrence is very real may be learned

by a perusal of some of the reports of medical protection societies.

The promise of a pension which may have been the main inducement to joining the service is thus ephemeral. In law there is nothing to prevent the authority escaping its obligation by giving the doctor three months' notice to leave, just before he becomes eligible for his pension. That, of course, is an extreme case, but the practical inference is that the longer the doctor stays in the service the less secure is his position and the greater the inducement of the authority to get rid of him. As the work in many of these parochial services is of a specialist nature the doctor, after many years spent in one particular branch of medicine, is less able, should he lose his post and his pension, to take up general practice than would be a doctor who had been in practice all his professional life.

Needless to say the doctor's consciousness of his precarious position has a prejudicial effect on his independence of action. To amplify the housemaid analogy it is as if one said to her, "I will pay you so much a week, but every week you must return to me part of your wages. When you have reached the age of 60 and have done thirty years' service I will give you a pension. But I reserve the right to give you a week's notice at any time. If I do so, your chances of getting employment anywhere else will be very small." Most people would say that the housemaid who entered such a service showed a child-like faith in her employer.

For the benefit of those of your readers who may be a little hazy as to who constitute "local authorities" I would say that they are such bodies as boards of guardians, county, borough, and town councils with their subsidiaries, public health, watch, and asylum visiting committees.—I am, etc.,

Widmore, Sept 18th

H C McMINSTER

THE PETTIGREWS

Sir,—In his interesting *Novi et Vetera* article on the Brompton Medical Book Society in your issue of September 15th (p. 494), "H R" refers to Dr William Vesalius Pettigrew of Chester Street. This gentleman was mentioned in a previous *Novi et Vetera* article in the *British Medical Journal*, on "An Old Directory," on January 13th, 1900, and he was the subject of an interesting correspondence in the issues of January 20th and 27th of that year. He was the son of a more distinguished man, Thomas Joseph, known as "Mummy" Pettigrew, from his having given a lecture and demonstration on that subject at the Royal Institution, when he spent some hours in unrolling 900 yards of bandages. William Vesalius, his son, claimed the authorship, in his entry in the first (1845) *London Medical Directory*, of an "anonymous" work on the diseases of children.

"H R" comments on the moral courage of the founders of the Brompton Society in fixing the number of its members at thirteen. The ridiculous superstition connected with this number was then much more limited in its scope than it is in this credulous age. Ill luck was confined to the first to rise of a party of thirteen at table. The analogy of the Last Supper is obvious enough. So far from thirteen having been anciently an unlucky number, it seems to have been chosen as auspicious, being the number of Christ and his Apostles, and was quite commonly the number for which provision was made in founding almshouses and such like.—I am, etc.,

London S.W. Sept. 20th.

E MUIRHEAD LITTLE

Universities and Colleges

UNIVERSITY OF LONDON

UNIVERSITY COLLEGE

THE session 1928-29 opens at University College London, on Monday October 1st. Students of the Faculty of Medical Sciences will be received by the Provost and Deans on that day as follows: First-year students between 10 a.m. and 1 p.m., students of inter years between 2.15 and 4 p.m.

Public lectures that have been arranged for the first term includes a course on "Smoke pollution of the air and public health" by Dr John Owens on November 2nd, 9th, and 14th at 5.30 p.m. Sir Napier Shaw will preside at the first lecture. Particulars of

these and other public lectures may be had on application to the secretary, University College, London, W.C.1. A stamped addressed envelope should be enclosed.

The following elections in the Faculty of Medical Sciences of the College have been made:

Entrance Scholarship (£30 a year for three years) C. Qvist (first year)
F. R. Bettley (second year) Bucknill Scholarships P. Gallanck
(500 guineas) D. A. Anderson (50 guineas) Exhibitions (£5 guineas
each) F. J. Jarmalinski J. W. James I. J. Jarmalinski
C. R. Lanyon (second year) D. Joy (first year awarded subject to
completion of the first Medical Course examination in December
1929) Harpe, Physiological Scholarship (£115) F. Ogden B.Sc.
Percy F. Macgregor Research Scholarship in Embryology (£50)
Frances E. Luce B.Sc.

The Services

MEMORIAL TO JAMES LIND

An altar painting in memory of Dr. James Lind, the father of nautical medicine, was unveiled on September 23rd by Surgeon Rear Admiral A. J. Hewitt in the chapel of the Royal Naval Hospital at Haslar, where Lind was physician from 1758 to 1763.

James Lind was born in Scotland in 1716 and at the age of 15 was registered as an apprentice to a Fellow of the Edinburgh College of Surgeons, subsequently becoming a surgeon in the navy, with which he served until about 1747. He resided in Edinburgh for the ten years from 1743, and during this period graduated M.D., was elected a Fellow of the College of Physicians, and published *A Treatise on the Scurvy*, the first written by a physician with experience at sea. Its importance may be gauged from the fact that in the then recent naval war scurvy had proved a more deadly enemy than the French and Spanish fleets. Lind's suggested remedy was the use of oranges, lemons, green food and onions, or, in their absence, of lemon juice. In 1757 he published *An Essay on the most effectual means of preserving the Health of Seamen in the Royal Navy* and a year later was appointed physician at Haslar. He contributed papers on fevers and infection in the Philosophical and Medical Society of Edinburgh, described a simple method of supplying ships with fresh water by distillation, following his discovery that the steam from salt water was fresh to the Royal Society in London in 1762, and six years later published *An Essay on Diseases Incidental to Europeans in Hot Climates*, which like his treatise on scurvy attracted notice throughout Europe. It is interesting to recall as illustrating the versatility of the medical profession that a contemporary of Lind's of the same name born in Scotland twenty years after him—and like him an M.D. of Edinburgh and a Fellow of the College of Physicians in that city—served as a surgeon with the East India Company, visiting China in 1766. This second James Lind afterwards published a *Treatise on the Fever of 1762 at Bengal*, became physician to the royal household at Windsor and a Fellow of the Royal Society of London and was an intimate friend of Shelley. He achieved some distinction also in the fields of astronomy, meteorology and geography, and took part in an expedition to Iceland.

DEATHS IN THE SERVICES

Brigade Surgeon Lieut. Colonel James Arnott, Bombay Medical Service (retired), died at Wyseley House, Kirtlebridge, Dumfriesshire, on August 18th, aged 83. He was born in 1845, and educated at Glasgow, where he graduated as M.D. and C.M. in 1866, and entered the I.M.S. as assistant surgeon on April 1st, 1867, attaining the rank of brigade surgeon in 1891, and retiring in 1908. He served in the Abyssinian campaign of 1867-68, receiving the medal and in the Afghan war of 1879-81, when he took part in the defence of Kandahar, the sortie of Dih Khoja and the battle of Kandahar. He was mentioned in dispatches in the *London Gazette* of December 3rd, 1880, and received the medal with a clasp. In 1896 he was granted a good service pension and at the time of his death had drawn such a pension longer than any other officer in the Indian army except one. For fifteen years after his retirement he was medical adviser to the Colonial Office for Scotland and he had served on the board of governors of the Simpson Memorial Hospital and the Victoria Hospital for Consumptives in Edinburgh. He leaves a widow, one son (who is a major in a Gurkha regiment) and three daughters. Lieut. Colonel Arnott came of a family which had been settled in Dumfriesshire and around Ecclefechan for nearly two centuries and which had given several medical officers to the East India Company's service. His father Surgeon John Arnott entered the Bengal service in 1837 and died while still comparatively young in 1845. His uncle Francis Shortt Arnott, entered the Bombay service in 1829 and rose to be inspector general, after serving in the Punjab war of 1848-49, in the siege of

Multan and at the battle of Gujrat, and in the Indian mutiny of 1857-58, in Central India, and the long campaign in pursuit of Tantia Topi. Another James Arnott, of the previous generation was in the St. Helena Medical Service, where he was superintending surgeon, and retired in 1835 after the company handed over the island of St. Helena to the Crown. He was said to have taken part in, or been present at, the post mortem examination of Napoleon, and lived till 1883.

Colonel John Herbert Whitehead, D.S.O., formerly of the R.A.M.C., died in Brompton Hospital, London, after an operation, on July 11th, aged 58. He was born at Addiscombe on September 30th, 1869, educated at Charing Cross Hospital, and took the M.R.C.S. and L.R.C.P. Lond. in 1893. After serving as house surgeon and house physician at Charing Cross, he entered the army as surgeon lieutenant on January 29th, 1895, but resigned his commission in the following year, on June 17th, 1896. He then went to South Africa and settled in practice at Johannesburg. On the outbreak of the Boer war he was ordered to join the Boer army or clear out of the country. He chose the latter course, and made his way to Ladysmith, arriving there in the last train which got through before the siege. He took service with the British troops as a civil surgeon, and served throughout the siege of Ladysmith, and until peace was made in 1902. He then joined Baden Powell's police as medical officer. When that force was disbanded he was stationed at Harrismith in the Orange River Colony and started in practice in that town, also going in for municipal work and being elected mayor. When the recent great war began in 1914 Harrismith was occupied by the rebel forces. He escaped, joined Botha's troops, and served throughout the suppression of the rebellion and the conquest of German South West Africa. He was prevented by illness from accompanying the South African contingent to Egypt and Europe and on his recovery went to German East Africa in command of a field ambulance, and for his services in that campaign received the D.S.O., subsequently serving as A.D.M.S. at Dar es Salaam and during the demobilization as A.D.M.S. at Durban. After the war he bought a farm at Plains Natal, and settled there practising his profession and farming. In 1900 he married Maude Kathleen Love, who had served as a nurse with him on the hospital ship *Alcoa*, and leaves a widow and two daughters.

Lieut. Colonel Manmatha Nath Chaudhuri, Indian Medical Service (retired), died at Mussorie in the United Provinces, India, on June 30th, aged 56. He was born on July 26th, 1871, and educated at the Calcutta Medical College and at Edinburgh University, where he graduated as M.B. and C.M. in 1897. Entering the I.M.S. as lieutenant on July 27th, 1899, he became lieutenant colonel after twenty years' service and retired on January 27th, 1927. During the recent war he served in Mesopotamia, and afterwards in Waziristan, on the North West Frontier, in 1919-20, and was twice mentioned in dispatches—in the *London Gazette* of August 15th, 1917, and of June 10th, 1921. Most of his service was spent in civil employment in the Madras Presidency, where before his retirement, he held the posts of professor of pathology in the Madras Medical College and superintendent of the Government General Hospital, Madras.

Lieut. Colonel Jarlath French Mullen, Bengal Medical Service (retired), died in Ireland on June 4th, aged 72. He was born in 1855, the fourth son of Lawrence Mullen of Tuam and educated at Queen's College, Galway, graduating M.D. and M.Ch. of the Queen's University, Ireland, in 1873, when he was only 17. He entered the Colonial Service in 1874, and served as a district surgeon in Jamaica for three years, and in 1877 he entered the Army Medical Department, passing in. In 1877 he entered the Netley course in January, 1878, but resigned after the Netley course in March, 1878, again. He entered the I.M.S. as surgeon on March 30th, 1878, again, passing in first, attained the rank of lieutenant colonel after twenty years' service, and retired in 1906. His whole service was spent in civil employment in Bengal, where he held the posts of civil surgeon of Rajshahi and Bardwan successively for many years during the latter half of his service. He was the author of two books of verse published under the pseudonym of Jahraith—*Eastern Sonnets* (1903), and *White Nights* (1905). Jarlath French Mullen was the youngest of four brothers, all of whom entered the public medical services. The eldest, St. Lawrence, was a staff surgeon in the navy. After his retirement he contested South Dublin without success as a Parnellite in 1892. The second and third brothers entered in the Bengal Medical Service. Thomas French Mullen entered in 1866, retired in 1896 and died two months later. The third, Douglas French Mullen, entered in 1877, retired in 1912 and died in 1920. These two both spent their service in Indian native States, under the Foreign Department. All four brothers entered the services under the name of Mullen, and added French to their names in 1890.

Obituary

ROBERT KNOX, M.D., M.R.C.P.,
D.M.R.E. M.I.F.F.,

Honorary Consulting Radiologist Queen Alexandra Hospital,
Millbank, Director of the Electrical and Radio-Therapeutical
Department of the Cancer Hospital

His untimely death, on September 21st, of Dr Robert Knox, in his sixty-first year, inflicts a heavy loss on British radiology. Knox was in the very front rank of his profession, and had come to occupy a unique position in the esteem and affection of x-ray workers, both in this country and abroad. Few men have held higher ideals and so unflinchingly endeavoured to live up to them.

Robert Knox was born in Leith, and received his medical education at Edinburgh and Guy's Hospital. He graduated M.B., C.M.D. in 1892, and proceeded M.D. five years later. In 1898 he obtained the diplomas M.R.C.S., L.R.C.P., the M.R.C.P. in 1926, and the D.M.R.E. Camb. in 1925. He settled in Highgate in 1894, and by sheer hard work and ability built up a large and successful practice. During that time he took an interest in local affairs and served on the Hornsey Borough Council, where his medical knowledge proved of great advantage to the community. He received the appointment of clinical assistant in the pathological department at the Royal Northern Hospital, where he became associated with Sir Thomas Horder.

Knox's foresight stood him in good stead when the x-rays were discovered. He at once took up the study of radiology, and later proceeded, while still in general practice, to establish himself in Harley Street as a consultant in this science. Presently he devoted himself wholly to the subject. His name became associated with an immense ability for taking pains, and this, coupled with a shrewd intelligence and a patent sincerity, brought him among the acknowledged leaders of his profession. His gentle, unassuming, and kindly ways inspired the confidence of his patients and endeared him to his colleagues.

Knox held for many years the directorship of the electrical and radiotherapeutic department at the Cancer Hospital in the Fulham Road, and here he undertook work on the treatment of cancer by x-rays and radium which earned for him an international reputation. As recently as last July he was paid the signal compliment of being invited to give an address on the subject at the International Congress of Radiology at Stockholm, he had laid his plans at the hospital for a team attack on the question during the coming year. During his career Knox was also associated with King's College Hospital, the Royal Northern Hospital, the Queen Alexandra Military Hospital, Millbank, and the Chelsea Hospital for Women.

Apart from his hospital and consulting practice, Knox worked unceasingly and ungrudgingly for British radiology, and did not spare himself in its service. His essential fairness and unselfishness, his freedom from prejudices, his wise counsel and his gifts as a conciliator found great scope on councils and committees. He was a past-president of the Röntgen Society and of the Electro-therapeutics Section of the Royal Society of Medicine. He played a leading part in the formation of the British Institute of Radiology, was first chairman of its management committee, and vice-president at the time of his death. As far as the Institute is concerned his loss is well nigh

irreparable. Knox was editor of the *British Journal of Radiology* for more than thirteen years, and his well-known book, *Radiography and Radiotherapeutics*, brought him great distinction. Part I of the fourth edition was reviewed in the *British Medical Journal* on March 8th, 1924 (p. 429).

He was a member of the War Office X-Ray Advisory Committee, of the X-Ray and Radium Protection Committee, of the Council of the Imperial Cancer Campaign, of the Radiology Committee of the Medical Research Council, and many others. He had much to do with the establishment of the diploma in radiology at the University of Cambridge, and he was one of the founders of the Society of Radiographers. He examined for the diplomas in radiology at Cambridge and Liverpool. It is known that the International Congress of Radiology owes its origin mainly to his vision and pertinacity. He was chairman of committee at the first congress in London three years ago. He was elected a member of the Institution of Electrical Engineers, and an honorary member of the

American Roentgen Ray Society, of the American College of Radiology, and of the Scandinavian Röntgen Ray Society. He found time also for work in connexion with the British Medical Association. He was secretary of the Section of Electro-therapeutics at the Annual Meeting in 1912 at Liverpool, vice-president of this Section at the Annual Meeting in 1920 at Cambridge, and president of the Section of Radiology and Electrotherapeutics at the Annual Meeting in 1921 at Newcastle-on-Tyne. Knox has left a lasting name in the science he loved so well, and there are many who not only lament the loss to British radiology, but grieve at heart at the taking away of a loyal friend and one who always lifted his eyes to the hills.

G. W. C. K.

Mr C. THURSTON HOLLAND, Ch.M., F.R.C.S., lecturer in radiology in the University of Liverpool, writes:

My acquaintance with Robert Knox began about twenty-three years ago. It began radio-

logically. I happened to see some very beautiful radiographs which were taken at a time when it was not so easy to get good results as it is now. I asked who took them, and then paid a visit to the Northern Hospital at Highgate to find a youngish, very reserved, very enthusiastic man in charge of an x-ray department which, in those days, was turning out better work than that produced in most hospitals. Knox was one of the most reserved of men, he did not make friends easily, but if once you penetrated his armour you found, hidden by this reserve, a most lovable man and a most storied friend. Happy in his home life, happy in his wife and his children, his work was at the same time his only hobby. The amount of work he did was stupendous, and it was all done in the most thorough manner. Knox was fortunate in that he very early on became a good pathologist, this knowledge of pathology did him good service when he took up x-ray work, and was one of the things which made his opinion of such great value.

His place in British radiology will not be easy to fill. Apart from the splendid editorship of the *British Journal of Radiology* for so many years, there was no movement for the advance of radiology in which he was not one of the prime movers. In his work for the British Institute of Radiology, the Röntgen Society, the Electro-therapeutics Section of the Royal Society of Medicine, on the



ROBERT KNOX, M.D.

Protection Committee, and for various other things he never spared himself, his time, or his money. It may be added that he was largely responsible for the building of the Edinburgh X-ray Department. Probably the most valuable bit of work he ever did was initiating the first International Congress on Radiology in London in 1925. It is not too much to say that this congress would never have been held except for Knox. He insisted, and eventually induced all British radiologists to support him. The congress was an outstanding and brilliant success, and it owed more to him than to anyone else. He managed to attend the second congress in Stockholm this year, but, although he was able to read a paper there on therapy, it was obvious to all his friends that he was seriously ill, and that it was only his indomitable will which had carried him through.

Dr A F BUNCLAY, lecturer in radiology in the University of Manchester, writes

There is not a radiologist in this country who will not feel the loss of Robert Knox, that quiet, wise counsellor, that bearer of grievances, that man who could wait and wait till passion had gone and reason could have its say. His work for radiology, and for every man associated with radiology, was his mission in life and to this end he gave of himself unstintingly seven days a week. Waking and sleeping, it was radiology in one form or another that was in his mind, and more particularly in these last few years when he spent so much thought on radiology in relation to cancer. What a willing horse he was! If there was a job to be done he would rather do it himself than worry others into doing work which was obviously theirs, not his, to undertake. If he had a fault it was that of undertaking too much, yet his accomplishment was such that he managed somehow to keep up with all the varied interests with which his name is so closely associated. Yes, Robert Knox will be missed, sadly missed, but he has done a great work and we must be thankful for it.

Dr G B BYTEN, past-president of the Röntgen Society, writes

Dr Robert Knox at the Royal Northern Hospital was one of the first to produce x-rays by employing the alternating current from the mains. He followed Dr Low as honorary secretary of the Röntgen Society, helped to found the British Association for the Advancement of Radiology and Physiotherapy, and, with Sir Archibald Reid, established the British Institute of Radiology. He was also prominently associated with the amalgamation of the Röntgen Society and the British Institute of Radiology. He was a ruling, if not the ruling, spirit in both these societies, and in the Electro-therapeutic Section of the Royal Society of Medicine. His colleagues quickly learnt to appreciate him for his breadth of vision, thoroughness, and balance, we all came to love this very quiet, modest, and efficient man. He brought to bear on every problem, whether clinical or of policy, a kindly dignity which evoked calmness and good results. Abroad he was probably the best known British radiologist, and he will be greatly missed.

Dr ARCHIBALD DUNBAR WALKER, who died at his residence in Hampstead on September 21st, where he had been living since his retirement, had spent nearly forty-five years in practice in London. The son of a surgeon in the East India Company's service, he was born in India in 1847. He received his medical education at the University of Edinburgh, graduating M.B., Ch.B. in 1868, and proceeding M.D. in 1871, having obtained the diploma M.R.C.S. Eng. in 1870. After some years as a medical missionary in Palestine, he commenced practice in London, where he spent forty-three years in the Ladbroke Grove and Notting Hill districts. He was a Fellow of the Royal Society of Medicine and a member of the Harveian Society, and also, during his active professional life, a member of the British Medical Association. Dr Walker was the author of several books, including *Egypt as a Health Resort* and *The Parent's Medical Note Book*, and several contributions from his pen appeared in the *British Medical Journal*

almost fifty years ago. His sister, Dr Ellen Walker Dunbar (who assumed the name Dunbar in 1874) died in August, 1925, in her eightieth year at Clifton, Bristol, where, in spite of her age, she was still engaged in practice, she was among the pioneer medical women in this country and was practising so long ago as 1873. Dr Walker's eldest son, Lieut.-Colonel N. Dunbar Walker, R.A.M.C., has carried the family connexion with the medical profession into the third generation.

The following well-known foreign medical men have recently died: Professor CHARLES ERNEST FIEBIGER of Liège, formerly president of the Belgian Royal Academy of Medicine, and one of the most eminent savants in Belgium, aged 76; Dr A. RUVULT, formerly president of the French society of laryngology, and the author of several articles on diseases of the throat, Professor SIDENMANN, a Basle laryngologist, aged 76; Dr JEAN JACQUES MATIGNON of Clutel Guyon, formerly medical adviser to the French Legation at Peking where he distinguished himself during the siege by the Boxers, and the author of several works on life in China, aged 61; Dr FROMASSET, a Bordeaux ophthalmologist, Colonel CARL BOHNY of Basle, senior medical officer of the Red Cross, Professor PAUL KUCERA, director of the Prague Institute of Hygiene, Professor L. BAUTH, a Berlin physiologist aged 65, Dr JOSEPH MERCKX, a Brussels oto-rhino-laryngologist, Professor O. KILIANI, formerly professor of surgery at New York, Professor G. ROSSIER, a Lausanne gynaecologist, aged 65, Professor EMIL FROMM, director of the Institute of Medical Chemistry, and Professor L. BUDENSTEIN, an authority on school hygiene at Vienna.

Medical News.

SIR WILLIAM WATSON CHEYNE, Bt, F.R.C.S., will preside at the opening of the winter session at King's College Hospital Medical School, Denmark Hill, S.E., on Wednesday, October 3rd. Professor Ernest Barker will deliver the introductory address at 2.30 p.m.

THE winter session of the London (Royal Free Hospital) School of Medicine for Women opens on Monday, October 1st, at 3 p.m., when Dr Andrew Balfour, C.B., C.M.G., will give the introductory address on "The tropical field: its possibilities for medical women."

THE annual prize distribution at St. George's Hospital Medical School will be held in the board room of the hospital on Monday, October 1st, at 3 p.m., when the inaugural address, entitled "Hydrocephalus: a study in phylogeny and pathology," will be delivered by Sir John Bland Sutton, Bt, F.R.C.S. The annual dinner will be held the same evening at the Hyde Park Hotel at 7.15 for 7.45 p.m., when the chair will be taken by Dr W. S. Fox.

THE introductory address at the Royal Veterinary College, Great College Street, Camden Town, N.W., will be given by Sir Merrick R. Burrell, Bt, chairman of the General Purposes Committee of the Board of Governors, on Tuesday, October 2nd, at 3 p.m. The chair will be taken by Sir Archibald Weigall.

THE inaugural address at the opening of the eighty-seventh session of the School of Pharmacy of the Pharmaceutical Society of Great Britain will be given by Mr Reginald R. Bennett, B.Sc., F.I.C., chairman of the Pharmaceutical Conference, at 17, Bloomsbury Square, London, W.C., on Wednesday, October 3rd, at 3 p.m. The presentation of the Pereira Medal will take place on the same occasion.

THE Harben Lectures on studies in asthma and related diseases before the Royal Institute of Public Health will be given at 37, Russell Square, W.C.1, by Dr Arthur T. Henderson on October 23rd, 25th, and 30th, at 4 p.m. A course of lectures on industrial diseases will commence on October 17th at 4 p.m., when Dr E. Graham Little, M.P., will deal with the health of the medical practitioner.

At the meeting of the Royal Sanitary Institute to be held on Friday, October 5th, in the Town Hall, Lowestoft, a discussion on economy in refuse disposal will be opened by Mr S. W. Mohbs. The chair will be taken at 5 p.m. by Professor A. Bostock Hill, M.D.

SIR JOHN W. THOMSON WALKER, F.R.C.S., has been appointed a Deputy Lieutenant for the County of London.

From October 1st the administrative offices of the Medical Research Council, hitherto at York Buildings, Adolph, will be at 38, Old Queen Street, Westminster, S W 1 (Telephone Victoria 5327). The offices of the Industrial Fatigue Research Board will also be at the new address.

A COURSE of elementary lectures on infant care will be given by Dr Prudence Gaffikin, in the Lecture Hall, Carnegie House, 117, Piccadilly, W 1, on Thursdays from 7.30 to 8.30 p.m., from October 11th to December 13th.

A COURSE of post graduate lectures on nutrition intended for health visitors, nurses, midwives, and superintendents of infant welfare centres, will be given at the Infants Hospital, Vincent Square, Westminster S W, on Mondays, from October 8th to December 10th, from 6.30 to 7.30 p.m.

A NEW course of lecture demonstrations arranged by the South West London Post Graduate Association at the St James's Hospital, Ouseley Road, Balham S W 12 will begin on Wednesday, October 24th, at 4 p.m. when Professor H. H. Mottram will speak on the white and brown bread controversy. The lectures will be continued on succeeding Wednesdays, at the same hour, until December 4th.

The course of post graduate lectures at the Ancients Hospital, Manchester, for the session 1928-29 will open on Thursday, October 4th, at 4.15 p.m. The series consists of three lectures by Dr W. T. S. Reid on diseases of the sympathetic nervous system, to be given on October 4th, 11th, and 18th, two lectures by Mr. Diggle on ear, nose, and throat diseases on October 25th and November 1st and two lectures by Dr. Henshaw on November 8th and 15th, one on recent advances in medical and surgical antiseptics and the other on uric acid with special reference to laboratory aids to diagnosis. There is no fee for the course, to which medical practitioners and senior students are invited. Tea will be served each day at 4.45 p.m.

A THREE DAY post graduate course will commence at St Mary's Hospital, Paddington, on Saturday, October 6th, when the following subjects will be dealt with. At 11 a.m. Dr. I. G. Hald Miller will speak on the intestinal child, at 12 noon, Mr. William Wilcox on food poisoning and paratyphoid infections, at 2.15 p.m., Dr. A. H. H. Gossie on prognosis in heart disease, and at 3.15 p.m., Mr. R. M. Handfield Jones on recent advances in everyday surgery. On Sunday, October 7th, Mr. Aleck Bonrue will discuss at 10.15 a.m., the new ovarian hormones, at 11 a.m. Dr. C. M. Wilson will deal with some common difficulties in diagnosis, and at 12 noon Dr. Zachary Cope will give a demonstration of clinical cases and pathological specimens. On Monday, October 8th, the subjects to be dealt with include the use of radium in malignant disease, by Mr. Duncan C. L. Fitzwilliams, at 11.15, some surgical obsessions, by Professor C. A. Pannett, at noon, the nature and relief of some common gastric symptoms, by Dr. John Ryle, at 12.15 p.m. and at 3.15 p.m., some pitfalls in obstetrics, by Dr. T. G. Stevens. The meetings will be held in the library of the Medical School, and are open to all medical practitioners without fee.

THE Fellowship of Medicine and Post Graduate Medical Association announces that at the Prince of Wales's General Hospital, Tottenham, there will be an all day course in medicine, surgery, and the specialties from October 8th to 20th. During the same period the Chelsea Hospital for Women will hold a course in gynaecology. From October 8th to 27th there will be a special course at the Central London Throat, Nose and Ear Hospital, consisting of clinical, practical operative, and pathology sections. On Tuesdays and Thursdays in the four weeks from October 9th the Tropical Hospital will hold a course of clinical instruction in tropical diseases, and from October 15th to 27th the Hospital for Sick Children, Great Ormond Street, will provide a special morning course of children's diseases. Professor Louis Vellroy will give four lecture-demonstrations on ante-natal treatment at the Royal Free Hospital, beginning on Friday, October 26th. From October 29th to November 10th there will be a practitioners' course in medicine, surgery, and the specialties at the Hampstead General Hospital in the afternoons. In addition weekly clinical demonstrations at various hospitals, demonstrations on Wednesday afternoons at the Wellcome Museum of Medical Science, and a series of lectures on Mondays at 5 p.m. at the Medical Society, 11 Chandos Street W 1, have been arranged all being open to members of the medical profession without fee. Syllabuses of these and of all courses may be obtained from the Fellowship of Medicine, 1, Wimpole Street, W 1.

A POST GRADUATE course on rheumatism, including the etiology, pathology, differential diagnosis and surgical and orthopaedic treatment of chronic arthritis will be held at Aix in Chapelle from October 18th to 20th. The fee is £10. Further information can be obtained from the Rhonua Forschungs-Institut, Landesbad Aachen.

AMONG the speakers from foreign countries at the second International conference on light and heat in medicine, surgery, and public health, to be held in London from October 29th to November 1st, will be Dr. Franz Nagel, schmidt of Berlin, Professor Jeslonek of Giessen, who will contribute a paper on ultra violet therapy in dermatology, and Dr. Wilhelm Linskamp of Erlangen, who will speak on conservative treatment in gynaecology, with special reference to the use of light and heat. The chair, at the opening ceremony of the exhibition, will be taken by Dr. F. E. Fraenkel, M.P. The honorary organizing secretaries are Drs. W. Kerr Russell and R. King Brown.

At the recent Model Engineering Exhibition held in the Royal Horticultural Hall, Westminster, the Admiral Bacon cup for the best amateur work, and a silver medal, were awarded to Dr. C. Nepean Longridge for his working model of the Blue Funnel steamship *Verones*.

THE minutes of evidence taken by the Departmental Committee on Ethyl Petrol during the four public sessions held in April, May, and June have now been published, and are obtainable from H. M. Stationery Office (price 5s. 6d. net), they comprise the evidence heard prior to the preparation and issue of the interim report (Cmd. 3159), which was reviewed in the *Journal* of August 4th (p. 219). Among the witnesses examined were representatives of the manufacturers and importers of ethyl petrol, of the United States public health service, and of certain Government departments, including Dr. J. C. Bridge, of the Home Office, evidence was also given by Mr. William Pope, Professor H. B. Baker, Professor C. I. Finch, and Dr. Myci Coplans. Reports of the proceedings were published in the *Journal* after each meeting of the Committee, but the minutes of evidence now available give a much fuller account; they are accompanied by the memorandums submitted by various witnesses, and disclose many points of interest to those who are concerned with this problem.

MR. BERNHARD BARON has by deed transferred the sum of £575,000 10s. 9d. per cent Consolidated Loan to trustees for the foundation of a trust to be called "The Bernhard Baron Trust for Hospitals and Asylums for Orphans and Crippled Children." It is provided that during the next twenty years the total amount available for distribution shall be approximately the same each year, and the trustees shall in every year apply such part of the capital and income of the fund as they deem fit for the benefit of hospitals of various kinds and homes and institutions for the care of orphaned and crippled children. The money available is directed to be applied in the proportion of 75 per cent among Christian and non-Christian national hospitals, homes and asylums, and 25 per cent among similar institutions under Jewish control. The Marquess of Blandford is nominated chairman of the board of trustees, and the annual distribution will take place on December 5th of each year, which is the anniversary of the donor's birthday.

A REGISTERED medical practitioner named Joseph Randolph Morell MacKenzie appeared before Mr. Campion at the Tower Bridge Police Court, on September 17th, in answer to summonses under the Dangerous Drugs Act for failing to enter in a register particulars of various purchases of morphine sulphate. It was stated that when the summonses were served the defendant showed entries in a memorandum book relating to the purchases in question, admitting that they had been made after an inquiry had been started by the police. Mr. Davis, defending said the practice of medical men was extremely lax in these matters, and urged that the Act referred to supplying drugs and not to purchasing them, he added that the defendant did not realize what the regulations implied. The magistrate thought that doctors must be well aware of the import of the regulations. Answering questions, the defendant said that he had not kept a register for the past nine years, and that the Act did not apply in Northern Ireland where he had been. Mr. Howe, who represented the Director of Public Prosecutions mentioned that Dr. MacKenzie had been charged at Rumsate in April with stealing tablets of morphine sulphate and in June was sent to a home for drug addicts, until he could be certified as cured when he was released under the Probation Act. The defendant was remanded for three months on his own and one other surety in £50 each, a colleague promising to look after him.

ABOUT 250,000 cases of dengue are reported as having occurred in Greece in the course of three weeks.

DR. F. D. HERELLE of Paris, who is well known for his study of the bacteriophage, has been appointed professor of bacteriology at Yale University.

INSPECTOR G. F. FRAI DOPTER, the well known French epidemiologist, has been nominated director of the health service of the military government of Paris.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W C 1**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **BRITISH MEDICAL JOURNAL** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names not necessarily for publication.

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All communications with reference to ADVERTISEMENTS as well as orders for copies of the **JOURNAL**, should be addressed to the Financial Secretary and Business Manager.

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QUERIES AND ANSWERS

VISCERAL PAIN

"ANCEPS" writes: I shall be grateful for a reference to the latest views on the causation of visceral pain. I am acquainted with the theories of Mackenzie, Head, Sherrington and the later publications of Ryle and Morley. Both the latter appear to differ sharply in their opinions from the earlier writers mentioned. I would like, if possible, to obtain information, from both the sensory and motor aspects of the subject.

DERMATITIS EXFOLIATIVA.

Dr. F. H. B. NORRIS (Calcutta), replying to "W. M. B." (*British Medical Journal*, August 4th, p. 227) refers to a case of this condition cured by a course of injections of urea stibamine (*Indian Medical Gazette*, March, 1927). Equally good results followed this treatment in a second case.

VAGINISMUS

"E. A. C. H." writes: In answer to "C. A. E." inquiry about vaginismus (September 8th, p. 473), I had a very similar case, my attempt at the act proving extremely distressing. I advised coaculated vaseline (8 grains to the ounce), to be applied to the vulva a quarter of an hour before any act. I particularly advised for obvious reasons that emerging the clitoris should be avoided. The patient quite understood. My advice was apparently attended with success for it was not long after that I was glad to learn of conception, and in due course of the birth of a fine male child.

TREATMENT OF COLI BACILLURIA

"M. M. E." writes to suggest that "I. M. S.," whose inquiry appeared in the *Journal* of September 15th (p. 513), should try oystoparin (hexamine-sodium acetate) in doses of gr. j six times a day.

LETTERS, NOTES, ETC.

ENCEPHALO MYELITIS IN THE MIDLANDS

Dr. J. D. SLIGHT (honorary physician Leicester Royal Infirmary) writes: As I have not noticed any reference to the occurrence of nontyphoid encephalo-myelitis in the Midlands it seems to me that it may be of consequence to report that I have seen seven cases here since April. All the patients were adults, all were seriously affected, and none had been vaccinated recently.

SEA SICKNESS

Dr. T. GIBSON (Ontario) writes: Whatever be the true explanation of the cause of *mal de mer* the sickness must follow reflex disturbance of the vomiting centre which is supposed to be in close proximity to the sensory vagus nucleus. Some years ago I used a proprietary remedy, but I found the capsules were of very unequal potency. After one dose there was nausea and excessive dryness of mouth and throat so that speaking and swallowing were difficult while after another dose there might be very slight effect. Once or twice there was distinct interference with accommodation. It seemed obvious, therefore, that one of the belladonna group was the chief drug concerned. The danger of unequal dosage was perhaps illustrated by the experience of a patient of mine, who used the remedy on her own account, and had to undergo an operation for acute glaucoma on arriving at Liverpool. There was no doubt, however, that relief was obtained from the symptom of nausea. Since that time I have been in the habit of prescribing the following two

preparations in capsules for prospective transatlantic travellers: (1) hyoscine hydrobromide gr. 1/250, sacchar. lactis q.s., (2) chloroform gr. 1ij. One of each was taken on waking any time after 6 a.m. and half an hour before lunch and dinner. If mixed together these drugs liquefy and may escape from the capsule. It is important that the druggist should dispense the capsules in boxes of different shapes, so that the mistake of taking two of one sort, instead of one of each, may be more easily avoided. Hyoscine was preferred to atropine as being centrally more sedative. Chloroform was added as an adjunct because of its direct local sedative effect on the stomach. The *Extra Pharmacopoeia*, vol. 1 (p. 261), warns against giving more than gr. x of chloroform in one day. This drug has been much used to relieve sea sickness. My experience has been that this combination in the above dosage is safe, and in many cases acts well as a preventive. The last trial made of it was in the case of a lady who had never taken a train journey without great suffering from dizziness and nausea. During a four-day trip to Colorado, using the above prescription, she had a comfortable journey. Patients should be warned to use it with much caution and not to repeat a dose out of time unless the capsules should happen to be rejected quickly after being swallowed.

"AMBÓ" writes: Those of us who have experienced the pangs of sea sickness as well as the annoyance of the attacks of what is spoken of as *Ménière's disease* will agree that the combination of symptoms in both is the same. The attacks of *Ménière's disease* can be ward off or postponed by carefully attending to the hepatic function. This may be of interest in view of Mr. Paramore's statement on June 2nd (p. 959) that sea sickness is possibly attributable to disturbance of the hepatic circulation.

ABNORMAL PIGMENTATION OF THE SCALP

Dr. E. A. COCKAYNE (London, W 1) writes: Several examples of this rare condition have been recorded in this *Journal* during the present year, and one is attending my out-patient department. The boy, aged 7 years, has a patch of black hair about 3 in. by 1 in., on the right parietal region. The black hair is sharply demarcated from the rest of his hair, which is light brown, in texture it is like the brown hair and the skin on which it is growing is pigmented and normal in all respects. His eyes are grey. The surname Whitelocks was given to a family many of whose members had a white patch on the scalp. Did the name Blacklock originate in a similar way?

THE KEEPING PROPERTIES OF FOOD

"M. D." writes: I recently celebrated my silver wedding. My wife and family and I partook of small portions from a slice of the original wedding cake which I had put into a tin twenty-five years ago the lid of which I had soldered up. Except for a slightly rancid taste and odour it was in wonderful preservation, and still retained the ordinary flavour of such cake. Curiously enough no part of the tin's contents was recognizable as sugar, icing or almond. I may add that the Lister Institute was good enough to report on it before we tasted it. It was bacteriologically sterile apparently. No one of us was upset by the small portions we consumed. I possess another tin with a piece of the same original cake. The intention is to keep it in case a golden wedding anniversary is ever reached.

A SWALLOWED BROOCH

Dr. O. M. ANDERSON (London S W 10) writes: The following incident is unique in my experience and I thought of sufficient interest to report. Three months ago an infant aged 6 months was thought to have swallowed a safety pin brooch, as it was missed at that time. The parents did nothing in the matter as the child developed no symptoms. Two days ago the brooch was passed per anum with a rather constipated stool which the nurse happened to examine rather carefully. The brooch is 2½ in. long, was open and a pearl which was attached had disappeared, leaving a rough facet, which projected above the surface.

"THE CLUB SURGEON"

Miss M. L. SPACKMAN (Chiltheroe, Lancashire) writes: Readers of the late Dr. Arthur Manknell's address on the British Medical Association published in the *Supplement* of September 8th may be interested to know that Professor Henry Morley wrote a graphic account of "club work" in an article, "The club surgeon" which appeared in *Household Words* during the 1880s. It is reprinted along with articles describing Professor Morley's experiences as a practitioner, in *Early Papers—and Some Memories* published in 1891 by Routledge and Sons.

A DISCLAIMER

Dr. JOHN YEARSLEY (Bournemouth) writes: My attention has been called to an article purporting to be a short account of myself, my activities, professional qualifications, etc., in a small periodical published by a local cinema. This article was inserted without my knowledge and consent, and has caused me great annoyance.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 43, 44, 45, 48, 49, and 50 of our advertisement columns and advertisements as to partnerships, assistantships, and locum tenencies at pages 46 and 47.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 147.

Remarks

OF

THE TREATMENT OF GANGRENE.*

BY

W. SAMPSON HANDMAN, M.S., F.R.C.S.,
Surgeon to the Middlesex Hospital

From the fact that Professor Leriche was originally asked to open this discussion, and that, failing him, I have been asked to do so, I gather that the interest of the occasion is expected to centre on the more recent methods of vasomotor surgery in relation to gangrene. I may be absolved therefore, in opening the discussion, from attempting a general survey of the whole subject, and my remarks must not be taken as limiting the scope of the subsequent discussion.

A word of gratitude to the physicians is appropriate, and especially to Dr Banting, for the gift of insulin, which has entirely changed the outlook in cases of amputation for diabetic gangrene and in other operations upon diabetics. In such cases the co-operation of a physician is now essential, and when the urine has been rendered sugar-free by insulin the surgeon can intervene almost as confidently as in the non-diabetic, such at any rate is my experience.

Vasomotor Surgery of Gangrene

The surgery of the sympathetic owes its modern development to the observation of Claude Bernard that section of the cervical sympathetic causes dilatation of the vessels of the head and dilatation of the pupil on the side of the operation. Waller showed that stimulation of the peripheral or upper end caused constriction of the vessels and contraction of the pupil. Thus the motor action of the sympathetic upon unstriated muscle was clearly demonstrated, and the surgeon was presented with the key of the arterial sluices, and given the power of flooding areas of low nutrition with reviving blood.

At first the attack was made chiefly on the main sympathetic chain, or upon the nerves passing to this chain from the special nerves—a dangerous, difficult, and uncertain field of surgical work.

Jaboulay and Leriche transferred their attention to the peripheral parts of the sympathetic nerves which, as Jaboulay knew in 1896, run along the main arteries of the limbs on their way to the arterioles.

Though the modern surgery of the sympathetic is mainly a French structure, there are embedded in its foundations some forgotten stones of British origin. I find that John Hunter did an experimental decortication of a dog's artery to find whether defect or injury of the external coat will produce an aneurysm. Hunter says:

"I dissected the carotid artery of a dog taking off carefully the external coat until I could almost see the blood through the internal one. I then left the dog and his artery to themselves at the end of three weeks killed the dog, when I found the surrounding parts had consolidated themselves to the artery, rendering it stronger in this part than it was before."

Lord Lister showed in 1858 that the destruction of the posterior half of the spinal cord in the frog produced permanent paralysis of the arteries of the hind limb. Preservation of any segment, however small, of the posterior half of the cord allowed the arteries to recover their tone. He also showed that even after division of all the soft parts of the hind limb except the main artery and vein, the arteries of the distal portion, after initial paralysis, soon recovered their contractile power. The

nervous filaments concerned must, as Lister pointed out, run along the main artery or vein, or, less probably, through the bone.

I wrote to the late Professor Bayliss and drew his attention to Lister's crucial experiment showing that the vasomotor nerve supply ran along the main blood vessels. He replied saying that the recovery of tone in Lister's experiment, where, as you remember, all the soft parts were divided except the main artery and vein, might be ascribed to a natural tendency on the part of unstriated muscle removed from nervous control to go into spasm. This interpretation is negatived, it seems to me, by Lister's other experiment showing permanent loss of vascular control in the hind limb after destruction of the posterior half of the spinal cord. In my opinion Lister's experiments demonstrate that nerve fibres running along the main vessels are an essential factor in the vasomotor control of the arterioles of the limbs, and vasomotor surgery has thus an experimental basis.

Jaboulay, about 1906, endeavoured to produce vasodilatation of the foot in perforating ulcer by denuding the femoral artery and tearing away the small nerve twigs which, in the region operated upon, were found passing to the artery from adjacent nerves. Leriche, in order to interrupt more completely the sympathetic filaments removed the outer coat of the artery for a considerable length—a true decortication of the artery, such as Hunter had experimentally practised—and he called this operation sympathetomy. To avoid confusion it is best to describe Leriche's operation as arterial sympathetomy.

Leriche thus describes his operation:

"The technique is to isolate the artery on [?] for 8 to 10 cm. to fix the vascular sheath after dividing to hold one part with a forceps and dissect off the cellular tissue either with knife or cannula round until there has been effected complete denudation of the vessel, which becomes greatly reduced in size. This brings no injury to the arterial wall. I verified this fact twice at four and eight months interval."

Leriche has had successes from sympathetomy in the following conditions: (1) causalgia after war wounds, (2) certain painful crises preceding gangrene caused by obliterative endarteritis, (3) "painful acroparaesthetic syndromes consecutive to bruise of finger, to wounds of hand, palm, or foot-sole", (4) in Raynaud's disease, (5) sometimes in cases of painful stump, (6) in muscular spasm secondary to war wounds, (7) in trophoedema, (8) in trophic ulcers, but here the result may be temporary.

Effects of Leriche's Operation

Leriche finds that as soon as the adventitia is pinched a contraction of the vessel occurs, its pulsation stops, and its size diminishes. If the cellular layer (presumably the tunica adventitia) is actually excised, the artery shrinks still more, to one-third or one-fourth only of its normal size. The contraction affects only that portion of the artery which is injured by the operation. It usually causes the pulse to disappear, but does not altogether interrupt the circulation. For some hours pulsation is imperceptible or feeble and the limb is colder than its fellow by 3 or 4 degrees Centigrade—a very serious consideration in cases of actual or threatened gangrene. After three to fifteen hours entirely different symptoms supervene—namely, (1) an elevation of local temperature, amounting to 2 or 3 degrees in the affected limb, accompanied by a subjective sensation of heat, (2) an elevation of arterial pressure up to 4 mg. in the affected limb as compared with the opposite limb, (3) an increased amplitude of the pulse, as shown by sphygmographic tracings.

It is important to notice that after periarterial sympathetomy this vaso-dilator reaction is transitory. It diminishes about the fifth or sixth day and disappears in three to four weeks.

* Made in opening a discussion in the Section of Surgery at the Annual Meeting of the British Medical Association, Cardiff, 1928.

It will be noted that Leriche does not recommend his operation for actual senile gangrene, and Matthöy-Cornat gives as definite contraindications for sympathectomy (a) the circulatory insufficiencies of generalized senile arteriosclerosis, with or without gangrene, (b) arterial thrombosis and obliterations. He points out the danger, in gangrenous or pre-gangrenous conditions, of the ischaemic period of lowered circulation which follows Leriche's operation and the risk of attempting decortication on an atheromatous artery. Matthöy-Cornat devotes special chapters to the dangers and accidents of sympathectomy, with 6 deaths and 40 accidents in 500 cases. Among the accidents are rupture of venous plexuses, tearing off branches of the artery, wounds or lateral perforation of the artery, sometimes necessitating ligature of the vessel, total rupture of the artery, secondary haemorrhage, thrombosis of the artery, and replacement of dry gangrene by rapidly spreading moist gangrene.

Leriche, on the other hand, holds that sympathectomy may render durable service in senile arteritis if used with discretion. He thinks it indicated in the severe premonitory pains of gangrene except when there are attacks of "paradoxical" vaso-dilatation with heat of the foot. The operative outlook is, however, poorer in presence of habitual cyanosis, diffuse oedema, or neuritic pains than when the attacks are of vaso-constrictor type. Tissue infections contraindicate the operation. For incipient gangrene it is indicated if examination shows that the arteries are still dilatable. If they appear obliterated the operation is only justifiable to prepare the way for a low amputation close to the gangrenous area. Sympathectomy, he thinks, is useless for intermittent claudication upon present evidence. If, upon exposure, the artery is found friable and "malacique" he recommends my method of alcohol injection. If it is transformed into a hard impermeable cord the artery should be resected to interrupt the sympathetic fibres. For the gangrene of young subjects he places more hope for the future in internal secretion therapeutics than in surgical measures, which can only have a temporary effect.

Leriche suggests that in order to minimize the risk of gangrene in cases where the main artery of a limb has to be ligatured, as for aneurysm, the artery instead of being simply tied should be divided between two ligatures. He states that whereas simple ligation is followed by dangerous vaso-constriction lasting some hours, resection of the artery produces immediate and lasting vaso-dilatation. No doubt the same effect could be obtained by a combination of alcohol injection with simple ligation.

I must now call your attention to the method of alcohol injection, which I believe to be a definite advance upon Leriche's operation. I claim for it that it is able in certain cases to avert threatened gangrene or to arrest the spread of senile gangrene already present and to avert the necessity of amputation. In other cases it permits a low amputation to be used instead of a high one.

The technique of periarterial injection is not difficult, though it requires care and delicacy. The femoral artery in Hunter's canal is exposed as for ligature for a length of one or two inches. With the finest obtainable hypodermic needle 2 to 3 minims of alcohol are injected at four points spaced out round the calibre of the artery. The needle is introduced obliquely and nearly parallel with the length of the artery. The artery may be partially rotated to make the posterior injections. On one occasion I punctured the artery and injected alcohol into its lumen. This was shown by bleeding on withdrawal of the needle. The puncture sealed under sponge pressure and no ill effect followed. When the injection is complete a whitish band, perhaps half an inch wide, should be seen round the artery, but no constriction takes place. The wound is closed.

Effects of Alcohol Injection

In successful cases the vaso-dilatation produced by alcohol injection is immediate. There is no initial period of vaso-constriction with slackness or absence of the distal pulse lasting for some hours, such as follows sympathectomy. The cold foot may become obviously warmer than the

sound one even before the patient is out of the operating theatre. This fact alone, especially in cases of threatened gangrene, gives the method a decisive advantage over sympathectomy. But this is not the only advantage. Whereas the effect of sympathectomy, according to Leriche, passes off within about five weeks the vaso-dilatation following alcohol injection may last for a year or more. These clinical differences may be connected with the absence in alcohol injection of the local contraction of the artery seen in sympathectomy.

Criticisms

The method of alcohol injection is open to many criticisms. It is admittedly uncertain in its results. Sometimes no alteration in the circulation or surface temperature of the limb can be detected. It appears probable that there are anatomical differences in the distribution of the vasomotor nerves, and that while they sometimes join the artery high up so that they are amenable to alcohol injection of the femoral, in other cases they join it below the level of the injection. In senile cases organic changes of the artery may have made such progress that the muscular mechanism of the vessels may be entirely functionless or the main arteries may be thrombosed. It is to be specially noted, however, that some cases with advanced organic changes in the vessels, and no pulse to be felt in the limb, may nevertheless be strikingly benefited. Moreover, in thrombosis of the main artery the operation may assist in opening up the collateral circulation. But it must be admitted that it is at present impossible to make a proper selection of cases.

What are the indications for alcohol injection? They are not yet defined, and a process which appears to be so safe leads itself to the method of trial. My experience would lead me to recommend it strongly in cases of threatened or incipient senile gangrene of a lower limb. It should, if possible, be applied in the prodromal stage, where severe pain and pallor and coldness of the foot are the principal symptoms, and before actual gangrene has occurred. Extensive gangrene reaching to the leg is a contraindication unless alcohol injection is followed by an immediate low amputation, since, as I have shown, the increased blood supply may lead to fatal toxic absorption. If the foot above the dead area is congested, and warmer than the sound foot, the operation is contra-indicated. In such cases there is probably a septic infection of the tissues, associated with already existing vaso-dilatation.

Alcohol injection appears to be useless in Buerger's disease, and of doubtful value in Raynaud's disease. I have not yet tried it for chronic or perforating ulcer of the foot or for painful or ulcerated stumps.

In conclusion I would say that the surgery of the sympathetic is yet in its infancy, and that it requires for its development a further study of the sympathetic system by anatomists and physiologists and of arterial disease by the pathologists. Many obscurities still remain. Leriche's operation has been justified by a number of brilliant successes in other conditions. Leriche himself does not recommend it for incipient or actual gangrene. Though some surgeons continue to use it for actual or threatened gangrene, I believe that it will be replaced by the method of alcohol injection, which secures the same result in a simpler and safer way without risk to the integrity of the artery, without initial vaso-constriction, and with more permanent vaso-dilatation. For these reasons I think alcohol injection is not a mere technical variation of Leriche's method, but a distinct advance upon it, and that, particularly in senile gangrene, it is the vasomotor operation of choice.

While vasomotor methods can be applied successfully in the early stage of gangrene to limit its spread and to restore the vitality of dying tissue, they find their main field of application in an earlier stage before gangrene has actually begun. A serious additional responsibility is thus placed upon the medical man to whom complaint is first made of symptoms of arterial dystrophy likely to end in gangrene. Upon him it devolves to allow vasomotor surgery a fair field for its attempts to avert the loss of a limb.

THE FALLACY OF X RAYS IN ABDOMINAL DIAGNOSIS*

BY

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We flatter ourselves that we live in the age of scientific medicine. No one would wish to belittle the value of scientific methods, but there is a real danger that in our quest for the precise and the scientific we are tending to neglect the practice of medicine. Notwithstanding all the aids which science can give there still remains the personal factor—call it judgement, intuition, or what you will, medicine is still essentially an art. In recent years laboratory methods have been developed to such an extent, and their precision is so alluring, that we are apt to forget the simple truth that, medicine being an art, a diagnosis cannot be made in a test tube.

The advent and evolution of the x rays has added a valuable diagnostic method to the surgeon's armamentarium, but it is by no means an infallible one. After all, radiology is but an aid to diagnosis and not a substitute for clinical observation. We are far too ready to accept as gospel the diagnoses which are made for us in the laboratory or in the x ray room, sometimes, I fear, to the exclusion of clinical examination. In cases of fracture it is not unknown for a house surgeon to say, quite openly and without blushing, that he has not made a diagnosis, but has sent the patient to the radiologist for a report. This is quite wrong. We should make our own diagnosis before we call in the help of the radiologist to confirm it. We should not be slaves to the laboratory. Laboratory investigations are good servants but bad masters. As the Americans have pithily put it, "Don't let the radiologist wag your tail."

In connexion with radiology, especially in abdominal work, there are two great fallacies of which we must beware. First, the fallacy that radiology can be a substitute for a careful and thorough clinical examination. In diseases such as gastric and duodenal ulcer, in which physical signs are often absent, it is very tempting to have a radiograph taken without obtaining the detailed and exact history of the case, which is so essential for diagnosis. Secondly, the assumption that there is such a thing as a radiological diagnosis is a fallacy. A radiological diagnosis, as such, does not exist. Apart from the clinical signs and symptoms a proper diagnosis is impossible. Radiology is not a final court of appeal, it is part only of the considerations on which the diagnosis is based. The radiological findings should fit in with, and agree with, the clinical signs and symptoms. If they do not do so, we had better start afresh and review the clinical findings to see if we have missed something or overrated the importance of some sign or symptom.

We should beware of regarding the radiologist's report as infallible. We are apt to be misled by the saying that the "camera cannot lie." Even if this were true, we must remember that a radiograph is not a photograph, but a shadow, and may be distorted by the angle of exposure of the film. Further, the shadows have to be read in the light of past experience, and there is ample scope for error in the interpretation thereof. The radiologist may guess, draw inference, not warranted by what

he has actually seen, and then jump to conclusions which may be misleading, and may suggest an erroneous diagnosis.

The chief fallacies which he is in wait for the surgeon may be grouped under four heads:

- 1 Fallacies incidental to x rays
- 2 Fallacies due to technique
- 3 Fallacies of misdirection
- 4 Fallacies of interpretation

1 FALLACIES INCIDENTAL TO X RAYS

Radiography is often used to estimate the degree of intestinal stasis by observing the time taken for a barium meal to pass through the alimentary tract. Repeated observations have taught me that this is a most fallacious and misleading method of estimating intestinal stasis. A more reliable method is to note the time that elapses before a dose of charcoal is passed completely per rectum. Comparison of the two methods shows that radiology very greatly exaggerates the degree of stasis which exists. In 150 consecutive cases investigated, charcoal was passed in an average of forty-two hours, whereas in the same patients the barium meal was not passed for an average of sixty-eight hours—an exaggeration of 60 per cent. Why there

should be this discrepancy is not obvious. Possibly part of the barium adheres to the mucosa, and gives a shadow after the bulk of the meal has passed. At any rate it is a fallacy to bear in mind, and apparently is one incidental to the method.

A fallacy which is a fruitful source of error is that due to the frequency of local spasm in the alimentary tract. Whether this spasm be the result of the barium meal or not is immaterial. At any rate, it is one of the fallacies incidental to radiography, and is often very misleading. It is said that this source of error may be eliminated by the administration of full doses of belladonna, but I am sceptical, for on many occasions, in spite of this precaution, I have seen spasm demonstrated, for instance in a typical hour-glass stomach, a diagnosis to which the radiographer adhered in spite of



FIG. 1.—Gastric spasm suggesting cancer

the absence of any clinical signs. A second radiograph, taken a week later after careful preparation, still showed an hour-glass constriction. At the operation no abnormality of the stomach was found, and the radiographic appearances were evidently the result of spasm secondary to a diseased appendix.

Fig. 1 is from a radiograph suggesting gastric carcinoma. The patient obviously had malignant disease, but although there were some symptoms pointing to the stomach as the affected organ, gastric analysis definitely excluded cancer of the stomach. Operation revealed a primary carcinoma of the liver.

It is obviously a fallacy to assume that an ulcer does not exist because one is not shown by the x rays. Duodenal ulcers are not often shown by radiography, but are frequently inferred to be present when they are non-existent. Whether gastric ulcers are shown depends mainly on their size and depth.

2 FALLACIES DUE TO TECHNIQUE

A gastric or duodenal ulcer may be missed if the exposure be not made in the dorsal, prone, and oblique positions. In one case, for example, a well marked gastric ulcer was not obvious on the plates taken in the dorsal and oblique positions. In another instance a marked depression due to an indurated ulcer on the anterior wall of the duodenum was visible only in the prone position. It is not often that a duodenal ulcer is shown so clearly, and the case is of interest as it was one in which operation would hardly have been justified apart from confirmation by the x rays. Thus

* Read in opening a discussion at a joint meeting of the Sections of Surgery and of Radiology and Physio-Therapeutics of the Annual Meeting of the British Medical Association Cardiff 1928.

patient's only symptom was a single severe hemorrhage, which was attributed to ptomaine poisoning. He had never had indigestion in the slightest degree, not even in the days preceding the attack. The only suspicious sign when I saw him a month after the hemorrhage, was marked rigidity of the right rectus muscle. As this still persisted a month later, duodenal ulcer was suspected. This is the only instance I have encountered of hemorrhage being the first and only symptom of a duodenal ulcer.

Errors in diagnosis may occur if the stomach be not adequately filled with the barium meal. Fig 2 shows a radiograph of the stomach which was diagnosed by the radiographer very confidently as inoperable carcinoma. There were no clinical symptoms of malignant disease and a radiograph by another radiologist showed a perfectly normal stomach.

3 FALLACIES OF MISDIRECTION

Not infrequently a radiological examination diverts the attention from the disease suspected to some abnormality of less serious import. Some years ago a lady was sent to see me with a history of recurrent attacks of appendicitis. Clinically, the doctor's diagnosis seemed to be correct. Routine examination showed albumin in the urine, so I had a radiograph of the kidneys, which revealed a right renal calculus. This led to a revision of the diagnosis. I removed the stone, believing this to be the cause of her recurrent pain. A few hours after she had left the nursing home she was seized with severe abdominal pain accompanied by a temperature of 104°F , and returned to the nursing home on the same evening with a very acute attack of appendicitis. In this case I think I should have disregarded the x rays as far as diagnosis was concerned, and removed the appendix first, leaving the stone to be dealt with later.



FIG 3—False suggestion of presence of appendix.

4 FALLACIES OF INTERPRETATION

The possibilities of errors of interpretation are numerous. This is not surprising when we remember that we are looking, not at a photograph, but at a shadow of something opaque to the x rays. In many instances the cause of the shadow must be a matter of inference, or even of guesswork. Gall-stones are a fruitful cause of this difficulty. Quite small gall-stones may be visible while large ones are not shown. Scybalaous masses may give a radiological picture indistinguishable from gall-stones as to situation and appearance.

Caténous glands and phleboliths sometimes mimic stones in the ureter very closely. Fortunately, a differential diagnosis can usually be made by passing a ureteric catheter. A pitfall to be avoided is that the stone may be passed between the taking of the radiograph and the operation. To guard against this contingency a second radiograph should be taken as short a time before the hour fixed for the operation as is convenient, and all urine

passed before the hour fixed for the operation should be carefully filtered through muslin. In spite of this precaution I have known a stone to be passed into the bladder between the taking of the radiograph at 11 a.m. and operation at 2 p.m.

Sometimes structures not existent are said to be there in a radiograph. Fig 3 is a radiograph showing an appendix, this was confirmed by another radiographer (Fig 4), but the appendix had been removed three years previously!

Gastric ulcers sometimes produce a radiological picture of cancer. At the operation a small gastric ulcer is found. Conversely, a gastric cancer may be present without any evidence on the film, although sometimes on screening it may be observed that the peristaltic waves become less active as they approach the pyloric end of the stomach. In one case a radiograph of the stomach, beyond a slight

spasm, showed no abnormality. Clinically the case was diagnosed as malignant. The whole of the cardiac end of the stomach was a mass of new growth almost obliterating the cavity of the cardiac half. In spite of the extent of the growth there was no suggestion of organic disease in the radiograph.

A mass of impacted faeces remaining *in situ*, even after free purgation, may give both clinical and radiographical evidence of obstruction. On one occasion a well marked filling defect was confirmed by a barium enema after apparently thorough clearing out of the bowels. Later the lump disappeared, and a further radiograph revealed a normal ascending colon. In such a case there is the



FIG 4—Another radiograph of Fig 3.

possible fallacy that the impaction of faeces may be due to early carcinoma not advanced enough to produce a filling defect, so that radiological confirmation may not be forthcoming until the disease is too far advanced for surgical treatment.

A not uncommon radiological diagnosis is adhesions at the right iliac fossa. In my experience this diagnosis is rarely confirmed on the operation table. The massive shadow seen in the radiograph may be, not distended ileum, but a dilated rectum or pelvic caecum. In one patient a diagnosis of intestinal obstruction in the small intestine

secondary to amoebic dysentery was made by the radiologist. At the operation there was a cicatricial contraction of the ascending colon, but no abnormality of the small intestines.

Adhesions are sometimes diagnosed because part of the intestine cannot be moved on the x-ray table. Such a diagnosis is often fallacious.

The last, and most insidious, fallacy to which I will refer is the claim that the progress of healing of a gastric ulcer can be gauged by radiography. This fallacy has arisen in connexion with the intensive alkaline treatment of gastric ulcer. We are asked to believe that by this method healing of a gastric ulcer can be brought about in three or four weeks. I think that most surgeons who have had much operative experience in these cases, and who have followed up their results, will agree that the pathological evidence is against such a claim. To believe that such pathological changes can occur in such a short time requires a liberal dose of credulity.

May I say in passing that naturally I do not question the correctness of the principle of reducing gastric acidity in gastric ulcer. More than twenty years ago I put



FIG 5.—Gastric spasm, appendix kink.

forward the view that gastro-jejunostomy is a physiological operation, and acts, not by drainage, but by diminishing the acidity of the gastric contents. This theory was ridiculed at the time, but is now accepted by most authorities. Whether the intensive alkaline treatment is a good method of achieving this is a subject outside the scope of this discussion, but I think the evidence on which its efficacy is tested is open to grave objections.

What are the facts? We know that the symptoms of gastric ulcer may be intermittent. Under treatment a patient may have long intervals of comparative freedom from pain, but the ulcer is not necessarily healed. Secondly, we know that after a successful gastro-jejunostomy the ulcer may not be healed for many months, and when healed there is usually some cicatrization at the site of the ulcer, which interferes with the normal peristaltic waves as seen on the screen. In spite of these facts we are told that with intensive treatment the ulcer may heal and the stomach be normal in three or four weeks. Is the radiological evidence sufficiently reliable to justify these assumptions? Experience teaches us first, that an existing ulcer may be missed altogether by radiography, secondly that an ulcer may be diagnosed radiographically which does not exist, thirdly, that the position of the patient at the examination may determine the apparent size of the ulcer and even whether it is shown at all. In view of the many possible sources of error it seems to me that radiological inferences as to the effect of the intensive alkaline treatment on a gastric ulcer, of the very existence of which

we are not certain, are to be accepted with great scepticism. In short, to talk of cure on radiological evidence is a fallacy.

To sum up, my remarks may appear to be destructive rather than constructive criticism, but I do not think this is really the case, for I would remind you that it is only by constantly bearing in mind the pitfalls which lie in wait for us that we can learn to avoid them. To most of you these pitfalls may be familiar, but even so, we cannot recall them to our minds too often. I am not speaking for the experts, but as one of the humble surgeons eager to pick up some of the crumbs of wisdom which may fall from the tables of the expert physicians and radiologists.

In conclusion I need hardly say that nothing I have said is intended to suggest that radiography is not of value. It is the infallibility of radiology, not its utility, which I wish to call in question. In its proper place its value is incontestable. Radiography combined with uroteric injections has enhanced enormously the accuracy of urological diagnosis. Without radiography the satisfactory treatment of fractures of the limbs would be impossible unless one resorted to operation in nearly every



FIG 6.—After appendectomy.

case. At present radiology is our greatest help in deciding as to the necessity for an operation in an individual case. But in abdominal diagnosis it is in its infancy, and must not be regarded as a final court of appeal. If it is so used it becomes a danger and a snare. The point I wish to emphasize once more is, that there is no such thing as a radiological diagnosis. In making a diagnosis all the aids which science can give should be called to our assistance, bearing in mind that they are helpers and not masters, and that radiology is only one of these aids.

We must not forget that every new invention, every new discovery, brings in its train disadvantages which cannot be wholly eliminated but may be minimized with care and attention. Radiology is no exception, so we must recognize its pitfalls and its limitations. In spite of these, its value is unquestionable and will be even greater in the future as we learn from experience how to make more accurate deductions from what we see.

Lastly, I would put forward two practical suggestions. First, if the radiographical findings do not support the clinical signs and symptoms they should be disregarded. An operation should rarely, if ever, be performed on a purely radiological diagnosis. Likewise an operation which is advisable for clinical reasons should not be deferred through lack of radiological confirmation. Secondly, I would urge closer co-operation between the surgeon and the radiologist. They should not work in watertight compartments. The surgeon should be present at the radiological examination and draw his own conclusions from what he

sees. Each should form an independent opinion and then in consultation try to agree on a diagnosis, likewise the radiologist and—may I suggest it?—the physician, should be present at the operation, to see how far the condition found is in accordance with their previous conceptions. Such a practice would be to their mutual advantage, and would lead to greater accuracy in diagnosis.

Above all, we must keep a sense of proportion. Too much science may mean too little common sense. Radiology, like any other invention, must be used with discretion and with that

Good sense, which only is the gift of Heaven,
And the no science fairly worth the given

THE FALLACY OF X RAYS IN ABDOMINAL DIAGNOSIS *

BY

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I FIND some difficulty in making a suitable reply to Mr Paterson's remarks, because, in the first place, I agree with many of his statements, and secondly, where I find myself differing, the defence seems so easy that I am inclined to distrust it, and to wonder if I have overlooked vital points. An unpleasant vision obtrudes itself of Mr Paterson—in the final broadside which, as opener, he will be privileged to deliver—pulverizing the whole position, and leaving the radiologists disconsolate among the smoking ruins.

However, this risk must be taken, and I will fire my first shot by challenging Mr Paterson's statement that the barium meal is of little value in the investigation of intestinal stasis. Mr Paterson prefers the administration of charcoal. I myself, following a *tu quoque* method, might inquire whether or not steps were taken to make sure that the whole of the charcoal passed in forty-two hours. One would be justified in asking this question, because in opaque meal work one may see a small part of the barium meal reach the rectum in a few hours, although the main mass lags far behind. The fallacy of the charcoal method lies, however, in the fact that no one can tell for how long it lay in any particular part of the alimentary canal. With the barium meal localized stasis can be observed. A good practical rule is to disregard stasis up to twenty-four hours, thus will eliminate most cases of so-called ileal stasis, and leave us with two important sites—the caecum and the rectum. I shall return later to the question of caecal stasis, stasis in the rectum, sometimes known as the dyschezia of Hurst, is a most important clinical entity, its existence may be suspected from symptoms, but can be proved only by x-ray examination.

As regards spasm shown by the barium meal, the significance of this appearance, and the means of differentiating it from local organic trouble, have occupied the best minds in radiology for three decades. It was originally taught by the late Dr. Carmen of the Mayo Clinic that persistent spasm of the stomach or duodenum which was not due to intrinsic disease could be abolished by belladonna. This doctrine now requires modification, but it remains a fact that spasm which resists all variation of posture, is present over long periods, and is not affected by belladonna given to the point of causing a dry throat and enlarged pupils, is nearly always an indication of organic disease somewhere in the alimentary tract or its offshoot, the gall-bladder. Mr Paterson's case was no exception, as there was a chronic appendix. It should also be remembered that, in some cases, the spasm, so far as the patient is concerned, constitutes the disease, if one can find a drug which controls the spasm, the symptoms are relieved. In short, the demonstration and differentiation of spastic contraction is a most important part of radiological diagnosis. Referring again for

one moment to Mr Paterson's case, the question arises whether a complete personal examination of the alimentary tract was made by the radiologist, as it would be unusual, though not impossible, for the appendix to escape notice under such circumstances.

Failure to find an organic lesion by x-rays is, of course, no proof that such does not exist. Such negative evidence should not, however, be despised. In a case where the suspicion is slight, it is a point in favour of a verdict of "not guilty", when the clinical evidence is weighty, negative x-ray findings at least exclude obstruction and gross deformity.

The importance of a proper technique is self-evident. The more frequent the examinations in a barium meal, and the greater the number of angles from which films are taken, the better are the chances of detecting an obscure lesion. Practical considerations, however, impose definite limits, and no doubt failures sometimes occur on this account.

As to fallacies due to misdirection, I think it is scarcely fair to include them at all. The demonstration of any possible cause of obscure symptoms should always be helpful. The trouble usually is that the radiologist has not a sufficiently free hand. A partial examination of the abdomen may result in misdirection, but a complete one should rarely do so. In Mr Paterson's calculus case, as in his case of gastric spasm, complete examination by an experienced radiologist would most likely have called attention to the appendix. A complete radiological examination includes barium meal, barium enema, cholecystography, genito-urinary tract, and the teeth, the latter are often omitted, or done by someone other than the radiologist making the principal examination. Hence sometimes an early recurrence of symptoms after operation. In hospital work especially it is often necessary to bring heart and lungs into the field of investigation. To use a single method of diagnosis in itself is a sufficient limitation, but when that single method is not fully employed, misdirection, as Mr Paterson calls it, is bound to occur.

Arriving now at fallacies of interpretation, we really come to grips with the matter at issue. There will always be errors in interpretation in x-ray work, as in other methods of diagnosis. I do not think, however, that the opener of the discussion has been fortunate in his instances, not one of which would be likely to mislead a competent radiologist who had seen the patients concerned, and knew their medical histories.

As to gall stones, a large calculus may fail to show because of lack of calerium content, and no one can exclude isolated stones by any known method. A bag of stones, however, if it does not show positively, will nearly always give negative shadows with cholecystography. As to scybalous masses, a combination of castor oil, enemata, and cholecystography will always clear up such a case beyond a doubt.

No radiologist of experience will attempt, on purely radiological grounds, to distinguish between an inflammatory mass, including penetrating ulcer, and malignant disease. If, however, an elderly patient shows gastric deformity, with or without ulcer niche, and gives a history of stomach trouble dating back only a few weeks or months, experience teaches him that in over 90 per cent of cases there is cancer. In writing his report he should, of course, carefully distinguish between x-ray findings and deductions which may in part be based upon history and symptoms. Those who consider that the radiologist has no concern with anamnesis and symptomatology should employ a lay radiographer to assist them, who would confine himself to technical matters.

A filling defect in the colon may, as Mr Paterson says, be due to impacted faeces. It should never be accepted as due to growth until castor oil and soap enemata have done their worst upon the unfortunate patient. And even if it vanishes under such treatment its discovery has nevertheless been valuable as a warning. Very early carcinomata seem to cause, at times, a sort of physiological block which results in faecal collections. If the block occurs a second time I should consider exploration imperative, and I am not at all sure that it ought not to be done without waiting for a second time. I laid

* Read in opening a discussion at a joint meeting of the Sections of Surgery and of Radiology and Physio-Therapeutics of the Annual Meeting of the British Medical Association Cardiff 1928.

stress on these points at a discussion held at the Royal Society of Medicine last year.

To fail to distinguish between a distended ileum, a pelvic caecum, and a dilated rectum is a radiological crime of the first magnitude. The clinical significance is in each case so different that the matter cannot be left in doubt. A caecum in its normal place can nearly always be seen separately from a distended ileum by manipulation in the oblique position where the caecum is pelvic. The matter presents difficulties. But a picture which is confusing at six or eight hours is often quite clear somewhat later. A pelvic caecum is fairly common, a distended ileum rare. In the few cases in which doubt remains after the meal examinations a full opaque cecum will usually clear the matter up. A simple manoeuvre serves to differentiate the rectum, a small injection, or even a glycerin suppository, will, if the mass is rectal, cause its partial or total disappearance.

As to the x-ray diagnosis of adhesions manipulation under the screen is very unreliable. Often a picture taken a few hours later will show that an apparently immovable portion of gut has in fact moved considerably. Suspected adhesions about the colon can, however, often be put to the test by an opaque cecum. A pelvic caecum is in itself of little importance, but one which does not rise on injection should always be regarded seriously, especially if it contains dense residue twenty-four hours after the main meal has passed on. Such a caecum usually has behind it an unhealthy appendix, which may give no localized signs or symptoms, and yet be responsible for gastric or duodenal disturbance. Hence the undesirability of x-ray examination confined to the upper part of the alimentary tract.

The demonstration of a genuine pelvic caecum, with a pool at twenty-four hours, and a probably infected appendix, can be accomplished only by x-rays. A chronic appendix in the ordinary position could no doubt always be detected clinically, but, in fact, is often overlooked. The reason is, I think, that pain in such cases is very sharply localized, and the radiologist palpating a visualized organ is unlikely to overlook what may easily be missed when the hand is unaided by sight. I have heard it said that heavy x-ray gloves will cause tenderness almost anywhere if used for palpation. Apart from the fact that strictly localized tenderness is alone of diagnostic value, the statement simply is not true. I have palpated with x-ray gloves thousands of patients in the past eighteen years, and I can certify that only a small percentage complained of pain in the right iliac fossa and in a still smaller percentage was tenderness localized in the appendix. It is, of course, a fallacy to declare an appendix necessarily free from infection because it cannot be incriminated by radiological methods.

Mr. Paterson's last criticism is of the value of x-ray evidence in demonstrating the healing of a gastric ulcer. The facts are simple. The ulcer makes a wide-mouthed pocket which fills with barium. With proper technique this pocket can be shown at will. If a time comes when the same process several times repeated fails to show the pocket its mouth must be closed. And when a year or two later the symptoms return, the demonstration is complete for the pocket is found again to be present. Here I am, for once, prepared to be dogmatic, and to say that seeing is believing.

In conclusion, I cannot allow to pass without adverse comment Mr. Paterson's dictum that if the x-ray findings do not support the clinical signs and symptoms they should be disregarded. This I consider to be a most dangerous statement not, perhaps, as Mr. Paterson means it but certainly as it will be interpreted by many who read his remarks. For example if the history and symptoms call attention to the digestive system and the radiological examination reveals changes in the lungs suggestive of tuberculosis, are these findings to be disregarded? This is no fanciful example but has happened several times in my own practice, the course of events subsequently proving that the dyspepsia was secondary to the lung trouble. To say that there is no such thing as a purely radiological diagnosis is to play with words. No physician practising radiology makes his report with

out taking into consideration the patient's history and symptoms. History and symptoms *plus* x-ray findings often leave no practical doubt as to the patient's complaint just as history and symptoms *plus* physical examination may in other cases be virtually conclusive.

So far my argument has been, in the language of another profession, that there is no case to go to the jury. But I am pleased to be able to close on a note of agreement with Mr. Paterson. I do believe in co-operation between surgeon and radiologist. In particular I think it essential that both should obtain the history of the case. A patient will often tell quite a different story to separate antechisms, and it is important that these histories should be correlated.

ERRORS IN THE INTERPRETATION OF RADIOGRAMS OF THE CHEST

THEIR CORRECTION BY TELE RADIOGRAPHY

BY

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(With Special Plate)

In the ordinary method of radiography of large and deep parts of the body such as the chest, when the x-ray tube is situated at 2 ft. or less from the film, considerable errors are introduced owing to the divergence of the rays. Though these errors are known to exist, their magnitude and importance are, in this country at any rate, not sufficiently recognized. It is the purpose of this article to show how misleading such errors may be, and how by the simple method of tele radiography they can be reduced to a minimum.

The errors are of two kinds: (1) errors of position, (2) errors of size, in addition there is (3) faulty definition.

1. ERRORS OF POSITION

Fig. 1 illustrates the projection upon the film of the ordinary postero-anterior view of the chest, the central

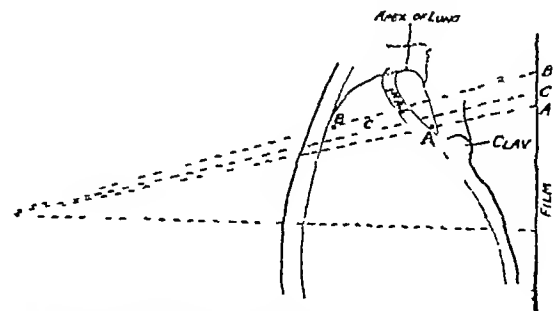


FIG. 1.—Postero-anterior projection through the upper part of the lung showing displacement. See text.

ray passing through the mid-line of the body at the level of the third costo-sternal articulation. A and B are two points lying in the same horizontal plane on the anterior and posterior surfaces of the lung respectively. As projected upon the film (A'B') A appears to be higher than B. Moreover a point, C, lying at a lower level than A and B, is projected above A but below B. Fig. 1 (plate) shows the postero-anterior view of the chest, the distance between the tube and the film being about 2 ft. On the chest four coins of equal size have been placed. Coin A lies on the anterior wall just below the inner end of the clavicle. B lies on the posterior wall opposite the fifth rib in exactly the same horizontal plane as A. The central ray is at the level of the third costo-sternal articulation. It will be seen that B appears to be supraclavicular, whereas its true position is well below the apex of the lower lobe. The two coins C and D are placed on the anterior and posterior walls of the chest respectively in the same horizontal plane (level of the third costo-sternal articulation), through which the central ray passes. They are both 34 in.

from the mid-line. It will be seen that D is projected well to the outer side of C.

This displacement is very little realized, and is of the greatest importance in the correlation of the radiological with the clinical findings. In a radiogram taken in this way the part of the lung field which is projected above the clavicle is not the true supraclavicular part, in other words, it is not the view which the observer would get were the patient standing in front of him with a transparent chest wall. In viewing the supraclavicular part the observer is looking into a section of lung shaped like a truncated cone, the narrower posterior end of which points downwards and towards the middle line so as to include the upper part of the lower lobe. The plane of the lung, which is just below the clavicle, is projected partly above and partly below the clavicle. The upper part of the lung is, in fact, distorted in much the same way as the roof of a house in an architect's elevation. Similarly when he is viewing the costo-phrenic angle he is looking not directly backwards, but upwards and towards the middle line, and when he is viewing the lateral wall of the chest he is looking slightly inwards. The radiogram as a whole is in reality the integration of an infinite number of parts, each of which is the projection of a cone of lung tissue. The farther any part is from the film and from the mid-line the greater is the distortion which it suffers. Even when he realizes this fact the observer finds it very difficult to transform the visual into an adequate mental image.

This important point can perhaps be expressed more simply in the following way. Let us suppose once more that the chest wall is transparent. In order to obtain a naked-eye view corresponding to the radiogram the observer would have to stand not in front of but behind the patient, with his eye in the position occupied by the x-ray target—that is to say, at the level of the third costo-sternal articulation and about one foot away from the posterior surface of the body. This fact was first pointed out by Cotton.¹

The worst feature of this error is that different parts of the lung are displaced unequally, the greater the distance from the central ray, the greater is the displacement. The consequence is that a small change in the position of the central ray alters the projection considerably, magnifying the error on the side from which the central ray has moved, and diminishing it on the other. If the central ray passes through the fourth instead of the third costo-sternal articulation the error will become greater in the apical region but less at the base. No two radiograms of the same chest, therefore, present the same appearance unless the central ray has the same position in both cases.

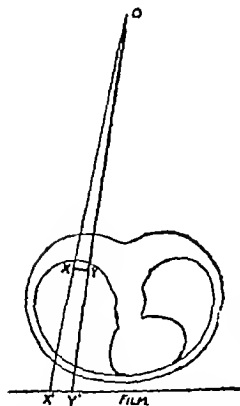


FIG. 2.—Projection through horizontal section through the chest showing magnification.

(Fig. 2) be situated 8 in from the film, the tube-film distance being 2 ft. The projected diameter is XY'. Let O be the position of the tube. It is obvious that—

$$\frac{XY'}{XY} = \frac{OX'}{OX} = \frac{24}{16}$$

$$XY' = \frac{3}{2} XY$$

and the area of the projected cavity is nine-fourths or two and a quarter times the true area.

In other words, from the clinical point of view the radiological appearance always exaggerates the case. Provided the error were always of the same magnitude it would not matter so much, since those who have to interpret the radiogram would know it and learn to make mental allowance for it. This, however, cannot be done, since the error varies with the distance from the film of the structure concerned.

3 FAULTY DEFINITION

The blurring of the edges of the two coins on the posterior wall of the chest in Fig. 1 is very obvious. It is, of course, due to the penumbra formed by the blunt focus of the tube. No tube can be made with a point sufficiently fine to avoid it. But even if a point focus could be obtained, faulty definition would still occur, and for this reason. In the normal and abnormal structures found in the lung we are dealing with fine differences in the depth of shadows. Let the triangle A (Fig. 3) represent the varying depth (not size) of such a shadow tapering to a point. Let the shadow be projected in the form A'.

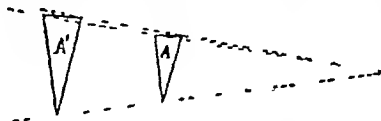


FIG. 3.—For explanation see text.

The inevitable result will be that the grading of the shadow will be, so to speak, more prolonged. In other words, relative opacity will be exaggerated and blurring will result. The image exhibits a greater gradation of shadow than the object warrants.

ORTHODIAGNAPHY AND TELE RADIOGRAPHY

In order to avoid the errors above described two methods are employed. These are orthodiagraphy and tele-radiography. In the former the patient stands behind a fluorescent screen the position of which is fixed. The tube can be moved laterally and vertically in such a way that the central ray can be projected through any part of the chest in a plane at right angles to the screen. Using a very small diaphragm, the operator with one hand moves the tube, while with the other he sketches point by point the outline of the organ examined. Since each point is the projection of the central ray, the outline thus obtained represents the true size of the organ. The sketch is then transferred to tracing paper. Alternatively a pencil moving automatically with the tube is used. This method, which was devised by Moritz and developed by Groedel, is now extensively employed on the Continent, particularly in Germany and Austria. It has the advantages of rapidity and cheapness, since films are not required. It has two great disadvantages: first, while it provides an admirable method of recording bold outlines such as the borders of the heart, it is impossible by this means to follow fine details; secondly, the record thus obtained is subjective and not objective.

Tele-radiography simply consists in increasing the distance between the film and the tube so that the errors due to divergence are reduced to a minimum consistent with practice. The distance usually employed is 2 metres, or about 6 ft. The rays issuing from a tube at this distance may for practical purposes be considered to be parallel. This method, which was first suggested by Kohler, is coming into increasing favour, but in my opinion has in this country not yet received the attention which it merits. One reason for this is the incidental result of the improvements which have been made in the construction of x-ray apparatus. Such improvements have, rightly enough, had for their main object the protection of the operator. Most screening stands are so constructed that the patient must stand close up to the tube. But while this arrangement is admirable both from the point of view of protection and for the purpose of a visual examination, it is not suitable for obtaining a true picture. The old objection that a long exposure is necessary is in these days of powerful plant no longer valid.

My own procedure is as follows. Using a screening stand in which the tube and screen move together, a screen examination is first made. The patient comes out of the screening stand and sits on a stool fitted with a film

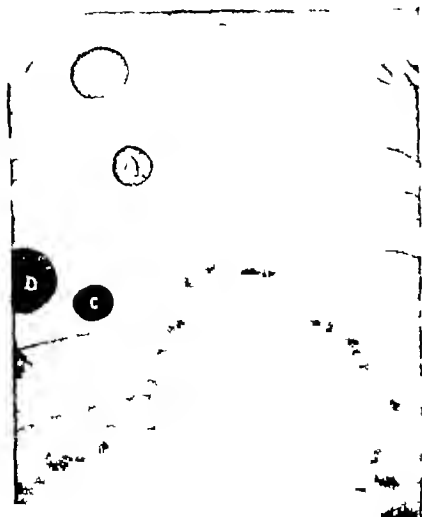


FIG I—Postero-anterior view of chest taken at 2 ft. A, B, C and D are four similar coins. A and C being on the front wall, B and D on the back wall. B is situated directly behind A and D directly behind C. Note magnification and displacement of B and D. B though opposite the upper part of the lower lobe appears to be above the clavicle.

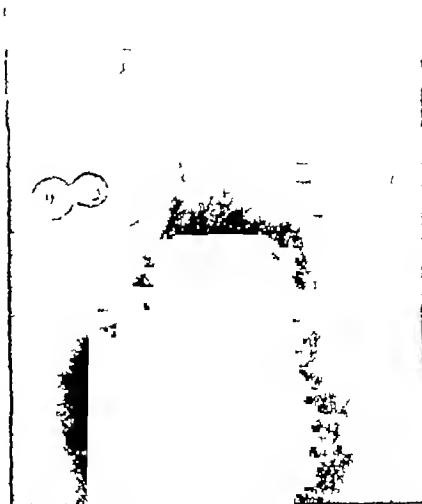


FIG II—The same but at 6 ft instead of 2 ft. Note the correction in size and position of B and D.

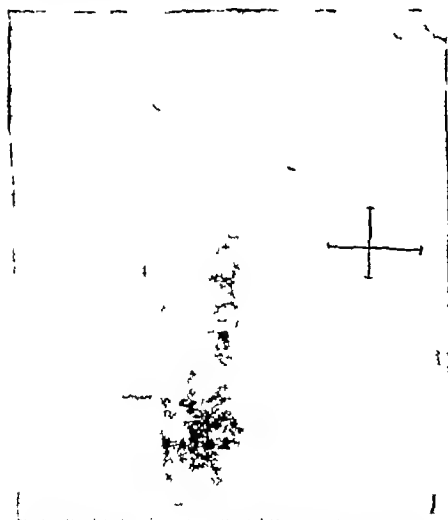


FIG III—Cavity in the left lung taken at 2 ft. The cavity is indicated by cross lines.



FIG IV—The same but at 6 ft.

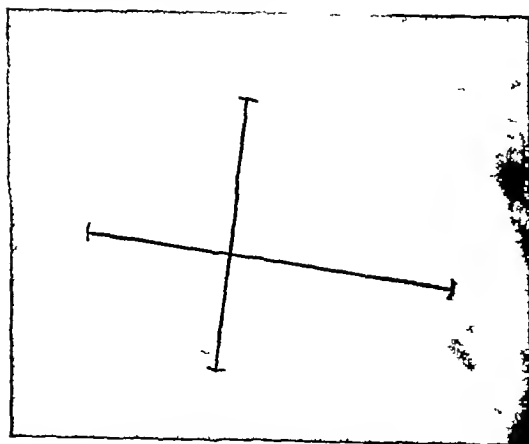


FIG V—Cavity in its true projected size (unreduced) from FIG III.

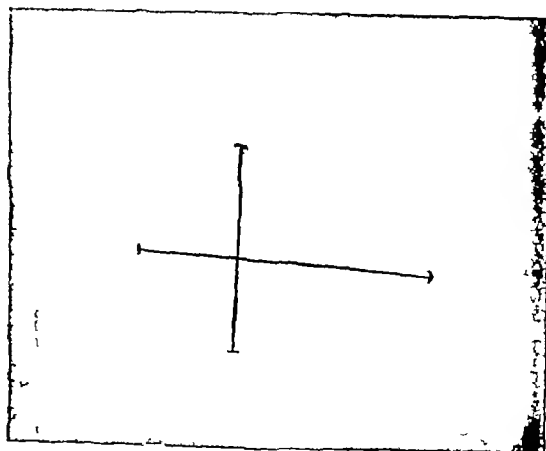


FIG VI—The same (unreduced) from FIG IV.

H WILLIAMS AND C THURSTAN HOLLAND AN UNUSUAL CASE OF URETERAL STONE



FIG 1.—First of our radiographs of the pelvic region



FIG 2.—After the introduction of the supposedly opaque catheter. Note change in position of shadow of stone.



FIG 3.—After the injection of umbrenal into the catheter.

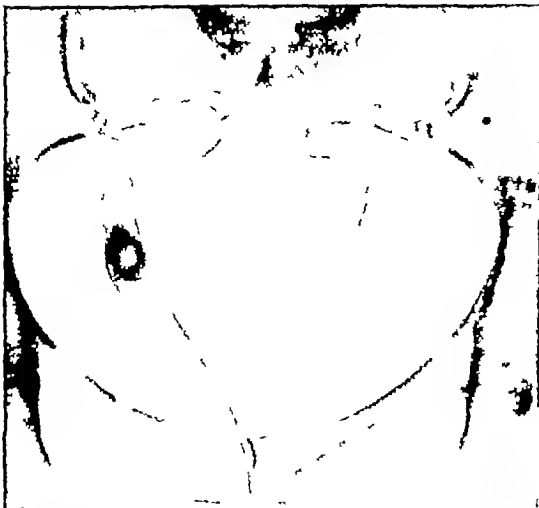


FIG 4.—After partial withdrawal of catheter. Stone shown as a distinct shadow.



FIG 5.—Half an hour after removal of catheter. Mixed urine and umbrenal in dilated ureter. Stone faintly shown.

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AN UNUSUAL CASE OF URETERAL STONE

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holder (Fig 4) This is a very simple piece of apparatus which was put together in a few minutes. It consists of an ordinary office stool 2 ft 6 in in height, above one side of which projects a vertical board 2 ft in height and 1 ft in breadth, supported on a pillar which is screwed to the stool. The lower edge of the board is 8 in above the seat. The patient sits facing the board with his legs protruding beneath it, one leg on each side of the pillar. The film in its cassette having been placed upon the board, the patient presses his chest against it with his arms folded behind the board. This position not only immobilizes him, but also has the incidental advantage that it causes the maximum abduction of the scapulae, with, in consequence, the least possible obstruction of the lung fields by these bones.

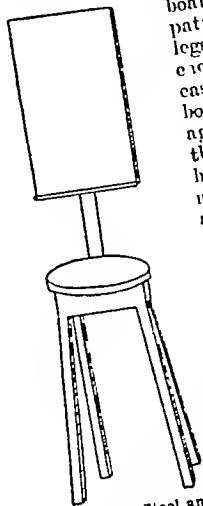


FIG 4.—Stool and film stand used for tele-radiography

The stool is placed so that the film is 6 ft from the tube. The positions of the tube and stool have been previously adjusted so that the central ray passes through the mid line of the body at the level of the third costo-sternal articulation. These positions are standardized once and for all, allowance being made for varying heights of patients. Suitable marks are made on the upright and arm of the tube-stand, while the position of the stool is marked on the floor. Tube and stool can therefore be adjusted rapidly in the recumbent position.

For patients who have to be examined in the recumbent position, the best method is to put the patient on a stretcher on the floor and to use a vertical stand with the tube as high as the pillar will allow. It is not necessary to turn the patient over on his face, for the following reason. The ordinary close up antero-posterior view of the chest (the rays passing from front to back) is unsatisfactory, since the heart and great vessels lying nearer the front than the back wall of the chest cast an exaggerated shadow. With the tube at 6 ft, however, this exaggeration is reduced to a minimum. In fact, there is very little difference at 6 ft distance between the antero-posterior and the postero-anterior view. It will therefore be seen that the method is very simple, the only trouble being involved in the initial standardization of the position of stool and tube.

Fig II is the same chest as Fig I, but taken in this way. It will be observed that coin B is almost directly behind A and approximates closely to it in size. This, ever, is slightly to the outside of C, owing to the fact that the patient is turned slightly to his left. This can readily be determined by comparing the positions of the two sterno-clavicular articulations in relation to the edges of the vertebral column. It will be seen that the inner end of the left clavicle is slightly farther out than that of the right. Had the patient been sitting quite square D would have been almost directly behind C. Again, taking the case of a structure situated 8 in from the film let XY be the actual diameter of the structure and X'Y' the diameter of its shadow. We have

$$\frac{X'Y'}{XY} = \frac{OY'}{OX} = \frac{6 \text{ ft}}{5 \text{ ft } 4 \text{ in}} = \frac{9}{8}$$

$$\text{while } \frac{\text{area of } Y'}{\text{area of } Y} = \frac{81}{64}$$

The exaggeration in area is therefore about nine sevenths, as compared with nine-fourths in the close up view. It will further be observed that the outlines of coins B and D, instead of being blurred as in Fig I, are now as well defined as those of A and C.

Space prevents my showing many instances of the various conditions in which the superiority of the tele-radiogram is manifest. I shall confine myself to one case, illustrated in Figs III and IV. These show in the left lung an egg-shaped ring shadow, probably due to a cavity. The position and extent of the cavity are indicated by cross lines. Fig III was taken at a distance of 2 ft and Fig IV at

6 ft. It will readily be understood that in the process of reduction the difference has become considerably diminished. I have therefore reproduced in Figs V and VI the cavity in its true projected size, Fig V is at 2 ft, Fig VI at 6 ft.

Enough has been said to show how misleading the ordinary radiogram of the chest may be. Owing to the error in size the film always shows the case to be more serious than it really is, while the error in position must often lead to considerable discrepancy between the radiological evidence and the evidence deduced from physical signs. It is also clear that, as records of the progress of a case—for example, the changing size of a tumour, cavity, or aneurysm—successive radiograms lose much of their value unless they are taken under the same standard conditions. It seems to me to be highly desirable that for comparative purposes a conventional standard should be adopted, the two constants being the distance of the tube from the film and the level of the central ray. Thus, of course, is not to say that other views are unnecessary. I should be the last to minimize the importance of special views, such as the Kreuzholz view suggested by Fleischner for revealing interlobar effusions, but I feel sure that the adoption of a standard tele-radiogram would be a step forward in the radiology of the chest.

I have to thank Mr Mann radiographer at Addenbrooke's Hospital, for his skilful technical assistance.

REFERENCE.
Cotton W. *Archives Rougen Ray* 1902.

AN UNUSUAL CASE OF URETERAL STONE

BY
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(With Special Plate)

The investigation of this case presents many features of interest both from the urological and radiographic points of view. The short history of the case is as follows.

Miss M, aged 46, in May, 1927, had a sudden pain in the left loin lasting from four to five hours, accompanied by frequency of micturition. The temperature was normal.

In October, 1927, she had very severe pain in the left loin, she was writhing in agony and could not keep still. This was associated with a rigor, sweating, and violent retching. There was no great frequency of micturition but the urine was acid and contained a slight amount of albumin, pus cells, staphylococci, and coliform bacilli. In ten days she was well again.

In November, 1927, she had a similar attack to the last but it was more severe and lasted a fortnight.

Between the attacks she had persistent frequency of micturition and sharp pain in the urethra after the act, persisting for varying times afterwards.

In December, 1927, an x-ray examination was made elsewhere. Various shadows were found in the pelvic region, where it was suggested that there might be a stone in and it was also suggested that there might be a stone in the pelvis of the left kidney.

On February 2nd, 1928, C T H examined her and took the usual films to cover the whole stone area. These radiographs showed that there was no stone in either kidney, and both kidneys appeared to be normal in size and position. In the pelvic area were shown the same shadows which had previously been found, and all of them were in exactly the same position. (See radiograph, Fig 1.) This showed that no stone had passed in the interval from the left kidney. It was obvious that the only shadow to be considered was the rounded one on the left side of the pelvis. This was not in the usual line of the ureter, it was round in shape, and it was in exactly the same position in two radiographs taken at intervals of a few weeks. C T H very definitely decided against it being a shadow of a ureteral stone.

Now came the first piece of luck. C T H was out when the surgeon in charge of the case (H W) came in to see the

the films C T H's partner (J H M) showed him the films and also agreed that it might be a stone in the ureter. The result of this was that it was decided to have an opaque catheter passed, arrangements were accordingly made, and the patient was told all about it. The point is that in all probability if C T H's opinion had been given in the first place then no further x-ray proceedings would have followed.

Having explained everything to the patient, it was settled that the opaque catheter should be used not withstanding, and, under general anaesthesia, the cystoscope was passed (she refused to undergo cystoscopy with a local anaesthetic). The left ureteric orifice was inflamed and an area of cystitis extended from it on to the trigone. The ureteral catheter (sold as an opaque one) passed easily right up the ureter without a hitch of any kind.

Stereoscopic radiographs were taken and the films immediately developed. Our consternation was great when no shadow of the catheter was present (See Fig 2.) (It is to be noted that the patient knew exactly what to expect and would have to see the radiographs.)

The next step was not very obvious, as no other catheter was available and the patient was coming round from the anaesthetic, then, very fortunately, it occurred to one of us that as the catheter was not opaque there should be a lumen into which opaque fluid could be injected. Umbrenal was injected and a radiograph (Fig 3) obtained, the catheter was partially withdrawn and the radiograph shown in Fig 4 taken. The catheter was then entirely withdrawn, and these two films were developed. It is obvious that a satisfactory explanation of these films was not easy. Some of the opaque fluid had apparently passed down beside the catheter, which was not touching the doubtful stone shadow, and just about one inch above the shadow had passed away from the catheter as if to enter a sac, and had surrounded the shadow, which in the second of these films (Fig 4) appeared as a negative shadow—that is, as a less dense area in the middle of the umbrenal shadow.

It then occurred to us to take one more plate, and this was taken about twenty minutes after the withdrawal of the catheter, when urine and umbrenal filled the lower ureter (See Fig 5).

The exact diagnosis then became clear. The ureter was enormously dilated from the spot where it entered the bladder wall, and the shadow was, in fact, caused by a stone in the dilated ureter. Originally there appears to be no doubt but that the stone was impacted at the site of the entrance of the ureter into the bladder, and then, having caused the dilatation of the ureter, had moved upwards. It was really a stroke of luck that the catheter was non-opaque to x rays, as if it had been opaque nothing further would have been done and it would not have helped to an accurate diagnosis. Then, again, it was most fortunate that it was hollow, and that some opaque fluid was at hand. Even then, without the somewhat lucky last radiograph, there would still have been some doubt as to the exact position of affairs. One other thing we should, of course, have done was to have taken a radiograph of the kidney after the injection. In the heat of the fray this was forgotten.

On February 9th, 1928, the non-protein nitrogen in the blood = 37 mg per cent. The next day, under ether anaesthesia, cystoscopy was again done, for the double purpose of carrying out the dye excretion test and attempting to bring the stone down into the bladder. Dye appeared from the right ureter in five minutes, but none appeared from the left in fifty minutes. An "Eynard" ureteral dilator was used in the attempt to bring down the stone. This was unsuccessful, and all that came away was some septic-looking granulation tissue.

This procedure induced another attack of pyelonephritis, and examination of the urine revealed the presence of blood, pus, squamous epithelium, mobile bacilli, and staphylococci. The attack lasted five days.

The question of operation for removal of the stone had now to be considered. The easiest method of approach would have been through a suprapubic incision with displacement of the peritoneum. This route was decided against because the patient was particularly anxious not

to have more than one operation. The effluent from the left kidney was grossly infected, the ureter was markedly dilated, and the patient had had three attacks of pyelonephritis. In the case, therefore, of the stone being removed by direct exposure of the pelvic ureter it was impossible to promise that the kidney would recover and not require subsequent removal. It was accordingly decided to expose the kidney by the usual lumbar incision, then if the condition of the kidney called for removal, this could be carried out, if, on the other hand, it was considered recoverable, it could be left, and the stone removed through an incision in the ureter.

At operation the kidney was found to be slightly enlarged, and the pelvis and calyces a little dilated. The ureter was dilated to a moderate degree, and on incising it some turbid urine containing flakes of pus escaped. The mucous membrane of the ureter was glistening and did not show any gross inflammatory changes. It was therefore decided not to remove the kidney.

A short incision was made into the ureter. A special bent long spoon (Fig 6) was passed down to its lower end and a small oxalic acid stone was brought up the first time. The incision in the ureter was closed and the lumbar wound sutured and drained.

The patient made a normal recovery and left the nursing home on April 12th.

On June 21st she reported that she had had no further attack of pain in the loin, there was no frequency of micturition or pain at the end of the act. Her general state of health was very good and she could walk three miles.

No cystoscopic examination has been carried out since the operation, nor is she likely to consent to one being done.

The case is extraordinarily instructive from the radiographic point of view, and demonstrates clearly the difficulties which may sometimes arise, and the ease with which an exact diagnosis might have escaped us.

It is a very easy matter nowadays to show stone shadows and the shadows of other things. Differential diagnosis of these shadows may be, and often is, a matter of great difficulty, and even a large experience may fail one.

From the urological point of view it shows the difficulty of giving an opinion as to the exact condition of the kidney by means of the ordinary urological investigation. Such investigation in this case suggested the presence of an extensively disorganized kidney, or at any rate one of very little functional value. Exploration at operation, however, indicated a recoverable kidney and one well worth saving, a decision that has been thoroughly justified by the subsequent history of the patient.



FIG 6

AFTER-EFFECTS OF SURGICAL PROCEDURES IN CASES OF PULMONARY TUBERCULOSIS

I—THE SURGEON'S POINT OF VIEW *

BY

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THE surgical treatment of pulmonary tuberculosis has become of increasing importance during the last few years, and although a large amount has been written about it, I do not propose to take up your time with a recapitulation of published results, but shall confine myself entirely to my own personal experiences.

The final test of any method or methods of treatment can only be judged by their end-results, but the satisfactory results of pneumothorax treatment, in properly selected

* A paper read in opening a discussion in the Section of Tuberculosis of the Annual Meeting of the British Medical Association Cardiff 1928.

cases and when adequately carried out, have encouraged the surgical methods when the minor methods are impossible.

After-results will depend upon a series of factors, and I propose to discuss these under different headings before giving the actual figures of cases upon which operations have been performed.

FACTORS INFLUENCING THE AFTER-RESULTS

(a) Right Choice of Cases

In considering this factor it must be realized at the outset that, as a general rule, acute early phthisis is excluded so far as all major surgical procedure is concerned. The cases which are almost invariably submitted are those of the chronic third stage type, and in considering results comparison must be made between cases of this kind which have been submitted to operation and those which have not. Up to the present time, so far as this country is concerned, it is only in cases in this stage, which, in spite of the usual measures, are showing a tendency to become worse, that surgical treatment is contemplated by the physicians in charge. It is quite unnecessary here to bring forward figures of the results of sanatorium and other forms of medical treatment in late disease except to say that there is great scope for improvement, and it is my contention that in a certain proportion of these cases surgery can give much help.

The chief factor influencing one's choice is the condition of the "better" lung. It is extremely rare that there is no evidence, either clinical or radiological, of the previous existence of contralateral disease. This alone is not necessarily of significance, but one adopts as a working hypothesis the rule that this disease shall have shown no activity for at least three months before operation.

In cases of doubt it has been my custom, following the practice of Sanerbruch, to make use of the minor operation of phrenic evulsion, which, by putting an increased strain on a doubtful "better" lung, may enable us to determine any liability of the disease to spread therein. I have had no case so far, in which the major operation was contemplated, where increased activity of disease in the better lung has resulted from phrenic evulsion, but this does not necessarily diminish the value of the minor operation for the purpose just indicated.

In certain instances I have been persuaded to undertake thoracoplasty in the presence of active disease of the opposite apex, but these cases have been chosen with particular care and have been under control by a competent physician. Active disease in the better lung in situations other than the apex is a definite contraindication to thoracoplasty, although in one case with activity in the middle zone in which thoracoplasty had been successfully performed the disease settled down and is now inactive after two years.

Cases in which artificial pneumothorax has been induced and carried on for some time—months or even years—and in which, following cessation of refills, the disease becomes active again, almost invariably respond well to major surgical collapse. It is only rarely possible to reproduce the artificial pneumothorax, and time should not be wasted in other measures before submitting these cases to thoracoplasty.

Another type in which thoracoplasty is of great value is that in which, either during artificial pneumothorax therapy or as a result of spontaneous pneumothorax, fluid develops, which later becomes purulent. The fluid will require aspiration at intervals, with or without gas replacement, and there is a constant danger of secondary infection, either from within, by way of a small pulmonary fistula, or from without after repeated aspiration. Secondary infection with pyogenic organisms is always a serious and often a fatal complication, and one which should be avoided at all costs.

(Where this complication has occurred I would urge that when aspiration or drainage is necessary it should be done, if possible, through the front of the chest, so as to allow a clean field for collapse operations over the back, when recovery is sufficient. The cavity can always be kept empty by means of suction, and the area at which an empyema naturally points is always in this region.)

Cases in which drainage of an infected tuberculous empyema has been performed should, other circumstances

permitting, be submitted to thoracoplasty as soon as is reasonably possible, since delay may result in the establishment of lardaceous disease. The ultimate prognosis in these circumstances is always very poor, and provides a strong argument for adapting radical measures for tuberculous empyemata before secondary infection has supervened.

Of the series of cases analysed later, nine had thoracoplasty for tuberculous empyema. Five of these (four being sequelae of spontaneous pneumothorax and one a tuberculous effusion occurring during artificial pneumothorax treatment) had thoracoplasty performed with excellent results, the pleural layers becoming approximated and adherent. All these patients are now on full work. The other four had sinuses present as a result of previous drainage operations for secondary infection. Of these, one is quite well except for a minute sinus, another died owing to extension of disease to the other lung within a few days of the operation, the third succumbed to lardaceous disease three months after thoracoplasty, although the operation wound healed by first intention, the fourth, although alive, is gravely ill.

Apart from the types mentioned previously it may be taken in general that thoracoplasty is indicated in all those cases in which complete unilateral artificial pneumothorax is indicated, with the proviso that more care should be devoted to establishing the presence or absence of active disease in the better lung, and that early cases should be given an extended trial of all other medical measures before operation is considered.

There is, however, a tendency to wait too long, in many cases until the patient has been weakened by repeated haemorrhages or until practically all lung parenchyma has been replaced by fibrous tissue interspersed with multiple cavities. It is not to be expected that any operation can offer hope of relief in the terminal stages of cases of this sort, and, apart from this, surgical operations, which may be excellent in appropriate circumstances, will incur a not unreasonable odium if performed at this stage. Surgical procedures offer considerable help in cases of haemoptysis which cannot be controlled by ordinary measures and in which artificial pneumothorax cannot be induced.

(b) The Type and Extent of the Operation

Increasing experience has steadily convinced me that the ideal to be sought is an adequate collapse of the whole of the involved lung. This can best be obtained by performing a preliminary phrenic evulsion and subsequently a two-stage thoracoplasty from the first to the tenth ribs posteriorly. In the majority of cases these operations are done with a short interval, seven to fourteen days elapsing between the phrenic evulsion and the first stage, while the interval between the two stages of the thoracoplasty is from sixteen to twenty-one days.

In my experience phrenic evulsion definitely diminishes the reaction of the first stage of thoracoplasty, apart from its subsequent compression value. Moreover, the division of the operation for thoracoplasty into two stages has undoubtedly lowered its operative mortality, and unquestionably allows of its successful performance upon individuals in whom it would be otherwise impossible.

With regard to partial thoracoplasty, it would seem, even with resection of considerable portions of a few ribs, that the compression is inadequate, since effective collapse of the thoracic cage is prevented by the remaining rigid chest wall.

There are two measures suitable for the production of localized collapse—namely, phrenic evulsion and pneumolysis.

The former operation is of a minor type and should, if carefully and properly performed, be without mortality. For various conditions, including tuberculosis, I have performed it 120 times, without surgical complication of any sort. In tuberculosis, however, it is only in a small proportion of cases that the result of this operation alone is adequate. In certain instances it has benefited the patient sufficiently to admit of the performance of thoracoplasty several months later, and in the rarer cases of basal tuberculosis it may be all that is required. As an accessory operation there are several indications for its employment. In pneumothorax cases where basal adhesions are present

and in which refills are followed by an irritating cough, or in which adhesions are preventing the collapse of cavities in other situations, very considerable relief can be obtained by phrenic evulsion.

The question whether phrenic evulsion should be used in a greater number of cases of artificial pneumothorax, without special indication at the time, and with a view to prevent full expansion of the lung after cessation of the pneumothorax, is debatable.

Pneumolysis, or the separation of the lung and the two layers of the pleura from the inner chest wall, does allow of very definite localized collapse if the space is filled by some extraneous substance which is retained. Fat is probably the best substance, and may be obtained either from the patient's abdominal wall or from a lipoma from a patient of a corresponding blood group. The chief disadvantage of the operation is its localized nature in a disease which is much more generalized. It has a very definite value, in my experience, where a residual cavity remains at the apex after thoracoplasty.

(c) Anaesthesia

There has been much discussion as to the best method of anaesthesia for these operations. It is widely recognized that ether has an irritating effect upon the lungs, and it is but rarely used. Some surgeons operate under chloroform anaesthesia, but this offers the disadvantage of the depressing effect of the drug on the heart, and is a factor which, in these cases, where the blood pressure may be as low as 90, cannot be ignored.

Local anaesthesia, most commonly used on the Continent, largely because of the lack of skilled anaesthetists, can be satisfactorily employed as regards elimination of pain, but the sensation of pulling and pressure which patients experience in such a large operation has a very definite mental effect. They may not suffer from surgical shock, but they do suffer from a mental shock.

The earlier cases of this series were performed under local anaesthesia, but for the above reasons I now employ a combination of gas and oxygen inhalation with local anaesthesia, and with this I am well satisfied.

(d) Operative Mortality and Complications

The operative mortality depends upon several factors, most of which have been previously enumerated. Pulmonary embolism, unfortunately, cannot by any known means be entirely eliminated from the complications of any surgical procedure, this accounted for one of the operative deaths.

Shock as a cause of death should be largely, if not entirely, eradicated by careful pre-operative treatment, suitable anaesthesia, and rapid operating—by operation in two or more stages where required—and finally, by careful choice of the cases. These factors will all depend upon the skill and experience of the operator and his assistants.

Rapid spread of disease in the opposite lung will occasionally occur, and when this results in death under three weeks it must be considered as due rather to activation by the operation than to the compression. Two patients developed such a rapid spread in the opposite side (within three weeks from operation), from which death resulted.

Wound infection, should it occur, is likely seriously to complicate convalescence, and death has been reported as a result. It is possible that infection may very occasionally spread through the pleura from the lung, but a more likely cause is the introduction of sepsis from without, either at or subsequent to operation. The only cases in which the technique cannot be completely blamed are those with secondarily infected discharging sinuses of the chest wall, but even then careful sequestration of the infected area should eliminate the possibility of infection in the operation wound.

The above remarks apply more especially to thoracoplasty. No complications and mortality in phrenic operations have occurred, and in five cases of apicolysis, with fat transplants, there was no operative mortality, and only one case in which any complication occurred, this is described later.

(c) After-Treatment

It is not necessary here to enumerate the smaller items of the immediate post-operative treatment, attention being drawn only to wider principles.

In phrenic evulsion and apicolysis there is little after-treatment. In thoracoplasty the essential point is to take advantage of the soft nature of the parietes before rib regeneration occurs.

It has been my practice for some time to apply to the chest wall small bags containing lead shot and varying in weight so as to obtain the requisite compression. I usually start this treatment about seven days after each stage of the operation, and begin with a weight of 6 or 7 lb. This is applied to the subclavicular region as long as the patient can comfortably support it, the position of the bag is then changed to the axilla, with the patient lying on the sound side, for a similar period. This pressure is applied twice a day. In those with rigid chest walls, and especially in patients with tuberculous empyema, considerable weights are required, as much occasionally as 24 lb. Subsequently, a special form of belt is worn for several months.

The enforcement, at a later stage, of a period of sanatorium regime, varying from three to six months, I regard as one of the points most essential to success.

Thoracoscopy and Cauterization of Adhesions

The following figures show the limited value of this procedure, and also demonstrate the fact that out of eleven cases in which cauterization was successfully performed in only just over half of these was the end-result very good.

Thoracoscopy performed in	26 cases
Cauterization was successful in	11 cases
The end result of artificial pneumothorax treatment and cauterization was good in	6 cases

Apicolysis

The number of cases in which apicolysis was performed for tuberculosis was 5. In 3 of these it was supplementary to thoracoplasty for incompletely collapsed apical cavities, and in all these it was successful in so far that the fat graft used healed *in situ* by first intention and that the sputum present was very much diminished. In another it was performed as a supplementary operation to an incomplete pneumothorax. Healing again resulted by first intention, but the result was unsatisfactory, chiefly, I think, owing to bilateral active disease.

In the last case apicolysis was performed for haemoptysis from an apical cavity, which had reopened after long continued satisfactory artificial pneumothorax treatment. In this case the fat graft became surrounded by a layer of effused serum, and the process of stripping the lung and both layers of pleura from the chest wall, initiated by the operation, was continued after operation by the retraction of the fibrosed lung. This resulted eventually in a large extrapleural cavity, which necessitated closure by thoracoplasty.

Phrenic Evulsion

The cases of tuberculosis in which this operation was performed numbered 79. There were no operative deaths or complications. The cases may be subdivided into

(1) Cases in which phrenic evulsion has been performed as a preliminary to thoracoplasty and of which the results are included under that heading, these numbered 40.

In a few of these cases the preliminary operation had been done several months before the thoracoplasty, and the improvement resulting therefrom justified the thoracoplasty, which was primarily out of the question, owing to both the general and local conditions.

(2) Cases in which phrenic evulsion has been the sole surgical procedure—these numbered 39 and may be classified as follows:

(a) Cases with haemoptysis with complete cessation of bleeding	4
(b) Supplementary to artificial pneumothorax	7
Much improved	6
Temporarily improved died some weeks later of bilateral disease	1

The heading "much improved" refers to disappearance of symptoms due to diaphragmatic adhesions, such as persistence of sputum, and of temperature, and to

intractable cough, most marked after refills. A point of some significance is that it has been possible considerably to increase the time intervals between refills in all cases after phrenic evulsion, a point of economic significance where patients have to travel some distance for their refills.

(c) Cases of tuberculosis without complications and in which artificial pneumothorax was not possible	28
Much improved	13
Improved	8
No change	5
Temporarily improved died subsequently	2

"Much improved" refers to cases in which temperature, pulse, and sputum were reduced to normal limits and the general condition was good. "Improved" refers to cases in which there has been a definite diminution in the quantity of sputum, a lower level of pyrexia, where present, and improvement in the general condition. In some cases the presence of bilateral active disease has prevented the full effect of the operation. Those cases in which "no change" has occurred have also been bilateral, and some of them were patients with very advanced disease. The two cases of subsequent death had both been cases of acute bilateral disease, in which the operation had been performed on the side of the more extensive lesion.

Thoracoplasty

Thoracoplasty had been performed for tuberculosis in 59 cases up to May, 1928, with the following results

Alive and well	22=37.3 per cent
Alive much improved	10=17.0
Alive slightly improved	2=3.4
Alive no change	2=3.4
Alive sanatorium treatment not completed but doing well	10=17.0
Died within three weeks of operation	4=6.8
Died later	9=15.1

Those alive and well consist of patients able to carry on their occupations, varying from heavy manual work to clerical work, in the great majority returning to their pre-invaliding occupations, if any. Those alive, much improved, consist of patients who are able to do light work. The slightly improved cases are able to get about but are unfit for any work.

The operative deaths occurred as follows: the first on the third day, from a pulmonary embolus, the second, six days after the first stage operation for septic tuberculous empyema, from acute spread in the opposite lung, the third, twenty days after the first stage operation, of acute broncho-pneumonic spread in the opposite lung, the fourth, from sudden heart failure, eight days after the second stage operation.

The patients dead subsequent to operation survived for periods ranging from three months to four years and two months. One patient, who was apparently well as regards his pulmonary condition, died suddenly in the street from an unknown cause, six months after his operation. Another succumbed to lardaceous disease secondary to a pyo-pneumothorax, which was infected with pyogenic organisms. The remainder died from tuberculosis slowly progressing in the uncollapsed lung.

II—FROM THE POINT OF VIEW OF THE PHYSICIAN *

BY

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WHEN I was asked to open this discussion from the physician's point of view I began to formulate to myself what exactly is the difference between the physician's and the surgeon's point of view, for different they undoubtedly are. The notion of the surgeon as a blood-thirsty empirical monster itching to use the knife would be, to-day, a ludicrous travesty as far removed from the truth as certain notorious writers' ideas about scientific medicine. So it is with the conception of the physician as an old

woman brooding over cases until it is too late, and whose only theatre of active operation is the autopsy chamber. The surgeon is a man of action, his is the bolder mind. He will say that if there is the slightest chance of doing good he should act. With the physician or the general practitioner, however, lies the initial responsibility. It is to him that the patient comes first for advice. In recommending a serious surgical operation he takes a great vicarious burden upon himself. He has to consider not only that an operation may do good and the probability of cure or marked amelioration, but the possibility in some cases that a severe ordeal may be endured with no amelioration, or even with a worsening of the patient's condition.

The surgeon's relationship to his patient is usually more impersonal. The mental and physical strain imposed by operation and the possibility of post-operative complications are sometimes belittled. When the patient returns to his bed with a good colour, free from shock, free from pain, and the wound heals by first intention, the surgeon may justly congratulate himself on the immediate success of his performance. Yet, though the operation has been a masterpiece of technical skill and dexterity, it will mean little to the patient or his doctor if the desired result is not achieved. Though the surgical skill will receive recognition, it is to us that the patient will come with reproaches. The physician cannot help considering the operative risk, the possibility of after-pain and discomfort, particularly in chest surgery. His concern too is with the ultimate result, not the effect on the lung operated on, but on the patient's general condition. There is another more subtle factor in the surgeon's decision. He has his own credit to consider. His results when published will be criticized. His mortality figures cannot fail to be regarded as a reflection on his skill. In a bad case he will realize that in tackling it he will run the risk of increasing his mortality figures. In my experience this reasoning has not affected his decision. On the contrary he is apt to say that if operation gives the patient the slightest chance he must consider the patient and not his own reputation. Thus the very generosity of his outlook will tend to subject the patient to operation in cases where the physician will feel very doubtful of its advisability and where the patient if he knew the risk, might prefer to die. So grave is the decision in some cases, so uncertain the prospect that the patient must be taken into our fullest confidence and sometimes decide the question for himself. In major chest surgery there are peculiar difficulties. There are problems of judgement as well as of technical skill. If it were possible a combination of the physician-surgeon would be ideal. Ordinarily such a combination would be impossible. But, fortunately, in thoracic surgery, owing to peculiar circumstances, we have had this combination, and it is to physician surgeons—if I may so designate them—such as Saugman, Morrison Davies, Gravesen, Jacobson, and others, that we owe not a little in the development of the procedures under discussion.

PROCEDURES

The procedures that I propose to discuss are (1) The open operation for dividing pleural adhesions in artificial pneumothorax—so-called "intrapleural pneumolysis" (2) Phrenic evulsion (3) Apicolysis and pneumolysis (4) Thoracoplasty (5) Oleothorax. These procedures I will discuss from the standpoints of (1) immediate risks, (2) after-pain and distress, (3) ultimate results.

1 The Open Operation for Dividing Pleural Adhesions in Artificial Pneumothorax—So-called "Intrapleural Pneumolysis"

This method, unfortunately, has not been successful, the pleural cavity becomes septic. Why this should be so I do not know. If care be taken not to divide adhesions containing lung tissue, if the cautery and this alone is employed, I cannot see why there should be any septic complication. Glove has shown that adhesions devoid of lung tissue may yet contain giant-cell systems, but, even so, with the cautery this should not cause trouble. It may not always be possible to know if lung tissue is

present in an adhesion, and if traction of short adhesions is employed the lung may be torn. But, whatever the reason, the fact remains that the operation has not established itself, and those few cases that I have seen have developed empyema. There is little disturbance from the operation itself.

2 Phrenic Evulsion

The immediate risk is small, but haemorrhage, haemoptysis, an embolism, chylous fistula, and injury to other nerves have been reported, among my own cases there was one death from pulmonary oedema four hours after the operation, under general anaesthesia, and in one case what may be called a chylocele developed, owing to injury to the thoracic duct. But such events are very rare. After-pain and distress are slight—the patient can often walk about the day after the operation.

From the operation there may be marked benefit. If not, the procedure has been slight, the ordeal small, and it is an excellent preliminary to the methods about to be described. Morrison Davies will, I trust, give us the results of his own large experience, but I may perhaps be allowed to quote from his conclusions¹.

He is of the opinion, and I agree, that in cases of lusal tuberculosis it has been unquestionably of immense assistance in arresting the disease. Benefit may be obtained in more generalized disease, and when used as an accessory to incomplete artificial pneumothorax. It will certainly relieve distressing cough and pain in some cases, and at the termination of an artificial pneumothorax, when the lung cannot expand and much mediastinal displacement is occurring, it is of undoubted benefit.

3 Apicolysis and Pneumolysis

From the physician's point of view these are the operations of choice. There is little or no shock, little discomfort afterwards, and the operative mortality, so far as I know, is negligible. Unfortunately, however, no satisfactory packing substance is known. Fat and plastic paraffin are most commonly employed, but both are apt to be extruded little by little through a pinhole sinus. Nevertheless, though this befalls, an apical cavity may remain closed, with its walls adherent. I personally am greatly interested in and impressed by the possibilities of this operation.

4 Thoracoplasty

It is the operation known as thoracoplasty that presents the greatest problem in this discussion. I have seen the most brilliant and lasting results from the operation, and I have seen the reverse. It demands the most perfect technique, the most complete understanding, and the most exact comprehension of what is to be achieved. It is not an operation that any surgeon can do, nor is it, in my opinion, justifiable to undertake it without an apprenticeship. I feel that after-results cannot be usefully discussed without a clear idea of the criteria of suitability and non-suitability.

Types of Cases Suitable

- 1 If a successful artificial pneumothorax has been allowed to terminate with a recurrence of symptoms and re-collapse is not possible.
- 2 If an artificial pneumothorax is imperatively indicated in a case of progressive unilateral disease, yet by reason of adhesions it is not possible to induce one.
- 3 If chronic unilateral disease is present causing distressing symptoms—excessive expectoration, recurrent haemoptysis, fever, inability to work, etc.
- 4 A tuberculous empyema, if producing symptoms.

Types Not Suitable

- If in the other lung there is a suspicion of active or progressive disease.
 - If resistance is poor, judged by personal history, coarse, and family history.
 - If the condition is one of fibroid phthisis with every prospect of many years of reasonably healthy life.
 - If amyloid disease or severe tuberculous ulceration of the intestines exists.
- The operation has been done some two or three thousand times at least. The results are published so that we

can form a fair estimate of the immediate mortality and the after-results. For example, Dr Gravesen, who has very kindly sent me particulars of his cases up to the present time, had in the first 100 cases a mortality of 9 per cent, in his subsequent cases a mortality of 4.9 per cent. The results have improved with increasing experience. Taking it all round we may assume an immediate operative mortality from about 5 to 12 per cent. John Alexander of Michigan University, in his encyclopaedia book on the *Surgery of Pulmonary Tuberculosis*, has collected 1,159 cases in which the operative mortality was 13.2 per cent. But these figures include cases operated on in the early days and different types of thoracoplasty.

The after-pain and distress within the first few days after the operation vary enormously in different cases. In some instances there is undoubtedly great pain and distress and profound shock, in others very little. J. E. H. Roberts claims that after-pain may be prevented or minimized if the peritoneum is stripped with great care so as to avoid unnecessary injury to the intercostal nerves, and if the muscles are not lacerated. The wound sometimes becomes boggy and sometimes septic. Aichwald claims that this may be prevented by avoiding the use of large quantities of local anaesthetic. Aspiration pneumonia may occur, but this can, to some extent, be minimized by careful anaesthesia and by not completely abolishing the cough reflex after the operation by anodynes.

Of cures, Dr Gravesen's most recent figures show 42.5 per cent out of 155 cases fit for work at the present time, more than two years after the operation. Whereas of those not operated upon and in whom extensive or universal adhesions prevented an artificial pneumothorax, only 11 per cent were fit for work. These cases are comparable with those operated upon, for it is from this class that those for operation are selected.

Of Alexander's 1,159 collected cases, 42 per cent were cured or greatly improved. Recent experience has been more favourable both as regards mortality and results. As Gravesen says, it is encouraging to see that thoracoplasty improves the prognosis from 10 or 12 per cent to 40 per cent of cures. I think we must regard such an experience as very good, seeing that the patients operated on have a serious disease in an extensive form, and who, in most cases, have been ill for a long time.

There is surprisingly little deformity to the outward eye after the operation when the patient is dressed. In a good case the patient can use the arm on the side operated on even to doing manual work or playing tennis.

To sum up, I would say that if the case comes strictly within the criteria mentioned above, the possibility of surgical cure should be put to the patient, that while we cannot guarantee the result, there is a prospect of complete and permanent recovery, and that such treatment is the only effective method we have, at the present time, of bringing this to pass in this type of case.

5 Oleothorax

I feel that a reference to this is justified, although our experience of the method is still limited, because of its extreme simplicity and because it may prevent the need of a thoracoplasty. Obliterative pleurisy is one of the most serious complications of artificial pneumothorax. Once well started, no amount of air pressure will keep the pleural layers apart. Little by little, with invincible force, the tentacles of contracting fibrous tissue draw the pleural layers together from below upwards. By inducing an oleothorax I believe this process may be stayed. The oil is driven to the upper part of the chest and then the space can be contracted no further and it is usually just this upper part that we want collapsed. In this way a condition which might render thoracoplasty necessary may be prevented.

In conclusion, I would say that there is still an apathy towards modern advances in the treatment of pulmonary tuberculosis. Patients not doing well are frequently allowed to go on with no special treatment and to pass the stage where artificial pneumothorax might save the situation.

REFERENCE.

¹ *Tubercle* ix, February 5th 1928 p 216.

RADIUM THERAPY OF CARCINOMA OF THE CERVIX UTERI*

AN ANALYSIS OF RESULTS OBTAINED AT THE WOMAN'S HOSPITAL, NEW YORK

BY

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I HAVE no apology to offer for having the temerity to bring to your attention this subject, as the therapy of cancer of the uterus is by no means accepted and standardized as are most of our gynaecological problems, and because the literature is full of conflicting opinions as to the results obtained, and as to what is the most efficient technique. Therefore, in the hope that our few drops of clinical experience in the radium therapy of carcinoma uteri during the past ten years at the Woman's Hospital in New York may act as a reagent to help clarify the hazy mixture of the various clinical reports, I beg leave to give you a survey of our observations and viewpoint as a small contribution towards bringing about the stabilization of the therapy which I am sure we all ardently desire.

Before the discovery of radium by Mme Curie the treatment of cancer of the cervix uteri was by local destruction of the carcinomatous tissue with some form of cauterization or by operation. The technique of the radical operation, as developed by Wertheim, gave so much better results than other operative procedures that up to the last ten years practically no other treatment has been used. The question to-day before us is, Can we with radium obtain the same result in treating cancer of the cervix as can be obtained by the Wertheim operation without its high primary mortality? No one questions the palliative effect of radium in the inoperable cases of carcinoma of the cervix, but to ascertain the true value of irradiation one must compare the results by operation with the results by irradiation in operable cases of carcinoma of the cervix uteri.

At this time there are only a few large clinics using radium alone for operable cases of cancer of the cervix, and consequently only a few series of operable cases of carcinoma of the cervix treated with radium five years or more ago to compare with the large number of cases operated upon radically and observed for a period of five years or longer. The object of this paper is, therefore, not only to report the results obtained in the Woman's Hospital of New York by irradiation of all cases of cancer of the cervix, but especially to show our results by irradiation of operable cases in the ten years that we have had radium in the hospital.

In the past year two statistical studies on surgical and radiological treatment of cancer of the cervix uteri, of great importance to physicians concerned directly or indirectly with this disease, have been published—one in England and one in Sweden. The first study mentioned is an exhaustive report by Dr Janet E. Lane-Claydon, published by the Ministry of Health in England and based on the data published in sixteen different countries relating to the records of some 80,000 cases of cancer of the uterus treated by operation or radium. This is a work of great magnitude, and includes a most valuable bibliography. The second study is a comparative analysis by Heyman of the Radium Hemmet in Stockholm, which he presented before the Scandinavian Surgical Society at Gothenburg in June, 1927. This is an admirable review and comparison of the published statistics of the results obtained in twenty surgical clinics and seventeen radiological clinics in Europe and America in operative or radium therapy of carcinoma of the cervix uteri.

In his comparative study of published statistics Heyman has reduced the figures of all the clinics to one uniform standard. He has left out all doubtful statistics and does not deduct intercurrent deaths or non traced cases, and

quotes only the accepted five-year cure. His combined summary of twenty surgical clinics and seventeen radiological clinics shows

For total cases—			
Operative treatment	approximately	18.0	per cent
Radiological treatment		16.3	
For operable and borderline cases—			
Operative treatment		35.6	
Radiological treatment		34.9	
Primary mortality—			
Operative treatment		17.2	
Radiological treatment	less than	2.0	
Operability—			
Operative treatment		43.0	
Radiological treatment	less than	30.0	

While these figures apparently approach each other very closely it must be evident that it is not fair to consider them as similar when we take into account the great difference in the character of the initial material as shown by a 43 per cent operability in the operative statistics as compared with less than 30 per cent in the radiological figures.

The above general averages are interesting when compared with the results obtained at the Radium-Hemmet at Stockholm by Forsell and Heyman. From 1914 to 1921 inclusive they reported for all cases 22.4 per cent free from symptoms after five years, and borderline cases with a five-year cure of 44.4 per cent. Their primary mortality from irradiation was 1.59 per cent.

These results, contrasted with the general average of the operative treatment, are certainly to the advantage of irradiation therapy, especially when we consider the character of the initial material from which these figures are compiled.

TECHNIQUE AT THE WOMAN'S HOSPITAL CLINIC, NEW YORK

We have not a large amount of radium at our disposal at the Woman's Hospital, New York. Our armamentarium consists of some 280 milligrams of the salt in tubes and needles, and our average initial dosage has been from 2,400 to 4,200 milligram hours. It is of interest to note that the Radium-Hemmet at Stockholm also uses the salt in similar dosage, and does not use the emanation with massive amounts. Our experience convinces us that the employment of massive doses cannot show any better results than the intelligent application and reapplication of smaller doses.

We start with the principle that every case of cancer of the cervix is a study in itself, and that the frequent personal observation by the surgeon directing the treatment is absolutely essential to obtain results, and this personal contact must continue throughout the period of cure. As we cannot say when any case is permanently cured, this means the patient should be under observation at regular monthly intervals throughout her life, if she would be safe, as we believe we have obtained our results by this constant watching enabling us to discover a recrudescence of the disease in its early stages long before the patient would be aware of symptoms. Thus we have the opportunity of putting out the fire while it is yet a small blaze by prompt re-radiation, instead of having to try and extinguish the serious conflagration which would be present when the patient had developed symptoms. If there is an opportunity to plant a radium needle in a suspicious area at the onset of a recurrence the problem is much simpler, as the chances of smothering the fire in its inception are greater. We therefore believe in repeated re-radiations as often as indicated, 50 per cent of our cases have had more than one application, and many of our successful cases have had three or more irradiations. It is upon this personal frequent follow-up of our cases that we have based our treatment, and attribute to it whatever success we have had.

As we are familiar with what the post-radiation picture should be at the end of each month, we think we can tell from the general appearance of the growth whether the several stages of hyperaemia, local sloughing, separation of the slough, and healing process with final cicatrization and marked contraction, which represent the phenomena

* Read in the Section of Obstetrics and Gynaecology of the Annual Meeting of the British Medical Association, Cardiff, 1928.

of irradiation of the cervix by radium, are progressing satisfactorily. This process, as we have observed it at our clinic, has been graphically shown in a paper published by Farrar. Our technique of application is simple and has been described in a previous report. We employ brass and rubber screening of the radium tube and distance screening with vaginal gauze for the protection of the bladder and rectum. We believe anchoring of the radium tube by suture is an important detail. We prefer the short needles to the long model for implantation in the periphery of the growth, and we believe the needles should not be closer to each other than 2 centimetres. Usually four needles are sufficient, unless the growth is very large. We have found a self-retaining catheter inserted in the bladder during the time of the radium application is most satisfactory to all concerned.

Many of these patients are suffering from toxic absorption and are cachectic and anæmic. During the sloughing stage of the radiation process there is necessarily an increased absorption of these toxins with resulting septic fever and an increase of the debilitated state. We have found that blood transfusion is an important adjunct to the irradiation in enabling these patients to combat this sepsis more successfully. Wherever possible we give these cases 500 c cm of blood before their discharge from the hospital.

Important details are to get the patient up early to favour drainage, and to give careful instructions as to repeated daily douches of potassium permanganate solution to favour separation of the slough, to deodorize it, and to stimulate tissue growth.

Our results have been obtained without the employment of high voltage x-ray therapy as an adjunct, as we have not the apparatus, and our employment of a moderate voltage as a post-radium treatment in some of our cases seemed harmful, and gave us less satisfactory results than when we used radium alone. So for the present we do not use x-ray therapy in conjunction with radium as a routine. We believe, however, that high voltage attack on the lymphatic glands to produce a lymphatic block as an adjunct to radium therapy is theoretically correct, and if it can be done without associated injury to the adjacent viscera it would be ideal.

Each patient is requested to report once a month in the follow-up clinic. Dr Farrar and myself attend this clinic in person, and one or the other of us palpates and inspects each cervix with its adjacent tissues.

PROGNOSIS FROM THE TYPE OF CELL

In view of the interest that has been aroused by Martzloff, Cutler, and others on the possibility of making a prognosis as to the probable reaction to irradiation in accordance with the predominating type of cell in cervical carcinoma, I have had Dr Plaut, our pathologist, study the type of cell in our series. We have not found it possible to predict the result from the type of cancer cell, for we have observed when several pieces of tissue have been taken from different places in the growth that different types of cancer cells are present. While we hope that the grading of the type of cell may prove to be as reliable an index of prognosis as some pathologists expect, still we are inclined to believe with Dr Plaut that there is at present a bewildering mass of contradictory evidence as to its value.

In 1925 we reported our results at the Woman's Hospital in New York of two five-year series of radium therapy for carcinoma of the cervix before the American Medical Association. Our percentage of cures of all cases was 23.6, and for the early and borderline (operable) cases it was 52.9, based on cases traced, or 22.4 and 50 when including the non-traced cases, to accord with Heyman's uniform standard, with a mortality of 1.6 per cent. Since that date we have completed two more five-year series, and are now able to report on all cases treated in 1919, 1920, 1921, and 1922, and the first five months of 1923. Our records and follow-up end-result cards have been audited by professional statisticians, and the figures I present to you have been compiled by them and certified as correct.

It has seemed well before giving our statistics to state definitely the character of the cases we are reporting. We have included only cases of carcinoma that have originated in the cervix and have not been operated upon or treated with radium elsewhere, so that we may compare our method of radium treatment with the radical operative treatment in similar classes of carcinoma of the cervix uteri.

TABLE I.—Primary Carcinoma of the Cervix Uteri. Radium Five Year End Results

Gynaecological Service Woman's Hospital May 1928

	Treated	Traced	Living	Percentage Living	
				Cases traced.	Cases treated
Classes 1 2 3 4	134	126	31	24.6	23.1
Classes 1 and 2 (limited to cervix)	32	30	17	56.7	53.1

Primary mortality 0.44 per cent.

Comparing these results with the statistics of seventeen clinics as given by Heyman in his report, and also with the results obtained by Forsell and Heyman at the Radium-Hemmet in Stockholm, we have as follows:

TABLE II.—Comparative Results of Radical Operative and Radiological Treatment of Carcinoma of the Cervix (Five Years)

TOTAL CASES TREATED

*All Clinics	Per cent.
Operative treatment	18.0
Radiological treatment	16.3
*Radium Hemmet	22.4
Woman's Hospital Clinic, May, 1928	23.1
Primary Mortality	
Radical operation	17.2
Radiological treatment	2.0

*From Heyman's Report, 1927

TABLE III.—Operable Cases (Five Years)

*All Clinics	Per cent
Operative treatment	35.6
Radiological treatment	34.9
*Radium Hemmet	44.4
Woman's Hospital Clinic May 1928	53.1

*From Heyman's Report 1927

Although our total series is small as compared with the Radium-Hemmet, still it is encouraging to know that our last two five-year series maintain the percentages achieved in our previous report. It must be borne in mind that the percentages given for the borderline cases must always be of uncertain value, as "borderline" means confusion, because it must depend entirely upon the personal equation of the surgeon, and we are inclined to agree with Jeff Miller that it is a useless classification for practical purposes, and that we should simplify our statistics by having only two types—early and advanced. Likewise there must be uncertainty as to the term "operability," because one surgeon will consider operable, and will operate on, cases with definite involvement of the parametrial tissues—as, for instance, Victor Bonney—while many of us who are conservative will not consider a case operable unless the uterus is mobile and without infiltration beyond the cervix. Consequently the figures given for "operable" cases will always be of unstable value for comparison also.

The lack of standardization of statistical reports is what complicates the problem of making fair comparisons. A cursory glance at the various reports published in the literature will show what a great variability exists in presenting the subject. Two-, three-, and four-year results only add to the confusion, and should be abandoned. Only five-year observations should be considered.

In giving the report of our cases of carcinoma of the cervix treated with radium we have felt the need of standardization of statistics, and would urge that we have—

1. A uniform classification of the growth itself. Schmitz's classification of groups from I to IV gives a sufficiently definite anatomical description of the extent of the tumour itself, and this grouping we have adopted in our work.

2 The report of only five year results—total cases and early cases. For comparison with the operative results obtained, we must take the same period that surgical clinics do—that is, five years.

3 Inclusion in statistics of all patients that either have not been traced or are dead from any cause as *dead from cancer*. This may seem unfair in some instances where it is difficult to trace cases, or in hospitals that do not have a follow up, but if the rule applies to everyone it can only affect a small percentage of cases and may lead to a better follow up system. Heyman, in his statistical analysis of over 8000 cases, has followed this procedure.

4 Operability rate and primary mortality. These should be given for comparison with cases treated by radical operation.

PROPHYLAXIS

The role of chronic irritation as an etiological factor in the development of carcinoma makes it imperative that lacerations and erosions of the cervix should not be neglected. In a study by Farrar of 300 consecutive case histories of cancer of the cervix at the Woman's Hospital in New York it was found that pregnancy had occurred in 96 per cent. In 288 cases 11.1 per cent of the patients had had the last pregnancy less than five years and 20.3 per cent less than ten years before entering the hospital for the malignancy. We believe that the immediate repair of cervical lacerations, when done under proper conditions as in a hospital, will lessen the danger of subsequent development of carcinoma in the cervix.

CONCLUSIONS

In conclusion, I wish to draw attention to the following creed which I hold.

There is less primary mortality, less morbidity, less loss of time with radium therapy than in the radical operation for carcinoma of the cervix.

The palliative results in cases not permanently cured are an important advantage not to be ignored.

The morbidity results of the radical operation—fistulae, thrombosis, suppuration, etc.—are not to be forgotten.

Vesical and rectal fistulae should be increasingly less frequent in radium therapy as the technique develops.

Repeated irradiations are of distinct value, and subsequent treatments should be based on the reaction to the initial or test dose.

A personal monthly inspection or follow-up is an essential throughout the period of observation, in order that by a watchful waiting we may discover a recurrence in its incipency and thus extinguish the fire before it has gained headway.

Large amounts of radium are not necessary to produce results.

A standardization of statistical reports on irradiation of cancer of the cervix is needed for comparison of results in different clinics.

We believe that our results show that radium is preferable in all classes of cervical carcinoma. We also believe that in the very early cases the radical operation will give the same result as radium, but at the cost of high primary mortality and greater morbidity.

As to the early cases—and how few we see!—with the present statistical figures available it is not yet proved which gives the best results, but the available figures do not show that the operation is any better than radium.

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RADIUM IN THE TREATMENT OF CARCINOMA CERVICIS AND INTRACTABLE MENORRHAGIA *

BY

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CARCINOMA CERVICIS

THESE observations are based on a study of over 200 cases treated with radium since January, 1926, and an experience of 130 radical operations (Wertheim). All the cases were checked by pathological report.

Radium bromide (100 mg) was applied for twenty-four hours to the external os, if it was ulcerated, or into a crateriform cavity if one existed. In a few cases 200 mg was used. After the application the patient rested for fourteen days, took potassium iodide, 5 grains thrice daily, and had a douche every day.

Pathology

Forty-five uteri which had been exposed to radium and had been reported to be malignant were sent for a further report after removal. Radium had been applied at least fourteen days previously, and in some cases one or two months had elapsed. Nine reports, when referring to the malignant growth, contained such terms as "disorganized," "retrogressing," "some necrosis," "being plagiocytosed," and three stated that there was no evidence of malignancy. In the remaining thirty-three uteri the malignant cells were apparently unaltered.

Radium applied directly to the growth can produce a beneficial result, but my operative experience makes me doubt its practical value in dealing with glandular deposits.

In order to appreciate the results the terms "operable," "borderline," and "inoperable" must be defined. These are based on the local condition as judged by the possibilities of the radical operation (Wertheim) and without reference to the age or general condition of the patient. For the benefit of those who are not conversant with operative technique it might be useful to state that the radical operation entails removal of a cuff of vagina with the cervix, as well as the extirpation of the lymphatic glands. An ordinary total hysterectomy, sometimes called panhysterectomy, does not allow of this.

Operable means that the growth is limited to the cervix, or has involved the vagina only to a limited extent, and that there is little, if any, infiltration of the cellular tissue.

Inoperable implies (1) that the ulcer extends so far down the vagina or into the broad ligaments as to prevent removal or (2) that the cellular tissue in the ligaments or round the cervix is densely infiltrated.

Borderline refers to the intermediate cases. This classification will, to some extent, depend upon the individual operator.

1 Operable Cases

In 20 cases considered operable prior to January, 1928, radium alone was used. These cases were not submitted to operation owing to such causes as age, general condition of the patient, or the presence of heart disease or diabetes, in two cases operation was refused, and in two others the application of radium made the condition clinically inoperable.

Results

Excluding two cases which have been lost trace of, the after-history of the 18 at the present date is as follows:

Improved	3
Stationary	3
Worse or dying	6
Dead	6

* Read at the Annual Meeting of the British Medical Association (Section of Obstetrics and Gynaecology) Cardiff 1928.

I do not now use radium as a routine prior to operation, since in several instances it appeared to make the local condition worse and even inoperable, while the operation area is certainly made more vascular if it has been applied recently. It should be used if the ulcer is spreading on to the vagina and there is some surrounding infiltration. A ureter can be dissected out of an infiltrated area, but, if the infiltration is due to malignancy, I am satisfied from histological reports that the only chance of success lies in devitalizing the malignant cells by radiation prior to operation.

I compared the after-results of 38 operable cases which had the radical operation alone with a similar number which had the radical operation after a preliminary application of radium. At the time of making the record a minimum of three years had elapsed in the purely operative group, and of one year in the radium group. The results are as follows:

Operation only	Per cent.
Alive and well	60
Operative deaths	5
Recurrence	30
Death from other causes	5
Radium and operation	
Alive and well	44
Operative deaths	16
Recurrence	34
Death from other causes	6

These results appear most unfavourable to radium, but the correct interpretation of them, in my opinion, is that by the use of radium it is now possible to include in the "operable" group cases which, in earlier days, one would have hesitated to operate on. It does not alter my opinion, however, that the preliminary use of radium, even in an early case, increases the operative risk and that in some cases it appears to aggravate the condition.

2 Borderline Cases

These require particular discrimination. Radium may improve the local condition and render a previously fixed and ulcerated cervix mobile and smooth, but this improvement may be more apparent than real so far as ultimate operative treatment is concerned. Ulceration may be inhibited, but tissues which have been destroyed can never be replaced, and from time to time I have regretted disturbing the scar tissue which followed an application of radium, the bladder has been opened, or the cervix has torn during the operation.

3 Inoperable Cases

In these cases radium undoubtedly improves the local condition. There is usually a smoothing and ultimately contraction of the ulcerated area, and not infrequently a diminution in the secondary infiltration. The patient reports that she feels better, and that the bleeding, and even the discharge, has ceased. The actual duration of life does not appear to be very greatly influenced in the majority of cases.

Of 23 cases considered inoperable in 1926, and treated by radium alone, 4 are alive in July, 1928, but 3 of these are going downhill. The one exception shows no evidence of growth after eighteen months. This was a case of extremely superficial ulceration spreading down the vagina to the urethra, which rapidly disappeared after one application for twenty-four hours of 200 mg of radium bromide.

Five cases seen in 1926, and considered inoperable, were so improved after radiation that the radical operation was performed. Of these, 2 died shortly after operation, 1 survived operation and lived thirteen months, and 2 are alive and well to-day and with no evidence of recurrence.

The after-history of 24 inoperable cases seen in 1927 is as follows: 17 are already dead, 5 are dying, and 2 show no definite change.

I am convinced that radium is invaluable in dealing with this condition, and that, in certain cases, it can produce results little short of miraculous. It is certainly the only treatment of proved value which can be used in the majority of cases met with, and undoubtedly produces beneficial results in most cases. I am equally convinced that it has not superseded the radical operation when such is possible. Its use is specially indicated in elderly women in the late fifties, as the growth appears to be particularly responsive to radiation.

Menorrhagia

Fifty-five cases treated with radium have given most encouraging results. A multipara in her forties, whose heavy losses will not respond to diags or curettings, and who would otherwise have her uterus removed, is a typical case justifying this treatment. The advantage of effecting a cure without resort to the major operation is obvious.

After excluding malignancy and pelvic inflammatory trouble the uterus is dilated, vigorously curetted and irrigated, and 100 mg of radium bromide is inserted for twenty-four hours into the uterine cavity. The radium is tied in the distal portion of a rubber tube, the proximal end of which lies in the vagina to allow of easy extraction. The vagina is lightly packed with gauze. After removal the patient rests for fourteen days and keeps her bowels regular. Apart from slight sickness during treatment nothing untoward is noticed.

The usual after-result is the establishment of the menopause at once, or after a few weeks, during which the patient notices a slight brown discharge. In one instance the patient's doctor reported that a pelvic abscess had discharged after her return home.

Results

Thirty-seven patients aged 40 and over were treated, all except 4 having had one or more pregnancies. All, with one or two exceptions, had been curetted on one or more occasions. Of the 37, 9 must be excluded, as they have been too recently under treatment, but reports indicate that they are in process of being cured. Among the remaining 28 there were 27 complete cures, the failure was an early case and due to faulty technique, and would almost certainly have responded to a second application. While 40 is a convenient milestone, younger patients were met with who gave a similar history prior to being treated.

In a series of 14 patients, 3 of whom were in their late twenties and had been curetted three to five times, 11 were cured. Of the remainder 1 is too recent to record, and the 2 failures were due, in my opinion, to faulty technique, the radium in one case being inserted into the cervical canal, and in the other the uterus had not been curetted prior to the application.

Four patients were treated who had small fibroids varying in size from a walnut to a golf ball. In 3 of these amenorrhoea was produced, but the fourth was a failure due to the subsequent extrusion of a submucous fibroid. One of the 3 apparent successes has since shown signs of degenerative changes taking place in the fibroids.

Conclusions

Radium treatment is safer, and almost as certain in its results as hysterectomy, and is the preferable form of treatment in such cases. The advantage to the patient in every respect must be obvious. It is specially indicated in patients suffering from disease of the heart, lungs, or kidneys, where a long anaesthetic and major operation should be avoided and a cure must be certain. It is also the ideal treatment in extremely nervous and elderly patients. Its use in cases complicated by small fibroids would only be justified by the general conditions already mentioned, and not as a routine procedure.

Radium might be of use in producing the artificial menopause in patients suffering from pathological blood disease, with a view to conserving their blood supply.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

SUBCUTANEOUS RUPTURE OF THE PECTORALIS MAJOR MUSCLE

The following case appears to be sufficiently unusual to warrant putting on record

A well-developed muscular youth, aged 19 was admitted to the Queen Alexandra Military Hospital London on May 9th. He gave a history that on the previous evening, while engaged in the second round of a boxing contest, he felt a sharp pain in the front of the right side of his chest. He was able to finish the round and boxed the next and final round without much discomfort. On retiring to the dressing room he noticed a swelling in the anterior wall of the right axilla. From the time it was first noticed the swelling did not increase in size except when the pectoralis muscle was contracted. On examination an area of ecchymosis was seen, extending along the lower part of the pectoralis major from the arm to the chest wall. Towards the outer edge of the anterior axillary fold a soft mass was palpable. On contracting the muscle some discomfort was complained of and the mass became harder and more prominent. At the same time a well marked notch was visible below and internal to the swelling as shown in the photograph. This notch was tender on palpation. The patient was quite unable to give any account of what he was doing with his right arm at the moment he first



felt the pain. He was, however, quite definite that he had not at any time been struck on the chest by his opponent. A diagnosis of partial rupture of the pectoralis major was made. Two days later the lower edge of the pectoralis major was exposed by turning down a skin flap. At first sight the muscle, in the relaxed condition appeared to be uninjured owing to the fact that the fascia over it was intact. On passing a finger under the axillary fold, however, a rent could be felt in the muscle, which extended upwards and inwards from its lower border for a distance of about two inches. The fascia on the deep surface of the muscle was also torn. The ruptured muscle, which appeared to be quite healthy, was sutured with chromicized catgut, and the arm was bandaged to the side. The patient made an untroubled recovery and no apparent weakness of the arm resulted.

The chief interest of the case lies in its rarity. To produce such a lesion the muscle must have been violently contracted while on the stretch. In surgical literature I have only been able to find reference to five cases. Mandl records a case, which occurred in a gymnast who, while swinging on rings, was attempting to rotate his body in its long axis through 360°, felt a sharp pain in the chest, and was unable to complete the exercise. The patient was seen one and a half years after the accident and a condition similar to that described above was found. The muscle had not been sutured and some weakness of the arm persisted. Mandl mentions having been able to find records of three similar cases in current literature, all of which occurred in well-developed muscular subjects during the performance of gymnastic exercises. Fisselsberg mentions having seen one case in the Billroth Clinic, in which the patient was admitted with a suppurating haematoma following a partial rupture of the pectoralis major.

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TRAUMATIC SEPARATION OF AN INTESTINAL LOOP

The complete separation of a loop of small intestine in the absence of a penetrating abdominal injury must be a very rare occurrence. The following details of such a case seem, therefore, to be worthy of record.

A Hindu man aged 60, was admitted to the surgical wards of the Madras General Hospital with a history of having been knocked down by a motor bus. He was almost moribund, the pulse rate being 80 and the respirations 22. There were some superficial injuries to the scalp and the lower jaw.

Two hours after admission the abdomen became distended and very tender. There was an inguinal hernia which was completely reduced with gurgling, but the process was painful. He vomited food about five times during the night, and passed a motion and flatus. He grew rapidly worse, and in spite of stimulants, died the next afternoon.

At the necropsy a number of superficial abrasions were found over both extremities, and there was fracture of the right ulna. On the right side of the scrotum was seen a large swelling the size of a child's head, which was soft boggy and oedematous. The skin over it was discoloured bluish, and peeling off. On incision it was found to be a hernia, and in the hernial sac was a piece of small intestine about 3 inches long lying loose with the mesentery cut close to it. The edges of this piece were sharp and regular, and the mucous membrane pale, without any evidence of inflammation. Just above this loose bit of intestine and in the hernial sac was another loop of small intestine. Between the sac and the skin was an abscess containing about 2 oz. of purulent fluid. The peritoneum was red and inflamed, the omentum was also inflamed and covered with flakes of lymph. There were about twenty ounces of turbid purulent blood stained fluid in the peritoneum. On carefully examining the intestines the detached portion was seen to have been situated about seven feet below the duodeno-jejunal flexure, it was pale and without any inflammatory reaction. The margins of the free ends of the small intestines showed redness and inflammation to a distance of about three-quarters of an inch.

It is of interest to note that the detached bit of intestine, having completely lost its blood supply, did not show evidence of inflammation, contrasting thus with the inflamed edges of the attached portions. It is extraordinary, also, how a complete detachment of a piece of intestine can take place without a penetrating abdominal injury, thus is of some medico-legal importance. What probably happened was that the man had an inguinal hernia and was hit over it by a sharp portion of the car, probably the mud-guard, a loop of intestine was caught between the car and the horizontal ramus of the pubis, and was detached.

Our thanks are due to Lieut.-Colonel E. W. C. Bradfield, I.M.S. Superintendent General Hospital for permitting the publication of this case and to Dr. S. K. Pillai, the radiologist for kindly taking the photograph of the specimen.

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British Medical Association

CLINICAL AND SCIENTIFIC PROCEEDINGS

GLASGOW AND WEST OF SCOTLAND BRANCH

The Nature and Treatment of Asthma

At a meeting of the Glasgow and West of Scotland Branch of the British Medical Association on September 4th, with Dr. R. McNEIL BUCHANAN in the chair, Dr. BRUNTON HASSETTINE (Chicago) opened a discussion on asthma.

Dr. Haseltine, in the course of his interesting paper, said that the problem of asthma was particularly acute at the moment because of the prevailing pessimism which, especially in America, had followed the general disappointment with the results of the so-called allergy treatment. The conception of asthma which he was about to present differed considerably from those commonly held, but from the clinical point of view it had been shown to be considerably more successful. The conception was based upon the work of Drs. Brodie and Dixon of London, published in 1903, and the book on bronchial asthma by Dr. James Adam of Glasgow, which appeared in 1913. The first of these was a classic of scientific research, while the second was a clinical contribution of the utmost importance. Dr. Haseltine believed that if as much attention had been paid to these two contributions as had been given

to the theories of allergy and anaphylaxis, far better clinical results would have followed. The foundation of the present work was the recognition of the truth of Dr Adam's teaching that a toxic condition was the basic factor in asthma. It had been demonstrated that allergy itself was a symptom of this toxic state, and disappeared with its removal. The explanation of bronchospasm as a trigemino-vagal reflex was based on the well-known anatomical facts, and was accepted by all neuro-physiologists. Since it was known that the immediate inciting cause of the bronchospastic storm was usually a stimulus to the vagus from a peripheral source, considerable clinical assistance was provided in detecting and removing this cause. There was complete agreement in the evidence derived from five different considerations—namely (1) the close anatomical connexion between the fifth nerve and the vagus, (2) the experimental proof by Brodie and Dixon that bronchospasm was immediately produced by the irritation of certain intranasal areas, (3) anaesthetization of these areas checked the bronchospasm, (4) the finding that in asthmatic patients there were frequent pathological changes in these areas, and (5) correction of these conditions produced marked diminution and often cessation, of the bronchospasm. The degree of local tissue change or the amount of local irritation required to produce bronchospasm varied in different individuals, and in the same individual at different times. This variation corresponded closely with the variations in degree of the underlying toxic state. Thus, if an asthmatic patient had poor carbohydrate metabolism he was almost certain to suffer more from asthma after the ingestion of an excessive amount of sweets. With a poor gastro-intestinal function he had severe asthma when constipated, and was relieved by catharsis. If, again, he had a focus of infection, he was worse when drainage was poor, and obtained relief when an important focus was removed. By more careful methods of study it was possible to observe accurately these variations in the toxic condition and to control them very considerably, with corresponding clinical improvement. In addition to a thorough clinical examination of the patient, the blood chemistry was studied and quantitative urine analysis was performed frequently, the fluid intake being strictly regulated. By these measures it was possible to estimate with considerable accuracy the degree of toxicosis, and even to determine to some extent the relative importance of its various causative factors. Thus, if the urine analysis showed excessive acidosis, with possibly a high non-protein nitrogen content in the blood, the suspicion was aroused that the patient's toxic state was due to a bacterial cause, high eosinophilia indicated a chronic mucous membrane infection. If the urine showed an increased reducing power it was clear that toxicosis was due, at least in part, to faulty carbohydrate metabolism, if the ethereal sulphates were in excess intestinal fermentation was a factor. When endocrine dysfunction was demonstrated, either by clinical signs or metabolism tests, there was clearly an endocrine factor in the toxicosis, and an attempt was made to determine to what extent this dysfunction was causative and how far it was the result of infection. Dietary faults, when present, were corrected, but it was not necessary to restrict any patient's diet to the point of lowering general nutrition. This method contrasted strongly with the various starvation treatments for asthma which had occasionally been advocated. Almost any asthmatic patient would experience relief from spasm if all food was withdrawn for a time, Adam had shown in a striking manner the relation between overeating and toxæmia, especially in the case of the so-called "week-end" asthma in industrial workers. He combated this form of toxæmia by diet restrictions and the use of mercury at suitable intervals for a definite period. Some American physicians had had considerable success with the starvation treatment of detoxication, which was employed even in patients not considered to be overeating. It was obvious that the limitations of this method were very narrow, and it was dangerous in the case of patients of low vitality—a condition found in most sufferers from asthma. Dr Haseltine remarked that it was now possible to avoid both horns of the dilemma. Dietetic faults could be corrected and detoxication accomplished without impairing the

nutrition, the normal intestinal function could be re-established so that no mercurial or other purgatives were required at any time. The importance of allergic phenomena was fully appreciated, and careful watch was kept for clinical evidences of this condition. There had been many investigators in the field of allergy, and it was disappointing that the clinical results had been so meagre. Dr Haseltine differed from these investigators in regarding the allergy, not as a primary cause, but as one only of the manifestations of an underlying toxic state. All observers had noted that the degree of hypersensitiveness was subject to wide fluctuations in the same individual. It was remarkable that this fact had not suggested to any allergist that there might be discoverable, and perhaps removable, causes for these varying degrees of allergy; it had been shown that such causes were usually discoverable, and frequently removable, with resulting complete and lasting cure of the allergy. The importance of this difference was greater than was at first realized. It radically changed the conception of the problem, provided an entirely new line of approach, and enormously increased success in dealing with it. It was admitted that only about 50 per cent of asthma patients could be shown to be allergic, this automatically limited the use of anti-allergic treatment correspondingly. No such limitation existed for detoxication methods, because a toxic state could be demonstrated in nearly all asthma patients, whether allergic or not. Further, with successful methods of detoxication the allergic symptoms diminished, together with all other clinical manifestations. It thus became apparent why clinicians might become indifferent to the various substances to which the patient might be sensitive, if the underlying abnormality could be corrected, hypersensitiveness to all these substances could be removed. This could be accomplished in a higher percentage of cases than was claimed for any form of antigen treatment, and this result was in no case affected by the fact that previous antigen treatment had failed. In true bronchospasm there was, besides the general toxicosis, the factor of peripheral vagus irritation, and prognosis depended largely upon the extent to which this was discoverable and removable. In the beginning the irritation was nearly always nasal, and if correct treatment was given early the result was complete and lasting. No patient could undergo frequently the ordeal of bronchospasm without pathological changes developing in the bronchial mucosa. These might themselves be sufficient to incite the spasm, since the connexion with the vagus was direct. While this observation was self-evident, it was gratifying that spasm did not occur clinically so often as would be expected. In the majority of cases after the correction of nasal abnormalities the bronchial irritation ceased to be a troublesome factor. Indeed, the entire response, even of an old asthmatic case, to treatment along these lines was usually better than would be expected in view of the complex morbid anatomical conditions involved. With this conception of the problem it was unnecessary to treat asthma by the customary methods of trial and error. When the diagnostic study had been completed it became possible to foresee very closely the result obtainable in each case, and to outline the programme which would produce predicted results. This precision of prognosis for individual cases was not obtained by any other method of treatment. It had the double value of avoiding wasted effort and of preventing false hopes as to results, to the clinician confronted by the difficult asthma problem the value of this alone could hardly be overestimated.

Dr JAMES ADAM said that Dr Haseltine depended largely for his general detoxicating methods on his colleague Dr La Forge. Dr Adam had tried these methods, and concluded that those who viewed asthma as a toxicosis now realized that it was amenable to proper treatment. According as one or other factor predominated in any case, the asthma problem varied. In recent literature there was frequent reference to heredity and to anaphylaxis, but a regrettable lack of mention of toxæmia, which ought to be considered the chief factor. Asthma was a disease of civilization, and was largely "bought in shops." The man who had to hunt for his food and cook it before eating did not suffer from asthma, this was exemplified by the case of the Eskimos. Dr Adam stated that an

analysis of 1,000 of his own cases showed that there was a family history of asthma or kindred trouble in about 25 per cent, if heredity was the most important factor this percentage ought to be distinctly higher. Since asthma was essentially a disorder of disturbed metabolism it occurred especially during those years of childhood when the metabolism was being largely influenced for the remainder of life by the mode of upbringing and by infections. Dr Adam had found that in 40 per cent of his cases the condition began before the end of the 10th year, and in 50 per cent before the end of the 15th year. Infectious diseases and the immunity connected with them exercised a profound influence on metabolism. Several lantern slides were then exhibited by Dr Adam to indicate the influence of infection as modifying heredity in relation to asthma, and also to demonstrate the disturbance of the nitrogen partition in asthma as revealed by analyses of the blood and urine. In one case asthma began after whooping-cough at the age of 52, in another at 42, in another at 33, and, after scarlet fever in a fourth case, at the age of 48. The onset was ascribed to pneumonia in 8 per cent, the total incidence of pneumonia in asthmatics was 20 per cent. Dr Adam remarked that the first fifteen years of life was a period during which the child was being influenced for good or ill by his upbringing. That nurture accounted for more than nature as a factor in asthma was proved by the fact that, if there was no mouth breathing and no chest deformity, 80 per cent or more of these children could be freed from their asthma, no matter what the family history had been. The most difficult case was that of the only child spoilt by a hothouse upbringing. Dr Adam then gave further evidence of asthma being a toxicæmic condition, and remarked that, though in some asthmatics anaphylaxis might be blamed, yet some of these patients could be cured of their sensitiveness without resort to the injection of antigens. Dr Adam was convinced that the toxicæmia of asthma was accompanied by a tendency to acidosis, and that a fair index to this was the eosinophilia which occurred. Nasal treatment was certainly of more importance in asthma than was usually realized, the most satisfactory case to deal with was the asthmatic who had nasal polypi. Dr Adam then described the method of detoxication which he usually adopted, this included dieting, abundant open-air exercise, and a blue pill once or twice weekly, followed the next morning by a saline. The tendency to spasm was counteracted in the first six or eight weeks by potassium iodide and belladonna. Dramatic results sometimes followed the administration of 30-grain doses of baking soda until the urine was alkaline. Dr Adam then showed patients who had benefited by this line of treatment.

Dr HARRINGTON (North Shields) said that his treatment had followed the lines advocated, not one of his patients had so far failed to derive definite benefit. Even in the most extreme cases the La Forge procedure had resulted in dramatic benefit. He emphasized the importance of taking a careful history and making a complete physical examination, in which special attention was paid to the abdomen and nose. He considered the ingestion of water in large quantities to be of very great importance, milk in all its forms, except cream and junket, was eliminated from the diet. He regarded milk as being poisonous to an asthmatic, and frequently the cause of recurrent colds, bronchitis, and eczema. Dr Harrington added that he was quite convinced that every asthmatic patient had some derangement, other than the pulmonary, which required attention before success could be achieved.

Drs COLLIER and LANG contributed clinical illustrations of the treatment of asthma.

Dr J R MCCLARY (Cincinnati) said that he had himself been cured of asthma by Dr Haseltine. One of the most important points in treatment was restoration of normal physiological conditions. Asthma was due to a local and to a general disturbance of balance, and it was important to deal with the local factor.

The CHAIRMAN, summing up the discussion, emphasized the value of team work, and the benefit which a patient derived from different investigators collaborating in the investigation of his illness.

Reports of Societies.

MUSCLE AND TENDON SURGERY IN INFANTILE PARALYSIS

At a meeting of the Section of Orthopaedics of the Royal Society of Medicine on October 2nd, Mr NAUGHTON DUNN, the president, in place of the usual presidential address, opened a discussion on the surgery of the muscles and tendons in relation to infantile paralysis.

Mr Naughton Dunn said that all the principles on which orthopaedic surgeons relied in the treatment of infantile paralysis were on record, and he had nothing new to offer. The surgeon was rarely called upon to treat infantile paralysis from its acute onset right through to the final result, his common experience was to see the patient long after the initial stage had passed, when the child was unable to walk, or walked badly, and increasing deformity made the doctor and parents anxious. Two things were certain—namely, that the muscular control of the limb was already deficient, and that divided tendons and muscles quickly underwent further atrophy, so that shortening or deviation of a tendon or muscle for the correction of deformities in infantile paralysis should be resisted unless the surgeon was satisfied that such treatment was necessary for the correction of the deformity, and that there would be improvement of function. The prominence given to operative methods in the textbooks made him fear that there was some risk of the specialty becoming too surgical. In his own experience, extending over many years, he had seldom found necessary an operation for flexion contracture of the hip-joint resulting from infantile paralysis. He depended almost entirely upon the method of gradual correction of the deformity by splintage. With regard to tendon transplantation the literature was so confused that it was advisable to publish the methods which in the experience of an orthopaedic surgeon had proved successful. The history of this procedure did not differ from that of other surgical innovations like them, it had been practised by individuals, forgotten, and rediscovered more than once. It was now almost half a century since the operation was first utilized in infantile paralysis. Its growth in popularity had been spasmodic rather than steadily progressive. In recent years certain definite principles had been set up. Having decided that tendon transplantation was advisable to restore muscular balance, the question arose which tendon should be transplanted. Success or failure depended mainly on whether the transposed tendon would naturally or could easily be re-educated to perform its new function, also on the degree of tension under which the transposed tendon was sutured. It might be taken as an axiom of tendon transplantation in the lower extremity that a tendon or part of a tendon should only be used to replace one of its own group—that is, one normally in action with it. The re-education of the individual tendon to act apart from its group would appear to be more possible in the upper extremity. As to suturing, he himself sutured the tendons under considerable tension. Mr Dunn then discussed a number of typical cases with the aid of photographs and diagrams.

Mr T H OPENSHAW took up a remark of the opener, with which he agreed, with reference to the doubtful value of the transference of the biceps into the quadriceps. The speaker was unable to say when the quadriceps ought to be operated on and receive the transplant of any muscle. He had had at least a dozen cases in which splints had been worn for a number of years—from eight years up to twenty-three years (in the longest case of all)—with eventual recovery of power in the quadriceps. It could never be said that the quadriceps was not going to recover, provided, of course, that the patient was made to walk with instruments in the proper way, and the quadriceps muscle was exercised along the right lines of action.

Mr R C ELSLIE said that this subject was so difficult and diffuse that it was very necessary to arrive at certain general principles. The first principle was that the various methods of tackling these problems must be suitably combined. In every case a programme should be

drawn up indicating how it was proposed to utilize the methods of arthrodesis, tendon fixation, and tendon transplantation so as to get the best ultimate result. Looking at a deformed paralysed foot, for example, it was well to have a programme under these three headings: how to deal with the bones and joints, what to do in the way of fixing tendons, and what should be attempted in the way of transplanting. When dealing with the transference of tendons the anatomy had to be studied first, the proper alignment of the carried tendon, and its power to preserve function. A further principle was the physiological one: the tendon must be capable of re-education in its new function. There was a difference in this respect between the upper and lower limb, in the lower limb one was dealing very largely with the functions of locomotion, in which the actions were automatic or semi-automatic without obvious voluntary effort. Therefore it was necessary to be sure that the function of the transferred tendon was similarly automatic. In the upper limb the function was much more of a voluntary character, and re-education of voluntary action was more possible. The speaker feared that in the past he had not sufficiently appreciated the value of the gradual correction of deformity, in flexed hips and knees he now felt inclined to proceed by splinting rather than by operation.

Mr HARRY PLATT also endorsed the conservative attitude of the opener towards contracted muscles in the correction of deformities, especially of the hip and knee. Mr Dunn had the advantage of working in the Shropshire Orthopaedic Hospital, where the gradual unfolding of the flexed hip and knee had been a conspicuous part of the technique. The speaker had been converted to that method through having as a colleague in one of his hospitals a man who was of that school. He now believed that operations for even the most extreme deformities were absolutely unnecessary, particularly in view of the possibility that later on some form of tendon transplantation in the region of the hip might add just a little—or sometimes quite a great deal—to the gait. The subject of tendon or muscle transplantation was a fascinating one, and illustrated the fashion in operations, from the methods of Volkmann to the simpler varieties of to-day. General principles had been lost in the maelstrom of technique, but there were certain technical principles which were fundamental, and in this connexion the work of Besalaki and Mayer of New York, combining the so-called physiological method of transplantation, deserved much greater consideration than it had received in this country.

Mr G. R. GIRDLESTONE said that his own feeling with regard to one point in the treatment of infantile paralysis was that there had been too much tendency to put the foot at right angles. Most of these patients had two complications, a short leg and a weak or paralysed quadriceps. A rather tight tendo achillis was an advantage, especially from the point of view of dealing with a weak quadriceps. He was greatly in favour of a tight tendo achillis in infantile paralysis.

Mr H. A. T. FAIRBANK was ready to admit that in the past he had operated quite unnecessarily in flexion of the hip, but he had found it necessary to use extension of the hip at night for a prolonged period in order to be quite certain that the patient did not get flexion again, personally he had used a double inclined bed on which the patient slept. The selection of the suitable tendon for transplantation was of first importance, in the foot a flexor would not become an extensor, nor vice versa. The judicious combination of arthrodesis and tendon transplantation made for a good and efficient foot.

Mr ROWLEY BRISTOW defended the case for quick correction of the deformity as against the gradual correction which the opener had supported. Mr Dunn, working at the Shropshire Orthopaedic Hospital, with a team admirably capable of performing this treatment, had advantages which were not available for the ordinary orthopaedic surgeon in London hospitals.

Mr WHITCHURCH HOWELL said that a number of failures in treatment might be traced to the delay in applying stimulation to the transplantations. He now stimulated the transplanted muscle at about the fourth day after operation, with much better results than formerly, when a considerable period was allowed to elapse.

Reviews.

MEDICAL DIAGNOSIS

Books on medical diagnosis are often rather dull reading, as they contain a large number of detailed tests which of course are useful for reference, but this need not be so. In their *Essentials of Medical Diagnosis*,¹ Sir THOMAS HORDER and Dr A. E. GOW, teachers of experience in the great medical school of St Bartholomew's, have placed themselves in the position of a student entering the wards for the first time, and thus have succeeded in expressing their instruction in clear language without any verbal superfluity—in fact, after the manner of Samuel Gee, whose pupil the senior of the authors was. They recognize that the medical student after his first three years, however much he may know about the anatomy and histology of the human body, really knows much less than the art student of three months' standing about the healthy living man, accordingly they have written in an elementary fashion and have clearly set out the mental processes involved in arriving at a diagnosis.

Stress is rightly laid upon the importance of the patient's medical history, and hints are given on how to obtain it and what to omit. The student should, of course, be familiar with the normal, and should closely observe the variations due to surroundings, occupation, and social status, thus the pallor natural to the city clerk would be pathological in the agricultural labourer. The various systems of the body are methodically considered, each one being introduced by a short anatomical and physiological summary. The section on the nervous system has wisely been provided with some thirty pages of these important preliminary considerations and with a number of coloured and plain illustrations. The instructions in the differential diagnosis of the conditions coming under the head of the epilepsies are particularly good. In the next section that on the cardiovascular system, the account of the electrocardiograph is appealingly clear, here as elsewhere the text conveys much shrewd advice and many useful hints.

That this well written and thoroughly practical handbook deserves success there can be no doubt.

CHEMICAL ANALYSIS OF BLOOD AND URINE

THE textbook for laboratory workers bearing the title *Blood and Urine Chemistry*,² in the joint authorship of Dr R. B. H. and Miss I. A. GRADWOHL, is probably the most comprehensive book of its kind. Those who are concerned in giving instruction in modern methods of chemical analysis of clinical material will appreciate the difficulties in compiling such a work as this. It is true that the chemical technique which has to be described is relatively simple. No great refinement of manipulation is necessary to the harvesting of reliable data. Indeed, the methods in general use are remarkable for the ingenuity which has been exercised in rendering them simple, rapid, and well-nigh foolproof. To this achievement the general exploitation of the possibilities of the colorimeter has contributed in high degree, and it is therefore appropriate that the authors should preface their book with a description of the principles and practice of this instrument. On the other hand, the advantages of colorimetry and of simplified technique have led to corresponding complications in the chemical processes exploited. Many methods depend upon the subtle combination of reactions and theories which the medical practitioner may not comprehend without much study.

The difficulty that faces those charged with the exposition of these methods is to decide how much understanding of the principles involved is necessary to the efficient practice of the methods. The authors have met the difficulty by

¹ *The Essentials of Medical Diagnosis*. By Sir Thomas Horder Bt K.C.V.O. MD FRCP Lond and A. E. Gow MD FRCP Lond (London: Cassell and Co. Ltd. 1928. (Cr. 8vo pp xx + 682 19 plates 22 figures 16s net).)

² *Blood and Urine Chemistry*. By R. B. H. Gradwohl MD and I. A. E. Gradwohl A.B. (London: H. Kimpton 1928. (7x10½ pp 542 117 figures 42s. net).)

giving descriptions of the composition and criteria of the reagents employed, the manipulations necessary and the calculation of the results, in such great detail that the analyses can be carried through without any proper appreciation of the intrinsic chemical processes which are being observed. At the same time (in parentheses, as it were, for the more inquisitive reader) explanation is given of the principles upon which each method is based. This description by rule of thumb will be tedious to some readers, but it probably represents a method which is as economical of space as any other for the purpose in hand. The ground covered is very wide. Methods—of greater or less reliability—are given for the determination of all the constituents of the blood whose changes are known or suspected of being of diagnostic value. The section on the analysis of urine is less elaborate. The authors are persuaded that in the blood is written a story of the physiology of the animal which is much more complete and trustworthy than that which can be read in the chemical description of the urine. The third section is devoted to the clinical interpretation of the analytical findings, while the fourth presents a description of the methods available for the determination of basal metabolism—perhaps an unnecessary, but still an interesting, supplement to the book. The chapters on the interpretation of the chemical composition of the blood convey the impression that they are both critical and authoritative. Attention is directed particularly to hypoglycaemia, acidosis, nephritis, and gout. An interesting plea is made for the recognition of the value of blood analysis in surgical as well as in medical practice—for the estimation of operative risk.

As some explanation of the high price asked for this book, it may be stated that it is elaborately produced and profusely illustrated. Many of the illustrations are very helpful, but some of the photographs are superfluous.

DIABETES IN CHILDREN

THIS admirable survey of diabetes mellitus in children,* by KARIN WIDNÄS, is the outcome of observations made at the paediatric clinic in the University of Helsingfors since the beginning of 1924. The author remarks in her introduction that the increase in the number of child diabetes is almost entirely due to insulin treatment, and to the prolongation of life in a malady which previously proved so rapidly fatal in the young.

The value of Dr Widnäs's work lies in the large number of cases she has had under observation, and in the thorough way in which they have been investigated. Her experiences do not differ from those of other observers, but she has a particularly valuable section on the effects of intercurrent maladies on diabetes in children, including the eruptive fevers, mumps, tonsillitis, bronchitis, nephritis, and some local infections. An epidemic of mumps brought five diabetic children under notice. The author observes that mumps may cause a definite decrease in carbohydrate tolerance in children previously diabetic, or may cause diabetes to start as a late complication. She notices that the fasting blood sugar level is easily raised in intestinal infections and certain fevers, also that in diabetic children the fasting level is variable (0.027 to 1.40 per cent.). Like other observers, she finds that acetonaemia and acetonaemia are more readily produced in children than in adults. Dr Widnäs tested the effects of various foodstuffs on children, the chief result was to demonstrate that fats scarcely affect the blood sugar, but that acetonaemia is easily provoked by them in healthy no less than in diabetic children. But she confirmed the observations of Petren and Odén to the effect that very large amounts of fat can be given to diabetic adults and children without producing acetonaemia, provided that a sufficient calorie total is given. She says that the larger the total of calories, independent of their source, the less the acetonaemia, and further, that the total amount of calories plays a more important part than the proportion between ketogenic and anti-ketogenic substances.

This is a challenging and arresting piece of work, which, while it throws new light on old problems, proves that there he beyond still further problems in carbohydrate metabolism.

NASAL NEUROSES

PROFESSOR GREENFIELD SLUDER's monograph on *Nasal Neurology, Headaches, and Eye Disorders** is a large volume containing 428 pages and 167 illustrations. In it has been incorporated much neurological material that appeared in his monograph published in 1918, *Concerning Some Headaches and Eye Disorders of Nasal Origin*. The title has been changed and the present one chosen with the special intention that it may attract the interest of neurologists, internists, and ophthalmologists to a greater extent than the customary treatise on rhinology.

The purpose of the author of this essay is to describe six varieties of nasal disease or clinical pictures having as symptoms headache, more or less eye disorder, and neurological phenomena that are evidently of nasal origin or are controllable by nasal treatment. The six varieties are (1) closure of the frontal sinus without suppuration, (2) anterior ethmoidal (naso-ciliary) neuralgia, (3) the syndrome of nasal ganglion neurosis (lower half headache), (4) the picture of hyperplastic post-ethmoidal-sphenoidal inflammation, (5) some neurological phenomena that are apparently not of nasal origin and are controllable by nasal treatment, and (6) orbital phlegmon.

Hyperplastic disease in the nose and accessory sinuses apparently, in the opinion of the author, is the lesion underlying many of the recurrent headaches and other symptoms making up the clinical pictures. The book is largely taken up with text and figures descriptive of the surgical anatomy and technique of treatment. The opening chapter is appropriately an introduction referring to some points in the minute pathological anatomy of the hyperplastic process. It is written by Dr Jonathan Wright, who says: "It would probably be difficult to find an adult individual in temperate or cold climates who does not present an example of this bone change within his nasal chambers, which we have a right to call pathological. It is only exceptionally that the symptoms to which it gives rise are sufficient to cause him to seek relief." It follows that the practice of the surgical technique described has its limitations.

A chapter descriptive of the author's technique of opening the antrum of Highmore, although hitherto unpublished, is not relevant, and might have been jettisoned to lighten the monograph and to reduce the price of the book. Professor Sluder regards the nose as "an anatomical and clinical region that has special features to be considered (that are self-evident as soon as thought is directed to them) which have not been emphasized even in this day of highly specialized specialties", and, so far as he is aware, no rhinologist has emphasized the neurological side of rhinology. But at the Annual Meeting of the British Medical Association at Bradford in 1924 the late Dr Neil Macleay contributed to the Section of Laryngology and Otology a paper on nasal neuroses, which was, and still is, a most concise and lucid statement of the present-day knowledge of the subject. The first conclusion arrived at by Dr Macleay was that the nasal neuroses were real clinical entities, and he related how pain in the mastoid tip from this source had led to an operation upon the normal bone.

ANTHELMINTIC MEDICATION

ONE of the oldest, and at the same time one of the most distinctive, branches of therapeutics is that concerned with the expulsion of parasitic worms from their host. The study of this subject has in comparatively recent years passed from the stage of uncritical empiricism to that of critical experimentation, and it is remarkable that no book dealing exclusively with this branch of pharmacology and therapeutics has been published. Textbooks on general

* *Études sur le Diabète Sucré chez l'Enfant*. Par Karin Widnäs. Acta Paediatrica vol. VIII Supplementum I. Uppsala. Almqvist and Wiksell. 1928. (Roy. 8vo pp. 208. 45 figures.)

* *Nasal Neurology, Headaches, and Eye Disorders*. By Greenfield Sluder. M.D. F.A.C.S. London: H. Kimpton. 1927. (Sup. roy. 8vo pp. 428. 167 figures. 2 plates. 50s. net.)

* *British Medical Journal* November 26th 1924 pp. 896-898.

therapeutics and on general parasitology alike treat anthelmintics in the briefest possible manner, and, indeed, are often surprisingly inaccurate. It is to meet this need that the work by Major CHOPRA and Dr CHANDLER⁶ has been written. Its scope is ambitious. Beginning with a general chapter on anthelmintics, their choice, method of use, and so on, the authors proceed to a discussion of the helminthic parasites of man and his animals, this discussion ends with a key to the adult larvae and ova. The introductory section also discusses the theoretical correlation between chemical composition and anthelmintic action. The remainder of the book provides a survey of the available information regarding the various drugs which have been used at one time or another, or which may be used in the future, for the expulsion of worms.

While we are wholly in sympathy with the authors' objects, we feel that the volume does not entirely meet present-day needs. A considerable amount of the information is purely theoretical, and many of the drugs discussed are of no practical utility. Moreover, the whole volume displays symptoms of insufficient digestion of the papers listed in the excellent bibliography, and there are several contradictions. The helminthological part is scrappy—many important parasites are neglected and unimportant forms included—and we feel that it is undesirable to embody in a single key all the parasites of man and his animals, separate keys for each species of host would be more effective. Nevertheless, with all its faults, the volume is an effort in the right direction. If it comes to be rewritten—as we hope it may—it would probably be improved by reducing the theoretical pharmacological sections and increasing the more practical helminthological and therapeutical aspects. As at present designed it is a useful book of reference for the library shelf.

MINUTE ANATOMY OF THE CORTEX

IN *Architecture Cellulaire Normale de l'Écorce Cérébrale*,⁷ Dr van BENOUM gives us the material supplied by his lectures to students since 1923. We are accustomed to regarding van BENOUM as a master, and in this presentation of the minute anatomy of the cerebral cortex we are not disappointed. Indeed, it will enhance an already brilliant reputation. The first chapter is devoted to a brief historical summary and to general considerations of the cell-layers and the division of the cortex into isocortex and allocortex. The second chapter deals with the frontal lobe and its chief areas, the third with the detailed variations in cell-structure in the frontal lobe. The next describes the parietal lobe and its fields, the fifth chapter, the insula. In the sixth and seventh chapters the various areas of the occipital and temporal lobes are described. The last chapter, devoted to the limbic lobe, is perhaps the best and most interesting chapter in the book. The material is well arranged and the illustrations are excellent. The use of the same magnification for most of the photomicrographs of the cortex is a very pleasing feature, enabling the student to compare easily the differences in structure of the various areas. There is an excellent bibliography of 64 titles. A translation into English would be very welcome.

NOTES ON BOOKS

THAT a third edition of Professor LOVATT EVANS'S *Recent Advances in Physiology*⁸ should be required within three years of its first appearance is sufficient proof of the well deserved popularity of this work. The present edition has been revised, and two entirely new chapters—the first on excitability and chronaxie, the second on the nerve impulse, subjects of great interest and considerable complexity—have taken the place of two chapters in the second edition.

⁶ *Anthelmintics and Their Uses in Medical and Veterinary Practice*. By R. V. Chopra, M.D. Cantab. Major, I.M.S. and Asa C. Chandler, M.Sc. Ph.D. Professor of Biology, Rice Institute, Houston, Texas. London: Baillière Tindall and Cox, 1928. (Med. 8vo pp. xii + 231. 65 figures, 5 plates. 22. 6d net.)

⁷ *Architecture Cellulaire Normale de l'Écorce Cérébrale*. Par Dr Cor-tantijn van BENOUM. Édition française par le Dr Ludo van Bogaert. Paris: Masson et Cie, 1927. (Imp. 8vo, pp. 183. 61 figures, 80 fr sans majoration.)

⁸ *Recent Advances in Physiology*. By C. Lovatt Evans, D.Sc. Lond., F.R.S. Third edition. London: J. and A. Churchill, 1928. (6s. x 81 pp. xiii + 403. 86 figures. 12s. 6d.)

The second edition of *An Introduction to Practical Bacteriology*,⁹ by Professor T. J. MACKIE and Dr J. E. McCARTNEY, follows three years after the first appearance of this useful guide to laboratory work. In size and shape the present book resembles its forerunner, but a comparison of contents shows that many sections have been rearranged and some new matter added. Thus, brief accounts of the more important pathogenic bacteria of domestic animals are now added in small type, being grouped with other organisms to which they are related biologically. The new classification and nomenclature advocated by the Society of American Bacteriologists is outlined in the first chapter, but in subsequent chapters the older system of designation is retained. In size, shape and contents this is a useful book for students and as a guide to routine tests in the laboratory.

Dr LEVEN'S book *Obésité et Amaigrissement*¹⁰ is an interesting little work because of the originality of his views on the origin of these two conditions. Dr Leven thinks that there is a weight centre in the nervous system which maintains in the healthy a proper physiological weight. When this centre is disturbed by solar plexus irritation from disorders of the digestion, the subject of the disturbance becomes a victim to obesity or the reverse. In this way Dr Leven explains the fact that some fat people remain fat however little they eat, and however satisfactory physically, morally, and sexually their existence may be. Overfeeding, he says, and lack of exercise do not cause fat in a healthy man. The only effect of dieting systems on the obese is that the reduction of food favours an amelioration of his dyspepsia. Holding these views, Dr Leven has no hesitation in thinning the tuberculous or the diabetic when obese. He disputes the definition of indigestible food given in Littlé's dictionary as that which is not absorbed, and substitutes the statement that indigestible food is that which can only be assimilated after an excess of muscular and glandular exertion by the alimentary tube and glands. Perhaps Dr Leven's theories explain why it is so much more easy to make a fat person thin than a thin person fat.

The sixth edition of the textbook of surgery¹¹ by Professor C. GARRÉ of Bonn and Professor A. BORCHARD of Berlin represents a brave and painstaking attempt to include all surgery in one volume of 752 pages, but it shows that we have reached a time when it is impossible to do this successfully. Nothing less than a system of many volumes can now be adequate for the purpose. In a book of such dimensions a certain number of subjects must either be left out or inadequately treated. For instance, we find the operation of supra-pubic prostatectomy dealt with in barely three lines. But this is an extreme case: the parts of the book dealing with abdominal conditions are naturally full, at the expense of other less popular subjects. In short, while this is a useful handbook for clinical practitioners and students, it is not in itself a complete guide to modern surgery.

Radiologie du Cœur et des Vaisseaux de la Base,¹² by Dr H. Vaquez and Dr E. BORDET has now reached its fourth edition. We had occasion in 1920 to report most favourably on the first edition of this monograph, and to recommend it to radiologists and those interested in heart work as being a valuable contribution to the interpretation of x-ray findings as regards the heart and aorta, etc. The authors are well known for their work on the subject, and have added very considerably to our knowledge of what is a difficult branch of radiographic work. This fourth edition has been entirely revised, and a large amount of new material has been incorporated, it is now a book of 500 pages, with 457 illustrations. As regards the latter, very few are reproductions of actual radiographs, they are mostly line or block drawings, many of them made from screen tracings. With all the additions and alterations the authors have maintained and preserved the main features of previous editions, and the very practical character of the book is evident throughout.

This small book¹³ by Dr F. LÓPEZ DUEÑA of Madrid, with a lengthy preface by Dr A. LÓPEZ DUEÑA, treats concisely of the various diseases of the vertebral column and their treatment. It is well printed and clearly illustrated, and should be useful to Spanish speaking practitioners and students but does not call for translation into English. It lacks an index.

⁹ *An Introduction to Practical Bacteriology*. By T. J. Mackie, M.D., D.P.H. and J. E. McCartney, M.D., D.Sc. Second edition. Edinburgh: E. and S. Livingstone, 1928. (Cr. 8vo pp. xiv + 330. Illustrated. 10s. 6d. net.)

¹⁰ *Obésité et Amaigrissement*. Par Dr Gabriel Leven. Paris: J. B. Baillière et Fils. (Cr. 8vo pp. xii + 281. 15 fr.)

¹¹ *Lehrbuch der Chirurgie*. Von Prof. Dr C. Garré und Prof. Dr A. Borchard. Sechste, neu bearbeitete Auflage. Leipzig: F. C. W. Vogel, 1928. (62 x 92 pp. xiii + 752. 500 figures. 31.25.)

¹² *Radiologie du Cœur et des Vaisseaux de la Base*. Par H. Vaquez et E. Bordet. Quatrième édition entièrement refondue. Paris: J. B. Baillière et Fils, 1928. (Cinq. 8vo pp. 497. 457 figures. 60 fr.)

¹³ *Enfermedades del Raquídeo*. Por F. López Dueña. Prologo del Dr. A. López Dueña. Madrid: Javier Morata, 1928. (64 x 91, pp. xxx + 173. 102 figures. Ptas. 12.)

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SATURDAY, OCTOBER 6TH, 1928

X-RAY DIAGNOSIS

AT page 595 this week we print the text of a paper by Mr H J Paterson entitled "The fallacy of x rays in abdominal diagnosis," and at page 598 another paper, under the same heading and read on the same occasion, by Dr F Herniman-Johnson. A report of the joint discussion on these two papers by the Sections of Surgery and of Radiology and Physiotherapeutics at the Cardiff Annual Meeting appeared in our issue of August 11th (p 249). We venture to express the opinion, after carefully reading all the communications, that a wrong name has been used to describe the happenings with which they deal. Fallacies in x ray diagnosis there may be, but it seems to us that almost all the 'fallacies' enumerated and discussed at Cardiff would be more correctly described as 'mistakes'.

There is, however, one real fallacy connected with x ray work which has grown with the development of radiology, and to a large degree exercises a crippling influence even to-day. Its consequences have been disastrous and far reaching. It has existed since the beginning, when radiology was looked upon as an interesting toy of the medical profession when sapient physicians and surgeons impressed upon hospital committees that, of course, the hospital must have some sort of quarters for an x ray apparatus, but that, equally of course anyone—medical, pharmaceutical or otherwise—was good enough to run the show as long as he did not spend too much money and was also duly impressed with the diagnostic acumen of his colleagues. This is the false idea which even now survives. No hospital, of whatever kind or size is regarded as complete unless it possesses an x ray plant of sorts and an x ray department. Money can always be found for these. Then the question, the quite secondary question arises as to who shall take charge of the department and be responsible for its work. In the old days any enthusiast who offered his services was promptly accepted, even now in far too many places the hospital authorities consider that any medical man—or perhaps a layman—is fully qualified without any special knowledge and without any special training to be put in charge of the radiological department. As evidence of this, not so very long ago a public body advertised for a radiologist for a hospital "D.M.R.E. preferred" although more than one applicant possessed this diploma another candidate without it was appointed.

The fallacy—a serious one—is therefore, that special knowledge is not required to qualify for the very responsible post of officer in charge of a hospital x ray department. We have it on high authority that at the present time in many of the smaller hospitals of this country (and even in some of the large teaching hospitals too), a vast amount of radiographic work is being done which is so unsatisfactory, both technically and from the point of view of diagnosis that it is a definite danger to the community. Technique is the first essential for accurate x ray work. Without it the finest radiological diagnostician must make numerous mistakes, with it his mistakes will be lessened in number, for none of us is infallible, and no

method of diagnosis is free from risk of error. The other point, so often overlooked, is that even with the finest technique a man's opinion is apt to prove unreliable unless he has a very comprehensive knowledge of diseases and of the pathological conditions which can give rise to the various findings seen on a screen or recorded on films. The fact that it is possible nowadays to get such magnificent radiographs has made interpretation even more difficult than in the early years of radiology. Much slighter deviations from the normal are relied on as evidence of disease, and more remote regions of the body have been explored. Perhaps the greatest difficulty at the present time is to find specially-qualified medical men or women for all these hospital posts. In many districts there is not enough work in private practice to maintain a radiological specialist. A remedy that has been suggested is that in some places a whole time well paid expert might be appointed to take charge of the x ray departments of several neighbouring hospitals.

Besides the papers to which we have already referred, two others on x ray diagnosis appear in this issue. One of these, by Dr Ffrangcon Roberts on chest radiography, is of great interest in showing how mistakes may be made on chest films owing to distortion of shadows. His plea for long distance radiography in the examination of the thorax seems to be well founded. The other paper, by Dr Hubert Williams and Mr Thurstan Holland, is a striking example of a difficulty in accurate diagnosis which occurs in renal stone work. Mistakes there will be, a few of them quite unavoidable even when the most scrupulous care is used and when every possible means of making a correct diagnosis is taken, the radiogram does not lie but interpretation must in some cases be a matter of opinion, and then a wrong diagnosis may follow. Apart from this, the chief of all sources of error is reliance upon technically poor films and an incomplete examination. Other preventable mistakes are for the most part due to want of knowledge.

We cannot agree with those who say that there is no such thing as an x ray diagnosis. A mere glance on the screen sometimes suffices, while over and over again in practically all the conditions for which an x ray examination is made the films alone show, beyond dispute what the pathological condition is. Probably, indeed, no other special method of examination will by itself yield so many positive diagnoses as will the x ray method. This, however, is not said with a view to urging that purely x ray diagnosis should be the rule and we cordially agree that consultation between the practitioner in charge of the case and the radiologist is of the utmost value. If this were always possible many mistakes would not be made. Unfortunately, however, this ideal state of affairs is almost unattainable especially in large hospitals. It is difficult enough for the part time and honorary radiologist to keep continuous control over the routine work, he cannot spare the time to attend consultations or operations. The consulting physician or surgeon is no better off, and he finds it impossible to visit the x ray department as a routine. Individual cases, especially those of much unusual interest may lead to a consultation, but the more ordinary everyday work has to take its chance without.

No doubt papers on mistakes—or fallacies, if that term is preferred—serve a useful purpose, inasmuch as they show how many of these occurrences are preventable but such papers would themselves be a mistake if they were written with the intention to

belittle a method of examination which, in the short space of thirty years, has revolutionized diagnosis and has taught us that many diagnostic points about which it was customary to dogmatize were based on very flimsy grounds. When all is said and done, two things are needed to make a successful practitioner of medicine or surgery—a knowledge of the subject, and, perhaps more important, common sense.

PAIN AND OXYGEN DEFICIENCY

INSUFFICIENT supply of oxygen to the body is a very common result of disease. Although its effects upon the various organs and systems have received the concentrated attention of physiologists, pathologists, and clinicians, little or no attempt has been made to correlate the several aspects of their work. Since oxygen deficiency is so frequent both in health and disease, and since pain is the commonest obtrusive manifestation of perverted bodily function, a relation between oxygen lack and pain might well be predicted, in any case, an inquiry into this matter may serve to link up facts that have been established by the study of particular organs.

Considering first the effects of alterations in the oxygen content of the environment, the account given by Barcroft¹ of the symptoms experienced by members of his party at an altitude of 12,000 feet on the Andes is worth attention. On reaching this height every member complained of severe headache, and in the majority this was the most prominent symptom. If further search is made in this report for the incidence of pain, it is found that four of the party of eight experienced precordial pain, while a fifth had pain in the abdomen. Nor are the less highly developed structures of the body exempt from this same relationship, the severe cramp occurring in untrained muscles with undue exertion, and the painful intermittent claudication arising at times with even slight effort in subjects of arterio sclerosis, are alike the outcome of insufficient oxygen supply. Furthermore, the relationship of cause and effect has been shown experimentally by MacWilliam and Webster,² who shut off the blood supply of the arm by constriction and demonstrated the simultaneous occurrence of pain with active muscular contractions. No organ, however, signalizes the onset of anoxaemia in more dramatic fashion than the heart, and the view that oxygen lack is invariably the fundamental factor in the production of true angina pectoris is ably expounded by Keefer and Resnik³ in their recent study of the pathogenesis of angina. These authors review critically the theory of Allbutt that disease of the aorta is the cause of pain, although aortic disease is usually found at necropsy, it is not invariably present, and, moreover, true angina may arise in adolescent subjects of rheumatic aortic incompetence in whom no involvement of the aortic wall is demonstrable. Against Mackenzie's theory of myocardial exhaustion is raised the cogent objection that in those cases in which insufficiency of the myocardium is most marked—that is, in cases of cardiac failure—angina is a rare symptom, and tends to disappear even if it has originally been present. Indeed, were this the cause of angina all patients dying from failure might be expected to suffer from such pain.

That coronary disease is present in the majority of sufferers from angina is no new observation, and this fact is the principal argument in favour of myocardial

anoxaemia as the causative agent in angina pectoris. The advocates of this theory, however, are confronted with the objection that coronary disease is not invariably discovered, although in its absence aortic incompetence is nearly always present. Since with this lesion the diastolic pressure is usually low, and as the coronary arteries fill during diastole, it is seen that such regurgitation is a potential cause of myocardial oxygen lack. It may further be argued that the preponderance of angina in syphilitic as opposed to rheumatic aortic incompetence supports the anoxaemic theory, since coronary obstruction is more likely to complicate the former than the latter, while a measure of stenosis may partially stem the backflow in rheumatic valvular disease of the aorta, and so aid coronary filling. More light is thrown upon the subject by a study of acute coronary obstruction. In this condition the pain is usually identical with that of angina in character, position, and radiation, the principal difference being the prolongation of the attack. It is known that pain in acute coronary obstruction results initially from permanent interference with the oxygen supply, and it seems reasonable to infer that the brief pain of angina is due to transient oxygen deficiency. Of interest in this connexion are the observations of Herrick,⁴ who has recorded four instances of the association of typical anginal pain with severe anaemia. Since with decrease of the anaemia the seizures of pain also abated in frequency and severity, the conclusion may be drawn that in these cases oxygen deficiency was a contributory factor, if not the sole cause of angina pectoris.

In summarizing the results of clinical and experimental research on oxygen deficiency in the body, it may be remarked that, while all tissues must be affected deleteriously by imperfect oxygenation, it is principally the motile organs and those most constantly functioning which give rise to pain on this account. Far beyond all others in severity and gravity is the pain arising in the heart, for an attack of such pain only too often terminates with complete disorganization of the rhythm of the heart and inevitable death.

OCCUPATIONAL AND PHYSICAL THERAPY

In the years immediately following the war the re-education of the injured received a great deal of attention in this country and in America, and admirable results were achieved. With the closure or reduction in number of the special institutions and departments devoted to this after-treatment much of the ground gained was lost, because it was not fully realized that the physically injured or mentally sick civilian needed this special treatment as urgently as the disabled soldier. Recognizing the existence of this need, the American Medical Association formed a Council (or, as we should call it, a committee) on Physical Therapy, which has recently given its official approval to an important paper⁵ by Dr Harry E. Mock and Mrs Mary L. Abbey. Occupational therapy has been defined as any mental or physical activity which is intended to hasten the recovery of any individual from disease or injury necessitating a long stay in hospital. Dr Mock and Mrs Abbey define three types: (1) diversional, (2) purposeful or curative, and (3) prevocational. Moreover, occupational therapy may be prescribed in the treatment of the neuromuscular system or in the cure of morbid states of mind. As an example of the successful treatment of a purely

¹ *Respiratory Function of the Blood* 1925 p 19.

² *British Medical Journal* January 13th 1923.

³ *Archives of Internal Medicine*, June 1923 p 763.

⁴ *American Heart Journal* 1927 11 p 351.

⁵ *Occupational Therapy* By Harry E. Mock M.D. and Mary L. Abbey. *Chicago Journal of the American Medical Association* September 15th 1923 p 797.

mental condition of hypochondriasis with phobias entirely unconnected with trauma, the history of a case is given by the authors in which congenital occupation of the fingers abolished long-cherished fears of cancer and other diseases. The chief field of operation for occupational therapy is, however, afforded by cases of injury the treatment of which involves protracted residence in an institution and probably immobilization, and by those cases, so familiar in military orthopaedic hospitals, in which damaged and long-rested muscles and joints have to be re-developed, or new actions have to be made familiar to undamaged muscles or groups of muscles. In the United States the movement to forward occupational therapy has gone far and has produced striking developments. The National Association of Occupational Therapists, which was founded in 1917, has 900 members, 7 per cent of whom are "physicians" (It may be necessary to remind the British reader that in the United States "physician" is used generally as an equivalent to "qualified medical practitioner," and does not exclude those practising surgery.) In addition to the association, or connected with it, are twenty local or State societies and seventeen training schools, so that it will be seen that the organization of this form of treatment is well advanced. It is difficult, however, to estimate the extent to which the activities thus outlined are covered in this country by the Chartered Society of Massage and Medical Gymnastics, and the various schools of massage and physiotherapy. Diversional therapy implies anything, in the way of occupation or amusement that will divert a patient's mind from his illness. It may therefore include a game of bridge, the perusal of a detective novel or the solution of a jig-saw puzzle. Drawing is specially advised by Dr. Mock and Mrs. Abbey, since it is not only an amusement, but leads on to vocational work. Above all occupation in the hospital workshop is strongly recommended because of the complete change of environment, the practical value of the work done in muscle training and rehabilitation, and the importance of fitting artisans to resume their old or commence new callings. For tuberculous patients occupational therapy is very valuable, on account of its moral more than its physical effects. In conclusion it is held that there is a strong case for the recommendation that occupational therapy should be employed as a matter of course in every hospital and convalescent home as a part of the course of treatment often as important as that which finds its place in the operation theatre or in a surgical or medical ward.

THE RISKS OF MERCURIAL POISONING

THE danger of chronic mercurial poisoning in certain industrial processes is notorious, but the possibility of mild degrees of poisoning occurring in laboratory work is not so well known. Some recent articles by Stock¹ indicate that this is a real danger. Fleischmann² concluded that a daily intake of mercury of less than 10 μ ($\mu=0.001$ mg.) was sufficient to produce definite toxic symptoms. It must be mentioned, however, that this conclusion has been denied by other workers, and that Fulmer³ concluded that ten times the amount mentioned was required to produce any injurious effect. Stock refers to the notoriously bad effects on health produced by poorly ventilated laboratories. He points out that in an old laboratory the dust is usually full of the mercury that has been spilt from time to time. He suggests that the ill health suffered by many of the most illustrious physicists and chemists was due to mild mercurial poisoning. The symptoms he attributes to mild mercurialism are first, such symptoms of general ill health as lack of energy, headaches, and loss of appetite, secondly, more specific effects associated with the nasal and oral

mucosa, such as sore gums, decay of teeth, liability to nasal catarrh and sore throats, and gastro-intestinal disorders. He quotes the case of one person who suffered from working in a room containing mercurialized dust, symptoms commenced after about six months, and were aggravated in the succeeding six months, but ceased as soon as the room was cleansed thoroughly. Mercury in laboratory dust constitutes a danger to only a very limited class, but mercury amalgam as used in dentistry is a possible danger to a large section of the community. Fleischmann and Borinski showed that there was an undoubted risk to dentists and dental mechanics, for the air in school dental clinics contained quantities of mercury, which reached in one case the surprising figure of 0.3 mg. per cubic metre. Fleischmann detected a definite lymphocytosis in 80 per cent of the attendants, and in many cases found definite symptoms of mercurial poisoning. The possibility of a person absorbing from amalgam dental fillings quantities of mercury sufficient to produce deleterious effects is, however, a much more important question, because such a risk affects a large proportion of the community. Fleischmann found demonstrable quantities of mercury in the urine of patients with amalgam fillings, it appears to be generally admitted that traces of mercury can be absorbed from such fillings. The question of practical importance is whether these minute quantities of mercury affect the health of many out of the millions of persons who have amalgam fillings in their teeth. Stock considers that there is evidence that such poisoning does occur, but it is obviously almost impossible to decide with certainty whether rather vague symptoms of mild ill health are correlated with these stoppings. We are doubtful if any case has been made out against dental amalgams, but the danger of spilling mercury about laboratories seems obvious. Chemists and physicists who are constantly working with mercury are usually aware of this risk, but workers in biological laboratories nearly all use mercury in small quantities for one purpose or another, and are apt to forget that it is dangerous for the dust of the rooms in which they spend their days to be impregnated with this metal.

THE FATE OF INFANTS OF TUBERCULOUS MOTHERS

A DANISH physician Dr. H. Heckscher,¹ has followed up the inquiries of Kjer-Petersen and Ostenfeld by investigating the fate of the 400 living infants born of 141 tuberculous mothers in the maternity department A of the Rigshospital in Copenhagen since 1918. The mothers were, in 82 instances, suffering from active pulmonary tuberculosis when admitted to the maternity hospital, while in the remaining 59 cases they had shown definite signs of pulmonary tuberculosis in adult life, but presented no evidence of active disease at the time of confinement. The fate of only 13 mothers and 32 infants could not be ascertained. The survivors among those whose fate was ascertained were examined clinically. Of 75 mothers confined in hospital in the period 1919-26, and showing signs at that time of clinically definite pulmonary tuberculosis, 11 were found to be well, 31 to be still suffering from tuberculosis, 32 to have died of tuberculosis, and 1 of some other cause. Of the 53 mothers who had been confined during the same period, and who had during these confinements suffered from latent or inactive pulmonary disease, none was found subsequently to have died, 48 seemed to be perfectly healthy, and only 5 showed signs of active disease. With regard to the fate of the 204 infants born to the 75 mothers suffering from active pulmonary tuberculosis at the time of confinement, it was found that 102 were healthy, 46 showed signs of tuberculosis, 11 had died of this disease, 38 had died of other diseases, while the fate of

¹ Stock, *Med. Klinik* 24, 1114 and 1114, 1928.

² Fleischmann, *Deut. Med. Woch.* No. 8, 1928.

³ Fulmer, *Klin. Woch.* 1927, 6, 1545.

¹ *Ugeskrift for Læger* July 19th 1928.

the remaining 7 was unknown. As for the 164 infants born of the 53 mothers with signs of arrested tuberculosis at the time of confinement, the subsequent investigation showed that 119 remained healthy, 16 showed signs of tuberculosis, 3 had died of tuberculosis, 25 had died of other causes, and the fate of 1 remained unknown. It should be noted that in these two groups there was a very large mortality (63 deaths) from causes other than tuberculosis, as many as 48 of these deaths occurred during the first year of life. Only in 8 of these cases were there records of a necropsy at which signs of tuberculosis had not been found. It is therefore conceivable that such causes of death as broncho pneumonia and bronchitis (21 cases) were misnomers, the real cause of death being, perhaps, tuberculosis. Adding the figures in one class to those in the other, the author finds that only 14, or 3.8 per cent, of the 368 infants born to the 128 mothers suffering from active or inactive tuberculosis died from this disease. Even if to these 14 there be added the deaths which might conceivably have been due to tuberculosis, the death rate from tuberculosis was still not greater than 9 per cent—a rate far below that said by Calmette to apply to infants born in France to tuberculous mothers. It is a pity that the author was unable to ascertain in each case the degree of infection to which these infants were exposed.

NOISE.

Our readers will recall that at the Annual Representative Meeting of the British Medical Association at Cardiff a resolution moved on behalf of the Edinburgh and Leith Division was adopted calling for measures to be taken for the suppression of unnecessary noise in the interests of public health. Although this resolution made no mention of specific noises, its terms plainly indicated that the reference was to aggressive sounds and vibrations produced by traffic in our streets. The matter was discussed in a leading article in our issue of August 25th (p. 346), and the Medico-Political Committee, at its recent meeting, decided to take prompt action in pursuance of the Cardiff resolution. The Ministry of Health has been asked to receive a deputation, and Branches and Divisions of the Association will be urged to stimulate their local authorities to make use of existing powers to deal with the nuisance and to apply for fresh powers where necessary. In the meanwhile, following an assurance given by the Home Secretary in the House of Commons, a conference has been held at the Home Office between the Secretary of State, the Minister of Transport, and the heads of both departments. According to a statement issued on Tuesday by the Home Office, the purpose of this conference was to consider what steps could be taken in order to mitigate the ever-growing nuisance of noise in the streets, not merely in the metropolis, but throughout the country. "The increase in the volume of noise is largely due to the increase of motors, and of the uses to which motors are put, and to the abuse of various types of horns. The powers and duties in this matter are divided between the two Ministers: the Minister of Transport has the power to make regulations, and the Home Secretary is concerned, as the central police authority, with the measures to be taken for their enforcement. In the result, the Ministers have now decided that draft regulations, directed to abating the nuisance of motor traffic noise, should be prepared. Such regulations will be the subject of consultation between the Minister of Transport and the motoring organizations and representatives of public authorities, whose views will be carefully considered. After the regulations have been made the police will be advised by the Home Secretary as to the steps to be taken to ensure their observance, with a view to decreasing the nuisance from which so many people now suffer."

This is a move in the right direction. But, unless we are much mistaken, continuous prods by the public will be needed to keep the authorities awake. Whether fresh legislation is required or not will probably depend a good deal upon the attitude taken up by the motoring organizations. We are glad to learn, therefore, that the Automobile Association has stated in advance its willingness to support any reasonable proposals to reduce noise.

SUPERVISION OF FOODSTUFFS AND DRUGS

Two reports¹ by Government departments dealing with the supervision of foodstuffs and drugs have just been issued—the report of the Government chemist, Sir Robert Robertson, for the year ended March 31st, and a report on the Sale of Food and Drugs Act, containing the relevant extracts from the annual report of the Ministry of Health for 1927-28 and an abstract of the reports of public analysts for 1927. These reports are in large measure complementary, for, while the major part of the work of Sir Robert Robertson's department consists of analyses for the Board of Customs and Excise in connexion with the assessment of duty and "drawback," it has also some responsibility for the examination of foodstuffs as to quality and freedom from adulteration. The total number of samples examined at the various Government laboratories—being the whole or part of the chemical work of some eighteen or twenty departments—was 491,039, an increase of 21,397 on the previous year's total. A considerable amount of imported dairy produce came under scrutiny, and, in addition, many other kinds of food—fruit and vegetables (pulped, canned, and dried), sweetmeats, custard powder, pickles, etc.—were also examined for the presence of preservatives. Seventy samples were reported as contravening the regulations 44 contained benzoic acid, either in excess of the quantities permitted or where its use is forbidden. It was noted that the use of boric acid as a preservative for butter has practically ceased. Examinations of tea in respect of its fitness for consumption also constituted a task of some magnitude, while, in addition to analyses of alcoholic liquors for excise purposes, the department safeguards the interest of the consumers by the examination of samples of beer "as retailed" for evidence of dilution. In certain cases of proceedings under the Food and Drugs Act, samples may be submitted to the Government chemist, 26 such cases arose last year, 19 relating to milk. The report calls attention to the need for exceptional care in the sampling of milk supplied in the modern type of bottle, which lends itself to the formation of a layer of cream, and, by the absence of air space above the milk, renders difficult the mixing of the cream layer with the remainder. In one case the public analyst called for the prosecution found 2.07 per cent of fat in his portion of the sample, while the portion sent to the Government chemist contained 1.50 per cent, and the defendant's portion 6.68 per cent of fat. Numerous examinations of food and medicinal preparations were made for various public departments, and in other directions the laboratories dealt with a bewildering variety of substances and executed many surprising tasks. Spindle oil was examined in connexion with mule-spinner's cancer, radium was recovered from disused girsights, sheep's teeth were received for inquiry regarding the nature of a metallic deposit erroneously believed to be gold, insurance stamps were tested in cases of suspected fraud, sea water was analysed in its bearings upon fishery research work—these are but a few of the varied activities carried on at the laboratories. The Ministry of Health report is a prosaic document of more restricted scope, and, we may add, somewhat highly priced at eighteen-

¹ London: H.M. Stationery Office or through any bookseller 1928
1s. 6d. net each.

peace for twelve pages of print. It states that of the "record" number of 124,264 samples of food and drugs reported upon by public analysts in 1927, 55 per cent were reported as adulterated, compared with percentages of 58 and 65 for 1926 and 1925 respectively. More than half the specimens examined were milk samples, 69 per cent being below standard or adulterated, the corresponding percentages for 1925 and 1926 were 83 and 74 respectively. Of over 10,000 samples of butter only 14 per cent were reported against. Other foodstuffs inspected included cream, margarine, lard, cheese, bread, flour, jam, marmalade, vinegar, spirits, and beer. During the year, 4,981 samples of 120 different varieties of drugs were examined, 283, or 57 per cent, being found to be adulterated or not up to standard, compared with 45 per cent in 1926. The most interesting case, the report states, was that of some cod-liver extract tablets, sold by a well-known firm of druggists and advertised as being rich in vitamins A and D. The analyst was of opinion that vitamin A was present, if at all, in such a negligible amount as to render the tablets practically valueless as a substitute for cod-liver oil, the deficiency of both vitamins was confirmed by biological experiments, and the vendors were convicted and fined £30 and £75 costs.

MENTAL DEFICIENCY IN NEW ZEALAND

SOME time ago a very influential committee, set up by the Government of New Zealand, inquired into the question of mental deficiency in that Dominion. In a leading article (September 12th, 1925, p. 486) we commented on the report of that committee, pointing out, amongst other things, that the opinions expressed therein were more favourable to sterilization of mental defectives than was the case with informed opinion in this country. Following upon that report, the New Zealand Government this year introduced into the House of Representatives a Mental Defectives Bill based upon the committee's recommendations. The actual text of the bill is not available, but from a summary of its main provisions published in the *Times* it seems that in the bill the term "mentally deficient person" was extended to include "one who suffers from mental deficiency associated with or manifested by anti-social conduct, and who requires supervision for his own protection or in the public interest." If the words quoted are the actual definition of persons to be dealt with under the Act, the latter phrase appears pleonastic and the former sufficiently indefinite to give rise to a good deal of dispute in practice. The bill provided for the setting up of an appropriate board for the supervision of mentally defective persons. The board is to compile a register of such persons, and is given power "to investigate the cases of prisoners or accused persons believed to be mentally defective, epileptic and mentally defective children, and children whose mental development is retarded two years or more." The bill further sought to authorize sterilization with the consent of the patient or of the parent or guardians, and under the direction of the board, to provide special institutions for the segregation of registered defectives, to forbid marriage with registered persons without consent of the board, and to prohibit carnal knowledge of, and the supply of intoxicating liquor to, a registered person. The bill met with considerable opposition in the House of Representatives. It was eventually passed last week, but not until the Minister of Health, Mr. J. A. Young, had withdrawn the more drastic or questionable proposals—namely, those relating to sterilization, to the prohibition of marriage with defective persons, and to the authorization to examine children whose mental development is retarded to the extent of two years or more. The Prime Minister, Mr. Coates, stated that he wished the country to have a further opportunity of considering these proposals.

This was certainly wise, for it requires a good deal of evidence yet to establish their value as practically effective measures, and the Act, even without them, is calculated to achieve its main purpose—the proper supervision and control of mentally defective persons.

ERGOSTEROL

INFORMATION concerning the nature and properties of vitamin D is at present of very considerable interest, and there is no dearth of communications dealing with the matter. In the same number of the *Biochemical Journal* there appear two papers—one by Rosenheim and Wobster,¹ which seems to show that ergosterol is (probably) the only precursor of vitamin D occurring in nature, the other by Havard and Hoyle,² recording observations of the serum calcium and blood phosphate in normal adult human beings to whom ergosterol was administered. The last-mentioned paper is of interest because, as the authors point out, a seasonal variation of blood phosphate has been noted in human beings and in animals, which might be due to the greater exposure to ultra-violet light during the summer months. It was found, however, that neither the administration of 8 mg. per diem of irradiated ergosterol for a period of twenty-one days, nor periodic exposure to carbon arc lamps for sixteen days, caused any significant change either in the blood phosphate or the serum calcium. The experiments were, of course, carried out during the winter months. This work seems effectively to dispose of the view that the undoubted seasonal rise in blood phosphates is due to any effect of ultra-violet light, and it therefore leaves an interesting problem for solution.

ROYAL SOCIETY OF MEDICINE

As mentioned on September 15th (p. 504), Sir William Bragg will deliver the sixth Lloyd Roberts Lecture on November 29th, at the house of the Royal Society of Medicine, 1, Wimpole Street. It is now announced that Sir William Bragg has taken for his subject "Faraday's diary," which will be of particular interest as illustrating the life of one of the pioneers of science, the more so since the diary has not yet been published. Some of Faraday's original apparatus, and pages from the diary, will be on view in the library of the society during a reception, which will be held at 8.30 p.m., prior to the lecture at 9.15. Admission will be by ticket, application for which should be addressed to the secretary of the Royal Society of Medicine. It is also announced that the annual dinner of the society will be held on Thursday, November 15th, at 8 p.m., at the May Fair Hotel, Berkeley Street, W.1, when the principal guests of honour will be the Chancellor of the Exchequer and Mr. Rudyard Kipling.

WE have to announce, with great regret, the death of Dr. D. Noel Paton, F.R.S., late Regius Professor of Physiology in the University of Glasgow. We hope to publish an obituary notice in an early issue.

¹ Rosenheim and Webster. *Biochem. Journ.* 22, p. 762.

² Havard and Hoyle. *Biochem. Journ.* 22, p. 715.

THE annual Corporate Communion of the Guild of St. Luke will be held at the Grosvenor Chapel, South Audley Street, W.1, on St. Luke's Day, October 18th, at 8.15 a.m.; it will be followed by breakfast at Lipton's Café, 484, Oxford Street, if sufficient members signify their wish to attend. The annual general chapter will be held on the same day at King's College, Strand, at 5 p.m. The Rev. Canon C. S. Woodward will preach at the annual service in Westminster Abbey, on October 21st, at 6.30 p.m. Further information may be obtained from the Secretary of the Guild, King's College, Strand, W.C.2.

Opening of the Winter Session.

THE ENEMIES OF MAN.

Address to the Middlesex Hospital Medical School,

BY

A E WEBB JOHNSON, CBE, DSO, MB,
FRCS, F.A.C.S.,

Surgeon and Lecturer on Surgery, Middlesex Hospital

LET us cast our minds back to when the human and anthropoid branches of the anthropomorphous stem were growing apart. We can imagine a time when man's primitive ancestors found that their long stretch in the trees had so straightened out their hip-joints and opened up their shoulder girdles that they could at last comfortably assume and maintain an erect attitude on the ground. We can picture a period when these individuals did not venture far beyond the forest borders, for very early in his life on the plains man must have realized how defenceless he was against his enemies. What special gifts had he to enable him to fight his way through life and become Lord of the World? He was the possessor of a pair of hands. These hands, with their wonderful tool-making thumbs, were unique in the animal kingdom, and, with the intellectual equipment to govern them, enabled man to fashion weapons and to become what he has ever since remained, a tool-using animal—a tireless maker of tools, instruments, and machines. As his dangers and needs pressed upon him, man made steady progress through the millions of years in providing himself with weapons—all the time inventing. Everything had to be learnt, and could only be learnt with certainty by experiment, by research, and by trial. That has been the golden rule all through the ages, and when departed from there has been no progress.

Flint implements have been found which, according to some authorities, carry our actual knowledge of man and his weapons back about six million years, and human remains have been found which may date from half a million years ago. But much later on we find traces of men who lived in caves and rock dwellings, and from their paintings on the walls and their burial customs we learn that man had begun to think of other things besides the means of getting food and the visible dangers about him. He was thinking also of the hidden dangers about him—of health and disease, of life and death.

With the development of agriculture man became fixed to the homo and the soil, and began to live in organized communities. In Egypt, where agriculture was first practised, we find there was an early civilization, and in this civilization a definite place in the community was taken by those practising the healing art. The formation of an army of defence had begun.

It is customary to regard the pre-Egyptian era as an age of mysticism and magic. But medical research had really begun. It was on the wrong lines, and man was groping in the dark, but he was seeking for the light. Diseases were ascribed to mysterious malevolent agencies, and therefore treatment naturally began as a magical rite or exorcism. But later this became associated with the use of medicines or drugs, for man in his search for food became acquainted with plants having medicinal qualities. In the process of development the use of drugs continued and improved while the magical part of the treatment was practised less and less. From early papyrus we learn that the Egyptians had largely given up the magical ritual. Medicine and surgery were fairly advanced, and there was considerable knowledge of hygiene and sanitation. The teachings in the books of Moses show what clear conceptions had been reached, and what research and observation there

must have been to enable such sound rules of preventive medicine to be codified and enforced.

After the Egyptian era came the brilliant age of Greek history, when Hippocrates, Aristotle, and Galen, and their followers, working through the centuries, dug deep and made secure for all time the foundations of medicine as a science. In the Hippocratic works there is no word of superstition. The experimental method was established and medical research was carried on along scientific lines. It was the birth-time of anatomy and physiology, and of the close study of disease by careful clinical observation. Another gift of Greek medicine to our time was the code of medical ethics with which the name of Hippocrates will always be associated. Besides being the founder of the science of medicine, Hippocrates was the founder of the medical profession.

Man had now an organized disciplined army to fight his deadliest enemies. The army waited for light and leadership, but instead of light and leadership, a great darkness fell over the land—a darkness which prevailed in Europe throughout the Middle Ages. But Greek medicine was built on the sure foundations of experiment, research, and trial, and could not die. The remains of Greek learning, discovered by the Arabs in the sixth century in the great world conquest under Mohammed, were brought to the West during the twelfth century. It was not until the fifteenth century, however, when Constantinople fell to the Turks and many learned Greeks were driven to the West of Europe, that the revival of learning began. The scientific world had been asleep. There had been blind acceptance of dogma, instead of experiment, research, and trial, for a thousand years and more.

And now what an awakening! The moving finger writes but its writing is so rapid and the letters are so brilliant that we are dazzled by it all. Great astronomical and geographical discoveries changed man's outlook on the world. Our own land was affected most profoundly, for instead of being on the edge of the known world, Britain found herself in the centre of the suddenly expanded globe. The history of Britain's greatness only began in the reign of Elizabeth, and whatever the glories of Britain in other fields since the hour of her greatness struck, her achievements in the world of science provide by no means her least, and perhaps her greatest, claim to fame for the benefits they have conferred on the human race.

The medical army was aroused with the revival of anatomy in the sixteenth century. The reveille was sounded by Vesalius, a Belgian of Scottish extraction on his mother's side. He was the author of modern anatomy, and laid the foundations of modern medicine. All the old teaching of Galen was raked over, the dust of centuries wiped from it, and the dogmatic statements challenged by the only real tests—experiment, research, and trial. The dawn was hailed by Harvey, the greatest name in British medicine, and one of the greatest in the history of Britain and of the world. This great Englishman compelled a return to the experimental method, and from the time of Harvey onwards medicine became more and more closely linked with the sciences.

During the seventeenth and eighteenth and the early part of the nineteenth centuries much detailed fundamental work was done, hard uphill work, but, as the Norwegian proverb says, "You cannot climb a mountain by a level road." In every one of the sciences progress had to be made by experiment, research, and trial, and we are proud to remember that British workers are to be numbered amongst those whose names will live for evermore. To mention only a few, we have Newton, who led science along new lines, Sydenham, at the bedside, rightly called "the English Hippocrates", Boyle in chemistry, Matthew Baillie, nephew of John Hunter, in morbid anatomy, and our own Charles Bell, founder of our medical school, in

physiology. A new spirit was breathed into surgery by the immortal John Hunter, who found it an applied art and left it a science. His watchword was, "Don't think, try the experiment." Jenner, one of humanity's greatest benefactors, introduced vaccination, and in the great public health movement English statesmen and hygienists led the way.

But still man's chief enemy was not in view. The identification of the enemy and the study of the minute structure of the body in health and disease had to wait for the perfecting of the microscope. Harvey's main equipment was a simple lens, and for some time simple lenses of high power continued to be used. Men did what they could with the instruments at their command, and Bichat and his followers described the tissues of the body. But the compound microscope did not become an efficient instrument until 1830, Lister's father being one of the chief contributors to its perfecting. Results soon followed, and in 1839 Schwann demonstrated that the higher animals are all commonwealths of cells, while in 1858 Virchow published his epoch-making book on cellular pathology.

Man, long suspicious, was now more and more certain that there was something minute at work in his undoing, and in 1862 proof was absolutely established. In discovering "the world of the infinitely small," as he called it, Pasteur made a new world for man, and the whole of our life to-day is based on Pasteur's discoveries. The first great result of Pasteur's demonstration of the germ origin of putrefaction was Lister's discovery that the suppuration of wounds was also due to germs, and that infection could be prevented by antiseptic methods. Pasteur's next great achievement was the scientific attenuation of microbes, and from his researches have been evolved all our present methods of conferring artificial immunity by the use of vaccines and antitoxins.

Man had reached the climax in the fight. The leaders had arrived and the general advance was ordered. The full fruits of victory are still to be gathered, but even so far the discoveries of Pasteur and Lister have conferred benefits on humanity so wonderful, so colossal, and so immeasurable, and they have directly and indirectly saved so many millions of lives, that they stand out in letters of flame above all other achievements in the fight to victory. We may, indeed, echo what the American Ambassador said when addressing Lister: "It is not a profession, it is not a nation, it is humanity itself which, with uncovered head, salutes you."

Advances were swift and sure along the paths opened up by Pasteur. It would be impossible on this occasion to give an account of the many victories achieved. The story of the conquest of the tropics alone would keep you enthralled for hours. It is an epic, full of examples of dogged perseverance, skilful tracking of the enemy, and of heroic and dauntless self-sacrifice by the searchers after truth. The result was not only to convict the enemy hosts of disease, but also to prove the blood-guiltiness of the insect hosts which acted as carriers of infection. The incidents and results of this heroic work were achievements of the order of deeds that men write upon stone. It is just as wonderful that the Panama Canal was cut through a belt of malaria and yellow fever as that it divided a continent into two and linked two oceans together.

In his preoccupation with the larger animals and his perpetual fight to control the vegetable kingdom, little did early man think that his real enemies were microscopic animalcules and unicellular vegetable microbes, and that often the angels of death were of the insect world. Primitive man had to equip himself to fight the enemies visible to him. At long last the hands and brain of modern man had fashioned instruments which brought the real enemy into view. The battle was joined, and man, instead of fighting something mysterious, had the hosts of death captive. He could study them as tiny specks on a microscope slide, or hold them engaged in a test-tube—growing at his command, tamed, attenuated, robbed of their virulence, and oftentimes to be put to man's service.

All through the ages a golden truth is blazoned the path of progress is by experiment, research, and trial

Research must be fostered and encouraged. While it is not given to all of us to add to the sum of human knowledge, we can all help research. We can all be seekers after truth, and ready to explore with open minds the paths indicated by others. Too often a new truth has to fight to acceptance against unreasonable opposition, or against some fixed opinion or bias. It is, therefore, often "not the man who first says a thing, but it is he who says it so long, so loudly, and so clearly that he compels men to hear him—it is to him that the credit belongs" (Sidney Smith).

A study of the history of the fight brings out another lesson. The co-operation of the sciences which dates from Harvey's time must be made closer and closer. It is by co-operation that advances can be made most speedily. Medicine is dependent on the fundamental sciences. From day to day we make greater demands on them for diagnosis and treatment. It may yet be that the dread enemy of cancer will be brought to understanding, prevention, and cure by the chemist and the physicist. Already it is known that there is a difference between the chemical requirements of cancer cells and normal cells, already it is known that radium in proper doses has a lethal effect on cancer cells and spares the normal cells. Further work in biochemistry and biophysics may bring us a means of early diagnosis and successful treatment.

Another point is clear from a study of the advances made. All through the ages man has required for his search more and more elaborate tools, instruments, and machines. To provide equipment of the finest order and laboratories of the best is now a costly matter. Here the men at the base, the men of great generous hearts and far-seeing minds, can help, and have helped. In our own medical school we have been blessed with great benefactors. The Joel Chair of Physics, the Chair of Physiology, and the Courtauld Chairs of Anatomy and Biochemistry are endowed, and you see brought to the service of mankind great institutes for scientific research and application—the Barnato-Joel Cancer Research Laboratories, fast becoming, with the development of radiotherapy, an institute of physics, the Bland-Sutton Institute of Pathology, and the Courtauld Institute of Biochemistry. By these institutes the fundamental sciences of chemistry and physics become closely linked with physiological, pathological, and clinical study, and are brought in very fact to the bedside. Much remains to be done, and in no better way can large-hearted benefactors with the necessary vision contribute to the progress of the race and the winning through of the fight against man's enemies than by the gift and support of laboratories for the study of disease, and of hospitals for its treatment.

But we must ensure that the teachings of research are followed. Even the teachings of Pasteur have not been fully applied. It is nearly half a century since Koch discovered the tubercle bacillus, surely it is time it was banished into the wilderness. The fight against man's deadliest enemies is a fight for all. It is not a fight for armies only, but for nations—a true League of Nations task. Preventive medicine is our aim, and it is worth much labour and much sacrifice. The highest aims of preventive medicine can only be achieved by the co-operation of all health services. There must be a co-ordinating head, which, to act with full authority, should be the State. The great hospitals are ready and willing to play their part by providing accommodation for clinics which it may be desirable to establish. It is for public authorities to make full use of the facilities available and to avoid duplication of services. By co-operation, not only will research be stimulated and fostered and all the resources of the great hospitals be at the service of a great cause, but medical education will go hand-in-hand with research and treatment for the benefit of all.

And now I must make an end. Gentlemen, we have a glorious inheritance. To you the torch is thrown, "be yours to hold it high." Besides the inspiration of a great Cause, you have the knowledge that your own countrymen hold a high place among the seekers after truth, and that men of your own hospital and medical school are numbered amongst those whose names will live.

UNIVERSITY COLLEGE HOSPITAL

ADDRESS BY SIR THOMAS BARLOW

At University College Hospital Medical School on October 1st the inaugural address was delivered by Sir Thomas Barlow, Bt The dean, Dr A M H GRAY, who presided, reminded the company that the medical school was entering upon its second century. During its first eighty years it existed as part and parcel of University College, but for the last twenty years it had been under a separate administration, though it continued to be closely connected with the Faculty of Medical Sciences of the College.

Sir THOMAS BARLOW began with some historical reminiscences. In 1828, when medical classes were started at University College, education in medicine and surgery in London was poorly organized. A certain amount of ambulatory instruction was given by physicians in the great hospitals, but it was of a rather perfunctory character. The surgeons were somewhat more active, they welcomed students as beholders of the celerity and dexterity with which they carried through their operations. In those days a great portion of the medical teaching was carried on in private medical schools, the property of surgeons, or occasionally of physicians. Anatomy and physiology were the chief subjects taught, but at some of the schools medicine, surgery, and obstetrics were also taught. One of these schools existed in the University College neighbourhood when the speaker himself was a student. It was attended by idle fellows who had repeatedly failed at their examinations, but who, by a process of cramming, ultimately scraped through. The novels of Smollett and Dickens, and the drawings of Rowlandson, showed what was thought of the medical student of the eighteenth and early nineteenth centuries. The founders of University College were not content until, courageous and enlightened men, they had built the central block of University College Hospital, and here was accomplished the great work of instituting a medical curriculum and providing a liberal education in the science and art of medicine. The new facilities were not established at the demand of the examining bodies, on the contrary, they acted as a stimulus to the examining bodies to widen their requirements.

Sir Thomas Barlow then addressed himself to the freshmen, who, he said, no doubt intended to take the M B and ultimately the M D of the University of London, and to carry in their stride the examinations of the Coupoint Board, whose diploma would give them the qualification to practise. In their first winter session the important subjects would be anatomy and physiology. They must spare no pains to become neat dissectors and experimentalists, they must cultivate the faculty of making repeated correct observation of salient points, gathering in as much detail as possible, and must cultivate also that part of the faculty of memory which was concerned with visualization. A useful power to acquire was that of summoning up at any moment a mental vision of what had been displayed in dissection or done in the way of experiment. Tactile sensibility as well as vision must be cultivated. It was necessary also to learn to record accurately and tersely. The man who could sketch had a great advantage in dissection, but the next best thing was to be able to make a good diagram which would show not only the shape of the structure, but its relations to adjacent parts. A hint might be taken from commercial book-keeping. A large-sized exercise book should be procured, which might be called the day book, and every night there should be entered whatever was remembered of the day's dissections, then, with the aid of the textbook, what had been omitted or needed to be corrected should be set out on the opposite page. This method would vastly improve the memory, facilitate the acquisition of anatomical knowledge, and lessen the drudgery of the work.

As for lectures *versus* textbooks, Sir Thomas Barlow thought the usual combination of the two was the ideal. Demonstrations, especially catechetical demonstrations, must never be neglected. He warned the students against the great danger of slackness. Because some subjects reappeared in the programme for the second or third year, students were apt to suppose that they could make up by

special application afterwards for neglect at the beginning. That was a mistake, early neglect was a handicap through out the whole of studentship. When the hospital stage was reached, the combination of out-patient and ward work under the same chief was of inestimable value. The student should never be afraid to ask for enlightenment from his chief, but should always be careful not to argue with him! Every opportunity of *post-mortem* study should be taken. The student could not begin too soon to make himself skilled in the handling of instruments of special investigation. It was useful to get a clinical clerkship in the children's ward, also to attend demonstrations at the fever hospitals. In general the student should keep to the medical textbook recommended by his professor, though when working up his commentaries he could go further afield and read some of the original memoirs. The out-patient clinic must not be despised. That and the skin clinic presented something very similar to what would be met with in general practice. Following on a resident hospital appointment, a resident post at one of the special hospitals, if time and means allowed, would be very useful.

In some more personal counsel at the close, Sir Thomas Barlow impressed upon students the need for maintaining their own health. Saturday afternoons should be taken for games. Scratch meals should be avoided, as well as the doctor's villainous habit of bolting his food. Smoking should not be indulged in while at work, and if alcohol were taken it should be only the minimum, and only with food. Time should be found for general reading, the Bible first and then Shakespeare, and the great essayists and novelists, not forgetting biographies, especially medical biographies, among which, in his opinion, Godlee's *Lister* was supreme. Good music and drama had their occasional place, good friendships should be cultivated, and the Union should be joined, but the student should keep up his attachment with his home, and tell his people about every part of his work and play. The preparation for the doctor's life was arduous and exacting, but in the acquisition of medical knowledge there was always the comfort of realizing that through such knowledge came the power to save valuable lives and assuage much suffering.

Dr BATTY SHAW and Professor LOVATT EVANS spoke to a vote of thanks.

LONDON (ROYAL FREE HOSPITAL) SCHOOL
OF MEDICINE FOR WOMEN

ADDRESS BY DR ANDREW BALFOUR

At the opening of the session of the London (Royal Free Hospital) School of Medicine for Women on October 1st the dean, Lady BARRITT, C B E, who presided, stated that there was an entry of sixty students, as compared with just over fifty last year. There would have been a larger entry but for certain misleading statements, widely quoted from a monthly review, which gave a quite wrong impression as to the clinical facilities afforded to students at the hospital.

Dr ANDREW BALFOUR, C B, C M G, addressed the company on the possibilities of the tropical field for medical women, saying that it offered abundant opportunities alike to the medical practitioner, the research worker, and the public health administrator. Slowly but surely the mastery was being obtained over tropical maladies which not long ago were considered mysterious in their cause and mode of spread. The habit of viewing tropical diseases was also changing. Until recently there was an imaginary gulf between diseases in temperate climates and diseases in the tropics, but in fact there were only three tropical maladies—in the sense of maladies strictly limited to the belt between Cancer and Capricorn, these were African sleeping sickness, South American human trypanosomiasis, and African tick fever. Many other so-called tropical diseases, even including sprue and yellow fever, were not strictly diseases of the tropics, although, partly owing to their etiology, and partly to environmental circumstances, they prevailed nowadays to a much greater extent in hot countries than elsewhere.

Africa had ceased to be the "dark continent" because it had been enlightened by the doctor and the engineer.

One of the pressing questions now in many parts of Africa was the prevalence of tuberculosis, which appeared to be a graver problem year by year. Everywhere in tropical Africa malaria remained a scourge, and in many places its dreaded sequel, blackwater fever, took its toll of human life. Yellow fever on the West Coast had of late given much cause for anxiety. Sleeping sickness still held sway over vast territories, in spite of modern knowledge of trypanosomes and their vectors. In several parts of British tropical Africa steps were being taken to train medical men and sanitary inspectors, and in some corners of the continent maternity and child welfare work was being actively developed. Africa was moving in the direction which this country had trodden, with increasing security, for the past twenty-five years, and, unless he was very much mistaken, this spelt openings for women.

The medical problems in Palestine were mainly those of northern Africa. Like Egypt, it was a great country for the oculist. Any woman doctor who had specialized in eye work should find an opening in the Holy Land. Iraq was another country where medical women should find a place in the sun, the phrase was an apt one, because it was the sun which determined the pathological and epidemiological characteristics of the country of the Tigris and the Euphrates. The diseases of Iraq were chiefly malaria, plague, cholera, oriental sore, and dysentery. Iraq being a Mohammedan country, the practice of midwifery and gynaecology was backward.

India remained the Mecca for the woman doctor. Hinduism, with its blighting system of caste, exercised a malign influence on women's lives and health. But many conquests had been made. Kala azar, which once doomed its victims readily to death, yielded, as a rule, to antimony, the position in regard to leprosy had improved greatly. Hookworm disease was now under control. Altogether the problem at present was not so much to acquire knowledge as to apply the knowledge gained. Ceylon was a wonderful place for diseases, and not far behind India as a pathological museum. The Federated Malay States, in addition to the customary problems of the East, presented some special questions, which added interest and variety to medical practice. One of the chief diseases was beri-beri, and there was said to be a form of beri-beri occurring in the puerperium.

Much of China was in the tropics, and everywhere there was a great burden of disease. China was a mine of pathological wealth, and it had been a great centre of medical missionary enterprise and a country where many women doctors had found their vocation. The islands of the Pacific, even Fiji and Samoa, in which latter island two women doctors were practising, need hardly be taken seriously in such a purview as this, but, passing to the South American continent, British Guiana was a happy hunting ground for the clinician, and what was true of British Guiana was true, generally speaking, of the West Indies. In all these places there was much to be done, both from the preventive and the curative aspect.

With regard to the scope for medical women, Dr Balfour considered that India offered the greatest opportunity. Here medical women might engage in the Women's Medical Service for India (founded by the Countess of Dufferin's Fund), in the mission hospitals, nearly one hundred of which were staffed by medical women, in private practice, which appeared to promise success only in the larger towns, and, finally, in public health work. Dr Margaret Balfour had written to him stating that it was astonishing that medical women were not more freely employed in India. Not a single medical woman was attached either to the public health department of the Government of India or to the departments of the Provinces. There were 62 hospitals in India staffed by women doctors, apart from the mission hospitals and the Women's Medical Service for India, these were mostly hospitals of the provincial Governments and municipalities. In Africa the most advanced work was being done on the Gold Coast, where there were properly constituted maternity and child welfare centres. In Palestine there were 31 infant welfare centres, and 37 women were licensed to practise midwifery. In Malaya about 16 women medical officers were in Government employment, and the number was likely to increase. In Hong-Kong

there were two medical women in official positions, here private practice could be built up, and would in time become lucrative.

Dr Balfour concluded by urging the need for special preparation for tropical conditions, and for the highest standard of personal fitness and professional efficiency. A vote of thanks was accorded to him on the motion of Professor WINIFRED CULLIS, seconded by Mr JOSEPH CURNING, senior surgeon to the hospital.

WESTMINSTER HOSPITAL

INAUGURAL ADDRESS

THE new session at Westminster Hospital Medical School began on October 1st, Sir WILLIAM GOSCHEN presiding at the opening meeting, when the inaugural address was given by Mr A. C. POWELL, headmaster of Epsom College, who took as his subject "Leisure and the medical student."

Mr Powell said that the world was calling out more insistently than at any time for educated men and women in all the professions, and in medicine the need for all-round culture was, to put it mildly, as urgent as was the need in any other high calling. He feared the supply was not altogether worthy of the demand. In years gone by the country practitioner was as often as not the universal encyclopaedia, the arbiter of taste, confessor, comforter, and general autocrat. Infinitely inferior in technical skill and knowledge to the general practitioner of the present day, he had, nevertheless, valuable qualities that it would be well for men of our generation to cultivate. It might be asked whether there was any longer time available for the medical student to be anything but a medical student. Emphatically Yes. Our days were too kinetic, a little more knowledge of the laws of statics would prove a salutary medicine for the modern disease of "mobilophobia." Lack of control of the time of leisure, however small it might be, was one of the present-day curses. Even in this hectic age some portion of it might be made productive of future good without losing its value as relaxation. Purposeful leisure had been established as one of the fundamentals of civilized life.

Dr A. S. WOODWARD, dean of the Medical School, stated that the financial position was eminently satisfactory. Two classes had been held for captains of the R. A. M. C., and the authorities had asked them to continue these classes. Twenty-eight officers completed their course last week, and a very successful post-graduate class had been conducted for doctors from all over the world. The number of students in the hospital remained unchanged from last year, which implied that the entry had equalled the exit of those students who had become fully qualified. During the last two years some sixty students had taken their degrees and diplomas. Among the prize-winners whose names were announced was Mr R. G. L. Waller, winner of one of the certificates and prizes offered by the British Medical Association. Dr Woodward mentioned that the school had that day attained its ninety-fourth birthday.

ANNUAL DINNER

The annual dinner of the Westminster Hospital Medical School was held at the Royal Adelaide Gallery on October 1st, with Sir James Purves-Stewart in the chair. Replying to the toast of "The School," which was proposed by Lieut-Colonel Bulkley, the dean (Dr A. S. Woodward) said that from every aspect they had good reason to be satisfied with its position. One of the most pleasing features was the growth on the athletic and social side. They were not only doing routine work, but were engaged in research of world-wide importance, publication of the progress made might soon be possible, when its excellence would be revealed. For the last five years they had been conducting pioneer investigations in connexion with radium, and the hospital had been visited by doctors from all over the world to see what was being done. He desired to express his gratitude to Mr Stanford Cado and others for bringing the hospital to the front in this matter. The toast "Past and Present Students" was submitted by the chairman, and replied to by Dr H. H. Mills and Mr

C G Roberts In proposing "The Guests," Mr Arthun Evans referred to the need for providing hospital accommodation for paying patients of the middle and professional classes. They were alive to this question at the Westminster Hospital and had available an excellent site, all they lacked was the capital. He appealed to all old students to think of the hospital and of the need for filling this gap in its life. The matter merited the attention of the leading insurance companies. If the provision of such accommodation meant that the lives of middle class people could be prolonged by three or four years, the additional premiums payable would result in such an accumulation of funds by the companies that the interest alone would more than suffice to furnish the money necessary to carry out the scheme. He suggested to the insurance companies that they would save money by giving it to the hospitals. The headmaster of Epsom College replied, and the toast of "The Chairman" was proposed by Dr Arnold Stott.

ST BARTHOLOMEW'S HOSPITAL

OLD STUDENTS' DINNER

No formal ceremony marked the opening of the new winter session at St Bartholomew's Hospital, and even the annual old students' dinner, which was held on the evening of October 1st, in the Great Hall of the hospital, had the nature of a family reunion.

Sir D'Arcy Power, who took the chair, was supported by Lord Stanmore, treasurer of the hospital, Sir John Rose Bradford, President of the Royal College of Physicians, Surgeon Vice-Admiral Gaskell, Air Vice-Marshal Munro, the Master of the Apothecaries Society, Sir James Berry and the headmaster of St Paul's School, as well as by senior members of the hospital staff. In proposing the toast of "Prosperity to St Bartholomew's Hospital and College" the CHAIRMAN referred to the sad loss sustained during the past year by the deaths of the two senior consulting physicians, Sir William Church and Sir Dyce Duckworth. In regretful mention of the retirement of Mr Douglas Haimer from the charge of the throat department, which he had held for more than a quarter of a century, the hope was expressed that he might now have leisure to conduct some of the very necessary throat investigations. Sir D'Arcy Power referred also to the Harvey celebrations last spring, mentioning particularly the successful lunch held in the Great Hall, when Sir Wilmot Horringham delivered his magnificent address on Harvey's connexion with St Bartholomew's. He recalled attention also to the fact that another member of the hospital, Mr Geoffrey Keynes, had prepared for publication in the month of the tercentenary celebrations the first version in English of *De Motu Cordis* and a Harvey bibliography. Building operations at the hospital had continued during the year, and a fine memorial of the great work of Miss Isla Stewart as matron would soon be available in the form of the recreation room for nurses, which was now nearly complete. Steady progress was being made with the new surgical block, no finality as regards building was possible yet, or was in contemplation. The hospital took pride in the fact that the accommodation provided for the treatment of the sick poor was always a little in advance of that generally considered adequate. Passing to the subject of athletics, Sir D'Arcy referred to the return of the inter-hospital Rugby football cup into the keeping of the medical school for the fourth time, and mentioned that, in the excellent entry of new students, a large number of men were included from Oxford and Cambridge, among whom some had already gained their "blues." Lord Stanmore proposed the health of Sir D'Arcy Power, which was drunk with musical honours.

This was the first occasion on which the new lighting in the Great Hall was brought into use. From the embrasures of the upper windows reflected light was thrown on to the fine old ceiling, and revealed the fact that, after some fifty years, the work of cleaning had now been undertaken. At previous dinners comments were often made on the severe gloom of inadequate lighting, and the adjournment to the library has always been popular as soon as the

dinner came to an end. Whether it was the new lighting or the jovial comradeship of senior and junior members of the staff, or the reviving of old friendships, it was very apparent this time that there was no inclination to leave the hall at an early hour. Eventually, however, the company reassembled in the library, where the flow of reminiscences continued, and the prospects of the future were discussed. It may be mentioned that one of the chief needs of the medical college to-day is a new department of anatomy, a site has been obtained, but the money required for building has yet to be found. Perhaps by way of contrast with these newer performances and projects, the front page of the menu card was adorned with an illustration of the old chemical theatre of 1849.

MOTOR CARS FOR 1929.

THE OLYMPIA SHOW

[FROM OUR MOTORING CORRESPONDENT]

It has become customary to speak of each succeeding annual motor show at Olympia as the best of all, but there can be no doubt that this is true about the 1928 exhibition, which will open at 10 a.m. on Thursday next, October 11th, and continue until Saturday, October 20th. The show will provide the threefold attraction of great variety in the types of cars, new and interesting mechanical features, and cars of each class vying with each other in competitive price to attract the public.

An International Display

The Olympia show has a wider international character than any of the motor exhibitions held in other countries. Indeed, from the advance information so far available it would appear to be likely that Olympia will next week have under its roof at least as many examples of foreign makes of cars as of those of British construction. The United States and France are, of course, the biggest competitors, not only for the British but the world's trade in motor vehicles, but with them Austria, Belgium, Italy, and Canada are also as usual contributing their quota, while several German car-manufacturing concerns will also be represented.

The Car Requirements of Doctors

Just as there are motorists and motorists, so are there doctors and doctors, whose requirements and circumstances vary so considerably that it is impossible to pick out any one type of car as being most suitable for the doctor's use. Whether he lives a town or country doctor or whether his practice is large or small the medical man who visits the show will find a choice of cars to meet his requirements and his means. The range of choice extends all the way from one of the "babies" in the £125 to £150 class, through the popular four cylinder cars between £150 and £250, to the more elaborate vehicles with six or eight-cylinder engines, varying in price from £250 to £600 and over. Whatever class of car is selected, from the point of view of the medical motorist the great desiderata are reliability, comfort, and smart appearance rather than luxury. Good all-weather protection and good lighting—especially for country practitioners—are also extremely desirable features. Further, the doctor's car, particularly when used in towns, has to be started and stopped frequently, so that the engine-starting installation, and especially the capacity of the battery used in connexion with it, is a point that should not be overlooked when considering the respective merits of different vehicles.

1929 Cars Better Value for Money

Except for improvements in detail and the indication of new tendencies, to be alluded to later in the present article, 1929 cars will not be found to embody any startling mechanical developments. The principal changes that are taking place lie more in a general smartening up in the outward appearance and comfort of British cars, matters in which, in the opinion of many users, they had fallen somewhat behind the productions of some American builders. Thus external painting in two or three colours instead of one promises to be one of the features of the show, although whether this will appeal to doctors, who

usually prefer cars with bodies painted in a quiet but agreeable colour, remains to be seen. Makers are also vying with each other in their efforts to cater for the comfort of both the driver and the passengers by including in the specification many little conveniences that were previously regarded as luxuries to be paid for as extras.

As regards the prices of cars there was a rumour early in August that these would, for 1929, show an upward tendency, a rumour which, however, was quickly killed by the announcement of the reduction in the prices of Austin and Wolseley cars. While, therefore, increases are not numerous—there are one or two—the same can also be said of reductions, the general tendency being apparently to maintain the old level of prices, but to include in the specification certain additional fittings. Generally speaking, the opinion may be expressed that while cars are no cheaper they are in reality better value for money than ever.

New Car Fittings and Conveniences

Among the new fittings which promise to form a feature of next year's cars are bumpers, and dipping headlights or lamps fitted with dipping reflectors. The bumper, fitted mostly to the front of cars and often to the rear, is an American idea and a natural outcome of the immense motor traffic in the United States, where instances of cars bumping into each other are quite ordinary events. So far this device has not been widely adopted in this country, where, notwithstanding the great increase of motor traffic, car owners have hesitated to incur the expense of having them fitted. But now that at least two concerns—Morris and Clyno—have adopted them as part of the standard equipment, the example is likely to be followed by other makers.

The Dazzle Problem

As to the second new feature, those drivers who have to do much after-dark driving know that one of the great difficulties is that of dazzling headlights. These, while admittedly a necessity for safe driving along unlighted roads, are a source of great inconvenience, if not of danger, to the drivers of oncoming vehicles, as well as to pedestrians and cyclists. The problem is one that has received considerable attention, but the real solution has not, in the writer's opinion, yet been found. During the past year or two various forms of dipping headlights or headlamps with dipping reflectors have been introduced, and by some car manufacturers these are being standardized for the coming season. If they reduce the risk of accident it will be all to the good, but with many motorists the question of "to dip or not to dip" is still an unsettled problem. Indeed, if the number of cars on the roads continues to increase at the present rate it would seem that either the driver will have a busy time in working the dipping control lever or dipped headlights will have to become permanent.

Among the other general tendencies to which brief reference may be made are the increasing use of unsplintable or safety glass for the windcreens and windows of cars, the use of chromium non-rusting plating for the external metal work—this being now a feature of many American cars, and direction indicators, which are now very widely used in Germany and Holland, and are becoming increasingly popular in this country.

The Approach of the £100 Car

It may be remembered that one of the features of the Olympia show two years ago was the display of two or three attempts to produce a small car at the round figure of £100. Although none of the cars shown in 1926 have survived, each year sees us approaching the attractive round figure in cars actually made by established manufacturers. As is well known, the Austin Company led the way in this direction with its ever-increasingly popular and useful "Seven," the price of which has been reduced to £125 for the touring car and to £135 for the saloon. The field of "babies" is, however, rapidly increasing, for not only is the Triumph Company continuing its "Seven" at a reduced price, but one of the great attractions of the show will be the Morris Minor, introduced by the Morris Company, this little car is being built in open and closed forms at the same prices as the Austins. None of these will, however, be the lowest

priced vehicles in the exhibition. This distinction belongs to Jowett Cars, Ltd., who are offering a saloon at £125. Although fitted with only a two-cylinder engine, the Jowett car has now withstood the test of several years' running, and by reason of its economy and reliability has attracted a host of satisfied users.

Catering for the Owner-Driver

While, of course, there is a wide choice of luxurious cars for the wealthier classes, who regard motors purely as a means of transport and are in a position to employ an expert mechanic-driver to maintain their cars in proper running condition, one of the outstanding features of the 1928 exhibition is the great attention that continues to be paid by manufacturers to the requirements of motor users who not only drive, but also look after their own cars. It is true that during the past year or so there has been considerable progress in car "servicing" facilities, it being now possible to call at many garages and not only have one's car quickly cleaned and polished, but also have tyres pumped up and repaired, and the various parts of the chassis given a charge of lubricating oil or grease. The true owner-driver, however, likes to be able to look after his own car as far as possible, so that he may know when setting out on his journeys that everything is in proper order. It is therefore satisfactory to find that not only is there a wide selection of cars of the owner-driver variety to suit every pocket from about £112 upwards, but that makers are studying his requirements in respect of easy maintenance. One example of this is seen not only in the reduction in the number of points about a chassis that need periodical attention—as, for instance, oilless spring shackle bolts—but also in what is known as "one-shot" greasing, by which all the different parts requiring grease are supplied from one central point.

1929 to be a Six-cylinder Year

It may be interesting to study the modern car as shown by the 1929 models, step by step—that is to say, by regarding each of the principal chassis components in their turn. Naturally one begins with the component which supplies the motive power—the engine. In this the note of the forthcoming show is the ever-increasing vogue of cars with six- and eight-cylinder engines, particularly the former. The car for the man of extremely moderate means continues, and will probably continue for some years, to be provided with a four-cylinder engine. This variety of engine is capable of meeting all ordinary requirements of power development and smooth running, and has, moreover, the advantage of simplicity, together with low cost of running, maintenance, and taxation. The ever-growing motor-using public includes, however, people who are prepared to set aside considerable sums for the acquisition and running of a car. One finds, therefore, an increasing number of cars fitted with six-cylinder engines, indeed, fully 50 per cent of the cars to be exhibited next week will be of this type, some with a price as low as £250. The show will also be notable for the appearance of an increasing number of cars fitted with "straight-eight" engines. So rapidly, indeed, is the trend of design turning in favour of six or more cylinders that there are now several firms in this country and abroad that are confining their productions to six-cylinder vehicles, while there are some which are building only "sixes" and "eights," leaving the production of "fours" to others. There are even those who prophesy that the car with a four-cylinder engine—certainly for anything over 12 h.p.—will be virtually a thing of the past in a year or two, that six-cylinder engines will be practically universal for even popular-priced vehicles, and that the more expensive cars will have engines with eight and twelve cylinders.

Great attention is also being devoted to carburation and to the filtering of the air before it passes into the vapourizing chamber. The modern petrol engine, whatever its number of cylinders, is to-day almost universally provided with a detachable cylinder head to facilitate the decarbonizing of the combustion chambers and piston heads. As for valves, the overhead type is still slightly more common than the rest, but there appears to be a tendency to revert to the valve-at-the-side type of engine for small and medium-power cars, while for the larger vehicles the sleeve-

valve engine is very popular. As regards ignition, American influence is being felt in the use of coil ignition, with current supplied from the dynamo and battery, although magneto ignition (for which the writer has a preference) is still largely used.

Gearbox Changes

Coming now to transmission, our notes that the once almost universally used cone type of clutch is but rarely met with to-day, the disc or single-plate variety being far and away the most popular. As to the number of speeds, although a gearbox with only three speeds is the one most largely used, it is interesting to note that one well-known British maker of popular-priced 10 h.p. cars has decided to fit a four-speed gearbox in future. There is no doubt that in very hilly districts four speeds are a distinct advantage. Even in fairly level areas there must be many motorists who wish they had still another speed at their disposal, especially with four-cylinder cars, which lack the engine flexibility of "sixes" and "eights."

Although in gearboxes the sliding pinion variety continues in universal use—even the modern Ford car being fitted with a change-speed gear of this pattern—foreknowledge of this year's exhibition seems to indicate that designers have at last begun to realize that something better and simpler for the purposes of gear changing is necessary. Thus at the 1928 show there will be several cars fitted with improved forms of change-speed gears, either as standard fittings or as alternatives to the usual pattern that can be supplied at an extra charge. Among the former are the Cadillac cars, which are now fitted with what is known as the "synchromesh" transmission, in which the different gears are always in mesh and brought into action by special dog clutches. The new Graham-Paige car is also notable for an improved four-speed gearbox in which both the third and fourth speeds are claimed to be extremely silent. The Armstrong-Siddeley Company have taken up a new mechanically operated change speed gear, which, although not yet used as standard, can be fitted when required. In the new arrangement the driver has still a pedal and a lever to operate to effect a change of gear, but the ordinary procedure is greatly simplified by means of a gear selection lever located on top of the steering column instead of at the driver's side. The usual type of clutch is dispensed with, the clutch mechanism being incorporated in the gearbox. To change gear the small lever on the steering column is moved to the position on the quadrant indicating the desired higher or lower speed, and the pedal is depressed when the actual change becomes necessary. There is also the Robertson automatic variable speed gear in which a novel centrifugal governor is embodied in the engine flywheel, which causes a driving face to come into contact with a driven member in line with the usual propeller shaft. As the engine speed increases the driven member is moved as a whole in such a way as to provide a ratio suitable to the speed of the car and power development of the engine. A simple reaction arrangement, which permits of what amounts to engaging a lower gear, is provided so that acceleration and hill climbing capacity can be increased at will.

A year ago much interest was aroused in a new departure involving the introduction of a free-wheel device between the gearbox and the final drive to the rear axle. By this means, when the clutch is released, the car can overrun the gearbox, in other words, the gear can only be driven by the engine and not by the rear axle. Although it is claimed that this facilitates easy and quiet gear changing, and has the further advantage of making it possible to coast without declutching, the idea, though still alive and to be seen at the show, does not appear to have met with any widespread adoption.

Better Brakes on Next Year's Cars

For the driving of the back axle, while there are a few makers who still pin their faith to worm or straight bevel gearing, the spiral form of bevel gear is still the most widely used. In the case of chassis springing, despite the many attempts that have been made to use other forms, the semi-elliptic continues the most popular. Shock absorbers are, however, now fitted in practically all types

Increasing attention is being devoted to the brakes of cars, a vital point in view of the steady growth in the number of vehicles on the roads and the increasing risk of accident. Four-wheel brakes are universally fitted, while on the popular-priced vehicles a good point is the adoption of larger diameter brake drums. On the larger cars, as well as on some small ones, there is an increasing tendency to adopt what are known as "servo" brakes, in which the degree of braking effort of the shoes on the drum surfaces is mechanically or pneumatically effected, and is, therefore, not dependent on the pressure on the brake pedal which the driver can apply.

Wheels and Tyres

With regard to wheels, the wire type would appear to be the most popular, the steel-spoked wheel is, however, still largely used. Disc wheels, although easily cleaned by the owner-driver, do not seem to be so greatly favoured as a year or two ago. As to tyres, the low-pressure balloon type is now used on the majority of cars, and their wearing qualities and reliability are such that mileages are being obtained from them which ten years ago would have been regarded as impossible.

Improvements in Car Bodywork

In the bodywork of cars one finds evidence of marked progress. The tendency is more and more towards the use of covered rather than open cars, and as a result of the experience gained, the increasingly popular saloon type shows distinct improvement, of which noticeable features are larger windows and less prominent posts or uprights in the wood or metal work of the bodies, giving the driver and his passengers a less obstructed view than formerly.

Although there is no gainsaying the popularity of covered cars, even their most enthusiastic users admit there are occasions when they and their passengers would prefer an open air drive. It is therefore interesting to note the increasing choice of saloon cars the roofs of some other portion of which can be quickly and easily opened, and which combine, therefore, the advantages of the open and closed type of vehicle.

Fabric Bodies

Another outstanding feature of the 1928 Olympia show will be the rapidly increasing vogue of what are known as fabric bodies—bodies in which a fabric material or leather cloth material is used to fill in the framework instead of metal or light wood panelling. Introduced some years ago in France, the fabric body is claimed to be not only light and more suited to withstand chassis strains, but also more easily cleaned than the usual painted panel bodies. It has made steady progress in popularity during the past season, with the result that cars with fabric bodies will be found on most of the stands.

The exhibition authorities have again adopted the plan of making the opening day of the show—Thursday, next—a special event, the entrance charge, with the object of preventing overcrowding, being 10s. The popular days are the two Fridays and Saturdays, when admission costs only 2s 6d, while on all other days it will be 5s. Finally, it may be mentioned that the exhibition will be open each day, except Sunday, from 10 a.m. to 10 p.m. Next week it is proposed to refer in greater detail to some of the features of the show, and to the cars specially suitable for the use of medical men.

'THE AUTOCAR BUYERS GUIDE

THE current issue of *The Autocar* (dated October 5th) contains the Annual Buyers Guide a feature which is always appreciated in view of the approaching Motor Exhibition at Olympia. This guide is designed to help intending purchasers in their choice of a new car, and comprises alphabetically arranged tables of all 1929 model cars, both British and imported, on the British market, with their full specifications, principal measurements, annual tax, and weight together with the prices of chassis open tourer, and saloon models. The Buyers Guide is full of useful information and in view of the many new and improved cars which will be staged at Olympia, and which will embrace an attractive range of medium-powered six cylinder cars, this feature should prove of great value to motorists and prospective car buyers for purposes of reference and comparison. With the guide is a composite drawing of a chassis based on an analysis of the guide, showing graphically the most popular type of car for 1929.

MEDICAL DEFENCE UNION

ANNUAL GENERAL MEETING

THE annual general meeting of the Medical Defence Union was held at the Norfolk and Norwich Hospital, Norwich, on September 29th, with Sir HERBERT WATERHOUSE, the president, in the chair.

In proposing the adoption of the annual report for the year 1927-28 Sir Herbert Waterhouse said that this was the third occasion on which it had been his privilege to preside at an annual general meeting of the Union, and that each year he had been more and more impressed with the value of the work in which it was engaged, and with the excellent manner in which this was done. During the past year they had had to defend an unusually large number of High Court actions, and in only one of those cases had the verdict been against the member. Of the great variety of cases dealt with each year, fractures of the neck of the femur gave, perhaps, the greatest anxiety. In the last twelve months these cases alone had cost the Union over £1,400. Time after time at council meetings the secretary reported cases in which claims were made against members—in nearly every case due to the fact that the presence of a fracture was overlooked at the time, and only discovered as the result of an x-ray examination made generally months later. Claims were nearly always based on alleged negligence in that an x-ray examination was not advised, and unless it could be proved that such advice was given the defence of a member became a matter of great difficulty or even impossible. Sir Herbert Waterhouse understood the British Medical Association had given as its considered opinion 'That it is not possible to define a group of injuries to bones or joints the diagnosis and treatment of which can be said in advance not to require examination by x-rays, and that whether such an examination is or is not necessary in an individual case can be judged only by the practitioners concerned.' He agreed with that pronouncement, but the practitioner in making his decision should remember the possibility of legal proceedings in the future, and should see that his defence was not prejudiced by the absence of proof that he had taken all necessary precautions. Allegations of negligence undoubtedly constituted the greater proportion of the cases in any year, these cases, as a rule, did not arise until the doctor's account was sent in, and much assistance in rebutting such charges was obtained when the member had kept careful notes of the condition when the patient was first seen and the progress of the case from day to day.

When he became president in 1925, Sir Herbert continued, the membership of the Union was 12,916, it was now 15,474. In that period the available funds had increased from £36,723 to £57,810. In these days of costly litigation the possession of a substantial reserve fund was of the greatest possible importance to a defence society, and the members of the Union had every reason to be gratified with the present position. It had been the intention for some years to build up a substantial reserve fund, so that it would be possible, if necessary, to carry a case to the House of Lords, he thought that in some measure this had been achieved, for the investments now amounted to £35,000.

During the last few years women doctors had joined the Union in increasing numbers. They seemed to be liable to very much the same attacks as those which men doctors were called upon to meet. He was glad to say that women members, for the most part, were very painstaking and careful in their work. Many of the newly registered women had, however, impressed him as being curiously ill informed on many of those business matters relating to the profession, such as partnership agreements, the purchase of practices, and so forth, and he wished to urge strongly the newly registered women, when contemplating taking any appointment, partnership, or practice, to avail themselves of the experienced advice they could receive, if members of the Union, from the general secretary.

Sir Herbert Waterhouse concluded by expressing appreciation of the services of the general secretary, Dr Neal, and the solicitor, Mr Hempson.

The report of the council and the financial statement for the year 1927 were adopted unanimously. Dr W. S. A. Griffiths, Dr V. A. Jaynes, and Mr F. C. Larkin, the retiring members of council, were re-elected. The auditors, Messrs Lewis Hardy and Co., were reappointed, and authority was given for the payment of the first class railway fares (with expenses if detained for the night) of members of the council attending council meetings from provincial centres. The proceedings concluded with a vote of thanks to the president and council for their services during the past year.

ANNUAL REPORT

In the annual report of the Medical Defence Union, presented at the annual meeting, it was stated that the number of new members elected in 1927 was 1,282, and the net gain

for the year was 853. The total membership was now well over 15,000, and included 1,317 women.

The report refers to a matter in which two members of the Union who were acting as assistant medical officers at a Poor Law institution were involved. They were in charge of a case in which the medical superintendent had suggested there should be an arm-to-arm transfusion of human blood, using a universal donor from among the nursing staff. The only nurse available was aged 18 years, and her parents' consent had not been obtained. When informed of this the medical superintendent said, it was stated, that it did not matter, and that the members were to take it as an order that the transfusion was to proceed at once. The members were advised that they were under no obligation to obey the order of their medical superintendent to perform a definitely illegal act, and that if they obeyed such an order and legal action were taken against them they could not escape liability on the ground that they were acting under his specific direction.

Attention is again called in the report to the advice so often given in connexion with x-ray examinations in cases of injury to a bone or joint, and it is pointed out that some definite record of a patient's refusal to submit to x-ray examination is of the greatest value in resisting claims in which the alleged omission to advise such examination is made the foundation of a charge of negligence. The Union has had to deal with a number of claims against members which would not have arisen if this advice had been followed. One case was heard in the High Court with, the report states, the usual conflict of evidence. The member stated that he had from the very first advised an x-ray examination, and this was flatly denied by the patient. After a hearing lasting several days the jury found in favour of the practitioner, adding a rider that he should have protected himself by calling in another doctor and repeating in his presence the advice to submit to an x-ray examination.

Several members have, it appears, asked for advice regarding inquiries addressed to them by medical officers of health in cases of infant deaths, stillbirths, and maternal deaths. While the council of the Union is aware that these inquiries are the outcome of opinions expressed to local authorities by the Ministry of Health, members have been advised, in view of the ordinary obligations of professional secrecy and of the necessity of safeguarding the legal position of the practitioners concerned, that the detailed information asked for should not be furnished in any case where there is the slightest possibility of the patient being identified. In giving this advice the council has made it quite clear that it is desirable that medical practitioners should assist so far as it may be possible in the compilation of general statistical information.

The report states that many cases of unqualified practice have been investigated during the year. In one case the evidence collected by the Union was brought to the notice of the Director of Public Prosecutions, and proceedings were taken, the offender was convicted of forging a death certificate and sent to prison. In another case ample evidence was obtained, and application was made for a summons, but the offender absconded. Cases handed over to the solicitor during 1927 numbered 90, of these 36 involved charges of negligence, 11 were questions of libel and slander, 5 were complaints of unqualified practice, 10 concerned national health insurance administration, and the remainder were related to a variety of other matters.

England and Wales.

Radium Treatment of Uterine Cancer for the Poor
In London

THE Minister of Health has issued an Order (No. 72810) authorizing the extension of the classes of the poor with whose care the managers of the Metropolitan Asylum District are charged to include poor persons suffering from cancer of the uterus, the object is to enable radium treatment to be provided for such persons who are under the charge of the guardians of the several Poor Law unions in the metropolis. A centre will be provided at the North-Western Hospital of the Metropolitan Asylums Board exclusively for the radium treatment of uterine cancer, and accommodating eight patients at a time, it will be under the charge of Mr. COMBES Berkeley, obstetrical and gynaecological surgeon to the Middlesex Hospital. In a memorandum explaining the scheme it is remarked that the value of radiological treatment of cancer of the uterus must be regarded as fully established, it is recalled that radium has been used for many years at a number of large clinics on the Continent and in America, with excellent results. In

early and border-line cases the results are considered similar to those obtained with surgery, while 15 per cent of those in whom the disease is stated to be inoperable have been found to be alive and well at the end of five years after radium treatment, many others have been granted an increase of life and much relief. Technical and economic considerations render it advisable that the treatment should be concentrated as far as possible. It is proposed that the procedure to be generally employed should be that known as the Stockholm method, in which radium is placed internally in the uterine canal and in the vagina, three separate treatments, each of twenty-two hours' duration, being usual. The patient enters the centre one or two days before the first treatment, and is retained for the second, which is given about a week after the first, so that her first stay at the centre is of about twelve days' duration. She is readmitted sixteen or seventeen days later for about four days for the third treatment, and subsequently returns either to her home or to the Poor Law institution from which she came. It is regarded as most desirable that the patient should, after completing the treatment, return to the centre for examination as often as may be considered desirable by the medical director, the frequency of her visits will depend on her condition, but they may be every six weeks for the first few months and less frequently later. The Metropolitan Asylums Board undertakes responsibility for all transport required in this connexion. Regarding the selection of cases the memorandum emphasizes the point that, while all cases of cancer of the uterus are suitable for treatment by radium, the earlier the stage of the disease the more favourable are the chances of a successful result. Cachectic patients or those with other evidence of septic absorption can often be treated, but the possibility of permanent success is not very great. Patients with a fistula, either vesico-vaginal or recto-vaginal, cannot be accepted, and radium treatment is also contraindicated in patients with definite renal disease. Patients suffering from cancer either of the cervix or of the body of the uterus will be accepted, but in the latter type if the medical director considers that surgical treatment will be more advisable he will communicate accordingly with the medical superintendent of the Poor Law institution. General anaesthesia of short duration will be induced for each insertion of radium. The Metropolitan Asylums Board is prepared, on the advice of the medical director, to admit patients believed to be suffering from cancer of the uterus on clinical diagnosis only, in such cases it is stated to be particularly desirable that there should be no disturbance of the growth for the purpose of diagnosis either by curettage or removal of tissue. It is proposed to publish periodical reports on the work of the centre.

Small-pox among Casuals Cessation of Complete Medical Examination

The Minister of Health has issued a circular (No. 930) to boards of guardians in England and Wales stating that he has been advised that the continuance after September 30th of the medical examination of all casuals admitted to casual wards is no longer necessary. This requirement was imposed upon the Poor Law authorities in the first instance this year by a circular issued in January, and continued at various dates since then. In the most recent communication, while the medical examination is dispensed with, the Minister again calls attention to the need for the examination of every casual by the officer supervising the bathing, with a view to discovering the presence of any skin eruption or other evidence of infection, and for reporting at once to the medical officer any casual found to be so suffering.

Classes for Backward Children in Llanelli

A special report on the education of children in special classes for the dull and backward has been submitted to the Llanelli Education Committee by Dr L. W. Pole, medical officer of health and school medical officer, who calls attention to the need for additional classes and for the employment of specially trained teachers. The report, which has been prepared by Dr Jean M. Mackintosh, covers the period since the specialty classes were instituted

in October, 1923, and gives what information it has been possible to obtain regarding the after-histories of children who have passed out of the scope of the scheme. Four classes have been continued throughout the five years—two for girls and boys, and two for girls. It was hoped originally to provide a special class in each school, but this has not so far been possible. Children selected for the classes are approved both by the head teachers and the school medical department. The tests used for the most part have been Terman's Stanford Revision, Ballard's reading test, and oral addition and subtraction tests, latterly one of the curtato Binet-Simon scales has been employed in place of Terman's test. In practically every case the estimate of educational attainment and grading was in accordance with that of the head teacher. Of the 263 children examined, 227 were found suitable for admission, and 162 were actually admitted, parental consent for the transfer being withheld in the remaining 65 cases. In 61 of these the parents refused to allow the transfer of their children to a special class in another school, while permission to transfer children to a special class in the same school was refused in only 4 cases. At the commencement of the scheme children were admitted between the ages of 7 and 12, and the average age was therefore too high, an effort has lately been made to secure admission at as early an age as possible. With special classes as isolated units to serve districts the pupils necessarily show a wide range of physical age and greatly varying mental age, the classes at Llanelli being composed roughly as to 58 per cent of the total of pupils who are merely dull and backward, 26 per cent being border-line cases or high grade mental defectives, and 16 per cent definite mental defectives. The proportion of low-grade feeble-minded children has been very small, and only a few have proved ineducable. Of the 162 children dealt with 74 are still in the special classes, 50 are now in the ordinary classes, 25 have left school at the age of 14, and most of the others have gone to other districts. An examination of the position of the children now in ordinary classes shows that in most cases their mental capacity, as expressed in the educational ratios obtained by Ballard's tests, has improved substantially. The results of these tests have recently been compared with the results of terminal examinations, and a considerable divergence has been found, Dr Mackintosh states that the two do not appear to have any relation. An attempt to obtain information regarding children who had left school was only partially successful, but in a number of cases it was found that they were in employment or usefully engaged at home. The results are held to justify the gradual extension of the scheme until there is a special class in every school. This would obviate the difficulty now experienced in inducing parents to consent to the transfer of their children to special classes where a change of school is involved. The report, in conclusion, points out that it is essential that teachers in charge of these classes should receive the special instruction provided by the Board of Education for this type of work.

Pollution of Rivers.

The Ministry of Health has issued a circular (No. 922) to local authorities in England and Wales summarizing the first report of the Joint Advisory Committee on River Pollution (to which reference was made in the *Journal* of September 8th, p. 473), and suggesting that steps should be taken to give effect to its recommendations. The Joint Committee drew attention to the fact that under the existing law the Minister of Health, on the application of any county or county borough through whose jurisdiction a river passes, may set up a rivers board to control the whole length of the river and its tributaries so far as it is subject to the Rivers Pollution Improvement Act. It urged that the establishment of such boards would be the first step towards the improvement of the condition of many rivers. The evidence received showed that a body acting throughout the whole or the greater part of a river basin, and specially charged with the duty of preventing pollution, is more effective than a body operating only in a limited area. The Minister of Health therefore reminds local authorities of the provisions of the law

relating to this matter, suggesting that each county council and county borough which is not now a constituent member of a joint body for the prevention of pollution should immediately consider the advisability of making application for the establishment of such a body. It is pointed out that, while action on these lines is principally required in areas where serious pollution exists or is threatened and the problem of dealing with it has already arisen, consideration should not be confined to these areas. The circular emphasizes the importance of realizing that similar action may be necessary in areas which are not at present threatened but may be confronted with the problem in an acute form, since industries which pollute water are being established upon rivers and streams hitherto relatively free from contamination.

New Torbay Hospital

The first patients were received on September 26th at the new Torbay Hospital, which has not yet been formally opened. The hospital has been built at a cost of about £150,000, and has been given by Mrs. Ella M. Roweroff, a member of the Wills family, with whose residence it is connected by a specially constructed road. Occupying an elevated site of about fourteen acres, the hospital overlooks Torbay on one side and faces towards Dartmoor on the other. The x-ray, ophthalmic, and other special departments are equipped on the most modern lines, as are the operating theatres. In the children's ward particular attention has been given to the decoration, while all the wards open on to broad verandas or lawns. The all-electric kitchens are situated at the top of the building. Accommodation for the nursing staff has been provided in a former mansion house adjacent to the hospital site, and connected with the main building by a corridor.

Hunterian Society of London

The next session of the Hunterian Society of London will open on Monday, October 15th, when Dr. A. Westerman will deliver his presidential address on "Gleanings from the Minutes (1807-1928)," at 7.30 p.m. At the meeting on November 5th the subject of the discussion will be "The doctor on the stage" to be opened by Dr. Harold Dearden, Dame Madge Kendall, Sir St. Clair Thomson, Miss Lena Ashwell, and Mr. Ivor Back. On December 3rd the subject for discussion will be "The artificial termination of pregnancy," to be opened by Mr. C. S. Lowe Roberts and Mr. A. McAlister. On January 14th, 1929, the lecturer will be Professor Putti, University of Bologna, Italy. (Title to be announced later.) On March 4th the Hunterian Oration on "Some aspects of the surgery of the spleen" will be delivered by Professor A. W. Sheen. On March 25th the discussion will be on "Blood pressure in health and disease," to be opened by Drs. Halls Dally, Edgar Obermer, and Temple Grey.

Scotland.

Food Poisoning and Preservatives

An address on the causes of food poisoning was given to the Edinburgh Rotary Club on September 27th by Dr. Andrew Rutherford, lecturer in pathology to the Edinburgh Medical School, who referred to the suggestions recently made in newspapers that food poisoning outbreaks were too frequent, and mentioned that doubts had been thrown upon the policy of the Ministry of Health regarding the paratyphoid outbreak in London. There had been, actually, he said, fewer outbreaks this year than previously, and none at all in Scotland, but there had been more publicity. The illnesses were neither new nor mysterious to pathologists in general, or to the medical advisers of the Government, they had nothing whatever to do with the presence or absence of chemical preservatives in food. Potomac poisoning in many was exceedingly rare, and the vast majority of cases of so-called food poisoning were due to living specific microbes, and not to chemical poisons

which in various ways might become implanted in food or drink. Small quantities of boric acid would neither prevent the access of these germs nor kill them if they were present. Referring to the statement that the London paratyphoid outbreak might have been due to cream, Dr. Rutherford said that this implied the likelihood that the cream or milk at some stage had been grossly contaminated by a human carrier of paratyphoid bacilli. The house-fly also played an active part in hot weather in scattering bacteria. Much stricter cleanliness than obtained at present was certainly necessary in the handling, storage, and cooking of food. The recent regulations regarding preservatives tended to lessen, and not to increase, food poisoning outbreaks. It was nonsensical, he concluded, to suggest that because boric acid was absent food became tainted, and so caused poisoning, weak boric acid could not prevent infection by virulent organisms present in food.

General Practitioners and Health Officers

In the introduction to his annual report for 1927, Dr. G. Matthew Fife, medical officer of health for St. Andrews, discusses the relationship of the general practitioner to the health officer in the light of recent developments in the attitude of the public and in medical science. He suggests that the *entente* between patient and doctor is gradually weakening, and attributes this to the disappearance of the family doctor, the influence of the modern hospital and the ubiquitous specialist, and the growth of a more critical attitude on the part of the public towards medical knowledge. People, he believes, are beginning to ask that their doctors should be as efficient at keeping them in health as they have been at treating them in disease—"the health conscience of the nation has been awakened and a measure of aloofness has been engendered which will continue until the present trend of medical thought has been revised and changed." Dr. Fife considers the various factors which have combined to set up a barrier of suspicion between the general practitioner and the health officer. Anxiety may have been engendered in the mind of the former as to his future by the extension of public treatment facilities and the growth of clinics and centres, but such forebodings, he contends, are unwarranted, since any development of State medical service which threatened to weaken the position of the private practitioner would react even more adversely upon the service itself. The general practitioner might be suspicious or obstructive or unsympathetic, but the medical officer of health would be equally misguided if he took no opportunity of getting to know the practitioners of his district, of consulting with them in his schemes, and of endeavouring to gain their willing co-operation. Dr. Fife believes that a new era is dawning in the medical world. The attitude of the public requires, on the part of the general practitioner, a wider knowledge of the facts of health than at present most possess. If he is to be successful he will have to direct his energies more strenuously towards the detection and the meaning of early departures from the normal rather than towards the recognition of late manifestations of disease. The methods and curricula of teaching schools will have to provide as sound a training in clinical physiology as is at present given in clinical pathology, while the medical officer of health must realize that, no matter how perfect his schemes may be, he can never reach the key to the fundamental secret of preventive medicine—the detection of early signs of disease—without the co-operation of the general practitioner in whose hands it lies, for he alone sees the people in health as well as in disease. The future success of medicine and of public health administration, accordingly, depends largely upon the work of the general practitioner. Dr. Fife sums up: "The people cry for enlightenment. It can only be given after medical education has been revised and extended to include health as well as disease as a subject of study, and only when the general practitioner and the health officer work together in the fullest intimacy and trust. Then, and not till then, will the future of medical progress be fully assured and the nation's needs supplied."

Correspondence.

ANAESTHESIA FOR TONSILLECTOMY AND
REMOVAL OF ADENOIDS

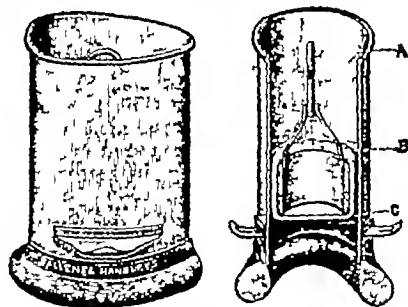
SIR,—The very interesting correspondence on the removal of tonsils and adenoids has shown that there are some who believe that this operation should be delicate and unhurried, and that the best anaesthetic for it is ether. I think that to these a description of an inhaler which has been used for three years, and in a good many thousand cases, may be of interest.

The main difficulty in giving ether is to vary the concentration of the vapour from very weak at the start to very strong when deep anaesthesia is needed. With the open method a high concentration can only be obtained by muffling the mask with towels, etc.—a crude, wasteful, and inexact proceeding. Also the ordinary Schimmelbusch mask has the fatal defect for ether that as soon as the fluid is poured on to the convex gauze pad it runs down into its borders, leaving a dry patch through which the patient breathes.

The Clover inhaler, well used, gives a most excellent anaesthetic, but it is expensive, fragile, and difficult to clean, while its proper handling is a very rare accomplishment. Silk's inhaler has the sound principle of retaining the heavy ether vapour where it must be breathed by the patient, by means of a cylinder fitting below closely to the face. The sponge, however, when soaked with ether, is almost impermeable to air, and tends to drip from its lower surface.

My own pattern (made by Allen and Hanbury) is an aluminium "cylinder," 7 inches in height, and shaped to fit the face, with a soft rubber pad at the lower end.

The other is held by an oval gauze pad 7 inches by 5, and at least eight layers thick, preferably hemmed so that it can be washed and used again. This is placed on top of the cylinder, and thrust down into it, on to the bars across the lower end by a smaller cylinder (a) mounted on a handle (A). This gives a flat gauze surface (c) down to which all ether poured into the inhaler runs so that the patient's breath must pass through it, while owing to its flatness there is no tendency to dripping.



I believe this inhaler to have the following advantages:

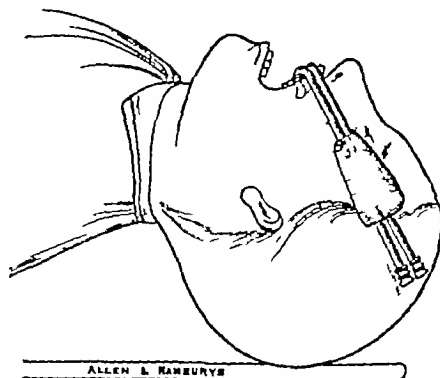
- 1 It will give a very high concentration of ether with a per centage of CO₂ much as in the Clover inhaler.
- 2 It is very economical, its consumption of ether being only about a third of that of the open method. In one department alone at Great Ormond Street this difference meant a saving of £50 per annum.
- 3 It is simple, cheap, easily cleaned between anaesthetics, and has that priceless quality for hospital equipment of surviving being dropped on a stone floor.
- 4 It does not cover the eyes thus avoiding what I think to be one of the main causes of panic in children.

In using it the main points are:

- 1 Start the induction with a single drop of ether in the inhaler. Anyone who thinks this too little is recommended to experiment on himself.
- 2 Keep the mask closely on the face and as soon as the patient is breathing one strength of ether easily increase it. A fairly wide experience of inducing all types of cases with ether has convinced me that the main causes of failure are starting with too strong a vapour and taking off the mask for no particular reason except to see if the patient is still underneath it.
- 3 As soon as the patient is deeply anaesthetized with dilated pupil and easy breathing hang a weighted hooked mouthpiece on the top of the inhaler and pump ether vapour through it. If

this provokes no coughing, gag the mouth open and hang the tube in it to continue the anaesthetic, again carefully avoiding giving one breath of etherless air.

I have found this method quicker and better than inducing with ethyl chloride and changing to ether, as it avoids that "no man's land" when the patient is coming out of deep ethyl chloride into shallow ether. For com-



parison with the procedure described by Mr Sandiford and Dr Clayton in your issue of July 28th (p 149), I think that with this method an expert operator and anaesthetist can work at the rate of about eight cases an hour, the tonsils being dissected out and all bleeding stopped before the child leaves the table—I am, etc.,

DENIS BROWNE, FRCS,
Resident Medical Superintendent, Hospital for Sick
Children, Great Ormond Street, London.

September 18th.

THE ERECT POSTURE

SIR,—No medical practitioner should miss reading the address of Professor W. Colin Mackenzie, published on September 22nd (p 534), in which the erect posture of man is cited as the structural factor that expresses his essential human nature. This being admitted, the physiological deviations that precede the pathological changes should inevitably be connected with this factor, and as to what this actually implies is suggested in such phrases as "upper limbs free to obey the will of the higher brain," and "the erect posture was the ultimate goal."

We who believe our profession to be as much an art as it is a science, should welcome such phrases, which are too often lacking in the utterances of such purists as comparative anatomists. For if the will towards a goal be the basis of our being, then, corresponding to the anomalies of body functioning, there would be equivalent anomalies of a man's "will to goal," and lack of will can invariably be reduced to terms of mistaken or conflicting goals.

We are learning from all sides that health is wholeness. The terms *will* and *goal* relate to wholeness, since they indicate the whole individual in contradistinction to an aggregate of organic parts. So, then, also must *health* and *wholeness* relate to the meaning of his central structural character of uprightness.

The fact that the erect posture "is maintained and effected by muscular action" places it on a plastic and functioning basis, and herein the looseness of our understanding has let in the osteopaths to the ranks of healers.

In conclusion, let us support the contention that psychology should be a compulsory part of the doctor's equipment, for how else can he acquire the complete understanding of his patient in order to ascertain each sick man's conflict of purpose that replaces the unified goal of the whole man in relation to the human race? In meeting the practical necessities of such psychological training for medical students one can foresee a strong British school of psychology developing by means of the fund of material now at hand leading in an open, free, pragmatic, and in some typically British way to a workable method that could be used by the general practitioner at the bedside of every sick person—I am, etc.,

London, W.1, Sept 25th.

G. C. ADNEY

RAYNAUD'S DISEASE

SIR,—I am desirous of seeing one or more cases of Raynaud's disease, particularly such as are progressing to actual gangrene of the finger-tips, for purposes of investigation, and should be very grateful to any medical practitioner in London who could refer such a case or cases to me—I am, etc.,

THOMAS LEWIS, M D, F R C P

University College Hospital Medical School
Gower Street, W C1, Sept 27th

LIMITATIONS OF MEDICAL BENEFIT

SIR,—Perhaps you will allow me a short personal explanation in response to your leader (September 29th, p 577), which largely concerns me. You say that I do not "seem to be very familiar with the work of general practitioners," and that I have suggested that insurance practitioners give their services "reluctantly and grudgingly."

With regard to the second charge I submit that that suggestion was never made by me. What I did suggest was that panel practitioners were grievously hampered in their panel work as compared with their private work, and that they were uncomfortable under the humiliations imposed upon them by many of the conditions of panel practice, and were anxious, therefore, to relinquish that practice. That thesis has been sustained in numerous letters which I have received during the last few weeks.

With regard to the first statement, I am and have been for twenty-six years the head of a medical department at a teaching hospital, during that long period I have come into very close touch with general practitioners, I have made it a rule, strictly adhered to, to write to every medical practitioner whose name was given me as being interested in the patient sent to the hospital, with as full an account as I could give of my views upon the case sent to me, I have endeavoured to make my department a consultative department—and I think I may claim to have achieved a considerable degree of success in this ambition, as is evidenced by the fact which has been brought out by an examination of my post-book during the past year's work, from which it appears that some four hundred letters have been written to practitioners who have sent patients to my department at the hospital. This is exclusive of my private practice, which, of course, I do not include. Moreover, for twenty-two years I have represented medical graduates, a body which is preponderantly composed of general practitioners, upon the senate of the University of London. By a happy chance for me it was resolved by some of my political opponents to contest my seat upon the senate in 1925, for the first time in twelve years, the vote of confidence which I received at the poll—827 votes, against 281 cast for my opponent—demonstrated, I submit, that the body of general practitioners was satisfied with my services to them. In Parliament I represent a very considerable body of medical constituents, and I hope and I believe that I have won a certain measure of confidence with them also by my intervention in matters of medical interest when they came before Parliament. On all these counts I submit that I have had rather exceptional opportunities of establishing particularly cordial relations with general practitioners.

I am gratified to note that you describe as a "dangerous and undesirable agreement" the contract between the Ministry of Health and the pharmacists, which was the main point criticized in my letters to the *Times*, but which was, somewhat curiously, and perhaps prudently, ignored by the official apologists for the British Medical Association, Dr Brackenbury and Dr Cox. Personally I think that your leader minimizes the dangers of this agreement, nor can I agree with your statement that these arrangements "do not in fact in any way restrict the liberty of an insurance practitioner in prescribing whatever he thinks it necessary for his patient to have." That opinion conflicts with the view expressed in the report of the British Medical Association Insurance Acts Committee,¹ where it is said "The new arrangements between the pharmacists and the Ministry of Health, which were reported to the last annual conference, affect insurance

practitioners to some extent. The amount available per insured person for drugs and appliances is now restricted" (the italics are mine). The Conference of Panel Committees probably knew what it was talking about when it recorded a unanimous resolution that the contract was "against public policy." I have before me a copy of a circular from a pharmaceutical committee to pharmacists upon the panel in which the following sentences are found:

"Do not forget that economy is absolutely necessary if chemists are to maintain their rate of payment. Money saved now remains in the Drug Fund for distribution to chemists." Report to the Secretary of your Pharmaceutical Committee all instances of extravagance in prescribing of whatever kind. Report to the Secretary of your Pharmaceutical Committee all the cases you have of regular drug takers under the Act giving name of patient and of doctor with period over which supplies have been obtained from you. Remember that if you express a wish to that effect your name need not be used in connexion with any reports you make.

I submit that Dr Gordon Ward's description, in his letter in the *Times* of September 24th, of the effect of this arrangement is nearer the facts than your statement. Dr Gordon Ward's description runs "The Drug Fund, strictly limited in amount, has to provide a working profit for the chemists first, and the amount of medicine available for the insured is strictly conditioned by what is left over." Your presentation is "The arrangement is that the pharmacists take the whole of the residue of the medical benefit fund after all other claims upon it have been satisfied, and in return for this total sum undertake to supply insured persons with whatever is properly prescribed by insurance practitioners." Surely it is obvious that it is now the chemist who is the judge of what is "properly prescribed", if the chemist can, as the above extracts show he is encouraged to do, report to his Pharmaceutical Committee "all instances of extravagance in prescribing," and if the result of this secret report is to subject the practitioner to endless worries over a long period of months and to the probable infliction of a fine at the end of that period, the practitioner is very effectively discouraged from going beyond the formulary considered "proper" by the chemist.

Further, I cannot agree with your dictum that there was "no other means of escape" for the Ministry of Health than this "dangerous and undesirable agreement." The escape was from the unwelcome demonstration that the insurance Drug Fund had long been insolvent, the scheme adopted was an unworthy evasion of the facts, which should not have been countenanced by those representatives of the British Medical Association whom the Ministry of Health apparently consulted and whose approval it obtained. Probably more will be heard of the agreement when Parliament reassembles, and it is, I think, to be hoped that those who speak for the medical profession should make it quite clear that this agreement is not in accordance with their wishes or with their opinions of what is right. The misfortune of the National Insurance Act is that it originated as an electioneering dodge and has never lost its political complexion. The "ninepence for fourpence" slogan which started it upon its meretricious way was an unhappy forecast of the sham which, in the opinion of many, that system of health insurance under its current provisions remains. That is not because the general practitioner is incapable of working it. In my letter to the *Times* I said expressly, "The British general practitioner is easily the best trained practitioner in the world." It is because his professional liberty is in effect controlled by a political bureaucracy and, as a result of the recent arrangements, still further controlled by the Retail Pharmacists' Union.

In Dr C O Hawthorne's interesting medical essays, which I have read with great pleasure, certain suggestions are made for the co-operation of local practitioners with the voluntary hospitals in their neighbourhood. I, too, would like to see this co-operation become much more effective and closer than it is at present, although I do not think Dr Hawthorne's solution is practicable. My suggestions—too long to detail here, but which I hope to unfold in another place—are for a complete revision of the methods of health insurance. Very briefly, the germ of my suggestions is that the co-operative effort to secure

¹ *British Medical Journal Supplement*, August 25th 1928.

prevention of sickness, which is now the real service given to the nation by the voluntary hospitals, should be extended to include panel patients and panel practitioners who are not now included in that scheme—I am, etc.,

London W Oct. 1st

D GRAHAM LITTLE

* Neither the British Medical Association nor its Insurance Acts Committee has ever given its approval to the arrangement with the pharmacists to which reference is made in Dr Little's letter. It was not "in accordance with the wishes" of either or "in accordance with their opinions of what is right." They have taken several opportunities of making this clear, and Dr Little is again under an entire misapprehension.

THE FALLING BIRTH RATE

SIR,—Interesting as were the contributions to the discussion at Cardiff on our falling birth rate and its class incidence (printed in the *Journal* of September 15th), surely the contributors all missed the essential point—the old Darwinian truism that the fittest survive, fitness meaning fitness to survive in a given environment, the world having no relation to intellectual power, moral worth, or physical efficiency. The dog's fleas are as fit as the dog so long as they have a dog to feed on, and no longer. The term is relative, depending on the environment as much as on the organism. To call the Eskimo or the negro "fit" is to leave a sentence unfinished. Each is fit in his own surroundings, neither would survive a year under conditions where the other flourishes. Further, environment is continually changing—to the advantage of some types and the destruction of others. The reindeer roamed in immense herds over England when the country was closer to the Glacial Age. He became unfit, and consequently extinct, not because he degenerated, but because his environment changed.

Civilized man's environment has changed immeasurably in the last century, social reform being the chief factor that has changed it. In the bad old days every heaving lung by its own tail, vice was unchecked, venereal disease untreated, and alcohol easier to obtain than food. The feeble-minded weakling, the drunken waster stood little chance of rearing children, though the fecundity of such people was no doubt high. Those who could exercise sobriety, self-control, and energy raised families and increased in numbers. Eventually they became numerous enough to form a culture and force the outward semblance of their culture upon the whole body politic.

With civilization comes inevitably the reversal of those laws that bring civilization into being. The feeble-minded and degenerate immediately become—in a Darwinian sense—the fit. They have a high fecundity, the State sees to it that they have a low infant mortality. True, their earning capacity is small, but that is immaterial so long as they can live a parasitic life on the rest of the community. They are as fit as the dog's fleas, as fit as the dog-fitter, perhaps, than the dog who lacks the sense to scratch his fleas off him.

Meanwhile, a large and growing number of intelligent persons are ceasing to believe in the future of the race. Where there is no vision the people perish—excepting such types as desire only the gratification of animal desires and the avoidance of work. As it was in Rome, the parasite class will increase until their host can no longer make blood fast enough to content them. And so the world will continue to go, until it is realized that the duty of a State to provide sustenance for every child born carries with it, as a corollary, the duty of decreeing what children shall not be born—I am, etc.,

H M STEPHENSON, M R C S, L R C P

Chilpenham Sept. 24th

SIR,—In Lady Barrett's paper on the falling birth rate, published on September 15th (p. 485) there occurs the passage, "the [birth control] clinics where they [rubber caps] are in use have no records of systematic examination of the cervix with speculum to ascertain whether cervicitis occurs."

At the North Kensington Clinic, 12, Telford Road, Ladbroke Grove, every patient on her first visit receives a

full pelvic examination bi-manually, and with a speculum, this is recorded in detail. Subsequently, at her regular six-monthly visits, she is re-examined, and any change recorded. In this way we are acquiring detailed records of the effects of rubber caps and spermaticides.

Lady Barrett states that she has found cervicitis "a frequent result" of the use of rubber caps. We would like to know how she ascertains that the cervicitis was not present before the patient began the use of caps?

It is our experience that when a patient has been fitted with a suitable cap no pathological conditions have been found to result.—We are, etc.,

LOUISE O HUNTER, M R C S, L R C P

HELENA WRIGHT, M B, B S Lond

London W 10 Sept. 28th

INTRATHORACIC AND INTRAPERICARDIAL PRESSURE

SIR,—May I correct a small misunderstanding in the review of my booklet, *A New View of the Intrathoracic and Intrapericardial Pressures in Man*, which appeared on page 532 of your issue for September 22nd?

From the sentence in the review beginning "He further argues, supporting the theory of Kroetz, that because the fibrous pericardium is inextensible the intrapericardial pressure must be that of the atmosphere" the erroneous impression is obtained that my view of the pericardial pressure is based on the paper by Kroetz quoted in my pamphlet. I regret that a phrase of mine in the booklet admits of such an ambiguity, but I wish to claim as my own the theoretical deductions from which I developed a new synthesis of the pressure conditions in the thorax.

I am indebted to Kroetz only for the perplexity which led me to consider *de novo* the physics of the chest—I am, etc.,

Titchmarsh Sept. 25th

ALFRED KENDREW, D M OXON

NATIONAL DEATH RATES

SIR,—Reading over both Professor Moorhead's article on acute nephritis and the *Journal's* review of it I was struck by the absence of any commentary on the respective general death rates for the years 1922-26 in England and Wales, and the Irish Free State. For this period of five years 314,829 deaths were registered in the Irish Free State and 2,231,445 in England and Wales. The population of the Irish Free State is 3,365,000, and of England and Wales 37,885,242. According to population one would expect to find approximately one death in the Irish Free State to correspond with eleven deaths in England and Wales. From the figures submitted by Professor Moorhead the rate is one to seven. Admitting the accuracy of the figures, what accounts for the very high death rate in the Irish Free State? The death rate from acute nephritis is more striking still, the proportion being roughly one in five—I am, etc.,

M F McELIGOTT, M B, N U I

Lodge near Wrexham Sept. 23th

DEMENTIA PRAECOX IN PARSEES

SIR,—Lieut.-Colonel Jagoe Shaw, in his article in your issue of September 29th (p. 566) lays great stress on "inbreeding" as a cause of the high incidence of dementia praecox among the Parsees of Bombay. But in the same article he seems, inadvertently, to have demonstrated a still more important cause—namely, "Western" education and civilization generally. The Parsees, he tells us, are the most Europeanized of the natives of India, they are next to them the Anglo-Indian community, are the classes most affected by dementia praecox. This condition is very much rarer among Hindus and Mohammedans, who are at a "lower" stage of civilization, where it does occur in these two latter groups it is "mainly in the educated classes or rather in the persons of boys who have undergone the intensive system of education or memory training by which only can an Indian hope to obtain admission to Government service."

The common factor, then, in all these cases is not inbreeding but Western education, hence we may look on

thus, with the cramming and standardizing method which characterizes it, as being the main cause of the brooking up of these young people's minds ("schizophrenia" is Greek for "split mind"). If we are to advise the Puseys against anything, it is rather against their too wholesale acceptance of Western civilization, especially on its educational side. But better still if we take the warning to ourselves, for I believe it will be found that in our country dementia praecox is increasing in direct ratio with the increasing inroads of the central Government into the liberties of the individual—which inroads, by the way, are carried out equally under the slogans of imperialism and socialism—I am, etc.,

North Queensferry Fife Sept 30th

ARTHUR J BACOCK

THE PETTIGREWS

SIR,—Both "H R" and Mr Munhead Little may like to know that W Vesalius Pettigrew was a member of the teaching staff of the School of Anatomy adjoining St George's Hospital from 1842 to 1851. He assisted Samuel Lane with the lectures on anatomy, physiology, and surgical anatomy, while the practical anatomy and the demonstrations were conducted by him with the aid of a demonstrator. He also acted as secretary of the medical committee of the school for most of the time. His father was a most versatile person, and among other works was the author of the following books, all of which are now quite scarce: *A History of Egyptian Mummies*, quarto, 1834, *Medical Portrait Gallery*, 4 volumes, royal 8vo, usually bound in two volumes, undated, *Medical Superstitions*, 8vo, 1844. His *Chronicles of the Tombs* was brought out in the Bohn series in 1864, I do not know of a better collection of epitaphs than this—I am, etc.,

London W Sept 28th.

R R JAMES

SIR,—I am not in touch with the files of the *Journal* of the date mentioned by Mr Munhead Little, but I have some faint recollections of having been one of the correspondents alluded to by him. Moreover, Thomas Joseph Pettigrew was known to my family and attended me professionally in my early childhood. I have no distinct remembrance of him, but I still have a few small relics of ancient Egypt which were once in his possession, and many years ago I added his bookplate to my collection of the bookplates of medical men. It is armorial and has a Greek motto, from Lucian, beneath his name, to which the only suffix is "F L S." I remember being told that he was the first to unroll a mummy in this country, and that the meeting at which he had undertaken to do this had to be adjourned in order to complete the operation, the magnitude of which was then as yet unrealized. Thomas Joseph Pettigrew was acquainted with the Egyptologists, Thomas Young and Champollion, and with John Coakley Lettsom (born in 1744), whose life he wrote. It is a long span between that date and the present—I am, etc.,

London Sept 30th.

P

Obituary

DR JULIUS MOORE, who died at Enfield on September 25th in his fifty-sixth year, after a short illness, was born at Rochester, Kent, and received his medical education at Guy's Hospital. He obtained the diplomas MRCS, LRCP, and graduated MB Lond, in 1897, proceeding MD four years later. He had been resident in Enfield for many years, and was surgeon to "Y" Division of the Metropolitan Police, acting also as medical officer to the General Post Office and the Metropolitan Water Board. During the war he served with the Royal Army Medical Corps. Dr Moore was a Fellow of the Royal Society of Medicine and a member of the British Medical Association. A colleague writes: After practising for a short time at Farnborough, Hants, Dr Moore removed to Enfield in 1902, where his great ability and lovable disposition soon gained him a very large practice—too large, indeed, for there is no doubt that his untimely

death was in great measure due to his self-sacrificing devotion to the interests of his patients. Dr Moore represented the finest type of general practitioner, beloved by rich and poor, and adored by children. Of late years in the midst of his busy life he found time to specialize in ear, nose, and throat work. He devoted himself largely to the Enfield War Memorial Hospital, of which in recent years he became medical manager. His quiet unassuming manner hid a warm heart, to which none ever appealed in vain. He was held in the greatest affection by all his colleagues, to whom he was always a loyal friend. The funeral service at St Mary's Church, Enfield, which was packed to overflowing, was a remarkable tribute to the love felt for him by all classes. He leaves a widow, but no children.

We regret to announce the death of Dr GEORGE FINDLAY of Brailes, Banbury, which occurred with tragic suddenness on September 16th, in his sixty-fifth year, while he was in attendance upon a maternity case. He was born in Aberdeen, and received his medical education at that university, graduating MB, CM with honours in 1886. He subsequently studied in Vienna, Berlin, and Paris, and was for a period assistant medical officer at James Murray's Royal Asylum, Perth. Nearly forty years ago he settled in Brailes, Warwickshire, where he built up an extensive practice in a scattered hilly district, which made heavy and continuous demands upon him. He was medical officer for the Brailes district of the Shipton-on-Stour union, and since 1914 had also been medical officer of health for the Brailes, Shipton-on-Stour, and Clipping Campden rural districts; he was also an honorary surgeon to the Ellen Badger Hospital, and rendered very valuable service to the St John Ambulance Brigade in the Brailes area. During the war, in addition to relieving a colleague for military service, he undertook the medical charge of a Belgian refugee colony and of a group of German war prisoners. Throughout his life Dr Findlay played an active part in the public life of the community in which he lived; he was for many years vicar's warden at St George's Church, Brailes, and was keenly interested in its restoration. He gave his support freely to various social and sporting organizations, and was one of the prime movers in the establishment of the Brailes village institute at the end of last century. Dr Findlay was held in high esteem by all classes, and notably by the poor, not only on account of his professional skill and ungrudging labour, but also for his personal attractiveness. He was twice married, his second wife dying about four years ago; he is survived by a son of his first marriage, Dr George William Marshall Findlay.

MR THEODORF STEWART CHAMBERS, who died at Wentworth, near Durban, South Africa, on May 25th, on his seventy-eighth birthday, was born in Jamaica and received his medical education in Edinburgh. He obtained the diplomas LRCP, LRCS Ed in 1873, and was admitted to the Fellowship of the Royal College of Surgeons of Edinburgh seven years later. In 1889 he went to South Africa, and served for a time at the New Somerset Hospital, being afterwards appointed district surgeon at Hanover in Cape Colony. Later he was for nine years district surgeon in the native reserve at Mapumulo in Zululand, and more recently was engaged in private practice at Wentworth in Natal. Mr Chambers, who was a member of the British Medical Association, is survived by his widow and one son.

DR ALICE DEBORAH HICKLING, whose death occurred at Hong-Kong on September 22nd in her fifty-second year, was the daughter of a missionary, the Rev James Sibree, DD, who at the age of 92 is now living at Bromley, and the wife of Mr C C Hickling. She was born in Madagascare, and was educated at Oxford and at the London School of Medicine for Women (Royal Free Hospital), and obtained the Scottish triple qualification, LRCP, LRCS Ed, LRFPS Glas, in 1901. After acting for two years as house surgeon at the Sanatorium

for Consumptives, Clare, Suffolk, she became an inspector of midwives, subsequently proceeding to Hong-Kong, where she was employed in the Government service as assistant medical officer in charge of native hospitals. She was also honorary medical officer to the Victoria Nursing Division there, and during the war received the M.B.E. for her services in connexion with this organization.

The Services

DEATHS IN THE SERVICES

Major Abdus Sattar Khan, Indian Medical Service, died at Gaya on July 20th, aged 46. He was born in May, 1882, the son of the late Hosein Khan extra assistant commissioner in the Central Provinces, was educated at the Calcutta Medical College, where he graduated as L.M.S. in 1904, and at Guy's Hospital, and took the M.R.C.S. and L.R.C.P. Lond. in 1907. Entering the I.M.S. on August 1st, 1908, he became major after twelve years' service, but was placed on the temporary non-effective list, on account of ill health, from March 8th, 1922 to July 15th 1924. He served in Mesopotamia during the recent war. After his return to full pay he was appointed to the command of this military hospital at Delhi. He leaves a widow, who received the Order of the Kaiser-i-Hind in this year's birthday honours for welfare work among women and children at Delhi.

Major Ronald Ernest Todd, R.A.M.C. (ret.), died suddenly in London, on August 5th of heart failure following pneumonia, aged 45. He was born on August 18th, 1882, educated at St. Thomas's, and took the M.R.C.S. and L.R.C.P. in 1907. Entering the R.A.M.C. as lieutenant on July 29th 1907, he became major after twelve years' service, and retired last year, on July 29th, as soon as he had completed twenty years' service. He was seconded for service in Egypt on November 1st, 1911, and remained in that country up to August, 1916. He served throughout the war of 1914-18, and was twice mentioned in despatches—in the *London Gazette* of June 21st, 1916, and of December 21st, 1917.

Major William Graeme Donroche McCall, M.C., R.A.M.C., died in Portwilliam, Calcutta, on August 9th, aged 38. He was born on June 3rd 1890, the elder son of Mr. and Mrs. McCall of Houth county Dublin, and educated in Dublin in the School of the Royal College of Surgeons, Ireland, taking the Irish double qualification in 1915. Immediately after qualifying he entered the R.A.M.C. as a temporary lieutenant on August 29th, 1915, becoming temporary captain after a year's service. He took a permanent commission as captain on February 2nd, 1919, and became major on August 2nd, 1927. He served through the war of 1914-18 from 1915 to the end, and gained the Military Cross on July 26th, 1918, with a bar on October 25th, 1918.

Universities and Colleges

UNIVERSITY OF LONDON

Dr. E. B. VERNY, Professor of Pharmacology in the University, will give a course of six lectures on urinary secretion, at University College, Gower Street, W.C.1, on Mondays, October 15th, 22nd, and 29th, and November 5th, 12th, and 19th. Admission to the lectures is free, without ticket.

The Simon Lecture on laryngo-rhinology and general medicine will be given by Professor Markusz Hajek, Professor of Oto-rhino-laryngology in the University of Vienna, in the Barnes Hall of the Royal Society of Medicine on Thursday, November 1st, at 5 p.m.

Provided that there be a candidate of sufficient merit a Paul Refting prize of £30 will be awarded on December 3rd for the best essay embodying the result of some medical research work carried out by the applicant. Candidates must be matriculated students who on June 1st preceding the award were studying in one of the schools of the University in the Faculty of Medicine, or graduates of the University who on the same date were of not more than five years' standing from the date of taking their first degree, and who are or were students in such school.

VICTORIA UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examination indicated.

D.P.H.—Part I: M. Naughton, Josephine Wainman. Part II: George I. Brodie, T. S. Haddon, H. Harrison, M. Naughton, Jean M. Orkney, J. S. Smith, Margaret Sproul.
DIPLOMA IN PSYCHOLOGICAL MEDICINE—Part I: H. A. Palmer.

Medical News.

THE seventh annual dinner of the London Branch of the University of Bristol Association of Alumni will be held on November 2nd, at 7.45 p.m., at the English Speaking Union Club, Dartmouth House, Berkeley Square, W., with Mr. Stanley H. Badcock, pro-chancellor of the University of Bristol, in the chair. Tickets may be obtained from Dr. Elizabeth Casson, Holloway Sanatorium, Virginia Water.

THE medical committee of the Royal Dental Hospital School of Dental Surgery will be "At home" to all past and present students from 10 a.m. to 5 p.m. on Saturday, October 20th, an invitation to be present is extended to all medical practitioners. In the morning the various departments of the hospital and school may be inspected, and demonstrations will be given by members of the staff and lecturers, in the afternoon orthodontic and other cases of special interest will be shown.

THE next meeting of the Biochemical Society will be held in the Biochemical Laboratory, Cambridge, to-day (Saturday, October 6th) at 2.30 p.m. Sir F. G. Hopkins will contribute a paper on the centenary of Friedrich Wöhler's synthesis of urea, various other communications will also be read.

THE Schorstein Memorial Lecture will be delivered in the Bearstead Clinical Theatre of the London Hospital Medical College by Dr. Cecil Wall, on Friday, November 2nd, at 4.15 p.m., the subject will be expectoration. Members of the profession are invited to attend.

A SPECIAL meeting of the Institution of Heating and Ventilating Engineers will be held on October 9th, at 12, Russell Square, W.C.1, at 6.45 p.m., when Dr. H. M. Vernon will give an address on methods of heating and ventilating schools and their influence on health.

A MEETING of the Medical Officers of Schools Association will be held at 11, Chandos Street, W.1, on October 19th, at 5 p.m., when Surgeon-Commander Sheldon F. Dudley, R.N., will read a paper on microbial dissemination in schools.

A MEETING of the Royal Microscopical Society will be held in the lecture hall at 20, Haver Square, London, W.1, on Wednesday, October 17th, at 7.30 p.m., papers will be read by Mr. J. E. Barraud, F.R.S., and Mr. F. V. Welch on "An electrically heated warm stage with compressor for use with high power objectives", and by Professor E. Ghosh on "Two new plants from sewer water". The biological section will meet on Wednesday, November 7th, in the library.

A MEETING of the Optical Society will be held at the Imperial College of Science and Technology, on October 11th, at 7.30 p.m., when papers will be read on lenses and equipment for ultra violet photography, old English objectives, and the development of spectacles in London from the end of the seventeenth century. Further information may be obtained from the assistant secretary of the Optical Society, 1, Lower Gardens, Exhibition Road, S.W.7.

MEETINGS of the Child Study Society will be held at the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W.1, on October 11th and 25th, and on November 8th, at 6 p.m. At the first of these Dr. Letitia Fairfield will lecture on child study in America, and on October 5th Dr. C. J. Thomas will speak on child study and the health of the child. The subject of the third meeting will be music and the child mind.

A CONFERENCE on housing and health will be held in the Town Hall, Windsor, on Friday, October 19th, at 8 p.m., when Dr. J. J. Paterson, M.O.H., Maidenhead, will preside. The speakers will be Dr. William Butler, L.C.C., on "The New House", and Miss Joan Sunderland, house property manager of the Ecclesiastical Commissioners, on "The Old House".

POST GRADUATE instruction in clinical pathology, bacteriology, and biochemistry can be obtained at the Elizabeth Garrett Anderson Hospital by medical women during October and November, particulars will be sent on application to the secretary of the hospital.

THE Fellowship of Medicine has arranged several clinical demonstrations for the coming session. On Monday, October 9th, at 2.30 p.m., Mr. H. W. Carson will demonstrate operations at the Prince of Wales's Hospital, Tottenham, and on the same day, at 4 p.m., Dr. Gerald M. Slot will speak on rheumatism at the Royal Waterloo Hospital. On Wednesday, October 10th, at 4 p.m., Dr. S. H. Daukes will give a demonstration at the Wellcome Museum of Medical Science, his subject being the value of a synoptical museum of medicine for post-graduate study. These demonstrations are free to medical practitioners. From October 8th to 20th the Chelsea Hospital for Women will hold a course in gynaecology during the afternoons and one or two mornings. From October 8th there will be a three weeks intensive course at

the Central London Throat, Nose and Ear Hospital including clinical, practical operative, and pathological sections. The clinical course may be taken separately or in conjunction with one or both of the other parts. On Tuesdays and Thursdays, from October 9th to November 1st, there will be a series of lectures demonstrations at the London School of Tropical Medicine by Dr Carmichael Low and Dr Phillip Manson-Bahr. From October 15th to 27th there will be a special morning course at the Hospital for Sick Children. Professor Louise Molloy will give four lecture demonstrations on antenatal treatment at the Royal Free Hospital, beginning on October 26th. At the Hampstead General Hospital there will be a course for general practitioners from October 29th to November 10th. Copies of all syllabuses, information relating to other post-graduate study in London under the Fellowship of Medicine scheme, and specimen copies of the *Post Graduate Medical Journal* may be obtained from the Secretary, 1, Wimpole Street, W 1.

ISLINGTON Health and Baby Week commenced on Monday last and throughout the week special lectures on appropriate subjects were delivered at various centres throughout the borough. Leaflets giving details of the local health organization and containing simple health hints were distributed.

H R H PRINCE ARTHUR OF CONNAUGHT, at the annual Middlesex Hospital dinner, held at the Savoy Hotel on October 2nd, announced that a friend of the hospital had come forward with a gift of £125,000, to be used for the purpose of providing accommodation for paying patients. It had been decided that such patients should pay a flat rate to cover maintenance, operation costs, and all other services of the hospital, and that no profit should accrue from them to the hospital itself. It was announced later that this benefactor is Lord Woolavington.

A NEW wing at Crews Cottage Hospital was opened on September 29th by Princess Mary Viscountess Lascelles. Towards the total cost of £20,000 a sum of £13,000 has already been subscribed, including a contribution of £2,500 from the London Midland and Scottish Railway Company.

Dr R P GARROW has been appointed Medical Officer of Health for Hornsey in succession to Professor W W Jamieson, who has been appointed to the chair of public health in the University of London, tenable at the London School of Hygiene and Tropical Medicine. Dr Garrow has been M.O.H. for Obesterfield since 1921, and was formerly assistant M.O.H. at Ealing.

THE annual Noech prize for the best paper read before a branch or group of the Society of Medical Officers of Health has been awarded for the session 1926-27 to Dr J A H Brincker, a senior medical officer of the London County Council, whose paper on "The case for diphtheria immunization" was read before the metropolitan branch of the society.

THE second Peruvian Congress of Medicine will be held at Arequipa in the second week of November, under the presidency of Dr Edmundo Escamé, when the following subjects among others will be discussed: small pox in Peru, typhus in Peru, leishmaniasis and blastomycosis in Peru, the medical fauna and flora of Peru, the medical geography of Peru, the problem of cancer in Peru, the racial problem in Peru, prophylaxis of venereal diseases in Peru, alcoholism and other toxic psychoses, pharmaceutical legislation, and anaesthesia in odontology.

THE thirty-fourth Italian Congress of Internal Medicine will be held at Rome from October 12th to 15th, when the following subjects will be discussed: tumours of the spinal cord (in conjunction with the Italian Society of Surgery), introduced by Professors F Schaper, L Dominici, and M Gortan; undulant fever and Bang's bacillus, introduced by Professor U Gabbi; diabetes and diuretics, introduced by Professors L Ferrarini and V Ghirelli; and emotional cardiac disorders in relation to military service, introduced by Major G D D Ambrosio.

UNDER the name of Journées Médicales de Bordeaux a congress will be held at Bordeaux from November 4th to the 7th simultaneously with the celebration of the fiftieth anniversary of the foundation of the faculty of medicine.

IN connexion with the celebration in December of the centenary of the University of Cairo a tour is being arranged through Venice, Brindisi, and Alexandria on the outward journey, and Rhodes, Athens, and Corfu on the return. The programme and other information may be obtained from the editor of the *Wiener medizinische Wochenschrift*, Porzellan gasse, 22 Vienna IX.

THE League of Nations Health Organization has issued in pamphlet form a report of a meeting of its Conference of Health Experts on Infant Welfare, which was held in London early in July. Dame Janet Campbell took the chair, and representatives of the United States, France, Holland, Germany, Norway, and Austria were present. The conference considered the results of an inquiry into infant mortality,

based on a study of all infant deaths in selected districts during a period of twelve months. Three principal causes accounted for the largest proportion in all countries—dead births and pneumonia, birth, respiratory diseases, and gastrointestinal affections. It was considered that the first of these might be due to the absence of adequate pre-natal and obstetrical service, or to lack of supervision during pregnancy, and undue obstetrical interference, but it was deemed inadvisable to express further opinions until the material collected had been analysed and summarized in the final report. The conference decided that separate reports should be prepared for each country on a uniform plan, and that the members should prepare detailed suggestions for further inquiry into problems of infantile mortality which have emerged from the studies already made. A proposal for an inquiry to determine the etiology of rickets and to reach conclusions regarding the prophylaxis of this disease was prepared for submission to the Health Committee of the League.

Dr LEVADITI of the Institut Pasteur, Paris, has been elected a member of the Académie de Médecine.

Dr FREDERICK VON MÜLLER, professor of medicine at Munich, and Dr Karl von Noorden, professor of medicine at Frankfurt, have recently celebrated their seventieth birthdays.

By permission of King Faisal the designation of the Iraq College of Medicine has been changed to the Royal College of Medicine, Baghdad. The dean of the College is Dr H. C. Sutherland.

THE following appointments have recently been made in foreign faculties of medicine: Dr Kirch of Würzburg, professor of pathology at Erlangen in succession to Professor Hirsch; Dr Dietrich of Cologne, professor of pathology at Tübingen in succession to Professor Schmincke; Dr A. Jency of Szeged, professor of pathology, and Dr J. V. Daranyi, professor of hygiene, at Szeged; Professor Rudin of Basle, director of the genealogical department of the Psychiatric Research Institute at Munich; Dr Magyarot, professor of dermatology and syphilis at Montpellier; Dr Moog, professor of chemistry and toxicology at Toulouse; Dr Hermann Dold of Berlin, professor of hygiene at Kiel; and Dr Georg Joachimoglu of Berlin, professor of pharmacology at Athens.

DURING the first four months of this year there were 93 deaths from small pox in Japan.

THE high death rate among infants and young children is a striking feature of the report for 1927 of the Department of Health of the Government of Palestine. Deaths in the age groups 1 month to 5 years account for 57.76 per cent of the total mortality, while only 18.20 per cent occur in the age groups 5 to 50 years. There was a considerable expansion in facilities for the treatment of infants during the year, and attendance at infant welfare centres has improved as the mothers have gained confidence in them. Six new centres have been opened, making a total of thirty-one in operation at the end of the year. Infantile mortality varied considerably with the religious divisions of the population, being 115.3 per 1,000 among Jews, 187.2 among Christians, and 216.7 among Moslems. The figures reflect the work of the six infant welfare centres established by the Jewish population, this class of work being limited to the towns and Jewish rural settlements, while the Arab village population of nearly 500,000 remains untouched. Efforts are being made to provide suitable centres. A committee of the Supreme Moslem Council supports a number of beds for Moslem women in the Princess Mary wards of the Government Hospital in Jerusalem, and defrays the cost of training Moslem pupil midwives.

THE forty-fourth annual report of the National Society for the Prevention of Cruelty to Children shows that in the year ended March 31st the society was called upon to investigate 39,774 cases, involving the welfare of 98,158 children. A large number of crippled and deformed children have been dealt with in orthopaedic cases alone 316 children have been successfully operated upon, and in all 1,762 children have been relieved of physical disabilities and deformities. Two ambulances maintained by the London Medical Branch have been employed in conveying children to and from the out-patient departments of the various hospitals. In persuading parents to secure regular medical treatment for their children useful work has been done by the society's women inspectors, who have also devoted themselves, after special training for the purpose, to seeing that instructions given at the hospitals are carried out.

Dr ADALBERT CZERNY, professor of children's diseases at Berlin, has been nominated an honorary member of the American Pediatric Association, Dr Max Rubner, professor of physiology at Berlin, an honorary member of the Interstate Post-Graduate Medical Association and Dr Theodor Axenfeld, professor of ophthalmology at Freiburg an honorary member of the Hungarian Ophthalmological Society.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The Editor, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1**

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QUERIES AND ANSWERS.

HYPERPLASIA OF THE LEGS.

"P. A. R. K." asks for advice in the treatment of a general enlargement of the soft tissues of the legs from the knee to the ankle. The patient is a woman, aged 34 who is otherwise healthy, she is slightly built and tall, and the legs are a great disfigurement. The condition is of several years duration and is attributed to severe chilblains on the legs, caused by repeated chilling of the feet and legs for long periods followed on each occasion by standing in front of a hot fire. There is no pain or oedema and the skin is healthy. There are no varicose veins no affection of the joints, and no flat foot, the feet are not affected. The condition is practically symmetrical. Massage, Souché baths, artificial sunlight, and manipulation by an osteopath ("in case the ankle-bone was displaced") have been tried without effect.

SCALP ITCHING

"PUZZLED" asks for advice as regards the treatment of a case of intense irritation of the scalp. The itching is confined to the top of the scalp, and there is no dermatitis to account for it. The urine is free from sugar and albumin, there is no history of jaundice. Beyond scurf and a small spot of purple on the head probably caused by the frequent scratching there seems to be no reason for the condition. Bromides have been tried with little success.

HEALTH AND DUPLICATING MACHINES

"J. O. C." asks whether there is any evidence that the constant use of a duplicating machine is prejudicial to health. He has a patient a girl who is thus employed, she complains of irritation of the eyes and throat which she attributes to her work. The ink used contains in neutral solution castor oil commercial sodium isotate, hloven rape, and small amounts of carbon black, Prussian blue and violet lake. The stencil is coated with gelatin, to which is added a small amount of formaldehyde to prevent rotting. Girls who work in a room with 20,000 drying sheets do not suffer in any way, nor does the man who mixes the ink.

. Omission of the formaldehyde (substituting, perhaps an essential oil) would show whether this patient, as seems probable, is peculiarly sensitive to formalin vapour.

INCOME TAX.

Cash Receipts Paid to Outgoing Partner

"G. O. C." joined a firm on January 1st 1927, taking over the share of an outgoing partner. The firm's liability for income tax is based on cash receipts and payments. "G. O. C." shares of the tax, therefore, is affected by the amount of the debts collected and handed over, not to himself, but to his predecessor. Is this correct?

. Yes. The one to the puzzle is that "G. O. C." is liable in respect of his share of the fees earned by the firm whether they are received or outstanding. Theoretically the firm's liability should be based on gross bookings, less an allowance estimated to cover losses by non-payment. Presumably, in the long run, that basis would yield the same result as taking the cash receipts, and as the amount of the latter is easily calculated and does not involve any arbitrary estimate, it is clearly preferable. The tax that "G. O. C." paid for 1927-28 he paid for the earnings of that year, not for the cash received, and if he had

left the partnership subsequent receipts would simply have represented the gathering in of income on which he had paid tax. That, of course, is the present position of his predecessor. "G. O. C.'s" accountant's reference to business profits is not understood, such profits are seldom, if ever, calculated on any basis but that of the book debts.

LETTERS, NOTES, ETC.

ABNORMAL PIGMENTATION OF THE SCALP

DR. F. PARKES WEBER (London, W.1) writes. With reference to the note by Dr. E. A. Cockayne, on September 29th (p. 592), I would suggest that the rare "black locks" of the hairy scalp to which he alludes are to be regarded as etiotically analogous to simple pigment naevi of the skin of any part of the body, whereas the "white locks" of the hairy scalp (in regard to which Dr. Cockayne refers to the well known Whitelocke family tradition) are strictly analogous to simple achromic naevi of any part. In fact, they constitute a form of congenital local albinism. But without knowing the exact history of any particular case of "white locks" the difficulty is to be sure that they are not of the kind that often follow patches of alopecia areata. Moreover, patches of white hair on the head (and sometimes patches of alopecia areata) may be associated with, and in fact constitute a part of the syndrome of, ordinary vitiligo which is the commonest cause of leucodermic patches in general.

TREATMENT OF CANCER BY INJECTIONS OF PERITONEAL FLUID

DR. SIDNEY FERN (Melbourne, Australia) writes. In your issue of July 14th (p. 86) I referred to a man with malignant disease of the stomach who had been receiving injections of desferriated blood subjected to irradiation by the ultra violet rays. His treatment started on March 22nd, and my note on June 28th was, "Is eating minced lamb, liver and bacon, minced chicken. Does not appear so knocked out as he was. For the last two weeks for some reason his prostate enlarged and caused the use of a catheter." Two x-ray applications caused the subsidence of this in a few weeks enabling him to masturbate freely. About this time an enlarged gland appeared in the right groin, though at first quite soft and not suggestive of malignancy, yet by the middle of August this was decidedly hard and obviously malignant, and at the same time in August a small secondary growth appeared in the abdominal ear. From the middle of June the weight gradually began to decline and more difficulty was experienced in taking food and retaining it, till the middle of August, when it was soon evident that the stomach had practically closed up, and nothing was retained, even fluids being returned as soon as swallowed. At the present time he is slowly starving to death but is being kept free of pain and discomfort as far as possible. In another case of exactly the same type similar treatment has been given, the patient while gaining ground for some time has developed oedema of legs and ascites although still able to take a fair amount of food. Two other cases not malignant had down and out, without any definite disease being detected, have been receiving similar injections, and have gained weight considerably. My own observations are such that I feel that somebody with the available time at his disposal should try out the results of different dosage—dose of irradiated blood or peritoneal fluid, time of exposure to light distance of lamp and concentration by lens. It is also necessary to find out by experiment if milk or other food subjected to the rays will produce the same effects. We are dealing with powerful rays, and until we know these facts we cannot hope to get satisfactory results.

MEDICAL PRAYER UNION

IN reply to an inquiry by "M. B.," the honorary secretary, Dr. Tom Jays Livingstone College, Leyton E.10, writes. The Medical Prayer Union arranges for meetings occasionally in the homes of members in the central part of London and organizes two medical missionary breakfasts each year, one specially for medical students in London in May and the other at the meeting of the British Medical Association in July.

MEDICAL PERIODICALS.

A MEMBER tells us that he has sets of bound volumes of medical periodicals which he would be willing to present to a library if the cost of carriage is paid by the recipient. The sets are, *British Medical Journal*, 1883 to 1900, *Lancet* 1895 to 1903, *Clinical Journal*, 1892 to 1900. The volumes are all in good condition.

A CORRECTION

The address of the Registrar of the National University of Ireland is 49, Merrion Square Dublin, C.17 and not as given in our Educational Number on September 1st (p. 390).

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 47, 48, 49, 52, 53, and 54 of our advertisement columns and advertisements as to partnerships assistantships and locumtenencies at pages 50 and 51.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 155.

An Address

BY

VOLKMANN'S ISCHAEMIC CONTRACTURE, WITH SPECIAL REFERENCE TO TREATMENT*

BY

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I wrote a short paper on Volkmann's ischaemic palsy in 1908, basing my conclusions on cases which I had either treated or with which I had come in contact. Since then, I have met with a sufficiently large number to know that only a small proportion of cases seen are published. This is probably due to the fact that there is thought to be a stigma attached to the practitioner who is involved in the treatment of such a case. One must, of course, recognize the potential dangers in injuries and fractures about the elbow, but it cannot be too emphatically stated that despite every precaution ischaemic contractures may occur.

Volkmann, in 1875, described a severe contracture of the hand which he ascribed to tight bandaging in the treatment of fractures about the elbow, and he said that the deformity was due to a contracture myositis, and not to a primary nerve pressure palsy. He recognized that the condition was very grave and that amputation might be needed. In a classical article, which he published in 1881, he reaffirmed his belief in the ischaemic origin of the affection, which he thought due to deprivation of arterial blood and to venous obstruction, consequently, the muscle perished from want of oxygen and the phenomenon identical with that of rigor mortis set in. He called attention to the important fact that in this condition paralysis and contraction occurred simultaneously, whereas in primary nerve lesions contractions followed later. Volkmann submitted that similar contractions have been known to follow blood stasis due to compression with an elastic bandage, to injuries of large vessels, and from exposure to extreme cold. He spoke of forcible extension of the fingers as likely to produce fracture of bones and tendons. The contributions of Volkmann and Lessa are very complete, and have required but little revision or addition for fifty years.

The pathological changes found in the muscles have been described by several writers. The consensus of opinion is that the essential changes involve degeneration of the muscles and an increase of connective tissue in their substance. In many portions there is absence of sarcolemma nuclei and but few individual muscle fibres. There is round-celled infiltration, showing the presence of inflammatory changes. Transverse striation is absent. Powers, describing the findings in his case says "All superficial muscles of the hand are markedly degenerated, pale, translucent, brownish yellow. The muscle pieces removed from various areas show a varying amount of connective tissue which is fully developed, with few vessels, in every way corresponding to scar tissue. The muscle fibres are everywhere degenerated. The fibres are shrunken of wavy outline, and for the most part are devoid of cross striation. They are frequently broken in coarse granules. In the area where the connective tissue is least advanced the muscle fibres are similarly more normal in striation, the cross striation being at times intact. The tissue taken from the ulnar side shows in general a more advanced degeneration."

Greenfield, reporting on a case of Bristow's, concludes "The whole process seemed to be one of absorption and

replacement of dead muscular tissue by fibrous tissue—the muscle acting as a non-septic, non-irritating foreign body, and being treated as such by the surrounding tissues."

DEFINITIONS AND SYMPTOMS

Ischaemic contraction is a deformity found mainly in children between 1 and 14 years, the majority between 6 and 11. It follows injury to the elbow, and is due to pressure from within or without, or both. It is usually, but not always, accompanied by fracture. In a typical case the wrist-joint is palmar flexed, the carpo-metacarpal bones are dorsiflexed, the interphalangeals are flexed, the hand is often pronated, and the elbow-joint flexed. As a rule, sensation is normal in the milder case, and the electric reactions are unaltered, on flexing the wrist the fingers can be straightened. There is a loss of temperature in the hand and arm, the skin is blue and sometimes blistered, and scars are frequently present. The muscles rapidly waste, and become hard and ropey. If the nerves are sufficiently involved conduction may be lost, wholly or partially.

Symptoms may begin in the space of a few hours after injury. The fingers become numb and swollen, and possess little or no power of voluntary movement. The damage is very often completed in forty-eight hours, so that initial symptoms are very urgent. This point will be dealt with later. Muscular rigidity, and sometimes intense pain, come on early, and then the contracture. After some days the swelling disappears and the altered muscles become hard and resistant. The deformity, if untreated, increases, especially the flexion of the fingers due to the further contraction of the fibrous muscle, and also to the disproportional growth of bone.

There are conditions, however, not often referred to, when the ischaemia is mild and sometimes wholly disappears. I have often seen children who come to me many months, sometimes years, after elbow injuries, who are unable fully to extend the fingers, and yet they can move them with freedom and precision within the range permitted. These cases presented no unusual symptoms suggestive of ischaemia during the initial treatment. Sometimes only two or three fingers are affected, suggesting a very localized muscular lesion. Their condition had remained stationary and the defects were not observed by the parents for some time after active treatment had ended and were then regarded as the inevitable result of a bad fracture. I have met such a condition in an adult who told me that he had never been able fully to extend his fingers since he had had a fracture of the lower end of the humerus when a boy. The contraction only appeared when the wrist was dorsiflexed. Such cases, and we can all recall them, point to the likelihood that ischaemia may occur to a slight degree much more often than is thought. Often we have heard practitioners say that shortly after they had applied splints to the elbow the fingers were blue and swollen, but improved when pressure was relieved.

Brooks, in a series of experiments on the etiology of ischaemic palsy, found that after the obstruction of an artery for several hours, and the subsequent removal of the obstruction, the pulse might return in the artery and all the major branches, and yet the circulation might not be re-established in large areas of tissue. If the arterial obstruction lasted for many hours the muscle might become wholly or in part necrosed, in spite of the resumption of pulsation in all the larger arteries. This pathological change in the muscles was accompanied by oedema, haemorrhage, and by a slow inflammatory reaction but there was not a rapidly developing fibrosis and contracture of the muscles. If the vein was obstructed the artery being preserved, typical ischaemic symptoms followed—haemorrhage, oedema, degeneration, inflammation, fibrosis, and contracture.

These findings support the contention that the haematoma found within the limits of the antecubital fossa in supra-condylar fractures is capable of producing a venous block quite apart from bony displacement, special position of the elbow, or the application of a splint or bandage.

Jepson directed some interesting experiments upon dogs at the Mayo Clinic. In one series he attempted to produce

* The opening paper in a discussion in the Section of Orthopaedics at the Annual Meeting of the British Medical Association Cardiff 1928.

ischaemic contraction by the application of splints, casts, and bandages, but found it only possible to bring about a very temporary deformity.

In a second series of experiments a rubber bandage was applied above the knee of the right pelvic limb, and left on from half an hour to twenty-four hours. The animals which wore the constricting bandage for short periods developed a clawing deformity, but this only lasted from three to four hours. Where the constriction was maintained for twenty-four hours the deformity only lasted for three or four days.

In a final series Jepson operated upon dogs in pairs. In one animal a simple ligation of the femoral vein in Hunter's canal was performed. In the second an incision was made on the medial side of the right thigh, parallel to, and a few inches below, Poupert's ligament. The incision was carried down through the fascia to the muscle, encircling more than one-third of the thigh. The extremity operated upon was cold and bluish in a few minutes. There was no difference in the result of the two operations. The deformity simulated the contracture of Volkmann, and was maintained from six to nine days. When these two operations were combined the results were practically the same.

It was concluded that these experiments were insufficient—without other factors—to produce a true and persistent ischaemia. Accordingly, after the wounds had healed, an Esmarch was applied at the site of operation and maintained there from six to twenty-four hours. Even then the deformity did not persist in all the cases. The animal which wore the bandage longest had a contracted limb for eighteen months. The forefoot and distal phalanges were flexed, while the proximal phalanges were extended, the leg wasted, and became board-like. Jepson, having succeeded in producing a persistent deformity, endeavoured to discover a way of minimizing the effects. A dog on which the incision and ligation had been performed was selected for the experiment. An Esmarch bandage was applied above the knee and left on for eight hours. At the end of this time there was considerable oedema and disturbed circulation. Six hours later the wound was opened and the blood and serum evacuated. Rubber drainage tubes were placed in the intermuscular space and sutured. The swelling began to disappear, and four days later the dog was walking normally. The experiment was several times repeated, each time with controls, and the results demonstrated the important part played by intrinsic pressure in the causation of ischaemia. Their clinical bearing will be referred to later.

The work of Brooks and Jepson is a distinct contribution to the etiology of the subject. Volkmann's contractions are due to a combination of events, the most important of which are obstruction to venous flow, extravasation of blood and serum, and swelling of soft structures causing pressure on vessels and nerves.

Our clinical experience then, supported by experiments, proves the condition to be due to venous obstruction of an acute kind. In my opinion deformity does not occur if obstruction is gradual. Out of the number of cases we see where the veins are pressed upon by growth, callus, etc., how rarely do we find fixed contraction resulting. I have only seen it once, and that was over twenty years ago, as a result of an appalling myositis ossificans, while in this case there was no proof that the ischaemia did not antedate the ossification. Out of scores of cases of myositis ossificans about the elbow I have never seen another case of Volkmann. The oedema gives us our chief clinical proof that the veins more than the arteries are obstructed.

It is, therefore, a direct pressure causing an acute obstruction which is the chief factor in producing a Volkmann. The ischaemia accompanies fracture in about 80 per cent of cases. The tissues are bruised, and considerable effusion of blood and serum may distend the space below the fascia and intermuscular planes. This may be sufficiently great to give rise to cyanosis of the arm, and destruction of the tissue cells, with the formation of blisters. Inflammatory products add to the pressure.

The question of the frequency of peripheral nerve involvement is an important one. J. J. Thomas, in a careful survey of the literature up to 1909, found nerve involve-

ment in 60 per cent of the series. Frank Dixon, in 1926, reports cases where conduction in the median and ulnar nerves was interfered with. Bristow reports a case of Volkmann where the median was completely divided by a sharp projecting end of the diaphysis—the nerve was sutured. Platt gives an instance of injury to the median at two levels. It was impaled on a sharp projecting end of the diaphysis in a supracondylar fracture, and also compressed by intermuscular fibrosis as it passed between the two heads of the pronator radii teres. Hamilton, in 1850, operated on a projecting fragment of bone and found the median stretched over the sharp end of the prominence, and obtained improvement after correction. Other writers have confirmed these experiences.

Although complete loss of conduction is rare, yet it is to be expected that there should be some pressure on nerves—disturbance of sensation in the hand can only occur in this way. The nerves become involved in scar tissue as elsewhere, and doubtless influence the course of the contractions.

CLINICAL CONSIDERATIONS

It is necessary to fix in our minds that this distressing deformity may arise from pressure within the limb or pressure from without. It is generally a combination of both. In view of the penalties which we may have to bear, it should be clearly understood that Volkmann's deformity is not necessarily due to tight bandaging. This offers no excuse for tight bandaging. In no circumstances should bandaging obstruct the venous circulation in the neighbourhood of the elbow, for of all regions this is the most dangerous.

An interesting case was reported recently by Kennon. He was called to see a young woman whose arm was lying on a pillow in extension. The limb was cold, and there was no radial pulse. A supracondylar fracture was found and easily reduced, and the arm treated in the flexed position. A perfect anatomical and functional result followed, but the radial pulse had not appeared eight weeks later.

I have seen several instances in which deformity has arisen where no bandage has been applied. Many years ago, when sailing vessels were common, a man of over 30 years was brought to me with well-marked ischaemic palsy, and a backward displacement of the elbow, the injury having occurred twelve months earlier. He had received no treatment, nor had he used a bandage. I have also seen three cases in children with ischaemia of various degrees who have worn neither splint nor bandage. I have seen two cases, non-traumatic, where tourniquets had been forgotten. In each of these cases there had been distinct ischaemia, with contraction of fingers, in contradistinction to the flaccid paralysis following direct nerve lesions, and they made good recoveries. Ischaemia may follow injuries to the forearm where muscles have been severed and when haemorrhage has been retained. This results in muscle fixation to bone and contraction of the fingers. Similar and more severe contractions follow infections of the forearm.

PROPHYLAXIS

Flexion of the elbow has recently been suspected of causing ischaemia, and it is well to discuss this point. I have always advocated the flexed position of the arm in elbow-joint injuries, especially in supracondylar fractures. I have, however, always endeavoured to reduce the backward displacement of the humerus before flexing. If the arm is merely flexed only very partial reduction takes place, if any. I first extend the arm, supinating and pulling it at the same time. While the thumb is placed on the upper fragment, the extended and stretched elbow should be flexed. This usually, and without difficulty, gives a complete reduction, which can be verified by the screen. I believe, although hardly any reference is ever made to it except by way of denial, that a sharp, projecting upper fragment often adds to the internal venous obstruction, just as it puts pressure on the ulnar and median nerves. This is what occurred in the unrednecked dislocation of the elbow to which I have referred, and those of you

who have dealt with recent dislocations at the elbow will sometimes have met with swollen arm and fingers—symptoms which soon disappear when reduction is effected. If there should be a lateral displacement of the elbow it must be corrected before the arm is flexed. It is not accurate to state that the reduction is as easy if postponed for days. It is often quite impossible to effect reduction then except by operation. When the arm is flexed it should not be in any way forced, and the wrist can be slung under the chin, or a little lower. One must recognize the truth of the observation of Hoy Groves that *very acute flexion* does affect the radial pulse. If the elbow is greatly swollen it would be wrong to flex the arm acutely. Whether there be swelling or not it is a mistake, when the elbow is flexed, to bandage arm to forearm, or the elbow to the side. It is possible to exceed the margin of safety, and of this we should be aware. To make a routine of leaving every case of dislocated elbow, or fractured epiphysis, unreduced for twenty-four hours or for forty-eight hours in order to avoid ischaemia is not reasonable. This advice, if followed, would not prevent, but add, to the frequency of ischaemia, if only from the pressure of bone as in Kennon's case. By far the majority of contractions I have seen have followed the use of the internal angular splint. I have met with one case which had been treated in full extension with a Thomas ring splint, and the bars prevented anything approaching circular constriction. That flexion is safe, if intelligently done, is suggested by the fact that I have never met with an ischaemia in my own practice. The full flexion of an elbow in an unreduced fracture may, I repeat, be hazardous, it requires force which should never be applied. Indeed, the flexion treatment of fractures about the elbow should never require any force in reduction, if the arm does not flex easily, it is suggestive of locking due to displaced fragments. If a surgeon cannot satisfy himself as to reduction by manipulation, the question of operation has to be urgently considered. Limitation to pronation, supination, flexion, and extension immediately after attempted reduction is suggestive of failure. The treatment of elbow fractures by flexion after reduction has so many advantages that it must continue to be the position of choice. Whatever happens, we must never subject fractures and displacements about the elbow to plaster-of-Paris, splints, or bandages. Prophylactic measures demand, therefore, that we should

- (a) Avoid circular compression
- (b) Reduce dislocations and displaced bones
- (c) Avoid all kinds of splints more especially if there is much swelling
- (d) Use no force in flexing the elbow
- (e) Critically watch all cases of fracture about the elbow for the first few days. The warning symptoms are great pain (not always present) stiffening and swelling, cyanosis and lividity of the fingers. Ischaemia may result without obliteration of the radial pulse, but this symptom is at least evidence of pressure. Loss of voluntary movements is a serious omen.

WHAT SHOULD BE DONE IF ISCHAEMIA HAS STARTED

The arm should be released from all restraint which involves compression, and should be elevated. Manipulation of every kind for the further reduction of displacement should be avoided. Murphy, in 1914, suggested if cyanosis continued while the forearm was extended and elevated that a subcutaneous division should be made on the antero-ulnar side of the forearm. The experiments of Jepson, which I have described, supply an argument in favour of Murphy's suggestion. Personally, I have had no experience of the procedure. If the operation is done it should be done early, and rarely later than thirty-six hours after the onset. I can find but little evidence of the results of this operation to evacuate blood and serum. In an editorial note to the thirty-first report of *Progress in Orthopaedic Surgery*, it is stated "Some of us have encountered cases in which ischaemic myositis was present when the patient was first seen, and before any dressing had been applied for the fracture. Contrary to the experimental evidence, which is in favour of venous congestion as the causative factor, the finding in these cases was absent radial pulsation, pallor, and coldness of the hand,

together with inability to move the fingers. The first two developed typical ischaemic contractures. In the third case multiple incisions were made at the elbow and part of the subfascial haematoma evacuated with the result that the ischaemia disappeared and the hand remained normal." I agree with the writers that each a case is very encouraging, and the method deserves further trial.

PROGNOSIS

In my experience the prognosis is always grave, although the function of the hand can generally be improved, sometimes very considerably. I have never met with perfect function in any hand where the symptoms of ischaemia were pronounced. The prognosis is most grave where

- (a) The nerve damage is excessive or complete
- (b) The obstruction to circulation in the fingers has remained pronounced
- (c) The wrist is fully flexed and the forearm is fixed in extreme pronation and there is very limited movement in the elbow joint
- (d) Only *mass* movement occurs in the fingers

The prognosis is more favourable

- (a) When the circulation is good and nerve involvement is not too pronounced
- (b) When the forearm moves fairly freely on the humerus and some supination is possible
- (c) When flexion of the wrist is not extreme and some separate voluntary movements can be obtained in the fingers

The prognosis is very favourable where only a slight contraction appears in the fingers when the wrist is dorsiflexed. This is the unrecognized group where symptoms have only been noticed after the completion of treatment, and are even looked upon as mere stiffness.

TREATMENT

We have dealt with the measures to be taken during the acute stage—a stage which lasts for about a week. Usually the surgeon sees the case some weeks or months later, when the deformities are fully developed. He will then have to decide whether his attack should be a mechanical or an operative one, or a combination of both. Whatever method be adopted, the aim should be to keep the forearm supinated.

Mechanical Treatment

The treatment I advocated in 1908 consisted in gradually extending, first the fingers, then the metacarpophalangeals, and then the wrist. As we know, when the wrist is completely flexed the contractions of the fingers are all lessened, and if they cannot be fully extended this may further be brought about by completely flexing the metacarpophalangeals. When the fingers are straight splints are applied to them, and are used to extend the metacarpophalangeal range. A splint is then applied reaching from the finger-tips to the wrist-joint, and full extension of the hand is secured. This splint is then used as a lever slowly to dorsiflex the wrist, and later a splint is applied from the finger-tips to the elbow, in order to maintain and gradually to increase dorsiflexion. These splints should be taken off every day, or every few days, for physiotherapy. By these methods, which require patience and the help of a skilful nurse, the hand improves greatly in function, the circulation is better, and the fingers are under better voluntary control. All through the years I have made this the routine treatment, and I have usually only operated to secure amputation of the forearm. My conservatism needs no apology, for I have sometimes been called upon to treat cases which have been submitted to operation, and which have improved after this method of gradual stretching. If the ischaemia is complete, and no muscular fibres remain, it is obvious no functional result can be secured, but even then patients are grateful to be cured of the clawed fingers, which have a very depressing effect upon them. Physiotherapy has an assured position in Volkmann's paralysis, as soon as the acute and painful stage is passed. This should consist of radiant heat, contrast bathing, oil stupes, and gentle massage. Electrical stimulation of the muscles should also be prescribed.

Operation

When a nerve is divided it is imperative to operate, even if only sensation results. If I decided to operate upon the median or ulnar (the post-interosseous is rarely involved) I should correct as much of the deformity as possible first of all. I have had so little experience of either the shortening of bones or tenoplasty in this condition that I shall be very interested to hear experiences to day. I have only operated on one case by tenoplasty, shortly after Littlewood recommended it, and the result was not very encouraging. It was an extremely difficult case, and the tendons were very adherent. In a case where I removed a piece of radius and ulna I was unfortunate enough not to obtain union.

A comparatively simple method of overcoming the contraction of tendons was referred to by Max Page and performed with success by Platt. It consisted of detaching the origins of the flexor groups from the region of the internal epicondyle and upper ends of the radius and ulna. I have not had any experience of this operation, but it appeals to me as being sound in conception. It is best performed where, after a period of graduated stretching, a residual contraction remains. In the case I referred to, where a Volkmann's contraction followed an old dislocated elbow, I made a free excision of the joint, and the contraction of the fingers was very much improved. This should only be done if the flexors of the elbow are working.

In cases of tenoplasty the after-care is very important, and the patient should be under constant observation. The arm should be elevated, the splint being applied to the dorsal aspect of the limb. Voluntary movement should be encouraged about the tenth day.

Resection of portions of the radius and ulna was advocated by Garré in 1895, and has been practised by several surgeons. Results are not very encouraging. Tenoplasty and bone resection in combination have been reported. It is well to warn surgeons who have had no experience of tendon work that conjoint operations of this kind in Volkmann contraction are very difficult, and require great neatness and patience, in the case of children they may be prolonged, and for that reason may be accompanied by considerable shock.

Myotomy and tenotomy are not to be recommended, in spite of reports which have been published. The most that can be said in their favour is that they may shorten the time necessary to correct flexion. I would emphasize that the success or failure of any treatment depends on the condition of the muscle fibres and the nerve involvement. If the muscles have been transformed into fibrous tissue no functional result is possible, and the most that can be expected is an improvement in appearance. All statements to the contrary should be doubted.

Where contraction of tendons and fixation of the forearm in pronation, together with very limited flexion, is found, I think a free excision of the elbow-joint, to which I have already alluded, may be indicated. If, in addition to this, the flexor muscle attachments to radius and ulna are detached improvement might be hopefully expected. Before any operation on bone is performed the treatment would be facilitated by obtaining as much correction as possible by gradual stretching.

It is perhaps encouraging to know that I have seen several old cases—some of which have been well treated and others badly—years after all treatment has ended, and the patients have told me that their fingers are more pliable and their hands much more useful than they were. The circulation always improves as the months and years pass, and, unless the destruction of the muscles, or the paralysis, is complete, time is always a favourable factor.

My advice to young surgeons and practitioners who meet with fractures about the elbow is that they must insist upon obtaining an x-ray photograph. If the parents refuse, the refusal should be made in writing. The parents should be told that two serious conditions are apt to follow injuries to the elbow. One is the condition we are now discussing, and which often comes in the first few hours, and the other is myositis ossificans, which is not likely to follow in less than three or four weeks. My further advice is that they should join the Medical Defence Union, for the law may be invoked whatever we may do.

ULTRA-VIOLET RAYS AND THE GENERAL PUBLIC *

BY

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THE NATURE OF RADIATION

ALL matter of the material universe is built of atoms. The atoms are composed of electric units, positive and negative, the various chemical atoms differ from one another only in the number and arrangement of these electric particles. But matter is always associated with a third thing—namely, radiation. Radiation is described as consisting of waves in an all pervading medium, the ether, which is responsible for gravitation, electric attraction, and cohesion, it is the connecting link between matter and ether and is the process by which energy is propagated through space.

Radiation is due to sudden changes or rearrangements in the movements of the constituent electric units of the atom. Any vigorous treatment of an atom may cause new radiations. If electric particles are thrown on to a surface in a vacuum tube radiation occurs, and the so-called x rays are produced. The nature of the ultimate constitution of matter has been determined entirely by a study of these radiations, which are emitted by all substances above absolute zero.

There is another kind of radiation which is emitted by radio active substances. Radium salts emit not only ether radiations, but electrical particles also. These particles (alpha rays) are expelled at a velocity of 10,000 miles per second, and possess so much energy that when they strike a zinc sulphide crystal a flash is seen.

The different radiations can be separated in several ways. A very few of them are appreciated by the retina, and small differences in wave-length or frequency of vibration are responsible for the appreciation of colour.

When radiations pass through a partly transparent object such as a glass prism, the direction of their movement is changed, they become bent in different degrees, according to the various wave-lengths, and can thus be sorted. This is termed a spectrum. All these waves affect one or other chemical substance and can therefore be photographed. If all kinds of rays are present, as in sunshine, the spectrum is continuous, if some are missing the spectrum shows bright lines, and if a continuous spectrum is passed through a substance which absorbs certain rays the ultimate spectrum will exhibit dark lines (absorption spectrum). Other methods may be used to separate out certain waves, as by means of screens.

Animal life has developed and adapted itself to existing conditions—to the plant life which preceded it and on which it was dependent for food, to the atmosphere, and to the radiations around it. Its food was composed of whatever constituents were available from plants—such as sugars, proteins, fats, and vitamins, and its radiations by those furnished by the sun and temperature of the environment. Being developed according to these environmental conditions, the conditions became essential for individual well-being.

The later phases of science have enabled us to analyse these conditions and to modify the foods and radiations which normally obtain. It may be that all this is to the good, that as man congregated in herds, he changed the conditions under which he had developed—as, for example, if he lived in confined areas and ate preserved foods which had lost some of their fundamental properties. This may not be unconnected with the modern craze for vitamins and radiations. Moreover, there is evidence to suggest that these modifications of foods, and unnatural radiation confined to a very limited wave-length, may exert an unfavourable action in certain cases.

The range of electro-magnetic waves extends, so far as they have been mapped, through sixty-two octaves. Visible sun rays occupy only one octave, and all move at a uniform

* A paper read in opening a discussion in the Section of Radiology and Physio-therapeutics of the Annual Meeting of the British Medical Association, Cardiff, 1928.

velocity of 30 000 million centimetres per second Beyond the violet rays of visible light are five octaves of ultra-violet rays becoming progressively shorter in wave-length, solar radiation contains a few of these, something less than an octave On the other side of the solar spectrum are the infra-red waves, about seven octaves, of which solar radiation contains three or four

Sun rays have been used in the treatment of disease for long ages, but during the last thirty years precise observations have been made of their action in disease The proof is complete that they exert a curative effect in cases of surgical tuberculosis, rickets, and in some cases of nerve disease, anaemia, and skin disease Atmospheric conditions alter the action of sunshine to some extent Thus the presence of water vapour acts in much the same way as a fire screen, which lets us see the fire, but cuts out the heat The atmosphere tends to absorb the short wave ultra-violet rays, so that these are likely to be more plentiful in mountainous districts than at sea level The morning and evening sunlight are not so useful as that at midday, since the rays have to travel through a greater thickness of atmosphere Nevertheless light treatment may be practised almost anywhere Swiss doctors assert that mountainous districts give the best results on account of the atmosphere being clean and dry and the rays more intense in chemical properties and ultra-violet On the other hand, doctors in the lowlands claim beneficial results almost, if not quite, as good as those in the Alpine institutions—for example, in the neighbourhood of Berlin It is still a matter of dispute which rays are responsible for the beneficial action and how they act

CURATIVE RAYS

It is generally believed that it is the violet and longer ultra-violet rays that are most important, because these are especially prevalent in the sunshine of mountainous districts and near the sea, where they become refracted and reflected by the sand and water If the short ultra-violet rays were the most important, then the mercury vapour lamp, in which they are very rich, ought to be the most effective treatment Rollier, the pioneer of sunshine treatment, regards the light waves as the most important, and abundant pigmentation as a sign that the patient is deriving benefit Others hold the view that the value of heliotherapy is the direct effect of the power of the rays to produce redness of the skin

All skin contains a substance called ergosterol, when this is acted on by ultra-violet rays it is changed chemically, and the changed substance acts as a preventive to, and cure for, rickets So that in this particular instance ultra-violet is all-important Regarding general benefit, however, all we know for certain is that sunshine exerts a curative action in certain diseases, and that this is not due to the action on the diseased part directly, but to an action on the skin, and only indirectly on the disease When ultra-violet rays are employed in treatment wave-lengths are used some of which are foreign to sunshine Sunshine contains some of the longer ultra-violet rays, but the shorter and physiologically more active are lacking

Ultra-violet rays are generated by special plants designed for the purpose These substitutes for the sun are the mercury arc in quartz and the carbon arc burning carbons with mixtures of rare earths The radiations from these sources produce good effects in certain diseases, and these are generally ascribed to the ultra-violet rays, though this has only been proved in a few instances like rickets The spectral distribution of these lamps varies greatly Sunlight at sea-level contains less than 2 per cent ultra-violet rays, but in a water-cooled mercury vapour lamp the ultra-violet rays may rise to nearly 50 per cent Moreover, the spectral quality of this ultra-violet light is different from that of the sun, in that it contains a large proportion of the very short waves

The carbon arc, the iron arc, the tungsten arc, and the mercury vapour lamp all radiate an appreciable amount of chemically active light But the carbon arc is the only source which produces a continuous spectrum like sunshine and irradiates all kinds of light from infra-red to ultra-violet The others show a discontinuous spectrum, only a selection of waves being emitted The carbon arc light

is not only the best substitute for sunshine on technical grounds, but it gives the best results in the treatment of patients

PHYSIOLOGICAL ACTION OF LIGHT

The skin acts, as a partial screen to the different wave-lengths of light Luminous rays can pass through several centimetres of the body, but ultra-violet rays penetrate much less, and all but the very longest are absorbed by the epidermis The infra-red waves also have little power of penetration Within this area of the spectrum penetration varies with the wave-length, being greatest with the red waves of light and least with the short ultra-violet rays Ultra-violet light, therefore, cannot have a direct action on deeper tissues

Sunlight, ultra-violet rays, and infra-red rays all cause the skin to turn red at first, and, if the dose is repeated or prolonged, to become pigmented later If the skin of a man is exposed to a powerful carbon arc the irritant effect, as shown by redness, can be largely screened off by ordinary glass light passes through glass, but ultra-violet rays are held back On the other hand, a plate of quartz glass through which ultra-violet rays pass has no influence in limiting the inflammatory reaction, which may remain for several days and be followed by peeling and pigmentation Ultra-violet rays are largely responsible for the inflammatory reaction, although sunshine is more effective in influencing the extent and duration of pigmentation Pigmentation from lamps is more superficial and transient than that produced by sunshine, it is a natural protection against the treatment, and we do not yet know whether its production is an advantage or a disadvantage to the patient

Apart from its action on the skin, ultra-violet radiation gives a feeling of well-being and vigour Many other effects on metabolism have been ascribed to ultra-violet rays I believe that most of these are not specific, and can be obtained just as well with, say, a mustard plaster

SENSITIVENESS

The skins of patients differ in their reactions towards light as well as to certain skin poisons like the mustard gas of chemical warfare, some skins react excessively to a trifling dose, and others are uninfluenced by large doses The skin may be compared with a photographic plate Normally only the visible blue waves affect the gelatin silver If the plate is treated with a dye stuff such as rose bengal it is sensitized, and the green waves also act upon the plate, and if it is treated with diethyl methyl isocyanide the plate becomes sensitive to the whole visible spectrum

Ergosterol in the skin is activated by ultra-violet rays and acquires an anti-rickets property Ergosterol in food is activated only by the ultra-violet rays and not by sunshine, but by adding sensitizers to the food the same thing happens as with the photographic plate, and ordinary sunshine will now activate the ergosterol

The variations in the response of the skin to light are probably due to the presence of a sensitizer, and in some people with a supersensitive skin we even know its nature But quite apart from this natural sensitiveness, the condition can be acquired The application of powerful ultra-violet rays alters the proteins of the skin, these abnormal proteins are absorbed, and an allergic condition arises in which the skin becomes intolerant to light The condition is strictly analogous to the worker with mustard gas sooner or later all these people become allergic, so that a trace of the gas in the atmosphere causes skin inflammation The importance of a correct dose cannot be over-exaggerated, since burns may lead to light allergy

INJURIOUS EFFECTS

It is sometimes thought that ultra-violet radiations are beneficial for almost any condition and that they can do no harm Much of the literature in the advertisements on lamps leaves the impression that they are a panacea for all disease In reality very many patients are not benefited by this treatment, and some may suffer injury Take one example it has been shown that no comparative diminution in the incidence of respiratory infections was noted in a series of infants treated during the winter for

a period of three months by the radiation of the carbon arc light. Growth during the first six weeks was greater in the irradiated than in the non-irradiated group of infants, but during the second six weeks the growth was less among the irradiated infants. Similar results were obtained using the mercury vapour lamp.

Injurious effects of sunshine are uncommon except perhaps when it is reflected from snow or water, hence it may cause inflammatory burns or even blindness. The radiations from ultra-violet lamps, which emit rays of shorter wave-length than those found in the solar spectrum, when applied to the skin are so foreign to the body as to be comparable with the administration of a poisonous drug, either may be beneficial in a suitable subject, but harmful in an unsuitable.

A common effect of slight overdosing is sleeplessness, restlessness, lassitude, loss of weight, and nausea. Resistance to bacterial infection is said to be lowered by treating too large a surface. The most obvious ill effects are in the nature of burns, the skin becomes hot, red, swollen, and inflamed. In the sensitive these may extend beyond the region exposed. After more intensive radiation purulent exudation may occur. Repeated applications have resulted in chronic lesions, a pre-cancerous form of dermatitis. It should be understood that there is no difference between a sunburn, an ultra-violet burn, and a scald. The skin effects are often associated with severe pains in the eyes and headaches, sometimes lasting for weeks.

The eye is readily affected by strong radiations from arc lamps, molten glass, or light reflected from snow or ice, inflammation of the conjunctiva and cornea result, and the lens, and even the retina, may be affected. Ultra-violet rays coagulate protein, and cataract is a coagulation of the proteins of the lens, improper irradiation may certainly induce this condition. In a recent letter in the *British Medical Journal* a doctor writes that as a result of an unqualified person's light treatment on a patient of his, who had a slowly maturing cataract, the patient's vision was reduced in both eyes to perception and projection of light only. Some authorities regard ultra-violet light as the principal factor in the cause of senile cataract, glass-blower's cataract is the result of continuous illumination in which the whole of the spectrum is probably concerned. These effects on the eye can, of course, be obviated by wearing goggles, though this preventive is sometimes neglected, as is shown by a report in the *South Wales News* for June 14th last of a case in the Cardiff County Court, in which a woman was awarded £50 damages in an undefeated case against the Cardiff Snarby Clinic. The plaintiff said that she had to face strong rays of light from a lamp and that no goggles were given to her until she had faced the light for two and a half to three minutes.

Physicians are generally agreed that radiation by ultra-violet light is contraindicated in highly nervous and neurotic people, they suffer what is called a grave "psycho reaction," and the treatment does harm. Great caution is necessary in all forms of pulmonary consumption and in other quiescent inflammatory conditions, such as appendicitis. In old people with rigid arteries, in all forms of kidney disease, and in some forms of heart disease the patient is made worse. Eczemas and some other skin diseases are often aggravated by the treatment. It may be that contraindications appear only after the first treatment. The daily press reported recently an inquest on a woman of 47 who died after ultra-violet ray treatment. She had severe burns on her back and legs, and duodenal ulcer followed. The doctor said that he had come to the conclusion that death was due to ulceration consequent upon burns set up by a sun-ray apparatus.

Careful examination is therefore necessary prior to treatment if we wish to be sure that ill effects will not follow. I believe that the expert can determine the necessary dosage for his patient without the risk of harmful general or local effects.

Most of the leading authorities on radiology have pointed out the dangers which may follow the improper use of ultra-violet lamps. Many of the lamps emit rays to which man has never before been exposed. The evidence of the

harm they may do is overwhelming. Few of us would dare to have a prescription containing poisons dispensed by an untrained person, but the dispensers of rays are uncontrolled, unregistered, and may be unqualified.

It is obviously right that the public should be given such information as will enable them to distinguish between those who have been properly educated to dispense rays and others. At the present time all kinds of rays are used by charlatans in Europe and America to impose on the public. Barbers employ them, especially for their lady clients. Beauty institutions have set up baths of blue rays, which are generally harmless frauds, though ultra-violet light has been used. Sun-ray institutes are becoming the fashion, and the public is buying machines and indulging in self-treatment.

Some countries have already taken action. The superior Council of Public Hygiene of France, consulted by the Minister of Works and Hygiene, has declared as follows: "That given the serious accidents which may result from the use of ultra-violet irradiations handled by incompetent persons, it is necessary, in the interest of public health, to confine the use of these procedures to hospital services and to authorize their application only by specialist physicians." In the United States the Council of Physical Therapy has reported on the dangers to the public of self-treatment by the sale of generators of ultra-violet energy. It points out that those not familiar with the possibilities of such apparatus place undue confidence in the advertising literature, unsuitable cases are treated or cases not amenable to treatment. The council regards such sales to the public as detrimental to the public welfare and an encouragement for the sale of worthless generators, since the public has no means of determining the quality of radiant energy.

I have endeavoured to show that treatment by radiation may be either beneficial or harmful, that its employment by unskilled people may cause serious ill effects to the patient, and I suggest that the time has come when some sort of protection must be extended to the public.

ULTRA-VIOLET LIGHT AND THE PUBLIC *

BY

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PROFESSOR DIXON has put before you, with the clarity that has helped to make him one of the most popular lecturers in Cambridge, the position of ultra-violet light treatment as it is to-day. It was the extraordinary value of this form of treatment when properly employed, and the potent dangers associated with ignorant use, that led the British Medical Association to form a special subcommittee. This subcommittee was charged with the duty of considering how best the uses might be safeguarded and the abuses abolished.

The report of this subcommittee was considered in turn by the Science Committee and by the Council of the Association, who formulated a recommendation for presentation to the Representative Body. The final form of this recommendation as passed by the Representative Body is as follows:

That in view of the risks to the public involved in the use of electricity and radiation as methods of treatment by untrained and unqualified persons it is to be desired (1) that suitable courses of training should be organized under medical direction for persons who wish to administer this form of treatment, (2) that persons who have satisfactorily followed such a course should be entitled to have their names entered on an approved Roll, (3) that one of the conditions attached to admission to and maintenance on the approved Roll should be abstention from the treatment of any patient except on the responsibility and under the general supervision of a registered medical practitioner, and (4) that patients who require electrical or radiation treatment should be referred only to those persons whose names are on the approved Roll.

* Read in a discussion in the Section of Radiology and Physio-therapeutics of the Annual Meeting of the British Medical Association, Cardiff, 1923.

HARM BY ELECTRICAL TREATMENTS

The first question of all in considering the subject is Can electrical treatments do harm? There is ample evidence that they can

1. Electric Current

Electricity in its simplest form—that is, plain electrical shock—can kill or permanently injure in much lower voltages than those in general therapeutic use. The literature contains innumerable instances of death resulting from currents of 110 volts and under especially when the resistance of the subject was lowered by moisture. This in itself constitutes a formidable danger when electric currents are being handled by relatively ignorant and irresponsible persons. The direct current, one modification of which is known as ionization, is in common use in "therapeutic" establishments, and a number of fatalities have occurred where insulation has broken down or where the apparatus, as connected to the existing mains, has been a permanent and potent source of danger.

The alternating or sinusoidal current and its modifications have caused many fatal accidents, usually when administered in the region of a debilitated heart. I may illustrate my point by reference to a recent curious fatality. The majority here will doubtless remember the death of a lady who had a pair of wireless head-phones on, and reached up to turn off a hand lamp. It came out in the evidence that minor shocks had been received from the hand lamp on previous occasions, also that this was known to at least one member of the household who was in the habit of administering electrical treatments. Training such as is recommended by the Representative Body would have made a fatality of this nature in that particular household impossible.

2. X Rays

I am not going to spend your time by describing to you in detail the dangers of ignorant applications of radium and x rays. They are far too well known. Sir Humphry Rolleston has treated the subject fully in the Mackenzie Davidson Lecture of 1927.¹ The literature abounds in references to injuries resulting from even the most skilled and cautious applications of radium and x rays. Dr Heim Lassen,² in analysing 183 cases of injury from x rays, found that an appalling proportion were due to carelessness and ignorance. Of six plain electrical accidents, two were caused by carelessness and three by ignorance. Twenty-eight patients were burnt under treatment, even though the technique was applied correctly, but of seventy-one burns inflicted by incorrect technique, twenty-two were due to careless and thirty-three to ignorant handling of the apparatus. Forty patients were burnt under diagnostic examination, ten through carelessness and twenty-eight through ignorance. These figures cover only the work of qualified persons, they offer a foundation for speculating on the results of an investigation into the use of x rays by the unqualified.

This state of affairs has led to the institution of special courses and diplomas in radiology and electro-therapeutics for medical men, and already in many hospitals the holding of such a diploma is a necessary qualification for the appointment of radiologist.

3. Ultra-violet Light

An argument sometimes advanced is "Control x rays, radium, and obviously dangerous things like that if you like, but surely no one can do much harm with an ultra-violet lamp. At the worst, all that can happen is an uncomfortable sunburn." That idea I most strongly condemn.

Professor Dixon has shown you the dangers of ultra-violet radiation, and public interest demands imperatively that it should only be used by trained and experienced persons. Professor Dixon and I have examined the evidence of damage by ultra-violet light treatment from the contributions of many writers, and our astonishment in surveying the bibliography is that legislative action should not already have been taken in all civilized countries.

Of the list of ailments that have been adversely affected by ultra violet light treatment let me only mention three: quiescent phthisis, chronic nephritis and arterio-sclerosis.

These alone should be sufficient to warn off the unqualified therapist. How is he to determine the presence of quiescent phthisis, chronic nephritis, or arterio-sclerosis? Many of the contraindications to ultra-violet light treatment are such that the fully qualified doctor finds it hard at times to be certain of their presence. There is not the least hope of the unqualified detecting them before damage is done, and yet the attitude of the Ministry of Health is hardly favourable to restrictive legislation, or is one that requires further convincing. The Minister of Health, on May 17th 1926, in answering a question by Colonel Day calling for control of unskilled treatments, said:

I have not received any evidence of injury resulting from the use of ultra violet rays by unqualified persons but if the honourable member is aware of any specific cases in which such injury has arisen I should be glad if he would furnish me with particulars with a view to further inquiry.

4. Diathermy, etc

May I for a moment remind you also that infra-red rays are not free from difficulties and dangers when improperly employed? A medical man reported in the *British Medical Journal* (1927, ii, p 1118) that he had suffered from agonizing pain and syncope with prolonged weakness and loss of sensation after the application of radiant heat to the left leg for twenty minutes at 12 in.

Diathermy, generally considered to be merely a means of heat, is actually a radiation treatment of the tissues manifesting itself as heat after the waves have been absorbed and degraded into heat waves. The dangers of the use of this current are primarily those of technique, causing severe chronic burns, while shock from the primary transformer is also not unknown. A man who was having his chilblains treated was suffering, unknown to the operator, from syringomyelia, which rendered his fingers anaesthetic. The result of his treatment was severe blistering and ulceration. This is a condition which no unqualified therapist can be expected to recognize.

THE CASE FOR A ROLL

Innumerable examples might be cited, but without further elaboration it is clear that the whole field of medical electricity has possibilities of causing temporary or permanent injury, of adversely affecting diseased conditions, and even of causing death. The evidence for the dangers is overwhelming and it is obviously a matter of vital public importance to take the most effective means of preventing them. The words of Sir Alfred Mond when introducing the Dentists Act, 1921, in the House of Commons apply most aptly to the present position of the so-called "medical" electrician. He said:

It is by mere accident that a large uncontrolled, unregistered unqualified service has been allowed to work in this country and that one of the most difficult and important operations on the human being has been allowed to be practised by anybody who sets himself up, without any knowledge of any kind, and that the public have been entirely unprotected against this kind of thing. We are now endeavouring to bring [dentistry] up to a higher standard.

As John Burns said in the discussion in the House on the Midwives Act, 1902:

'If it is necessary to register doctors to educate them and to exalt the standard of their qualifications then surely nurses and midwives ought to be highly trained and registered.'

To his "doctors" we can add to-day "midwives and dental surgeons." Then why not electro-therapists?

Analogy with Chemists

I hear of many patients each year who have been sent by their practitioners to unqualified persons for electrical treatment, without any attempt to control or to specify this treatment. This sort of thing is more or less tantamount to a doctor saying to a patient, "Go to the chemist and get something for your headache," but it is distinctly worse than that, for to-day and for over a century in England we have taken our prescriptions to any dispensing chemist with a tranquil mind. We have no doubt that he will accurately compound that prescription for safe administration to ourselves. We have equally no doubt that on his shelves lies enough of the very remedy we are going to take with benefit to kill us many times over. Our reason for going so trustingly to the chemist is that ever since 1815 chemists have been a trained and registered

class Before the Apothecaries Act, overdosing or harmful compounding was not infrequent Just as morphine in small doses may save a life, and in larger doses take it away, so suitable doses of electrical rays and currents may save, while unsuitable doses may harm or kill Just, therefore, as in 1815 the public demanded protection from the untrustworthy chemist, so now should they demand assurances that those who are exposing their delicate body mechanisms to currents and rays of electricity shall have had adequate training and experience

As Sir William Priestley said in the *British Medical Journal* in 1886 (ii, p 1121)

"In England the principles of liberty are carried so far that men insist on their right to employ quacks if they choose, and on being treated medically even to their own hurt, if it so pleases them The only possible limitation is to insist that the public shall be able to distinguish between those who have been educated and registered and those who have not, and to impose penalties on those who pretend to be registered when they are not so"

On this principle were founded the Medical Acts of 1858, and the Dentists Act of 1878

The formation of a roll or register of persons regarded by a competent authority as suitably qualified to administer medical electricity would enable those of the public who cared for their own safety to be sure of their therapist It would also be of great value to doctors, who would thus be able to select a suitable assistant to whom to send their cases The duly qualified among the medical electricians would welcome it, if for no other reason than that it would protect them from the unfair competition, backed by advertisement, of those who have spent neither time nor money in acquiring skill and experience, and who are not bound by any ethical rule of modesty or truthfulness The advancement of knowledge and scientific research would be forwarded by any central body whose duty it was to examine and certificate workers in this field, and, indeed, permanent and continuous research is impossible without some strong co-ordinated body of intelligent workers

The difficulties and the needs have already been recognized by three associations—the Institute of Radiology, the Chartered Society of Massage and Medical Gymnastics, and the Institute of Blind Massengers These all provide suitable courses of instruction, and impose safeguards and ethical standards These organized bodies are already available, and have only to be provided with the necessary public support and legislation to make their existing registers into one authoritative whole, with the prestige and power of the law behind them Unsupported they can do comparatively little The patterns for such a register, are obviously those of the Central Midwives Board and the Dental Board

The Penal Clause

Distinct from, but closely linked with, the formation of a register is the difficult question of a penal clause—that is to say, legislation forbidding the unregistered to engage in these particular forms of practice This was very acutely debated in the House of Commons on the occasion of the passing of the Midwives Act, 1902 As Mr Heywood Johnston pointed out, with the sole exception of the Apothecaries Act, 1815, the current of legislative authority had up to that time been against penalizing the unqualified practitioner The Medical Act, as we all know, provided a register, ethical supervision, and adequate standard of education The Dentists Act of 1878 did the same thing for dentists, laying down that an unregistered person should not be allowed to use the title of dentist or any title implying that he was specially qualified for dentistry The words "specially qualified" led to a number of cases in court, until finally the decision of the House of Lords in *Bellerby v Heyworth* established that the words imported a professional qualification entitling to registration, and not merely skill or competence This decision was the charter of the unqualified dentist, and there grew up in consequence a situation in the realm of dentistry which bears a striking resemblance to that in the realm of electrotherapy to-day The result was the establishment in 1920 of a Departmental Committee to "investigate the extent and gravity of the evils connected with the practice of dentistry and dental surgery by persons not qualified under the Dentists Act, 1878" That committee sat for twenty-seven days and examined twenty-seven

witnesses, producing a voluminous body of evidence It then spoke with no uncertain voice

'There are a large number of unregistered practitioners of indifferent general education who have set up without any training or instruction whatsoever By means of specious advertising and personal canvassing, they ply their calling to the danger of the public, but with very lucrative results to themselves The evidence is conclusive that it is the least reputable section of an unregistered practitioner that has increased most, and tends to increase This constitutes a menace alike to the public health, the registered dental profession, and the more reputable unregistered practitioners Under the existing law any person, however ignorant, unskilled, untrained, can practise dentistry and inform the public by advertisement and otherwise that he practises The only protection the public has is an action for damages in case of injury or the fear of a possible prosecution for manslaughter in the case of death The persons who have taken up the calling comprise a body of men representing every degree of skill, from the totally uneducated unskilled man to the highly qualified practitioner'

It is impracticable for the general public to know whether they are to be treated by properly qualified persons or not

Every word of this might stand as a description of the position to-day in medical electricity Yet this was the state of affairs forty-two years after the establishment of a register supervised by the General Medical Council, but unsupported by any penal clause It is impossible to avoid the conclusion that valuable time might be saved and terrible damage averted if we took to heart from the start the lesson of the Departmental Committee's findings Unhesitatingly—forty-two years too late—they reported

'We have considered most carefully the different representations which have been made to us, and are of opinion that, in the interests of the public, dental practice by unqualified persons should be prohibited under penalty, and that nothing short of this is likely to prove efficient We are further of opinion that the most satisfactory way of distinguishing a qualified from an unqualified person is by the formation of a register of qualified persons Unqualified persons should not be permitted to hold themselves out as willing to practise dentistry or perform dental operations'

The opponents of the penal clause in the Midwives Act held that it would be contrary to the general principles of English justice, that it would create a new offence, and that it would constitute a monopoly Those in favour of the penal clause pointed out (see Hansard, vols 103 and 109) that the omission of that clause would make the bill ineoperative, futile, and to a certain extent mischievous, that it was a matter of common knowledge that there were a considerable number of unqualified women who constituted a serious danger to the public, and that a bill which did not suppress the evils out of which the movement for registration had grown would only result in the increase of the irregular, incompetent, and dangerous practitioner

Sir John Tuke argued that it did not create a new offence, but merely extended an existing principle of law to a dangerous class of people, and that the principle had already been applied to chemists, solicitors, and auctioneers, with the object of excluding undesirable persons Mr Griffith Boscawen maintained that unless the ignorant persons from whom dangers arose were prohibited from practising in the future, the worse class would go on as before, and a great deal more harm than good would be done by the establishment of a register The *Medical Register*, as Sir W Foster pointed out, had not stopped the unqualified practitioner one, nor had it caused the public to seek advice exclusively or even increasingly from bone-setters and quacks In the end the penal clause was inserted in the bill

When to these views is added the actual experience of the working of the Dentists Act, with and without a penal clause, the argument seems unanswerable

SUMMARY

If the unqualified, unregistered chemist, dentist, and midwife is to be forbidden by law, then the unqualified electrotherapist, who certainly handles therapeutic measures as dangerous as those of any chemist's shop, and performs operations as delicate and difficult as those of any midwife or dentist, ought to be put in the same position

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THE DIAGNOSIS AND TREATMENT OF STERILITY *

BY

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THE subject of sterility is too often thought of as one that concerns only the woman partner. The man is, in fact, at fault in a large proportion of cases. This aspect is to be dealt with in a later paper, so I need not enlarge upon it.

I. DIAGNOSIS

The correct diagnosis of sterility in women depends on a thorough and systematic investigation of the anatomical and physiological features that affect the transit of spermatozoa from the vagina to the Fallopian tube, the possibility of fertilization of the ovum, and the transit of the oosperm, or fertilized ovum, from the ovary to the uterus. The most rational investigation will be in the following order:

1. The General and Sexual Development of the Woman

The general appearance and the development of the breasts and pubic hair will give indications as to sexual maturity. In order that we may regard this as satisfactory we must also find a normal vagina and uterus, and tubes and ovaries not obviously abnormal, and there must be a history of regular menstruation, neither excessive in quantity nor too scanty. If we also elicit the information that coitus is accompanied by normal desire and sensation we may conclude that the ovaries are sufficiently developed and that the endocrine function is normal.

2. The Possibility of Normal Intercourse

There may be a history that intercourse has not been possible, owing to want of virility on the man's part, or because it is too painful for the woman. In the latter case the possibilities that we have to think of and investigate are: First, the existence of actual obstruction, due to absence of the vagina or an imperforate hymen. This will at once be revealed on examination. Secondly, undue narrowness of the vagina due either to anatomical stenosis or to functional spasm of the vaginal muscles (vaginismus). Thirdly, the presence of sores or abrasions at the vaginal orifice, or vulvo-vaginitis, of simple or of gonorrhoeal origin. Fourthly, more deeply seated trouble such as tubo-ovarian inflammation or ovarian prolapse, when pain would be the result of deep pressure. It is to be remembered that the vagina may appear to be normal, yet it may be relatively narrow, and, moreover, painful vaginal spasm may be induced under the excitement of attempted intercourse, though it may not be elicited by a digital examination.

3. The Effectual Reception of Spermatozoa at the Os Externum

This presumes, as the essential factor, that the os externum shall be duly patent. Complete occlusion of the os is rare and causes distension of the uterine cavity by blood (haematometra) when the menstrual function is operative. On the other hand, a wide dilatation of the os is not essential to conception. The normal vaginal os can, it is true, expand to admit a sound, but in the ordinary state the cervical canal is only a potential tube, having its walls in apposition. The typical "piahole os" cannot be expanded without forcible stretching and may be unfavourable to conception, but we cannot say that conception may not occur. I recall a recent case in which a patient after curetting, developed a secondary contraction of the os externum that would not admit even a small probe. As she was anxious to conceive I advised dilatation. She let the matter slide, yet conceived about a year later. I saw her when she was three months pregnant, and the os looked quite normal.

There are two conditions of the uterus that produce a hindrance to conception, the effect being the same in both cases. These are marked retroversion and acute ante-

flexion. In both cases the cervix is turned unduly forward, with the result that during intercourse the cervix is pushed still further forward and the external os is virtually shut off from contact with the semen by being pressed against the anterior vaginal wall.

I am convinced that these conditions play a much more important part than is usually appreciated, and that the *modus operandi* is the one that I have suggested. I pointed it out in my monograph on sterility in discussing displacements. It is certain that the rectification of the position of the cervix has frequently been followed quickly by conception, even after some years of sterile married life.

Under the same heading we can consider and investigate whether the character of the vaginal discharge is such as to be noxious to the vitality of the spermatozoa. When the vaginal secretion is very acid and the organism is not accompanied by a sufficient discharge of neutral or alkaline secretion from the cervix to counteract it the spermatozoa may be enfeebled or destroyed before they have time to gain admission to the cervical canal.

The only certain way of determining whether the semen is making an effectual entrance is to examine microscopically the contents of the cervical canal shortly after intercourse. If live spermatozoa can then be observed we may conclude that the fertilizing process is normal so far.

4. The Passage of Spermatozoa through the Uterus into the Tubes

We may assume that in a healthy uterus the spermatozoa can ascend readily to the uterine ostia of the tubes. There is a simple method of judging the healthiness of the uterus that is often possible. On examining with a speculum, a drop of mucus is often seen at the external os. If it is a clear mucus the endometrium may be assumed to be healthy, or at least non-inflammatory. If the appearance is that of muco-pus it is probable that there is a cervical endometritis.

There is no doubt that conception can occur even when certain pathological states of the uterus are present, such as mild endometritis and fibroids in the uterine wall. I have endeavoured, in previous writings, to show that the relation of fibroids to sterility is that of effect rather than of cause. But a serious endometritis undoubtedly prevents conception by destroying the spermatozoa before they reach the tubal openings, even if they have effected an entrance into the uterus.

As to the passage of spermatozoa from the normal uterus into the tubes, we had to rely formerly on assumption. If uterus and tubes felt normal bimanually we assumed that it was all right, but it is possible for a mild salpingitis to settle down so that no physical signs are evident yet a vital damage may have been done in the form of sealing up the tubal opening into the uterus. We now have a reliable means of determining this point by insufflation of the tubes. The passage of air through the tubal openings can be demonstrated in a threefold manner: by the fall of the pressure gauge, by listening over the lower abdomen with a stethoscope, and by seeing the bubbles of air escaping through the fimbriated end of the tube into the peritoneal cavity by means of an x-ray examination.

5. The Possibility of Fertilization of the Ovum

Here our range of investigation ceases. We have no means of telling whether healthy ova are maturing and are being received into the tube, where fertilization presumably takes place.

6. The Possibility of the Normal Development of the Fertilized Ovum in the Uterus

On this subject also our diagnostic abilities are limited. It is a legitimate assumption that in most cases if there has been no obstacle to impregnation there will be no obstacle in the way of development. But we do not know what are the conditions under which an oosperm will fail to reach the uterus, but will remain and try to grow as an ectopic pregnancy. Nor have we certain knowledge of the conditions under which an oosperm may pass through the stage of nidation, yet fail to develop to full time. We can, however, premise that such a degree of endometritis

* Read in opening a discussion in the Section of Obstetrics and Gynaecology of the Annual Meeting of the British Medical Association, Cardiff, 1928.

may exist as will allow impregnation, but will not allow healthy placentation, so that a miscarriage results.

After this outline of the principles of diagnosis we can consider the broad lines of treatment.

II TREATMENT

It is important first to recognize the conditions in which sterility is incurable. For when this is the case it is much better that the patient and her husband should know and accept the truth than that they should continue in a state of alternating hope and disappointment.

Under-development—There are minor degrees of under-development which, though unfavourable, are not hopeless. An undersized uterus associated with infrequent and scanty menstruation may represent a delayed rather than an arrested development. In such a case the stimulus of marriage is probably the most successful treatment. In addition, the endocrine function may be assisted by the administration of thyroid and ovarian products. Thyroid extract can quite well be given by the mouth, but the same cannot be said of ovarian extract, the properties of which appear to be destroyed in the stomach. It should therefore be given by the hypodermic injection of freshly prepared ovarian substance. The implantation of ovaries by surgical operation has been advocated and practised, but the recorded results are not such as to lead me to recommend the procedure.

Faulty Metabolism—Pronounced obesity appears to be antagonistic to reproductive activity. An analogy is supplied by some lower forms of life in which a phase of nutrition without reproduction is followed by one of reproduction without nutrition. It is certainly a matter of clinical experience that fat sterile women have become fertile when the fat has been reduced. When I am consulted for sterility by a patient who is unduly stout I always advise as a first step the reduction of weight, not so much by the omission of this or that article of diet as by the diminution in the total amount of food taken. This can be supplemented, if necessary, by the administration of thyroid.

Difficulty in Intercourse—A rigid hymen should be incised. Narrowness of the vaginal orifice can usually be remedied by digital dilatation under an anaesthetic. In other cases the orifice can be enlarged by a plastic operation. In cases of dyspareunia the source of the pain should be located and the cause corrected. Vaginismus is sometimes difficult to overcome, but here also a forcible dilatation under anaesthesia may be followed by considerable improvement. It must be remembered that the difficulty may be due to the man. In that case suitable treatment may do a great deal. But if he remains incapable of effecting introduction, and healthy spermatozoa can be demonstrated in the semen, the case is a proper one in which to try artificial insemination.

Hindrance to the Entry of Spermatozoa into the Cervical Canal—When the external os is unduly contracted, or of the "pinhole" type, a dilatation of the cervical canal should be carried out. I should like to utter a warning against doing unnecessary damage. A moderate degree of dilatation is all that is necessary, and incisions of the cervix should be avoided. When the hindrance is the result of marked ante flexion of the cervix the treatment is to carry out a moderate dilatation of the cervical canal, with concomitant straightening of the uterus, and to introduce a glass intrauterine stem pessary, which is left in position for ten or twelve days, during this time the patient must remain in bed. A retroversion or retroflexion must be rectified so that the cervix is in a normal position during intercourse. In the first instance, the uterus can be placed in the normal position by digital manipulation or with the help of the sound, and the effect watched. I have had cases in which this simple procedure has been followed rapidly by conception. If the displacement returns, the possible alternatives are reposition followed by the introduction of a Hodge pessary, and correction of the uterine position by operation. In my opinion the continued wearing of a pessary is in itself unfavourable to conception, owing to the tendency to the setting up of unhealthy and irritating discharge. Consequently I use that only as a temporary measure, and in persistent cases I advise operation.

Noxious Discharges—Apart from gross and serious conditions such as carcinoma, uterine fibroid, and polypus, discharge is due either to adenomatous disease of the vaginal aspect of the cervix (erosion) or to endometritis, especially of the cervical type. The former should be treated by suitable applications made at intervals of a few days. The latter requires curetting. I should like again to emphasize the importance of avoiding unnecessary injury. The cervical canal should not be dilated further than is necessary for the introduction of the curette. The scraping should be done thoroughly, but not too fiercely, and should be followed by swabbing out the uterus with some antiseptic such as tincture of iodine. Strong reagents such as iodized phenol should not be used, lest they produce a too strong cauterizing effect.

Tubal Obstruction—When the tubes are not patent the case is hopeless unless surgical measures are taken for the restoration of patency. For this purpose the abdomen is opened and the condition of the tubes is carefully investigated. In the presence of pyosalpinx and hydrosalpinx the prognosis is bad but not necessarily hopeless. The tubes may be opened and drained, care being taken to ensure that the uterine ostium of the tube is patent, by passing a fine probe. When the fimbriated end of the tube is sealed, but the tube not otherwise too diseased, an artificial ostium is obtained, by making an incision at the outer end of the tube, as much in relation to the ovary as possible, and oversowing the edges. Here again the patency of the uterine ostium must be demonstrated. Lastly, when the fimbriated end of the tube is patent, and the obstruction is obviously at the uterine end, an effort must be made to restore the passage. To accomplish this it may be necessary to open the uterus and pass a needle threaded with catgut through the ostium and along the tube. The catgut is left in position, and the uterus closed again.

Endocrine Inadequacy—Metabolism and endocrine deficiency are now known to play an important part in affecting fertility adversely, probably by depressing the vitality of sex cells in both the man and the woman. Besides the recognizable symptoms of these conditions, important laboratory data are now obtainable by the chemical pathologist, having special reference to the total basal metabolism and to the blood morphology, together with suggestive information derived from a study of the process of excretion. It has been suggested that such laboratory tests should be carried out on both husband and wife as a routine procedure in all cases of sterility. Without endorsing the routine practice I feel sure that in many cases where ordinary examination has failed to show any definite explanation of sterility the laboratory tests may give such information as may lead to a scientific and successful line of treatment.

In conclusion, it may be said that the problem of sterility must be approached with a much broader outlook than was formerly the case, and that patient and detailed investigation followed by the scientific use of the methods of treatment now available, will result in a larger proportion of cures than was formerly thought possible.

DIAGNOSIS AND TREATMENT OF STERILITY IN WOMEN *

BY

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In opening a discussion it is necessary to define the limits of the subject under consideration, and as the term "sterility" is used by different writers with reference to (1) a woman who does not bear a living child, and (2) a woman who offers no evidence of being fertilized, I must indicate that I take the second definition to be the true one for the argument in this paper, and I regard sterility as referring to a woman who, living a normal marital life and desirous of having children, yet offers no evidence of being fertilized. The causes of sterility may be broadly divided into (1) congenital causes, (2) acquired (3) functional. From the

A paper read in a discussion in the Section of Obstetrics and Gynaecology of the Annual Meeting of the British Medical Association, Cardiff, 1928.

Amnerian's point of view, however, they are divisible into two groups on physical examination

A Those in which gross lesions are present

B Those in which no gross lesions are present, and no sufficient lesion to stamp it as the cause of the condition

The subject is far too extensive to be dealt with exhaustively, and I intend to limit my argument to the examination and treatment of Group B. The investigation will involve (a) knowledge of the semina, (b) examination of vagina and cervix, (c) investigation of uterus and tubes, (d) investigation of ovaries and pelvic peritoneum

Conditions which are Essential to Fertility

Healthy spermatozoa must be received into a healthy vagina, with a normal cervix, uterus, tubes, and ovaries. It is therefore clear that the initial inquiry must begin with the man, and not only must he manufacture normal spermatozoa, but he must also be capable of conveying them through a normal organ to the vagina. The necessity of this part of the investigation becomes apparent when we consider that 25 per cent of childless marriages are due to the condition of the husband. I have reports upon the semen of 164 men whose wives came under my care for sterility, out of which 46 were found to be defective, and they are divisible into three classes

- | | |
|-----------------------------|------------------------|
| 1. Male absolute sterility | 24 cases=14.6 per cent |
| 2. Male relative sterility | 18 cases=11.0 per cent |
| 3. Male decreased fertility | 4 cases=2.5 per cent |

Group 1 Absolute Sterility—These cases were examined on several occasions after the first negative, but no spermatozoa, living or dead, were ever found

Group 2 Relative Sterility—This group consisted of cases in which a few deformed and broken spermatozoa were occasionally found, together with mucus, pus, and crystals. In some of the cases one or two feeble abnormal forms were found occasionally, but that appeared to be the highest value the semen ever attained on repeated examination. One hesitates to place them in Group 1 so long as a living spermatozoon can be seen, but with full knowledge of the physical condition of the women there is no doubt that these two groups must be added together to arrive at the incidence of sterility in man, and they represent 25 per cent approximately

Group 3 Decreased Fertility—These were cases in which the spermatozoa were very few in number though normal in appearance, and impregnation of a normal woman was possible

Investigation of the Woman who is Normal to Physical Examination

The investigation should commence with the search for spermatozoa in (a) the vagina, (b) the cervix, and when found prove coitus

(a) **Vagina**—In the vagina it is rare to obtain any living spermatozoa, for the examination takes place too long after coitus, and they are very rapidly killed and disappear. I have never succeeded in recovering spermatozoa from the vagina four hours after coitus, whereas with an interval of two hours only they can be found in some of the cases

(b) **Cervix**—Living spermatozoa can be recovered from the cervical canal much more frequently within a few hours of coitus, and when found they show that not only is the man normal but that the vagina and cervix are healthy. In cases where there are none in the cervix and only dead ones in the vagina, the condition of the vagina and cervix needs investigation more especially with regard to the acidity of the secretions. When living spermatozoa are recovered from the cervix then the investigation must be transferred to the uterus, tubes, and ovaries. The possible lines of inquiry are

1. Exploration of the uterus by dilatation of the cervical canal and possibly curettage
2. Inflation of the uterus and tubes by gas or air
3. Investigation of the uterus and tubes by opaque bodies
4. Exploration of the pelvis by laparotomy

1. Exploration of the Uterus by Dilatation of the Cervical Canal

This is probably the commonest procedure adopted, but unless the tubes are patent it is indefensible and may be dangerous and therefore should only be undertaken after the tubes are known to be normal. In the absence of

symptoms and physical signs it tells us nothing, but it is conceded that, as a therapeutic measure, it is followed by pregnancy in a certain number of cases

2. Inflation of Uterus and Tubes by Gas or Air

Inflation of the uterus and tubes was introduced by Rubin in 1919 and has become a diagnostic measure of the first importance. He has since then made use of this procedure as a therapeutic measure, and claims 10 per cent of pregnancies, there is no doubt that it is sometimes followed by conception, but whether in consequence of this interference remains to be discussed

Technique of Inflation—There must be complete absence of any signs of infection of the vagina, cervix, uterus, tubes, and pelvic peritoneum—no tenderness, swelling, or fever. It is of vital importance that it be undertaken at a time when there is no uterine haemorrhage and between the periods, thus avoiding any risk of air embolism, a case of which, fortunately not fatal, I reported in the *Lancet* in December, 1925. It is further most important to exclude any grave cardiac lesion for an unfortunate result might ensue even from passing the uterine tube without the added stress of a pneumoperitoneum, however small. Rubin depends upon a pneumoperitoneum as demonstrated by x-ray investigation of the peritoneum, this is, however, quite unnecessary, as it can be adequately proved by physical signs

Apparatus—A convenient and portable instrument for use is Provis's modification of Currier's apparatus, in which a sparklet of carbon dioxide provides the reservoir of gas, it is connected to a volumeter placed in a jar of water, the jar being connected by one tube to the manometer gauge and by another tube to the uterine end of the uterine tube

Procedure—A day is arranged to fall somewhere between the fifth and tenth day after the termination of the monthly flow. On the two preceding nights the patient uses a glycerin plug which is introduced into the upper end of the vagina overnight and removed in the morning, the object being to soften the cervix. The patient is placed on the table in the lithotomy position, with the table tilted into the Trendelenburg position, in this position the suprapubic area forms the dome of the abdomen, and fluid placed in the vagina will remain there. The cervix and vagina are dried with mops and then thoroughly painted with iodine, a tenaculum fixes the cervix and Nos 1 and 2 dilators are passed, and then the uterine tube, which is of the calibre of dilator No 3 but hollowed through out and terminates in lateral eyes like a male catheter. The objection to the terminal opening is that the end of the instrument might be pressed closely against the uterine wall, and air be forced into the capillaries. A rubber acorn plug is used by some surgeons for the purpose of closing the os, but it must be inefficient as it necessarily tends to open the os wider rather than to seal it up and it is much better to close the cervix around the tube by means of light pressure from forceps of the tenaculum pattern. The gas reservoir is now connected to the uterine tube, the vagina is filled with sterile water, and the gas turned on slowly. The needle in the manometer rises steadily until the gas begins to escape into the peritoneal cavity, when it falls rapidly. The water in the vagina immediately warns us if the gas is flowing back from the uterus and, provided the apparatus has been tested beforehand a falling pressure must indicate patency of the tube or tubes

Tests of Patency

Difference in the percussion note in the suprapubic area before and after inflation

Auscultation over the Fallopian tubes will indicate the bubbles of gas passing through the ostia

Falling pressure in the manometer indicates the flow of gas

Pain in the chest and shoulders after the patient has been in the erect position for a short time indicates pressure of gas on the diaphragm

Anaesthesia is only necessary or advisable in cases where the instruments cannot be passed through the os, and the test can be applied in out-patients and the patients allowed to go home immediately afterwards provided it is properly done. I do not often use more than 40 c.c.m. of gas, the minimal amount passes into the peritoneum and the patients are rarely bothered with any after-effects

The question of the extent of gas pressure to be used is of great importance, and my practice is as follows

Without anaesthesia I utilize a pressure of 300 mm. Hg provided the patient does not complain, and I then know that the tubes are definitely closed if once that pressure is attained and no air passes

With anaesthesia I never go beyond a pressure of 200 mm. Hg, for the patient cannot warn me of tension pain

With anaesthesia and with the abdomen open, so long as I can see what is happening, I allow the pressure to go up to 300 mm Hg, but I always fill the pelvis with normal saline, by which means we can see how far the air penetrates along the tubes and whether any escapes at the fimbriae.

If the test is positive there is no doubt about the patency of the tubes, but if negative, does it mean that the tubes are closed? It may mean that the tubes are temporarily blocked by kinking, as in extreme retroversion of the uterus. I have opened the abdomen of a woman, who was negative to gas at 300 mm Hg and Ipiodol, to find that as soon as the uterus was lifted forwards into anteversion the gas flowed at 120 mm Hg, therefore, with extreme retroversion I always replace the uterus before attempting inflation.

When we have demonstrated the condition of the tubes by inflation we have to consider the next step (a) when the tubes are patent, (b) when they are closed.

With patent tubes and the patient remaining sterile, are we to advise laparotomy for investigation of the ovaries? The answer to this question we will consider when dealing with the injection of opaque bodies.

With closed tubes, are we to advise laparotomy with



FIG 1.—Shows the uterus full of Ipiodol but the tubes are not seen. This result means that the tubes are blocked at the cornual extremity and probably disorganized throughout. I opened the abdomen and found extensive pelvic adhesions with both tubes in a state of hydrosalpinx and the ovaries buried.

a view to some form of plastic operation upon them? If we accept Rubin's views we should not only be able to diagnose whether one or both tubes are closed, but also the site of obstruction from the distribution of the pain during inflation. Those of us who have had a large experience of inflation are not prepared to accept Rubin's claims, and I, while readily acknowledging the advantage of inflation, deny that it affords us any information beyond the patency or closure of the tubes, the site of closure remaining unknown. The diagnosis of the seat of obstruction will not make any difference to those surgeons who claim success from operations upon any part of the tube, whether it be at the cornual extremity (Fig 1) or at the fimbriated end (Fig 2), but my experience compels me to ascertain all I can about the obstruction before I undertake any operation for its relief. I have performed many operations upon the isthmus of the tube, including resection and anastomosis with and without strands of catgut placed in the lumen, implantation of the cut end of the tube into the uterine cavity, and the sliding operation, where the pavilion is anastomosed to the cornual end of the tube. In all these cases before closing the abdomen I have attempted inflation from the uterus in the ordinary way, but in none of them did it succeed despite a pressure of 300 mm of mercury. In some cases the gas escaped at the seat of anastomosis, in others it did not pass at all, and a further attempt, made after the abdominal wound was healed, proved equally abortive. When we remember that the lumen of the isthmus is so small as only to admit a fine probe in normal healthy tubes, it is small wonder that reported successes, after operation upon this part of diseased tubes are received with reserve. For my part, after an extended

experience, I have come to the conclusion that plastic operations upon the narrow part of the tube are not justified.

Obstruction of the tube at the fimbriated extremity (Fig 2) is a very different matter, for here, whatever may happen subsequently, there is no doubt that the tubes after operation are patent at the moment of closing the abdomen, and in a fair number of cases where the operation has been efficiently done they remain open, and in some cases pregnancy has ensued. Even in these cases, however, it is necessary to be guarded in giving an opinion as to the ultimate result, for out of twenty cases eleven were closed again within three months, two were closed within nine months following a history of pelvic inflammation, and seven remained open, two of which became pregnant. We may therefore say that the operation was successful in 45 per cent of cases, but that successful results were only obtained in 10 per cent, and we shall probably agree in describing this as disappointing.

The most favourable cases are those in which the fimbriae can be saved, for this means that there is a minimum of trauma and the least production of raw areas, for the omentum comes down and effectively seals the new opening where fresh surfaces are left exposed. The operative

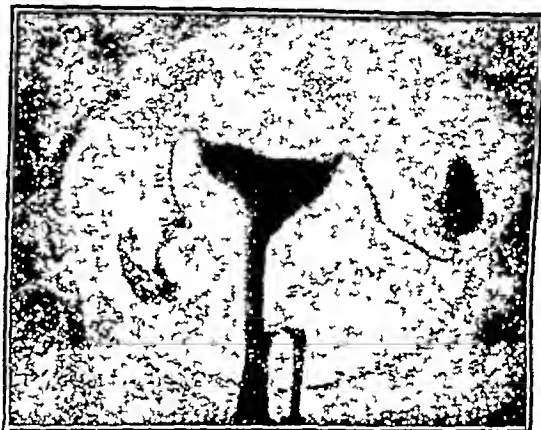


FIG 2.—Shows uterus and tubes full of Ipiodol. There is characteristic clubbing of the left tube owing to closure of the abdominal ostium. The right tube is prolapsed and also closed. This is the only favourable type for plastic operation.

successes in my cases were nearly all in patients in whom the fimbriae were unfolded and the only incision was into the peritoneum which glued them together. A further essential is that the ovary should be freed and loosely fixed in the mouth of the new ostium. In cases where an incision is necessary to establish a new ostium the serous coat should be undercut so that the suture carries the peritoneal edge over the raw muscular surface, thus preventing the formation of adhesions. On this evidence we are justified in concluding that obstruction of the tubes in the isthmus offers no scope for surgery from the point of view of sterility, but that closure of the fimbriated end offers some chance as the result of operation, therefore it is all important to decide upon the site of obstruction before undertaking any operation.

3 Investigation of Uterus and Tubes by Opaque Bodies

The substance I use, after numerous experiments, is Ipiodol. It is a viscous oily compound of iodine (40 per cent) and oil, and the opacity to x rays is due to the iodine content. It has no ill effect upon the peritoneum, which I have now proved by experiments upon animals, and by extended clinical use. I have opened the abdomen of many patients after the use of Ipiodol, in some cases within a few days and in others after weeks, and I have not found any evidence of a disturbed peritoneum, furthermore, numerous pregnancies to which I shall presently refer have followed this procedure, and I now use it as a regular clinical step in dealing with cases of sterility.

The contraindications are precisely the same as for inflation, and the procedure is the same with regard to

preparation beforehand, in addition to which an aperient is taken the night before in order to empty the bowel, thus facilitating the x-ray picture. The patient is placed in the lithotomy position and the vagina and cervix are dried and painted with iodine. The uterine tube is connected by a length of rubber tubing to a 20 ccm Record syringe, 10 ccm of lipiodol is poured into the syringe, and the piston is pressed home until the lipiodol begins to flow from the end of the uterine tube. The uterine tube is then passed into the uterus, and the cervix is compressed around it by tenaculum forceps. A length of gauze passed into the vagina serves to support the instruments and to prevent the backflow of lipiodol on to the x-ray couch. The patient is then placed on the x-ray couch and the lipiodol is slowly and steadily injected while being observed under the screen. When tension pain is complained of the object is achieved, for the lipiodol has arrived at the site of obstruction, and the photograph is taken.

Care is necessary in the interpretation of hystero-grams, for many will present the appearance of blocked tubes (Fig 3) if judged by the photograph taken at the time of injection alone. It is essential that a second x-ray picture be taken a day or two later, when it will be seen that the lipiodol is in the peritoneum, and therefore the tubes are patent. In order to obtain the fullest information about the tubes an oblique photograph should also be taken, but this should be done at the time of injection when the tube is in the uterus.

Lipiodol is absorbed and disappears from the peritoneal cavity in from seven to ten days, it disappears from the uterus by gravitation in one to two days, but when injected into closed tubes it may give a shadow for some months. In one of the patients who became pregnant there was some lipiodol in the left tube at the fifth month of pregnancy and she was later delivered of a full-time normal child in Queen Charlotte's Maternity Hospital.

When lipiodol is being used as a therapeutic measure 5 ccm is all that is necessary, as that quantity is sufficient to fill both tubes and uterus. I commenced using it in this way owing to the inefficient technique of inflation. Before Currier's apparatus was introduced I carried out inflation by means of a hand bulb and when the tubes were apparently closed I later injected lipiodol. I am quite sure that the results of inflation with that technique were often wrong, and I was surprised to find that three of the patients who had been injected with lipiodol returned later and were pregnant. Since then I have used lipiodol for sterility in all suitable cases where pregnancy has not ensued within three months of a positive inflation.

Results of 100 Cases of Inflation of Uterus and Tubes

In 51 cases the tubes were closed owing to pelvic infection in 13 of these cases the abdomen was opened for the relief of sterility.

In 22 cases the sterility was attributable to the husband. In 47 cases the woman was apparently normal and 15 of them became pregnant. Out of the 32 apparently normal women who did not become pregnant there were 8 cases in which the condition of the husband was unknown.

Analysis of the Fifteen Pregnancy Cases

No of Years Married.	No of Cases	Interval in Months between Inflation and Pregnancy.
2	5	12 1 1 7 1
3	2	2 1
4	2	5 10
5	2*	5 6
6	1*	2 4
8	2	
10	1	7

— One case of one child sterility each 5 and 6 years.

Therefore it would appear that 31 per cent of apparently normal women became pregnant after inflation, but while I do not suggest that the result was in consequence of inflation, I do consider that seven of the pregnancies (14 per cent) ensued so closely upon the inflation that they may be considered in the relationship of cause and effect. In dealing with a procedure like inflation we have to remember there are two factors which may nullify conclusions: (1) the dilatation of the os necessarily incurred during instrumentation, (2) coincidence.

The commonest therapeutic measure employed for cases of sterility is dilatation of the cervical canal, and it is not so many years since this was regarded as the ultimate resort. We know that a small percentage of women become pregnant after this operation, and I think it may be said in consequence of it. Now the dilatation involved in passing the uterine tube, though to a much smaller degree, may have an equally fortunate result, and this must be taken into account when estimating the value of inflation. Coincidence is a still more difficult factor to evaluate, and probably all of us have instances of it in our minds. It was forcibly brought home to me in two cases of

three and four years' sterility, where inflation had been postponed for various reasons for two to three months, and when the patients returned they were both pregnant.

It is impossible to assess the true value of inflation in these cases, and it is extremely probable that some of the cases of two years' sterility would have become pregnant later without the inflation, nevertheless the short interval between the inflation and conception in three of the cases suggests that the process played some part in the result. The sterilities of longer standing I am inclined to regard as being in direct relation, for some of these patients had less pain with subsequent periods and an increased sexual activity and

sensation. The two cases of pregnancy which occurred seven and twelve months later had certainly no relation to the procedure.

Results of Lipiodol Injection in 67 Cases

In 26 cases the tubes were apparently closed.

In 41 cases the tubes were patent and 14 of the women became pregnant.

Analysis of the Fourteen Pregnancy Cases

No of Years Married.	No of Cases	Interval in Months between Lipiodol and Pregnancy.
2	2	1 1
3	3†	3 10 12
4	2	1 1
5	2	1 4
6	1	2
8	3	3 15 3
10	1	6

* One woman of two years' sterility miscarried at the end of three months, but is now pregnant for the second time.

† One woman of three years' sterility miscarried at five months but is now pregnant for the second time.

Eight living children have been born and six women are now pregnant.

The cases in which the tubes were patent but no pregnancy ensued numbered 27.

Two patients had had abdominal operations, one of them was opened a second time for intestinal obstruction.

There were 2 cases of endocrine deficiency.

In 2 cases the man was defective.

There was 1 case of fibroids for which I did myomectomy.

In 4 cases I explored the pelvis and found pelvic peritonitis, appendicitis, retroversion and closure of one tube.

Sixteen cases have been done from one to four months and it is too early to decide upon the effect.

I now suggest the answer to the question in the earlier part of the paper. After inflation, with patent tubes and the patient remaining sterile for three months, are we to advise laparotomy? No, inject the patient with lipiodol and wait nine months. After inflation, with closed tubes, are



FIG 3.—The uterus and both tubes are shown but patency of the tubes is only proved by a second radiogram taken a few hours later. Notches in the tubous and left lateral wall indicate small fibroids. The patient aged 30 who had been sterile for thirteen years became pregnant three months after injection of lipiodol.

wo to attempt a plastic operation on the tubes? Yes, if after investigation with lipiodol the obstruction is found to be in the ampulla. When all this has been done there remain only the ovaries to be considered in the chain, and these organs can only be examined by abdominal operation. Are we to recommend this rather serious step? The answer must be Yes, for without it we have not carried the investigation to a conclusion.

The conditions, apart from destruction, which may be expected to hinder conception are (1) thickened tunica albuginea, (2) cystic ovaries, (3) ovarian cysts of one or both ovaries, (4) veils of peritoneum which completely shut off the ovaries from the peritoneal cavity. A thickened tunica albuginea and small cystic ovary—conditions which are associated with a chronic inflammatory process—offer little prospect of success from any operation. Incision and scarification of the thickened tunica is only too likely to induce a more extended infection in the shape of additional or added adhesions, and resection of a cystic ovary merely increases the fibrous tissue already present in a diseased ovary.

Cysts of one or both ovaries, in contradistinction to cystic ovaries, do present opportunities of success in cases of sterility, for, whatever the reason, they do possess some restrictive influence upon successful ovulation. I have operated upon six cases of small unilateral cysts in which the duration of sterility was 3, 5, 5, 6, 7, 7 years and which were followed by pregnancy within three months in four of the cases, which leaves no doubt that the relationship was cause and effect. These cases are difficult to understand or explain, for although one might consider that a unilateral cyst might by mechanical means interfere with ovulation in the ovary from which it grew, there is no apparent reason why it should interfere with ovulation from the ovary of the opposite side.

Small ovarian cysts of both ovaries are almost certainly associated with sterility, whether there be follicle-bearing tissue or not, this is probably due to the pressure and distortion produced by the cysts, whereby the ovary rarely ripens, and if they do the prospect of their gaining entrance to the Fallopian tube is poor. Exceptional cases occur where pregnancy has ensued despite the presence of bilateral cysts. I have had one case of pregnancy after removal of a cyst from each ovary.

A limited peritonitis which has veiled off the ovary completely from the peritoneal cavity is a remediable form of sterility, a case of which occurred in my practice recently.

A uniparous woman, aged 28 had not been pregnant for six years. She was cured for sterility, and later advised to have a Gillian's operation for moderate retroversion for the same purpose. She was sent to me and I found both tubes patent but there was a cyst in the left ovary and I advised laparotomy. I opened the abdomen and found the left ovary almost entirely replaced by a cyst and the right ovary shut off from the pelvic cavity by a filmy peritoneal veil. The cyst was excised and the right ovary freed and slung up loosely by a suture to the iliac brim. Four months later she became pregnant.

The Influence of Persistent Corpora Lutea on Sterility

The persistence of a corpus luteum in cattle is said to be responsible for 70 per cent of sterilities, which are known to be fairly common in herds of pure breed. Veterinary surgeons have observed that if a false corpus luteum remains unabsorbed in either ovary of a cow she does not come on heat, and neither does she conceive. Apparently the ovaries can be easily felt and compressed through the rectum in these animals, and in those which miss their heat expression of the corpus luteum is followed by heat in two to five days.

Ochsner states that expression or excision of the false corpus luteum in woman is followed by menstruation in twelve to thirty-six hours, and he gives the details in nine cases. I have no experience of this, but if the veterinary reports are correct then I should expect to find Ochsner's experience of some value in the treatment of unexplained sterility.

Now when the foregoing investigation has been exhausted, is there any other way of explaining the few, if any, remaining cases of sterility? I personally do not believe that there will be any not fully accounted for, but there is a very generally accepted group labelled "incompatibility or selective sterility."

This is the condition in which a man and wife, both presumably normal and fertile, fail to have children, but one or both, on remarriage, may succeed in procreation. It is exceedingly doubtful whether such a variety of sterility occurs, for most, if not all, of the cases quoted will not bear critical examination. In my experience I have only met two cases in which I was driven to this conclusion—in one case after a laparotomy, in the other case, much more doubtful, without the operation.

In the complete case a woman, aged 28 had a child before marriage. She subsequently married another man who was of strong physique, normal semen and high fertilizing power. She was normal in all respects including patency of the tubes to gas and lipiodol and I recovered living spermatozoa from the cervical canal. I opened the abdomen and found a normal pelvis with two healthy ovaries, one of which had recently ovulated. She remains childless.

I believe that the cases usually described as "incompatibility or selective sterility" are really cases of combined relative sterility, in which both the man and the woman are of low fertilizing power. This is a group of cases in which no cause can be found for the sterility, nevertheless, when we come to assess the clinical findings, we are struck with the fact that functionally neither of them is normal. In the man we are probably surprised to hear of the infrequency of coitus and his indifference to the act, the semen contains relatively few spermatozoa, and their motility ceases sooner than one is accustomed to find in a vigorous specimen. A report on these men frequently shows that they are of poor physique, the penis is small and sometimes webbed, the testicles are small and not infrequently associated with a varicocele, these conditions have no relationship to venereal disease or other constitutional disease—they are indicative of poor specimens of the race. It is impossible to regard these men as sterile, for they have living spermatozoa, though few, and if they were married to healthy women of normal fertilizing power it is probable that conception would occur. Similarly when we sum up the woman we find that she is deficient in sex sense. She may be cold and experience no desire for coitus or orgasm, physically she is perhaps just not pleasing—thin, sallow, and angular in some cases, or a little too plump, with a growth of hair in unusual parts of the body. The catamenia are often regularly irregular, scanty, and associated with dysmenorrhoea. All these minor defects are not sufficient to render these women barren, nevertheless they are undoubtedly sterile when mated to men of the same class, and I believe that all cases of selective sterility are really cases of combined relative sterility.

DIAGNOSIS AND TREATMENT OF STERILITY IN THE MALE

BY

KENNETH WALKER, F.R.C.S.,

Surgeon in Charge Genito-Urinary Department, Royal Northern Hospital, Surgeon to St. Paul's Hospital, Lecturer in Venereal Diseases, St. Bartholomew's Hospital

THE fact that I have the honour of taking part in this discussion on sterility is not without significance. It is an indication that the equality of the sexes as regards responsibility for the presence or absence of children is now fully recognized. Fifty years ago the treatment of the barren woman began with a curettage, nowadays no responsible gynaecologist will embark on any operation, however trivial, until the husband has been overhauled. The necessity for this is self-evident. Amongst 253 unfertile unions Dr. J. Sturdivant Read found 167 instances of impaired fertility in the male. This, of course, does not necessarily mean that those 167 husbands were entirely responsible for the absence of children, for in some cases their deficiency was but slight, but any lowering of fertility in the male may become important if at the same time there exist also some obstacle to conception in the

* A paper read in a discussion in the Section of Obstetrics and Gynaecology of the Annual Meeting of the British Medical Association Cardiff 1928.

female. For this reason attention must be paid to minor faults in the husband as well as to conditions of complete sterility. Lode has estimated that some 200,000,000 spermatozoa are thrown into the female passage in a single ejaculation. Of this huge multitude of aspirants to immortality only one, if conditions be favourable, will succeed in reaching and meeting with the descending ovum. A reduction in the number of spermatozoa ejaculated will diminish the chances of union taking place, a lowering of the vigour and mobility of the candidates will have the same effect. For this reason the discovery of a condition of oligospermia or of oligozoospermia in a husband is of great importance. Should there exist at the same time any impaired fertility in the wife the importance is increased still further.

In my paper I shall attempt to deal not so much with well established medical facts, such as the part played by gonorrhoea in the causation of sterility, but with ideas that are as yet unproved—ideas that may be regarded as being at the growing point of our knowledge. As yet we know so little about our subject that it behoves us to look at it from every angle and to strive to make progress wherever it may seem possible to take a few steps forward. But because it is above all necessary in a discussion like this to deal with points of practical importance I shall use as my text the case sheets of patients I have had to deal with in my consulting room, and thus avoid the risk of becoming too theoretical.

TYPES OF STERILITY

On examining the records of these husbands, the vast majority of which were referred to me for examination by gynaecologists, I find that out of a total of 57, only 25 could be considered absolutely normal. Of the 32 that were deficient 18 were absolutely sterile, 6 showed a very marked impairment of fertility, and 8 minor degrees. The results of the examination of the semen of these 57 cases may be tabulated as follows:

Normal healthy semen	25
Oligospermia	2
Oligozoospermia	6
Oligonecrozoospermia	6
Azoospermia	18

Before considering the causes responsible for these deficiencies in the semen a few preliminary comments must be made. In the first place it must be pointed out that oligospermia, or a reduction in the total quantity of semen ejaculated, is not necessarily pathological. It occurs normally in old age, and also when coitus has been repeated after a short interval. For this reason before examining a condom specimen a week of sexual abstinence must be enforced. It is also probable that in certain sensitive individuals the wearing of a condom hampers the freedom of the sexual act and diminishes the quantity of semen ejaculated so that a diagnosis of oligospermia must always be received with caution.

Oligospermia, or a deficiency of living spermatozoa in the specimen examined is more significant. But again it must be remembered that the semen is made up of the secretions of other glands than the testis and that the relative bulk of fluid contributed by the accessory glands varies from one coitus to another. An oligozoospermia should therefore only be diagnosed if poorness in spermatozoa is a feature of every specimen examined.

Oligonecrozoospermia usually indicates the existence of an inflammatory focus somewhere in the genital tract, and most commonly in the vesiculae seminales.

CAUSES OF STERILITY

Speaking generally, it may be said that sterility in the male is more frequently the result of acquired conditions than of congenital abnormalities, and that in the production of these venereal disease plays the chief part. It is indeed probable that gonorrhoea alone accounts for some 50 to 70 per cent of cases of male sterility. Beazer's observations on the after history of German soldiers who had suffered from gonorrhoeal epididymitis and had subsequently married are well known. He found that 23.4 per cent of men who have a history of unilateral epi-

didymitis were without children at the end of three years of married life, and that where there was a history of bilateral infection this figure rose as high as 41 per cent. When the length and fineness of the ejaculatory duct are considered it is not surprising that atresia should be a frequent sequel to infection. But, quite apart from blocking of this duct, gonorrhoea may be the cause of sterility through damage to the ejaculatory canals and seminal vesicles.

However, the importance of gonorrhoea as a cause of sterility is widely recognized, and I do not wish to take up your time in dwelling on the obvious. I would rather attempt to break new ground and to discuss aspects of this interesting subject which are less familiar. In 8 of the 24 cases of oligonecrozoospermia and azoospermia cited above, no history of venereal disease existed, so that some other explanation had to be found for the absence of healthy spermatozoa in the semen. In one of these there was a staphylococcal infection of the genital tract. The patient was an officer who had been occupied for two years in the work of unloading mustard gas shells, as a result he had developed a bad staphylococcal infection of the skin which had subsequently spread to his urethra. In a second patient, a streptococcus was obtained from the semen, and it is possible that this plus age was responsible for his sterility. But before dealing with these individual cases it will be best to pass in review the conditions that may affect spermatogenesis.

In the first place it must be recognized that the spermatogenic function of the testicle is far more sensitive to outside influence than is that of the internal secretion. For example, a comparatively small dose of x rays will produce aspermatogenesis, whereas long and repeated exposures will be required before any effect is produced on the internal secretion. In the same way a comparatively mild infection of the testicle will be sufficient to cause degeneration of the tubules while leaving the cells of internal secretion untouched. Kyrle, as a result of the examination of a thousand testicles, states that the testicle of a man is sensitive to such a degree that it is hardly possible to find a normal testicle in adults who have died of acute infective diseases, such as pneumonia. Yet in spite of the damage done to the tubules none of Kyrle's cases gave indication that there had been an upset in the function of the internal secretion. How long the damage done to the tubules by a severe general infection persists, and whether it is ever permanent, are questions difficult to answer. I have had, however, one patient with aspermatogenesis for which I could find absolutely no explanation beyond an attack of pneumonia and of acute appendix trouble some four or five years previously.

But degenerative changes are produced in the seminiferous tubules not only by the toxins of an acute infection but also by poisons such as alcohol. Bertholet and Weichselbaum have both laid stress on the disappearance of spermatozoa from the tubules in cases of chronic alcoholism. Laboratory experiments on guinea-pigs also support the view that alcohol may reduce fertility.

We will now consider in detail the various conditions that may affect the output of spermatozoa from the tubules.

(a) *Infections*—It has already been noted that spermatogenesis may be diminished or even abolished not only by local inflammatory conditions such as orchitis and epididymitis, but also by infection elsewhere in the body. Belfield and others have shown that organisms in the blood stream may be excreted by the testicles and seminal vesicles. Embryologically the vas is developed from the Wolffian duct or primitive excretory system, so that it is not altogether surprising that organisms in later life should occasionally find their way out of the body along such a route.

(b) *Endocrine Disturbances*—The functional connexion between the reproductive organs and other glands of internal secretion is well known. Changes in the tubules may therefore be the result of diseases of the endocrine glands. Dr Evelyn Howerl found that the injection of rats with various preparations of suprarenal cortex produced marked degeneration in the tubules of the testis. Feeding with thymus gland extract had a similar result. Conversely, in certain cases of aspermatogenesis the formation

of spermatozoa may, according to Hühner, be brought about by feeding with anterior lobe pituitary extract

(c) *Heat*—N Fukui,² in an article on the action of heat rays on the testicle, stated that he had found that, after subjecting the testicle of a rabbit to the action of heat, definite regressive changes occurred in the seminiferous tubules, changes that were similar and just as intense as those brought about by the action of x rays. For the purpose of his experiment he employed sunlight, powerful arc lights, and warm vapour baths. Histological examination of the testis after exposure to these agencies showed that a selective destruction of the generative cells of the tubules had taken place, leaving the cells of Sertoli and the interstitial cells of Leydig intact. It is interesting to note that a comparatively low temperature was sufficient to produce these changes, thus exposure of the scrotum of the rat to afternoon sunlight in the summer for a period of three hours gave rise to the phenomenon termed by the writer "heat testicle." A warm bath of 45° C for the same period of time produced identical changes. So far as I know, Fukui's experiments have not been confirmed, but if his observations are correct they would indicate that a high temperature may sometimes be a factor in the production of sterility.

It has, of course, been suggested that the reason for the descent of the testicle into the scrotum in man is on account of the fact that the optimum temperature for spermatogenesis is below that of the abdomen. Crew, who supports this theory, points out that the scrotum, with its dartos and cremasteric muscles, acts as an excellent heat-regulating mechanism. If Dr Fukui's observations are correct, it should certainly be possible to obtain corroboratory evidence of the unfavourable action of heat on spermatogenesis from a study of the fertility rate of men employed in such occupations as stoking and cooking. But although prolonged exposure to sunlight may bring about degenerative changes in the tubules on account of its heat rays, it is probable that the rays of the other end of the spectrum have a favourable action on spermatogenesis. In birds the testicles increase enormously in size in the early spring months, and there are reasons for believing that sunlight acts as a stimulus to the rapid development of the tubules occurring at this time.

(d) *Diet*—During the last three years much work has been done on the influence of diet on the function of the tubules. C. B. Paul³ was perhaps the first to show that fertility is affected by diet. Later, T. B. Osborne and L. B. Mendel⁴ noticed that although animals fed on artificial diets grew vigorously to adult size they were, with very few exceptions, sterile. Microscopic examination of the testes of these animals showed that there had occurred a total degeneration of all the germ cells. Some two years ago Karl E. Mason⁵ made an extensive histological study of the sterility produced in albino rats by means of a deficient diet. The rats were fed on the following menu: casein 18 per cent, starch 54 per cent, laid 15 per cent, butter-fat 9 per cent, salt mixture 4 per cent, plus yeast tablets 0.4 gram daily. This diet, which was sufficient for the growth and vigour of the rats, invariably led to sterility. Histological examination of the testes at various times after the rats had been placed on the above-described regimen showed the following changes. In the early stages all that was noticed was that the spermatozoa lost their individuality and became clumped together in irregular masses, in which could be seen signs of chromatin degeneration. At a later stage most of the spermatozoa disappeared and signs of degeneration could be detected in the spermatids. Last of all the spermatocytes and spermatogonia were affected. As a result of this and of many similar experiments the existence of a special vitamin E, that is essential to reproduction, was postulated. If the rats thus rendered sterile were given lettuce leaves or extract of wheat regeneration of the tubules occurred with reappearance of spermatozoa. It is well known amongst veterinary surgeons that dogs frequently become sterile on a diet of cooked meat and biscuits. If for these are substituted raw meat and raw carrots fertility is regained. A similar increase in breeding capacity is brought about in stalled cattle by turning them out on to fresh grass.

All these observations emphasize the part played by diet in the production and in the treatment of sterility. We will do well to take to heart this lesson from veterinary science and to apply it in a modified form to the treatment of infertility in man.

(e) *Local Conditions*—The functions of the tubules may be influenced by local changes, as well as by the general conditions already cited. In one of my patients azoospermia was easily explained by the fact that he had been born with bilateral retained testes. This had been treated by removal on one side and orchidectomy on the other. The operation was a success only from the point of view of the position of the testicle in the scrotum, it had failed to restore the spermatogenic function of the tubules. In four other cases operations had been performed in the neighbourhood of a testicle, or of its vas (one varicocele, one bilateral hydrocele, one for unilateral hernia, and one for the extraction of a bullet lodged in the neighbourhood of the groin). It is impossible to be certain whether these operations had any bearing on the condition of azoospermia. My own opinion is, however, that an operation for varicocele is not without danger to spermatogenesis. Profound changes not infrequently follow ligation of the pampiniform plexus, changes in which the seminiferous tubules are extensively involved. A radical operation for hydrocele is not so likely to damage the function of the testicle, but the existence of the hydrocele generally indicates an abnormal state of the testicle.

Before proceeding further I should like to refer to a matter of considerable interest—namely, artificial insemination.

ARTIFICIAL INSEMINATION

This method of treating sterility has been practised for a long time both by gynaecologists and by veterinary surgeons, but when we examine the results obtained by these two classes of practitioners we find that they are utterly different. I am told by Major Pugh, F.R.C.V.S., that amongst cattle artificial insemination is at any rate as successful as is natural sexual union. Yet when I inquire amongst gynaecologists I can find no record of their having obtained positive results. The late Herbert Williamson confessed to me that the net result of 33 artificial inseminations carried out by him was one doubtful miscarriage. What is the explanation of this failure to inseminate human beings successfully? My own opinion is that it is due to the difference in technique that is employed in the two cases. In veterinary practice insemination is always preceded by sexual stimulation of the female. The bull is allowed to toy with the cow, and as a result of this there is an outpouring of her sexual secretions, that these secretions are favourable and perhaps even essential to the life and vigour of the spermatozoa would seem to be established. It is a saying amongst farmers that a cow should be served before her udders are dry. The complete disappearance of her milk is accompanied by an involution and drying up of the genital organs. Major Pugh tells me that when he is called upon to treat a cow that shows signs of this involution he starts off by stimulating the flow of genital secretions. This can be done indirectly through the breasts, the actual method he employs being that used in the treatment of "milk fever"—namely, the pumping of air down the udders. As the result of this apparently crude procedure a flow of sexual secretions is provoked and the temporary sterility cured. All these facts emphasize the importance to fertility of the secretions of the genital passages. In human practice we have disregarded this factor. Our patients are often inseminated while under the influence of an anaesthetic. There has been no preliminary stimulation, no sexual excitement, no outpouring from the accessory sexual glands. We sow our seed on unprepared ground and the result is failure. We must take a hint from veterinary medicine and change our technique. There are other methods of stimulating the genital secretions than those of the veterinary surgeon. I am unaware of the technique of artificial insemination employed by the late S. J. Aaron⁶, but it is possible that he appreciated more fully than some of us have hitherto done the necessity of preparing the soil for the reception of the seed.

DIAGNOSIS AND TREATMENT

The diagnosis of sterility rests on the examination of the patient and of the semen. If necrozoospermia is found a search must be made for signs of infection in the genital tract. Azoospermia means either that there is a blockage in the ducts or else that spermatozoa are not being formed. To differentiate between the two conditions the testes must be punctured with a hypodermic needle and the extracted fluid examined microscopically. Should spermatozoa be present a searching investigation must be made to discover the site of the obstruction. Most frequently this is situated either in the epididymal canal or in the ejaculatory ducts. A history of epididymitis and the persistence of a thickening in the lobus minor are strongly in favour of the former. If neither is found, posterior urethroscopy should be carried out with, whenever possible, catheterization of the ejaculatory ducts. Additional information may be obtained by injecting a dye into the vas at the neck of the scrotum and watching for its appearance in the urethra.

Unfortunately surgery as yet offers little help for the treatment of stenosis, whether it be in the epididymis or in the ejaculatory ducts. Numerous operations have been devised for effecting a fresh anastomosis of the vas with the epididymis so as to overcome any blockage that may exist in that situation. Successes, however, are of the greatest rarity owing chiefly to the difficulty of ensuring that the anastomosis remains patent. Obstruction in the ejaculatory ducts may sometimes be overcome by catheterization and by energetic treatment of a residual infection in the prostate by means of massage.

If sterility be the result of aspermatogenesis a careful search must be made for its cause. The history of past illnesses, the habits, mode of life, and diet of the patient, must all be reviewed and every effort made to improve the general health. The fact that conception frequently occurs at the end of a long summer holiday is an indication of the close relationship that exists between general physical efficiency and fertility. Veterinary surgeons deal with sterility in stalled animals by letting them run wild in the fields. If bank clerks and other followers of sedentary occupations could be treated similarly their fertility would undoubtedly be increased.

The importance of infections, whether in the genital tract or elsewhere in the body has already been emphasized. All septic foci must therefore be dealt with however remote may seem the connexion with the patient's sterility.

Endocrine therapy is worth trying in cases of aspermatogenesis even when the ductless glands do not appear to be implicated. Anterior lobe pituitary extract is by far the most useful of the endocrine products, and should be persevered with for six months. At the end of this time the testes should again be examined for the presence of spermatozoa. Drugs, except when given as tonics, are, so far as I know, useless. It has been said that testicular grafts have a stimulating action on the patient's own glands but as I have not used them for this purpose I can neither confirm nor refute this statement. If signs of hypothyroidism are present treatment with thyroid extract is likely to have a stimulating action on the tubules.

In view of the part played by sunlight in the seasonal growth of the testicles of birds I am tempted to think that small doses of ultra-violet light might exert a favourable action on some cases of aspermatogenesis. However, as yet I have no observations of this to report to you.

CONCLUSION

In this paper I have laid emphasis on the type of sterility that is unassociated with any obvious physical defects. I have done so deliberately because I feel that in the past we have occupied ourselves too much with questions of anatomy, too little with the physiology of reproduction. We have searched for displacements of the womb and obnormalities of the cervix, and having corrected these have felt satisfied that we have done all that is within our power and that the rest must be left to Nature. But it is not enough that the spermatozoa should enter the uterine cavity and that the ovum should be thrown into the Fallopian tube. For the meeting and

fusion of these two cells certain conditions are necessary, concerning which we at present know little or nothing. Wolbarst's insistence on the importance of examining the behaviour of spermatozoa when in contact with the female secretions is a move in the right direction. But more than this is necessary. We must understand more fully the part played by the secretions of the secondary glands of sex. We must study the reaction of the spermatozoa to the various fluids it meets in its perilous journey from the seminiferous tubules to the ovum, the secretions of the epididymis, the vesicles, the prostate, the cervix, and the uterus. We must discover the reason of our failure to inseminate a healthy woman with what are apparently healthy spermatozoa.

We are struggling to treat sterility with an utterly insufficient knowledge of the physiology of impregnation—shooting arrows haphazard into the air in the hope that one perchance may reach its mark. If we are to obtain the exact knowledge on which a scientific treatment can alone be based we must work, not apart, as people viewing the problem from the point of view of the gynaecologist or the genito-urinary surgeon, but together, as colleagues engaged on a single task. Only then can we hope to fill in some of the gaps in our knowledge and to establish our treatment on a scientific basis.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL

ACUTE IDIOPATHIC DILATATION OF THE STOMACH

The following case may be worth of record on account of its comparative rarity, the unusual physical signs presented, and the nature of the findings at necropsy, which were inconsistent with the commonly stated etiology.

On July 18th 1928, the patient a girl 24 years of age with no previous history of ill health was suddenly seized with vomiting which persisted until shortly before her death three days later. During the previous week her appetite had been deficient and her general condition somewhat below its usual standard. For three days there was absolute constipation.

Condition on admission to Hospital July 21st 1928.—The patient was collapsed. She complained of abdominal pain and suffered from thirst. Moderate quantities of brown fluid were vomited at short intervals. The abdomen was not distended though it was a little fuller in the hypogastrium than in the epigastrium. A wave synchronous with the cardiac systole passed from the left hypochondrium to the hypogastrium and a splashing and gurgling sound also synchronous with systole was distinctly audible without using the stethoscope. On auscultation with the stethoscope sounds were heard resembling those described as Hippocratic succession in the chest. The apex beat of the heart was visible in the mid axillary line and was diffuse and slapping in character. The right border of the heart was one inch to the right of the sternum but there was no visible epigastric pulsation. At the necropsy the most noteworthy features were: (1) The stomach was so enormously distended that the greater curvature sat on the brim of the true pelvis where it bent on itself a portion returning towards the duodenum. (2) The distension extended along the entire duodenum and did not cease abruptly—that is to say the distended gut gradually gave place to the collapsed lesser bowel about a foot from the duodeno-jejunal flexure. (3) A ring of lesser dilatation indicated the position of the pyloric sphincter. (4) The whole of the small intestine was collapsed and proflapsed in the pelvis minor. The mesentery was longer than normal. The thymus gland weighed 1/3 oz and the thyroid gland 1/4 oz. In the suprarenal gland there was no depletion of the cortical hypod. There was no other relevant pathology.

From a consideration of the facts it would seem justifiable to suggest that, although there was in fact a prolapse of the small gut into the pelvis, the mesentery was not the constricting agent. Again, because of the absence of a definite delimitation of the distension it may be suggested that the cause rather than being on affairs of simple mechanics may be related in some way to the nervous mechanism for the control of tonus of the gut.

I am indebted to Dr W H Thompson for permission to publish this case.

Bradford.

FRED GRUNDY, M B, Ch B Lectur,
M.R.C.S. Eng.

FOUR CASES OF GLIOMA RETINAE IN ONE
FAMILY

GLIOMA retinae is a rare condition, in the course of the last five years only 11 cases have been treated at the Royal Eye Hospital. During this time 114,764 patients were seen, this hospital, being the only London eye hospital south of the Thames, draws its material not only from South London, but from the suburbs and a large area of the country. The occurrence of four cases of glioma retinae would seem to be worthy of record, the mother of this family has had five children, of whom one died at birth and one is sound. The clinical histories of the other three children are as follows:

Leonard was born in 1919. In August 1921, he was found to be suffering from a glioma of the right eye, which was enucleated. In January, 1923 he was readmitted with a glioma in the left eye. The white mass was quite evident by focal illumination, although he could still see to play with his toys in his cot. On removing this eye I found a mass of growth as big as a hazel nut projecting through the sclerotic. In spite of the orbit having been eviscerated the growth recurred *in situ* in the following May, and he did not long survive.

Walter was born in 1921. At the age of three months the right eye was removed for glioma. He remains healthy.

Ernest was born in March 1928. I saw him in May with a glioma in the right eye, which was enucleated.

This remarkable family history therefore shows four children surviving their birth, three have been affected by retinal glioma, two losing one eye each, and one losing both eyes and subsequently succumbing to a recurrence.

We can trace this terrible misfortune for the mother to an operation which was performed in May, 1897, when the right eye of a child aged 2 years and 3 months was removed for glioma, this patient became later the father of the family here reported.

For no one who has seen a child dying from glioma there can be no alternative but to remove the eye, even if it be the only one. From the individual point of view—from that of the child perhaps, from that of the parent certainly—it is the right and only course, but what a disaster for the community and the welfare of the race! I fear this is only one instance of what the progress of surgery and medicine is capable of doing for man by preserving individuals suffering from an hereditary taint, who would, in the ordinary course of nature, be eliminated.

T. W. LETCHWORTH, M.B., F.R.C.S.,
Surgeon Royal Eye Hospital.

PHTHISIS AT THE AGE OF 85

THE following case of pulmonary tuberculosis in a woman aged 85 seems worthy to be recorded.

A widow, aged 85 whom I have known for several years but who has never previously consulted me professionally, sent for me in November 1927 for a slight sprain of the ankle. Her mother and father had been healthy and had lived to old age. Her brother and two sisters were healthy also. The patient had been a widow for forty years. She had had five children of whom four were living and healthy. She had always had very good health and could not remember having seen a doctor since her last confinement.

While attending her for the sprained ankle she mentioned that she had wheezing and a slight cough. The cough had commenced in June, 1927 and had continued off and on. She felt very annoyed that she should be troubled with it and could not understand why she should be ill since up to then she had been very active, taking long walks and frequently visiting theatres and amusements at night. I examined her chest and found a general bronchitis which is common in old people. The temperature was normal and the sputum scanty, but difficult to expectorate.

During December she became worse, with pyrexia up to 101° F. but mostly between 99.2° and 100°. In January 1928 the left upper lobe began to break down and night sweats commenced. The sputum became mucopurulent and on examination tubercle bacilli were found in large numbers. In February she had a brisk haemoptysis lasting three days. Since then the disease has advanced rapidly and now practically the whole of the left lung is involved and the right apex in addition. I have had the sputum examined on three separate occasions and it has always been strongly positive. She is rapidly losing ground and the pyrexia is constant.

I can trace no reason for the disease coming on so late in life, she has not lived with anyone who has had similar trouble. The only thing I can find is that she has always had in the house a number of animal pets, especially cats, but these, she declares, have always been healthy.

East Sheen.

D. A. CHAMBERLAIN, M.R.C.S., L.R.C.P.

Reports of Societies.

MEDICAL AMBITIONS AND IDEALS

PRESIDENTIAL ADDRESS TO THE MEDICAL SOCIETY OF
LONDON

At the first meeting of the session of the Medical Society of London on October 8th, Dr. WALTER CARR, the president, delivered his address from the chair. At the preliminary business meeting of the Society it was announced that John Ward's diary, one of the valuable possessions of the Society, had been sold for £10,000, of which sum £9,000 had been invested and £1,000 devoted to improvements in the library.

Dr. Walter Carr, who mentioned that he had been a Fellow of the Society for just upon forty years, took for his subject "Medical ambitions and ideals." Medical men, he said, were necessarily moved by the same impulses as others, although their ambitions might be somewhat more altruistic and less directly selfish than those of the majority of their fellows. Three motives in particular influenced those who aimed at becoming leaders or rulers in any department of life. The first was the love of power and influence, which really meant the desire to rule over other people, even the acquisition of wealth was generally coveted, not for its own sake, but as a necessary step towards the attainment of such authority. The second motive was the desire to bring about uniformity. Here man differed from nature, for whereas the keynote of nature was diversity, uniformity was always man's ideal, and the more capable a man was, and the more convinced as to the rightfulness of his views, the more determined was he likely to be, especially as he got older, to make others think, talk, and act as he did himself. Finally a man liked to convince himself and other men that in exercising power he was not acting from selfish motives, but was really anxious to benefit others. The most typical and successful example of the exercise of these three motives on a large scale was afforded by the Catholic Church in the Middle Ages, when it attained supreme power over practically every department of human life. It established uniformity of belief by ruthlessly extirpating every form of heresy and schism, and justified all its deeds of tyranny and cruelty on the plea that it was acting in the best interests of its victims. Now that the power and influence of the mediaeval Church had declined, it would seem that the medical profession might aspire, perhaps, to replace it!

A Medical Bureaucracy

The speaker then, adopting a tone of gentle irony, indicated how medical men might attain these ambitions. Power over their fellow men would, of course, be gained through a State medical service, at the head of which would be the chief medical officer to the Ministry of Health—not the Minister of Health himself, who, to his chief medical officer, would be as king to cardinal. Indeed, the position of the chief medical officer would be like that of Pope in the mediaeval Church, under him would be inspectors and consultants—at present called regional medical officers—who would correspond to bishops, while district medical officers, to each of whom would be allotted the care of a certain number of people, would be like parish priests. Separate staffs of doctors would be trained to take charge of the State and municipal hospitals, to act as medical officers of health, and to be responsible for the many departments of preventive medicine.

The question of health entered in some way into practically every part of a man's life and being—from the moment of his conception to the final disposal of his remains after death. Therefore the State, through the medical profession, would not only provide ante-natal care, would ensure that every baby was born in a suitable institution, and would look closely after the individual through infancy, childhood, and school life, but would have the final voice in settling his vocation (this would be determined by the school and family doctors in consultation with the psychologist), his hours of labour, length of holidays, age of retirement,

and so on. Above all, the State would decide upon his fitness for marriage and upon the suitability, physical and mental, of his proposed partner in life. No marriage would be permitted without previous medical inspection, and the newly married couple might be told that the State expected them to produce children at certain intervals. State authority would be necessary to support the doctor's decisions, especially to compel vaccination or inoculation, not only against small-pox, but against any disease for which this might be considered necessary, and to enforce the performance of an operation if such was deemed advisable by the medical attendant. A beginning had already been made in this direction by the taking of proceedings in police courts against parents who perversely refused to consent to the removal of their children's tonsils and adenoids, and it had also been proposed in Parliament to compel patients to continue treatment for venereal disease until they were cured.

Professional Orthodoxy

With reference to the second ideal, that of establishing professional uniformity and orthodoxy, it was obvious that unqualified practice of every description (including the sale of potent drugs otherwise than on a doctor's prescription) must be rigorously suppressed. Unqualified quacks would be drastically dealt with, the qualified quack would be a more difficult problem. Any heresy or schism in the profession would be extirpated at its earliest commencement. Uniformity and orthodoxy would be maintained by a strict control on trade union lines and by conferring increased disciplinary powers upon the General Medical Council. Any practice which was seriously heterodox might come within the famous term, "Infamous conduct in a professional respect." Research would be encouraged, but on strictly regulated lines, so that while minor discoveries would be welcomed, those of a revolutionary character would probably meet with a very cold reception from the senior bureaucrats, who would necessarily control all the work of their juniors. Age, particularly when combined with power, was always conservative. This was true even of individuals, and was still more true of groups. The Harveys, Pasteurs, and Listers of the future would have a poor time under bureaucracy, and would be fortunate if they escaped final expulsion as heretics and law-breakers.

In all this insistence the profession would have no difficulty in persuading itself—and would therefore be increasingly enthusiastic in persuading other people—that its aims were absolutely altruistic, and that it was exerting a beneficial authority entirely in the best interests of the community. In expensive moments it was customary to point out that the medical profession furnished a unique example of a profession doing its best to destroy the source of its own livelihood by trying to prevent disease. This was repeated so many times and on so many occasions that it might even come to be believed. But as a matter of fact there was no need for the least alarm as to the material prospects of the profession. It would always take at least as many doctors to prevent disease as it took at present to cure disease after it had developed. It might be that in future more men would be engaged on the preventive side and correspondingly fewer on the curative, but this change would take place so gradually as to cause no inconvenience.

The Dangers of Autocracy

The ideal which he had sketched might seem a glorious one for everybody concerned, but he hoped it would never be attained, both for the sake of the public and in the best interests of the profession. It had certain obvious drawbacks. The first was the danger that the possession of autocratic power—no matter how beneficent in its intention—inevitably converted a man into a tyrant. No one man or body of men was fitted to exercise uncontrolled power. The better and nobler the motives and objects of such exercise the worse it became, because that moral conviction made those concerned all the more intent on carrying out the object, no matter at what cost. As Sir Clifford Allbutt once said, "Conscience without enlightenment has to account for some of the darkest chapters

in human history." Another danger was that any form of tyranny was certain sooner or later to give rise to reaction which might do incalculable harm and set back the clock of progress. Again, enthusiasm was very liable to degenerate into crankiness, and an enthusiastic crank at the head of a medical autocracy might do an enormous amount of mischief. There were, for example, many enthusiasts who would be quite prepared to make compulsory such a measure as inoculation against influenza, especially in schools, even though its beneficial effects were far from certain. Experience was not nearly definite enough to justify one in advising let alone insisting upon, this as a precautionary measure. A scheme of inoculation was carried out most carefully in a large public school, out of 350 boys, 60 per cent were inoculated just before the Christmas holidays. On the reassembling of the school 113 boys were attacked by mild influenza, and 60 per cent of the victims were among those who had been inoculated. There was no difference whatever in the character of the illness as between those who had been and those who had not been inoculated. The inoculation did not appear to have exercised any influence in preventing or modifying the outbreak, and it was not surprising that at that school there was no suggestion that the experiment should be repeated. But under a medical autocracy it would almost certainly be a long and difficult matter to bring about changes in established official procedure.

Mild Small-pox and Vaccination

Dr Carr also raised the question whether it was necessary to maintain an elaborate and expensive system of isolation for small-pox in view of the extremely mild character of that disease during recent years. Let it be granted that vaccination did for a certain number of years protect against small-pox. But so far as he could gather the present form of small-pox rarely gave rise to pitting or made those suffering from it feel really ill. In 1926 the number of deaths attributed to small-pox in England and Wales was 18 but in the view of the Ministry of Health this was an overestimate, and the true figure was 11. In 1927 there were 14,000 cases and the deaths numbered 47 but no official particulars were yet available as to these deaths. Under the existing system of registration of deaths a considerable number, perhaps the majority, of the deaths recorded from small-pox were not due really to that disease at all, but were automatically assigned to it just because a patient already infirm, or perhaps even suffering from some mortal disease, happened to contract a mild attack during the last weeks of his life. Was small-pox nowadays a more serious disease than chicken-pox and did it call for any greater attempts at prevention and isolation, in the vast majority of outbreaks, than did the latter disease?

In conclusion, Dr Carr remarked that a medical autocracy would in the long run be disastrous for medical men themselves, because no matter how much power the profession as a whole might acquire, its individual members, even those most highly placed, would merely be slaves in or of the organization they had themselves created. Individualism, at present one of the chief glories of medicine, would be destroyed, research would be "to order" instead of being spontaneous, and would be restricted within defined limits, initiative would be extinguished, originality would be discouraged, and in enslaving others we should ourselves become the greatest slaves. "What we now most need is first humility, not to be puffed up with the little knowledge we have gained but fully to realize the vastness of the ignorance which surrounds us on every side, and the infinite complexity of the problems awaiting solution, and secondly, to maintain our professional freedom, which assuredly will be extinguished if we become mere units in the State medical service of a socialist commonwealth."

A vote of thanks was moved by Mr Warren Low, who said that it was always a delight to listen to Dr Carr, although he was at times a little uncertain whether Dr Carr was not "extending the nether extremity" of his audience. After Dr E. M. CLENDER had seconded the motion, and it had been adopted with applause, Dr Carr said he knew that what he had presented was in many respects unorthodox but on that very account he hoped it would stimulate thought and reflection.

Reviews.

THE GENESIS OF EPIDEMICS

ALTHOUGH the literature of epidemiology is large, the number of modern writers who have devoted separate volumes to the general theory of epidemics is relatively small, even, if we confine ourselves to those who have had wide practical experience of epidemic happenings, absolutely small. Colonel C. A. GILL, I.M.S., falls within the last-mentioned category. He has had extensive field experience and has already won an honourable reputation as a scientific investigator. His book on *The Genesis of Epidemics*¹ is the fruit of long study and contains much valuable information. In the first part of the book, after submitting some definitions and briefly reviewing doctrines and methods of inquiry, the author propounds the hypothesis that in the genesis of an epidemic four factors are involved—namely, (1) a reservoir of infection, (2) a parasite, (3) an immunity factor, (4) a transmission factor. Thus he calls the "quantum" theory of epidemicity. In the second part the known facts respecting malaria, influenza, and plague are described. Those respecting malaria are set out in considerable detail, and this section of the book, altogether apart from any matters of theory, is a valuable summary of research work, a good deal of it the author's own. The third part of the book discusses epidemics more at large, but with frequent references to the detail of the second part. Part 4 treats of the bionomics of disease, and Part 5 is a short summary of some conclusions.

In the reviewer's opinion Colonel Gill's objective studies, particularly his account of what actually happens during the progress of an epidemic of malaria and of the means by which the state of the population at risk (measure of intensity of infection, of degree of immunity, etc.), and the changes of that state, may be assessed, are important contributions to epidemiological knowledge, and particularly welcome to those epidemiologists without first-hand knowledge of the facts. The same remark applies to Colonel Gill's meteorological and climatological studies, although it is possible that specialists in physical meteorology and certain that expert statisticians will find lacunae in his knowledge. Nobody, however, who voices before the criticism of the specialist would write on epidemiology, and no specialist worth his salt would press hardly on inevitable defects.

As an exponent of theory, Colonel Gill, partly owing to literary disadvantages—his style is too reminiscent of the official "minute," wherein "I think" becomes "it is thought," to be attractive—is not wholly successful. Accounts of his theory are rather redundant and sometimes so expressed that the theory is reduced to a truism. That is evidently the case with our own brief summary above. The four factors named include every theory which has ever been propounded, and, of course, their co-operation will "explain" every epidemic, but only in the sense that a dormitative virtue explains the properties of opium. Colonel Gill is not of course, really preaching so empty a doctrine. What we take to be his serious thesis is that the genesis of epidemics can be satisfactorily described in terms of quantitative variations of measurable factors, and that in particular it is not necessary to suppose that qualitative changes in the parasite factor are involved. Thus to take a fairly clear-cut example, in the report upon the pandemic of influenza, 1918-19, published by the Ministry of Health data collected in different towns and institutions showed the flattest contradictions in respect of the immunity conferred by passing through an attack of influenza. In Leicester it appeared that only 4.9 per cent of those attacked in the summer were again attacked in the autumn, while 15.4 per cent of those not previously attacked took influenza in the autumn, but in Manchester the autumn attack rates upon those attacked or not attacked in the summer were nearly the same—namely, 9.9 per cent and 10.1 per cent. The authors of the report cast about for a means of reconciling these con-

tradictions, and suggested that the immunizing properties of the strains involved in different local epidemics might be different. They produced no direct evidence of this, and Colonel Gill has no use at all for suggestions of this kind. Most readers are likely to find Colonel Gill more successful in showing the weaknesses of the support facts afford for hypotheses of biological variation in the parasite factor than in setting up a rival hypothesis. Thus one of the remarkable features of the great pandemic of influenza was the abrupt change in the age distribution of deaths which characterized it. Why was it abrupt? If the relative sparing of the aged were due to the greater proportion of survivors in the older age groups who had been immunized by previous attack, why was there no uniform change in the proportions between 1890 and June, 1918? As the Registrar-General said, "It may be doubted whether so sudden and so complete a change of age incidence can be paralleled in the history of any other disease." Finding no answer to these conundrums, many have given up the problem in disgust. Colonel Gill seems to treat these difficulties rather lightly.

It is thus assumed that prior to the onset of the summer epidemic in 1918 old and debilitated persons who would otherwise have constituted the most susceptible age group, had been removed by death and that a considerable proportion of the population belonging to the higher age groups had acquired as the result of the epidemics during the years 1890-1918 a relatively high degree of immunity.

If these surmises be correct it is clear that they afford an explanation of the relatively high death rate amongst the aged in the pandemic of 1890 and of the relatively low death rate in the higher age groups during the years 1918 and 1919.

The italics in the last-quoted paragraph are ours. We think the devil's advocate would say, first, that there is really no evidence that the surmises are correct, and, secondly, that even if they were they would leave the remarkable discontinuity as perplexing as ever. If Colonel Gill were to retort that no man could say precisely when the equilibrium of the immunity "quantum" and the infection "quantum" would be upset, the devil's advocate would reply that that was only a slightly involved way of saying that epidemics in fact happen, and perhaps even quote the author's remark early in his treatise that "it would not serve any useful purpose to recount the innumerable forms assumed by the deistic theory of the origin of epidemics."

It is, however, neither fair to the author nor to his subject to stress what, in the reviewer's opinion, are weaknesses. We are, indeed, of opinion that Colonel Gill's standard of what constitutes an adequate theoretical description, or—in ordinary language—explanation is not very high and that he sometimes pays himself in words, but we are also of opinion that his book deserves to be widely studied, and is worthy of the traditions of his service.

M. G.

RECENT ADVANCES IN SURGERY

MR. W. H. OGILVIE has undertaken a difficult task, but has discharged it so well that *Recent Advances in Surgery*² is worth its place in any surgeon's library. The author has been assisted by Mr. J. F. Carter Blaine, Mr. T. P. Kilner, Mr. Grant Massie, and Mr. V. E. Lloyd, who contribute chapters which add greatly to the value and interest of the book. Mr. Ogilvie, in his preface, points out the difficulties of deciding what is recent, what is an advance, and even what is surgery, but he and his collaborators have struck a very happy mean, and are to be congratulated on the judicial attitude adopted throughout the book. If circumstances seem to justify a clear verdict, or if "non proven" sums up the present state of knowledge, they are equally ready to say so. The book is well illustrated with photographs and diagrams and a good list of references follows each chapter.

Tannic acid in the treatment of burns is a notable absentee, and we hope to see some mention of this very remarkable advance in the next edition. Perhaps, too, there should be some mention of radium as a serious competitor to excision of the carcinomatous rectum. None the less, omissions are few, and the range of the book is

¹ *The Genesis of Epidemics*. By Clifford Alablin Gill, Lieutenant Colonel, I.M.S. D.P.H. London: Baillière Tindall and Cox, 1928. (Med. Soc. pp. xxvi + 550. Illustrated. 21s. net.)

² *Recent Advances in Surgery*. By W. H. Ogilvie, M.D., M.Ch., Oxon., F.R.C.S. Eng. London: J. and A. Churchill, 1928. (5½ x 8½ pp. vii + 451. 106 figures. 15s.)

Interest is well sustained, and it is pleasant to encounter an occasional aphorism "A muscle cannot recover if it has too much work, and will never recover if it has none," is the signpost to salvation for poliomyelitis. "Every operation for [gastric and duodenal] ulcers appears to be a success until it is found out" is equally refreshing. American mass statistics have been freely used, and the unrivalled numbers of the Mayo Clinic are often helpful in arriving at conclusions. None the less it is cheering to see so many British references, and to realize that this country is contributing its full quota to surgical advance.

Mr Ogilvie rightly emphasizes the present tendency towards simplification and standardization of operations. He agrees with Sir Berkeley Mowbray that operative ingenuity has reached its peak. Lichsen said much the same thing, and time proved him wrong. Mr Ogilvie, however, with commendable caution, adds the proviso, "except possibly in the direction of the transplantation of organs." His section on rejuvenation tonics on this subject—in fact, there are few surgical subjects upon which he does not touch. There are many old friends in the book, and some new acquaintances to us, such as Sever's and Kienboch's diseases. If we are not to be allowed to invent new operations, we can still look forward to discovering plenty of diseases and giving them euphonious names.

ACIDOSIS AND ALKALOSIS

THE French workers LADDE and NERVEUX have recently published, under the title of *Acidosis and Alkalosis*,² a book which summarizes their own clinical and laboratory experiences of these conditions, as well as those of other workers. This publication will undoubtedly serve as a very useful book of reference. Its interest is mainly centred in the discussion of the ketosis of diabetes, but many other pathological experimental conditions are dealt with, and a large bibliography appears at the end of each chapter. One very important feature of the book is the care and detail with which the necessary laboratory methods are described. It is possible to learn from it, for instance, methods for determining the pH of the blood, the alkali reserve of the blood, the tension of alveolar CO₂, and the amounts of ammonia, of acids, and of acetone bodies excreted in the urine. The physiological mechanisms by which the acid base equilibrium of the blood is kept at the normal level, and the significance of departures from this normal equilibrium, are very clearly discussed. When attempting to follow the author's theories regarding the causes of the onset of ketosis in diabetes the reader may feel handicapped by the fact that the distinction between the terms "acidosis" and "ketosis" is not kept sufficiently clear. Indeed, no mention is made of the fact that, whereas acidosis does not necessarily involve ketosis, alkalosis can lead to definite ketosis, and also to carbohydrate intolerance and diminished oxidation of carbohydrate, thus imitating the conditions found in diabetes. The omission of these facts leaves the section of the book which deals with alkalosis incomplete, and the general discussions of problems of diabetes would perhaps be more helpful if the authors had them more definitely in mind.

THE EXTRA OCULAR MUSCLES

ANOTHER addition has been made to the already large literature on the subject of the movements of the eyes and squint by Professor FETTER of Pennsylvania in a handbook on *The Extra-ocular Muscles*.³ The volume is essentially clinical in character and professes to limit itself to practical problems rather than theoretical discussions. It is divided into five parts. The first of these deals with the anatomy of the ocular muscles and the physiology of their associated movements. This is handled in the orthodox fashion, in the anatomical section the researches

of Whitnall on the orbit have been utilized to good advantage and the physiology is described with care and discrimination, a sound balance being struck between the classical views and the large amount of recent work which has been directed to this complex problem. The second part, dealing with heterophoria, suffers somewhat from confusion introduced by the large number of clinical tests described, a fault which is universal in every book on the subject. The elaboration of new methods for detecting and estimating errors of muscle balance offers a fertile field for the exploitation of clinical ingenuity, and the matter has been certainly overdone. The teaching in these pages, however, is sound on the whole, though many would consider it impracticable to advise the use of prisms so powerful as is recommended, the employment of 10 prism dioptres in hyperphoria, for example, seems excessive, and likely to give rise to more discomfort than relief. In this defect of muscle balance, also, the correction of small deviations of less than 15 prism dioptres is probably rather more important and beneficial in its effects than is suggested here. In the third part, which deals with squint, a very great deal of importance is attached to the part played by the "fusion faculty" in the determination of concomitant strabismus, and in discussing the operative treatment of this condition it is noteworthy that, while advancements or resections are favoured before other procedures, tenotomy is banned and recession is advised. Even so, however, it is thought advisable to hold recession in reserve as a supplementary procedure in all cases to increase the effect of single or bilateral advancements. The fourth part deals with paralytic squint, and there is appended a note on nystagmus.

STERILITY IN WOMEN

THE successful treatment of *Sterility in Women*,⁴ according to Dr SIDNEY FORSDIKE, "confers greater happiness upon the people concerned than any other form of surgical procedure." The newer methods of investigation and treatment by inflating the uterine tubes, and by x-ray examination after the injection of opaque material such as lipiodol, have tempted him to give his experience of them. The methods he employs both for inflation and for injection of lipiodol, are described in detail, and illustrated by seventeen plates of x-ray photographs, or what he calls "hystero-grams." His results are given and discussed fairly and judiciously. The new methods were devised primarily for diagnosis, but Rubin claimed 10 per cent of pregnancies following inflation, and Forsdike finds his own results show this figure to be rather an under-estimate than an over-estimate. In 100 cases inflated 15 pregnancies followed, and out of 67 in which lipiodol was injected the tubes were found patent in 41, and of these 14 (that is, 34 per cent) became pregnant. The difficulty in deciding between *post hoc* and *propter hoc* in these cases is acknowledged, and no explanation is attempted as to why the injection of an opaque substance such as lipiodol to enable an x-ray plate to be taken should also increase the chances of pregnancy—but there are the figures. Chapters are included on the causes of sterility and on other methods of examination and treatment, and the book can be recommended as giving a reasonable account of the clinical features of sterility in women under present-day conditions. The clinical are much better than the scientific portions, in which there are many errors—for example, that ovulation and menstruation occur about the same time, and that fibroids cause sterility when "the fibrous tissue is so widely prevalent in the uterine wall as to produce a condition of atrophy of the endometrium." There are also loose statements on the cessation of "ovarian function," by which term apparently "ovulation" alone is implied. Another defect is the number of generalizations that are either incorrect or at least impossible to prove. Far too many conditions are mentioned as "invariably the cause of" or "invariably associated with" sterility or dysmenorrhoea or other symptoms. Finally, the book is marred by careless use of words, so that the meaning is often to seek.

² *Acidose et Alcalose*. Par Marcel Laddé et Floride Nerveux. Paris: Masson et Cie. 1928. (Med. 8° pp. 286, 34 figures. 32 fr. sans majoration.)

³ *The Extra-ocular Muscles*. By Luther C. Fetter, A.M., M.D., Sc.D. H. Kimpton. 1928. (6 × 9½ pp. viii + 234, 58 figures, 5 plates. 18s. net.)

⁴ *Sterility in Women*. By Sidney Forsdike, M.D., B.S. Lond., F.R.C.S. Ed. and Eng. London: H. K. Lewis and Co. Ltd. 1928. (Demy 8vo pp. viii + 133, 25 figures including 17 plates. 9s. net.)

NOTES ON BOOKS

The work on hospital hygiene* by Drs. LOUIS MARTIN and R. DUJARRIC DE LA RIVIERE of the Institut Pasteur forms the eighth volume of the system of hygiene edited by Martin and Brouardel. The opening pages consist of a historical introduction, and the remainder of the work is divided into five parts, to each of which a bibliography is appended. In the first the writers discuss the organization of a hospital in detail, including the site arrangement of the wards and other buildings, water supply, drainage system, ventilation, heating, lighting, disinfection, furniture, and disposal of staff. The second part is devoted to a consideration of special hospitals (including those for children), hospitals for acute infectious disease, almshouses and mental hospitals. In the third part the admission to hospital of social diseases such as tuberculosis, syphilis, alcoholism, and cancer is discussed. The fourth part is concerned with the hospital staff, in which are included medical nursing, pharmaceutical and administrative units with a full consideration of the training of nurses, and in the fifth part hospital administration in foreign countries (Germany, Austria, and the United States) is described. The text is freely interspersed with plans and photographs of hospitals in France and other countries. The work, though mainly based on the study of French hospitals, will be of interest to all those concerned in the management of hospitals, such as medical superintendents, medical officers of health, and visiting committees.

The seventh edition of *Aids to Gynaecology*† has been edited by Dr. R. E. TOTTENHAM, professor of obstetrics and gynaecology in the University of Hong Kong. To give the general principles of a large subject, such as the diseases peculiar to women in a hundred pages or so is a matter of extreme difficulty, but the author of this small book may well be congratulated on the success obtained. That a seventh edition has been called for is evidence of its appreciation by those who find benefit from studying notes of the important gynaecological conditions. Nurses and junior students will find Professor Tottenham's edition very useful, as each chapter is written with an entire absence of frills and unnecessary matter.

Professor FELIX KLEWITZ's monograph on bronchial asthma,‡ which forms the latest instalment of the system of medical practice edited by L. R. GROTE A. FROMME and K. WARNEKROS, contains a concise, clear, and up-to-date description of the nature, diagnosis and treatment of asthma, based on the writer's personal experience in East Prussia and a study of the literature.

Recent Advances in Organic Chemistry,§ by Dr. A. W. STEWART, is a work in two volumes, in which are collated and connected various achievements of research in different branches of organic chemistry. It has for its object the establishment of data for reference by those engaged in research, as well as the presentation of those data in a form readily accessible to students. The previous editions have kept the author's presentation level with historical developments. In this, the fifth edition, much new matter is included corresponding with more recent advances, the first volume containing matter suitable for third year students and the second for students engaged in post graduate work and research. Notable progress has been made among the alkaloids, the anthocyanins and the synthesis and cleavage of proteins. The author has not confined his treatment to a favoured section but has covered the wide field of organic chemistry very thoroughly. One feature of his work that can hardly be overestimated is that he has risen high above the level of an annotator. The description is in the form of connected narrative, and is alive with a spirit of enthusiasm for the elucidation of theoretical views and a ready aptitude for intuitive deduction. In this manner are discussed not only those subjects which have attracted attention by reason of their novelty, but a great number of others which add to the understanding of organic compounds. One chapter is occupied in the discussion of some theories of the natural synthesis of vital products, another deals with some applications of electrometry to organic chemistry, and the final chapter discusses certain unsolved problems of long standing.

* *Traité d'Hygiène*. Publiée en fascicules. VIII. *Hygiène Hospitalière*. Par Louis Martin et R. Dujarric de la Rivière. Deuxième édition entièrement refondue. Paris: Masson et Cie. (6½ x 9½ pp. 416. 124 figures. 45 fr.)

† *Aids to Gynaecology*. By Richard E. Tottenham M.D. D.P.H. Seventh edition. London: Baillière Tindall and Cox. 1927. (Fcap. 8vo pp. viii + 332. 25 figures. 3s. net.)

‡ *Medizinische Praxis*. Herausgegeben von Prof. Dr. L. R. Grote. Prof. Dr. A. Fromme. Prof. Dr. K. Warnekros. Band III. *Das Bronchialasthma*. Von Prof. Dr. Felix Klewitz. Dresden und Leipzig: Theodor Steinkopff. 1928. (6 x 8½ pp. viii + 81. Paper cover. R.M. 4.80. bound R.M. 6.)

§ *Recent Advances in Organic Chemistry*. By Alfred W. Stewart D.Sc. In two volumes. Fifth edition. London: Longmans Green and Co. Ltd. (Vol. I. 8vo pp. i pp. xiv + 387. Vol. II. pp. xiv + 382. 21s. net each volume.)

A book on *Incompatibility in Prescriptions*¶ has been prepared by S. K. MUKHERJI which will be found very useful both to prescribers and dispensers. It presents a general discussion of the causes of incompatibility, citing cases from actual experience in great abundance, and it affords, through the medium of a tabulated list and an index, readily accessible information on questions that may arise in practice.

The Phenomenology of Acts of Choice|| by Miss HONORIA M. WELLS and *An Experimental Study of the Mental Processes Involved in Judgment*|| by Mr. B. P. STEVANOVIC, embody the results of researches carried out by the authors in the Psychological Laboratory at King's College, London, and presented as theses for the degree of Ph.D. There is therefore a certain family resemblance between them. Both represent painstaking work in prolonged series of ingeniously devised experiments which are described in detail. They are now published as Nos. 11 and 12 of the series of monographs issued in connexion with the *British Journal of Psychology*.

¶ *Incompatibility in Prescriptions*. By S. K. Mukherji, M.B. Calcutta. Rai Sahib B. N. Mukherji and Son. 1928. (4½ x 5 pp. 135.)

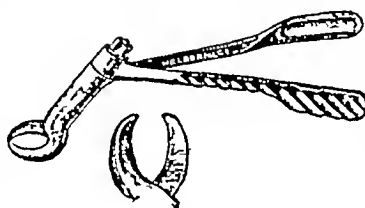
|| *The Phenomenology of Acts of Choice*. By Honoria M. Wells. The *British Journal of Psychology* Monograph Supplements, No. XI. London: Cambridge University Press. (Sup. roy. 8vo pp. 157, 12 figures. 10s. net.)

|| *An Experimental Study of the Mental Processes Involved in Judgment*. By B. P. Stevanovic, Ph.D. The *British Journal of Psychology* Monograph Supplements, No. XII. London: Cambridge University Press. (Sup. roy. 8vo pp. 178, 28 figures. 10s. net.)

PREPARATIONS AND APPLIANCES

BONE SHEARS

MR. H. MORRISTON DAVIES, M.Ch. (Ruthin), communicates particulars of a new bone shears. He writes: "The principal point about these bone forceps is that they have a sheen action which



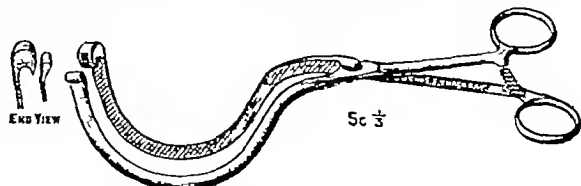
enables one to cut the rib, leaving a perfectly clean uncrushed surface, and using the minimum of force. The character of the forceps enables the blade to be inserted under the rib, even when the ribs are close together, with the minimum of risk of

damaging other parts. The blades can be slid along the ribs under the tissues, and so cut even at a distance, if necessary, from the wound. To accomplish this a right handed and a left handed pair are necessary. The whole design gives maximum strength with minimum weight.

The Holborn Surgical Instrument Company, Ltd., are the makers of these bone shears.

AN IMPROVED CAECAL CLAMP

MR. JOHN TAYLOR, Ch.M. (Dundee), writes: "I have designed a special clamp for the operation of caecostomy as a first stage procedure in acute obstruction due to malignant disease of the proximal colon. It is a modified form of Hartmann's clamp, with a deep curve. The object of the clamp is to exclude temporarily from the increased colon pressure a portion of caecum large enough to permit the insertion of a large Pezzer catheter without any leakage taking place. When the bowel is grasped with the usual type of deeply curved clamp the points of the



blades always gape, and leakage and soiling are almost inevitable, the Hartmann points overcome this difficulty. Before applying the clamp the caecal contents are slowly expressed into the colon, the Pezzer or similar type of catheter is then introduced into the flaccid caecum in the same manner as for the bladder, and the purse string suture is tightened and tied. The clamp is then slowly eased in order to prevent tearing by a sudden return of colon pressure. The caecal wall is stitched to the parietal peritoneum and the catheter is connected up to a suitable form of container. With this technique the catheter does not tend to work its way out. A smaller but similar type of clamp is useful in anastomotic gall bladder operations. The clamps were made for me by Mr. Charles F. Thackray, Park Street, Leeds.

British Medical Journal.

SATURDAY, OCTOBER 13TH, 1928.

VOLKMANN'S ISCHAEMIC CONTRACTURE.

THERE are certain complications of common injuries which do not receive the attention they deserve because their occurrence seems to cast a reflection upon the skill and competence of the surgeon who treated the case. Ischaemic contracture is a notable instance of this. It was probably the notoriety of a recent medico legal case which led to ischaemic contracture being chosen for a discussion in the Section of Orthopaedics at the Cardiff Meeting of the British Medical Association, and it is fortunate that Sir Robert Jones was willing to review the whole subject in an address (printed in our opening pages to day) which will for many years to come remain as a surgical classic.

The condition has been observed in both the upper and lower limbs, but, as it is in connexion with fractures round the elbow joint that the great majority of cases have occurred, attention was confined to this class of injury. The onset of ischaemia is within a few hours up to forty eight hours from the time of the accident or from the time at which treatment is begun. This onset is marked by pain and swelling of the hand and forearm, a blue or dusky colour of the skin, and loss of movements in the fingers. Unless the tension is relieved blisters or blebs form under the epidermis. These changes it is generally recognized, are due to interference with the circulation, and this explanation is confirmed by the absence or feebleness of the pulse while the blueness and oedema are evidence of venous obstruction.

Ever since Richard von Volkmann of Leipzig first described the condition in 1875 the essential nature of the paralysis and its dependence upon obstructed circulation in the muscles have been admitted on clinical evidence. Within recent years this has been confirmed experimentally by the work of the American observers Brooks and Jepson, who showed that venous as well as arterial obstruction was required to cause the vital damage to the muscle fibres. The actual circumstances which bring about this circulatory obstruction are generally one or other of the following: the pressure of tight bandages over splints and position of the limb which produces great tension, either extreme flexion or extreme tension of the elbow, or the simple effusion of blood under the deep fascia. Unfortunately the first of these causal factors has been the only one taught or recognized and in consequence, the idea has become prevalent that if tight bandaging and splinting are avoided then ischaemia cannot occur. Sir Robert Jones points out that the degree of flexion required to maintain a fracture in good position is really only of moderate amount—that is to say the position maintained by fixing the wrist to the neck by the cuff and collar method. But the term 'acute flexion' has somehow crept in, and in recent years the majority of cases of ischaemic contracture have resulted from the adoption of this position. Thus the most widely used English manual of surgical practice teaches that after supracondylar fracture the arm should be fixed in front of the chest with the elbow fully flexed.¹ The fact has been observed that in the normal arm the pulse at the wrist

can be stopped by pressing the hand against the shoulder, and further, that if a few cubic centimetres of water are injected into the antecubital space a considerably less degree of forcible flexion will then cause cessation of the pulse. Many cases have been noted and published in which ischaemic contracture followed injury to the soft parts without any fracture, these include certain haemophilic patients in whom a subfascial haematoma had developed in the region of the elbow or forearm.²

Treatment of Volkmann's ischaemic contracture has been the subject of many suggestions, but in this country it is formally held that patient perseverance in the method advocated by Sir Robert Jones will always bring about considerable improvement. Unfortunately this requires a long period of time, and great determination on the part of patient, and manipulator. There seems to be no short cut to recovery, and such operations as excision of a portion of the forearm bones or multiple tendon lengthening have rightly been abandoned. The sliding of the common tendon from the internal epicondyle, or a downward displacement of the condyle itself, is a recent suggestion the adoption of which has given encouraging results, but even this will not preclude the necessity for prolonged splinting and stretching of the finger tendons. In regard to the treatment of the condition in its acute stage, there is good reason to advocate the plan of incision through the skin and deep fascia in order to relieve the tension on the vessels. Leriche of Strasbourg for some years past has advocated and practised the operation of periarterial sympathectomy of the brachial artery with a view to bringing about a vasomotor dilatation in the tissues of the forearm.

Sir Robert Jones closes his paper with some sound advice to young surgeons and general practitioners in dealing with fractures of the elbow-joint. He lays stress upon the importance of obtaining an x-ray photograph, and about this there can be no dissentient opinion. But recent medico legal cases have shown that x-ray plates themselves may be used in support of a charge of negligence. This makes it all the more essential that every practitioner should belong to a medical defence society, but however much that may protect him from pecuniary loss, it will not save him from heart-breaking litigation. We wish it were possible to end on a more cheerful note, but such, we fear, will be the conclusion reached also by the Medical Society of London on November 12th, when a discussion on the medico legal aspects of fractures is to be opened by Professor Hey Groves and Dr James Neal.

ACTINOTHERAPY THE NEED FOR CONTROL

THE papers by Professor W. E. Dixon and Dr C. B. Heald read before the Section of Radiology and Physiotherapeutics at the Annual Meeting of the British Medical Association at Cardiff, and published this week (p. 642 and p. 644), bring effectively into focus the knowledge that has been gained from the widespread and increasing application of various forms of radiation in physiotherapy, and emphasize the danger that may accrue to the public, and, indeed, to the medical profession, from the exploitation of these therapeutic devices at the hands of untrained unqualified persons.

The enthusiasm with which the introduction of

¹ Ross and Carless. *A Manual of Surgery* (twelfth edition) p. 57.

² Hey Groves. The Surgical Aspects of Haemophilia with especial reference to Two Cases of Volkmann's Contracture Resulting from this Disease. *British Medical Journal* March 16th 1907 p. 611.

actinotherapy into general medical practice was at first greeted has given place to an equally regrettable scepticism. When there are doubts as to whether a therapeutic device can do any good there is the danger of an accessory doubt as to whether it can do anything at all—even harm. This is a pity for although actinotherapy cannot fulfil all the claims made for it by some of its more sanguine exponents, there exists a definite set of conditions in which its employment is indicated and though in skilled hands it may provide a treatment of the first importance improperly used it may do the gravest mischief. When statements appear to the effect that 'all cases of skin diseases are benefited,' or that 'all cases of rheumatism acute or chronic, neuritis, sciatica, will be benefited, if not cured,' we can only conclude that some people are easily satisfied. The general experience is that many cases of skin disease are unaffected by this treatment—some are even aggravated, and it is by no means yet determined whether the beneficial results produced in some cases of rheumatoid arthritis, neuritis and sciatica are not due merely to a counter-irritation of the same order as that produced by a mustard plaster. There can be no doubt, however, that actinotherapy properly applied is an important agent in the amelioration of rickets and surgical tuberculosis—often indeed, in these conditions producing complete cure and that certain neurological conditions anaemias and skin diseases though not cured, are usually benefited by this treatment. Among diseases of the nervous system in which amelioration of symptoms has been claimed are acute anterior poliomyelitis (in which actinotherapy is stated to limit the spread of the paralysis and to cut short the period of disablement), Bell's palsy in its early stages, the root pains of tabes dorsalis, and herpes zoster. On the other hand, it is equally important to recognize that to patients suffering from pulmonary tuberculosis, arterio sclerosis, chronic nephritis, quiescent appendicitis, and various forms of neurosis the application of ultra violet radiation may do definite and irretrievable harm. Early phthisis is of special importance in this connection. It is generally realized that ultra violet therapy is contraindicated in active febrile cases. Frequently overlooked, however, is the fact that a focus of early or of latent phthisis may flare up into activity as the result of the incautious administration of ultra violet rays. But it is just the person in whom one of these conditions may be present—the slightly run down asthenic person—who is most likely to turn to ultra violet radiotherapy for the sake of its tonic effects. The difficulties moreover, do not end with the selection of the right kind of case. A proportion of patients—the number has been given as 4 per cent—suffer almost immediate ill effect from general irradiation. Their main symptoms, which include malaise, headache, pain in the back, vomiting, conjunctival irritation, and occasionally diarrhoea were described by Dr Paige Arnold in a contribution to the *British Medical Journal* published on February 13th 1926 (p. 304). There is furthermore, the risk of producing light allergy from over-dosage, due according to Professor Dixon, to the absorption of altered skin proteins into the patient's circulation.

Clearly a treatment capable of so much good and of so much harm should be administered only by those with the requisite knowledge and skill. In point of fact, it has largely fallen into the hands of unqualified practitioners incapable of applying it with due regard to the idiosyncrasies of the patient or the condition from which he may be suffering and unmindful of the problems of technique and dosage—persons ignorant of

electricity, ignorant of the physiological effects of the different types of radiation, and ignorant of medicine.

In view of this serious situation the Representative Body of the Association, on July 20th at Cardiff, strongly recommended that immediate steps should be taken to place this form of treatment under the control of the medical profession, and indicated the general lines along which such control should be exercised. Thus the resolution expressed the opinion that an approved register should be made of persons fitted to administer this form of treatment, that suitable courses should be organized for the training of those who wish to qualify for inclusion in this register that a condition for inclusion should be abstention from the treatment of any patient except under the general supervision of a registered medical practitioner, and that patients requiring electrical or radiation treatment should be referred only to persons thus registered. As it stands, the resolution neither defines the authority which should be made responsible for giving practical effect to the opinions expressed nor does it indicate the method by which such an authority might fulfil its duties. This lack of definition was not unintentional. Having stated its opinion in general the Representative Meeting naturally felt that the Council of the Association was the proper body to review in detail the means by which the aims set out in the resolution would best be achieved.

The matter now rests in the hands of the Council, which has already appointed a special committee, composed of members of the Science and Medical Political Committees, to define the details of this policy. We look forward to an early and a unanimous report by those best qualified to express an opinion on the licence that should be allowed to the administration of this form of treatment. The sooner this is embodied in definite and enforceable regulations, the sooner will the general public gain the greatest measure of benefit and (what may be of even more importance) the greatest measure of protection.

THE HARVEY FILM

THE cinematograph film showing the series of experiments carried out by Harvey in formulating his proof of the circulation of the blood, which was prepared by Dr H. H. Dale and Sir Thomas Lewis for the Royal College of Physicians of London, and was exhibited at the Harvey tercentenary celebration last May, will be shown, by permission of the Royal Society of Medicine, in the Barnes Hall at 1, Wimpole Street, W., on Tuesday, October 30th, at 5 p.m. In compliance with the injunction of the Home Office that the film should be shown only to scientific audiences, admission will be limited to medical practitioners and students of medicine, who may obtain tickets, bearing their own names and not transferable, by calling personally either at the issue room of the library of the Royal Society of Medicine or at the office of the Royal College of Physicians in Pall Mall East. As the seating accommodation is limited early application is advised.

'DEATH FROM NATURAL CAUSES

THE *Revue Medicale de la Suisse Romande* of September 10th contains an article by Drs F. Naville and Ed. Rosset on difficulties and errors in the diagnosis of the cause of death. The authors are attached to the Medico-Legal Institute of Geneva to which bodies are sent for examination in cases of doubt. It appears that to some of these bodies the Swiss doctor attaches a diagnosis of startling precision, suggesting powers of divination, in others he contents himself with the provisional statement, "Death from natural causes." Drs Naville and Rosset

have examined the reports on these "natural death" cases made in the Institute during the last two years, and they record some remarkable findings. Thus the Geneva police stopped the funeral procession of a man stated to have died of tuberculous haemoptysis, he had been murdered by a stab in the back with a knife. A woman certified to have died from gastric ulcer had been the victim of criminal abortion, preceded by the vomiting of pregnancy. Another woman was found dead in bed, it was supposed from natural causes, but when the nun who sat up with the corpse the following night was also found dead in the morning, a little investigation showed that both women had died of carbon monoxide poisoning. The necessity for completely stripping and examining dead bodies is illustrated by cases in which razor wounds of the throat were concealed by scarves round the neck, and stiletto punctures by a pendulous breast. The authors describe the case of a healthy young shepherd of 28, certified as dying from natural causes. Yet the autopsy showed a veritable museum of injuries: fractures of the skull, three ribs, and a clavicle, traumatic haemorrhages in the brain, the liver, and the kidney. In another body, "dead from natural causes," with no lesion exteriorly, there was fracture of the skull with a large cerebral haemorrhage, the result of a fall in the course of a dispute with a companion. The authors of this article remark on the difficulties and damage that may arise from failure to ascertain correctly the cause of death. To conclude hastily that a drowned person has committed suicide may prejudice the relatives in the matter of insurance. The drowning may have resulted from an attack of epilepsy, an accidental fall, a cerebral haemorrhage, cardiac syncope, vertigo due to ear diseases, or other fortuitous causes. And it seems that in Switzerland failure in investigating the cause of death may bring disaster upon the doctor, as in the case of the practitioner who was called to a body on a mountain road, and through negligence failed to discover a penetrating wound. His conclusion of "death from natural causes" led to his being deprived of the right to practise medicine. The authors recognize that it is human to err, and they sympathize with the doctor who must try to be exact in his diagnosis while surrounded by policemen, relatives, friends, and neighbours, who harass him with contradictory statements. But they hope that their remarks on "deaths described as natural" may serve to remind their professional brethren of the need for as careful an investigation as possible of the causes of death.

THE PROFESSION OF MESSAGE.

AMONG the allings ancillary to medicine that of the masseur is of particular importance to the medical practitioner. The actual technical details of treatment by massage and medical gymnastics and such electrical methods as are carried out by the masseur often require a high degree of skill and experience, and it is of the utmost importance that the medical man should be able to rely confidently upon his assistant who works under his direction. The Chartered Society of Massage and Medical Gymnastics, since it obtained a new charter in 1920, has steadily extended its activities. It represents now the only recognized portal of entrance to this profession, and its registered members number 6,721, established in practice in practically every town in the British Isles. Of this number 6,321 are massesseurs and 400 are masseurs. The members pledge themselves to work only under the direction of a medical practitioner, and in this respect differ from the still numerous unregistered, and often unqualified, members of their calling, who can and do treat anyone coming to them for advice without reference to or instruction from a doctor. The Chartered Society has recently completed an inspection

of all the training schools recognized by it, and the inspectors have presented a full and detailed report to the council, in which the accommodation, the course of instruction, and the opportunities for gaining clinical experience are commented upon and criticized. With this inspection, and the steady raising of the standard of examination, the level of the work of the massage profession in this country has certainly reached a very high standard. Unfortunately doctors very often fail to recognize the difference between a trained and registered masseur or masseuse and one who is imperfectly trained or untrained—one who has, moreover, never signed on undertaking to work only under medical supervision. During the past year the Chartered Society obtained from the Privy Council permission for its members to use the term 'chartered masseur or masseuse.' If medical practitioners will take care that those whom they employ to treat their patients have the right to this title, they may feel confident that they are placing the treatment of their patients in the hands of properly qualified people, who will only carry out the instructions given to them after a medical diagnosis has been made. A congress of the Society was held from October 3rd to 6th in the Great Hall of the British Medical Association House. The lectures and demonstrations given each day were numerous and attended. At the Annual General Meeting, over which Sir Cooper Perry presided, it was reported that during the past year twenty-three examinations had been held and 315 conjoint certificates (that is, in massage and medical gymnastics) had been granted, together with 54 in massage alone, 31 in medical gymnastics alone, and 242 in medical electricity. Sir Cooper Perry deplored the fact that few of the medical schools took the opportunity of teaching their students the value of massage, the reason being, of course, the overcrowded state of the medical curriculum. The meeting approved a proposal to provide for proxy voting at general meetings of the Society. This has been brought forward by the council in view of the setting up of new ethical by-laws, in the framing of which and their application to any given case it is desired that as many members as possible should have a voice. Following the annual meeting Sir Arthur Keith delivered an interesting address on the conflict between theory and practice in medicine, which is reported on another page.

CONFESSIONS OF AN AMATEUR PHYSICIAN

'It goes without saying that every white man is a doctor and healer of all conceivable ills—in the eyes of unsophisticated natives.' With these words Brigadier-General H. H. Austin begins his very readable reminiscences of amateur doctoring in some of the waste or savage places of Africa, which appeared in the September *Cornhill*. He disclaims all title to special knowledge and makes in defence of a possible charge of unqualified practice the unanswerable plea of necessity, as well as policy, which compels the white man in authority in remote places to support as best he may the reputation so touchingly thrust upon him by the ignorant savage. Masters of merchant ships which do not carry surgeons have to shoulder a like responsibility, although in these days of steam and wireless they find more opportunities of getting skilled help than of yore. Many of General Austin's medical experiences were gained among the Swahilis of East Africa, whose own vigorous methods of counter-irritation by means of the actual cautery are said to be sometimes efficacious. He comments on the blunt sensibilities of these people, as shown in their calm submission of their persons to the knives of their comrades, when huge thorns or other intrusive substances have to be excised. Small-pox was rising near Lake Victoria Nyanza, and once again vaccination, at the hands of General Austin and his staff, proved

its efficiency—so far as a scanty stock of lymph allowed. All the officers of the party and the forty Pathans who had accompanied them from India were vaccinated before starting, and all escaped infection, although freely exposed to it. The mortality among the negroes is stated as "appreciable." On a later visit to British East Africa it was found that a nuisance from which the country had formerly been free had appeared. This was the "chigoe" or jigger (*Pulex penetrans*), so well known in West Africa and some other tropical places. General Austin describes the well-known methods of treatment of the deposited ova, and observes that the great carnivore, as well as men, suffer from these pests. In 1899 again he found himself in command of a survey party on the borders of Abyssinia without a medical officer, and once more he had to become an amateur physician and surgeon. Luckily this country was free from jiggers, and the health of the party was good, only one death—apparently from an "acute abdomen"—occurring, but the amateur physician himself narrowly escaped increasing the death roll, for he suffered for ten days or more from frequent vomiting, for which he took opium tablets. Whether this treatment was efficacious or not, who shall say? The end crowned the work. Other travellers at other times in those regions seem to have suffered from similar symptoms. Ipecacuanha and hot fomentations appear to have saved the life of the young wife of an important Abyssinian. He has little good to tell of the Gallas and Abyssinians with whom he came in contact, who were ready enough to seek his medical aid, but whose gratitude was certainly confined to expectations of future favours. It seems that luckily he was not called in to assist in any cases of difficult labour, in which he would have had to rely on the *vis medicatrix naturae* only. On yet another expedition in East Africa General Austin had the advantage of the services of Surgeon John Garner of the Egyptian Administration, to whose memory—he died two years later—he pays a warm tribute. The party suffered much from various hardships and diseases, General Austin himself having nearly succumbed to a virulent attack of scurvy, during which the sight of one eye was permanently damaged by a haemorrhage into the retina—a complication as distressing as it is unusual. In concluding this pleasant record of often unpleasant experiences, General Austin tells us with disarming candour that his object in seeking publication is to restore to the members of his own family their lost confidence in his therapeutic skill.

MALARIA COMMISSION OF THE LEAGUE OF NATIONS

A REPORT in pamphlet form has been published of the conference held in June at Geneva of the Malaria Commission of the Health Organization of the League of Nations. Three subcommissions were appointed to consider special aspects of the problem of malaria control, and the conclusions reached were subsequently approved by a full session of the Commission. The first subcommission, which reviewed antimalarial methods, emphasized the necessity of there being a permanent Government organization in each country to study local conditions, since each antimalarial method is affected by the prevailing social and economic conditions, and has, therefore, no fixed and universal coefficient of necessity, efficacy and cost. It is added that imitation in antimalarial work is dangerous, and methods likely to lead to discouraging results should be avoided. The subcommission did not favour the utilization of all available methods of control in the same locality at the same time, but advised the employment only of those methods which, with the means available, could be brought above a standard termed the "minimum effective degree of perfection." It reported that, whatever other means might be employed in malarial localities, it was essential in the

first place to treat the sick, and that the good results of early diagnosis and efficient treatment were more apparent in the reduction of the severity of the disease than in the reduction of its incidence. The execution of the measures must reach a sufficiently high degree of efficiency—"minimum effective degree of perfection"—before its effect on incidence could become appreciable. The second subcommission discussed certain aspects of the epidemiology of malaria and necessary future studies, the long list of suggestions for research serving to show how many points still remain obscure in the wide field of malaria. The third subcommission considered the use of quinine in malaria. It endorsed the method whereby quinine is continued after an attack for four to six weeks in daily doses of 1 gram, but advised that in the latter half of this period no quinine should be given for three to four days in each week. This subcommission declared definitely that the first step to take in malarial localities is to arrange for treatment by quinine.

ETIOLOGY OF HIRSCHSPRUNG'S DISEASE.

ANY contribution towards the elucidation of the underlying pathology of Hirschsprung's disease is to be welcomed, since in the hands of even the most skilful surgeon the outlook in the majority of cases of this condition is anything but bright. In the August issue of the *Archives of Disease in Childhood* Dr J. A. Munro Cameron supplies a complete and most instructive description of the pathology of a case of Hirschsprung's disease. The portion of the colon above the pelvic rectal sphincter showed gross enlargement of the bowel with much hypertrophy of the circular muscular fibres. Viewed through the pelvic-rectal sphincter, the muscle itself seemed normal, but in the intermuscular plexus of nerve cells the ganglia were replaced by inflammatory cells, and only an occasional nerve cell, shrunken and degenerated, was to be seen. Dr Cameron recently published in the *Archives* an account of cardiospasm, showing that the underlying pathology was a degeneration of Auerbach's plexus, and in the present article he compares this with the pathology of Hirschsprung's disease. They are indeed similar in every way. Since Hirschsprung's disease is in a large proportion of cases congenital, he considers that the meconium of the newborn infant must have become infected, and have passed on the infection to the bowel wall, with destruction of the intermuscular nerve plexus. Stasis occurs above this site, and the bowel, in attempting to pass on its unaccustomed burden, hypertrophies, especially in the circular muscular layer. The author offers the suggestion that dilatation treatment should succeed in Hirschsprung's disease as it does in cardiospasm, since the pathology of both is identical. His paper is illustrated with two admirable photomicrographs.

THE Harveian Oration before the Royal College of Physicians of London will be delivered on Thursday next, October 18th (St. Luke's Day), by Sir Humphry Rolleston, Bt. K. C. B., Regius Professor of Physic in the University of Cambridge, who has taken as his subject "Cardio-vascular disease since Harvey's day." The Oration will be given at 4 p.m. in the theatre of the College, Pall Mall East.

IN connexion with the forthcoming by-election of two direct representatives for England and Wales on the General Medical Council, we publish in the *Supplement* this week the joint address issued to the electorate by Dr J. W. Bone of Luton and Dr E. K. Le Fleming of Wimborne, the candidates chosen by the Representative Body for support by the British Medical Association.

Opening of the Winter Session.

CHARING CROSS HOSPITAL.

ADDRESS BY DR T WATTS EDEN

THE inaugural address at the Charing Cross Hospital Medical School was delivered on October 4th by Dr T WATTS EDEN, who also distributed the prizes and certificates. One student (Miss L. S. Hobbs) secured the prize in medicine, in surgery, in practical midwifery, and in ophthalmology, together with certificates in gynaecology and in pathology and bacteriology, as well as winning the "Llewellyn" scholarship. Of the thirty-five prizes and certificates, seventeen went to women students. The dean, Dr F. H. YOUNG, in his annual report, mentioned that the council had decided that no further women students should be accepted at Charing Cross. The school had been confronted with the possibility of remaining the only co-educational school in London, and it was felt that this meant that it would become predominantly a women's medical school. During the past year eighteen men and twenty-two women had qualified from the school.

Dr WATTS EDEN said that for the practitioner of medicine the sense of being at school continued throughout the whole of his career. Perhaps this was true of all professions, but it was peculiarly true of medicine. The character of the lessons altered, but the pundits of the medical school were only exchanged for the stern mentor of responsibility which made the conscientious man his own hard taskmaster. Soon after graduation the student made the discovery that there were quite a number of things he did not know, this was disturbing, because most young graduates thought that all they had to do was to go out into the world and exercise their profound knowledge for the good of humanity. He remembered that on the day when he was capped a Bachelor of Medicine he believed himself to possess a great body of exact knowledge which would carry him through everything, but since that date his confidence in what he knew had been gradually crumbling. A further discovery which the young practitioner of medicine would make was that even his teachers and occasionally his textbooks had been wrong. What was called medical science—never an exact body of knowledge—was always undergoing revision. The knowledge held to-day might in ten years' time prove to be wrong, possibly so far wrong as to be dangerous in its application. Consequently the practitioner had to be an assiduous reader, keeping himself familiar with the advances of medicine, a responsibility lightly felt at the time but getting heavier year by year. Another discovery very soon made by the general practitioner was that the patients whom he treated did not get well with the swiftness and swiftness that they should, he came to realize that his failure in some cases arose not from perversity of the patient but from his own lack of technical knowledge, skill, and judgement. The public could not expect any one practitioner to know everything, but they had a right to look for efficiency, and this depended upon the most trifling details. Failure sometimes arose from inability to establish relations of confidence and sympathy with the patient. The most successful doctors he himself had known had not been those who knew most, but those who understood their patients best, had the gift of sympathy, and could inspire confidence. Another disturbing thing which the young practitioner would experience was that a love of quackery was ingrained in the community. Quackery had always been in existence in one form or another, but in recent times it had assumed some strange forms, and was not unknown even within the ranks of the medical profession itself. Quackery appealed to some members of the profession either because they were born with a "quack mind" and drifted into medicine by mistake, or because they were ready to take any short cut which offered pecuniary reward. Medical men were passing through a difficult time. The public was more critical and perhaps more suspicious than formerly, and most people nowadays imagined themselves

to possess a certain amount of medical knowledge. They lived on familiar terms with their various organs and functions. They were not prepared to accept medical men as arbiters of their destiny, and any assumption of the pontifical attitude by the profession was received with contempt. Certain societies, with the assistance of the popular press, were disseminating the impression that orthodox medical practice was all wrong, and that in the columns of daily newspapers was wisdom chiefly to be found. The public had been told that good health followed upon the eating of a rather indigestible form of bread, drinking paraffin regularly, and paying frequent visits to the lavatory. In conclusion, Dr EDEN urged upon those who would make up the rank and file of the profession the maintenance of a sound judgement and a high standard of efficiency. Sometimes the practitioner would be pressed by a patient, reinforced by the patient's family, to take a course contrary to his own judgement, but his clear responsibility was to do the right thing and to wait until the right moment came to do it. Even if the patient in consequence left him for someone more pliable the consciousness of having done the right thing would give him an inward satisfaction which nothing else could afford.

Annual Dinner

The annual dinner of past and present students was held at Gatti's Restaurant, London, on the evening of the same day, with Sir HERBERT WATERHOUSE, consulting surgeon to the hospital, in the chair.

Proposing the toast of "The Hospital and Medical School," Sir Herbert Waterhouse referred with regret to the resignation of Mr. Charles Gibbs, senior surgeon to the hospital, and of Dr. Feuton from his position of dean of the Medical School. He expressed the great debt of gratitude the hospital and school owed to Mr. Gibbs, in his view the finest surgical teacher in London, and to Dr. Feuton, who, having filled with distinction the office of dean during war and post-war years, resigned after serving in this capacity for eleven years. After welcoming Mr. Crook as assistant surgeon, and Dr. Vines, late director of medical studies at Cambridge, as pathologist, he congratulated Dr. Young on his succession to the office of dean, and Dr. Banister to that of vice-dean. He then referred in graceful terms to the guests of the evening—Air Vice-Marshal Munro and Mr. Ingleby Oddie—and extended a warm welcome to Mr. Verity, chairman of the Hospital Committee, and Mr. Philip Inman, secretary-superintendent. Reviewing the progress made in the last quarter of a century, he gave an account of the great debt the hospital and its school owed to Mr. Verity. Twenty-five years ago, he said, there was no money to meet liabilities, there was even a danger of closing the hospital. One member of the council stirred up everyone by his enthusiasm, that was Mr. Verity. It was his genius for organization that not only wiped out a debt of £140,000, but secured £100,000 for extending the hospital and taking over and rebuilding the premises of the Royal Westminster Ophthalmic Hospital. Especially he thanked Mr. Inman for the invaluable work he had done in the difficult financial situation of the past year. Mr. VERITY said that the sceptical response to his early enthusiasms reminded him of a stained glass window best described under the title of "Joseph telling his dreams to his somewhat irritated brethren." Charing Cross Hospital had, he was proud to say, digested the carcass it had picked up at the end of the street finances, thanks to Mr. Inman, were running smoothly, and the Pathological Institute was doing work of immense public importance. The reconstruction of the new premises would involve not only drastic improvement of the out-patient and casualty departments, but the initiation of measures to secure paying wards for the hospital and a new hostel for the nurses. He hoped the State would not lay a cold and interfering hand on the great work that was going on in the voluntary hospitals. Dr. F. H. YOUNG, after referring to the stability of the medical school (which,

thanks to Mr Inman, was better than solvent, though in March it owed no less than £4,500), made a statement on the decision no longer to admit women students to the Medical School. The reason that had actuated the committee was that the six other co-educational hospitals were closing their doors to women, and if Charing Cross proceeded as the only co-educational hospital in five years it would cease to be that, but become a women's hospital altogether. He was proud to say that representative women from the hospital had expressed, as their only regret at the decision, the fear that it might involve their being shut out from the hospital for which they had so much affection. Following this decision the entries of male students for the coming term were larger than they had been for long past. Mr C JENNINGS MARSHALL, proposing the health of the chairman, referred to Sir Herbert Waterhouse's irrepressible boyish enthusiasm, which would never let him grow up. Sir Horbort did not retire from professional life, as during the past three years he had served with distinction as president of the Medical Defence Union, and had just been re-elected for a fourth year. In the course of a witty reply, the chairman appealed to all present to join the Medical Defence Union. During the evening a delightful musical entertainment was provided by Dr Taylor-Harris (an old Charing Cross student) and his friends, and Miss Elise Steels, there was also a conjuring performance by Mr Horbert Collins.

KING'S COLLEGE HOSPITAL

ADDRESS BY PROFESSOR ERNEST BARKER

At the opening of the session at King's College Hospital, London, on October 3rd, the chair was taken by Sir W. WATSON CHEYNE. The report by the dean, Dr WILLOUGHBY LYLE, showed that at the present time there were in the school 227 ordinary students, 63 of whom were engaged in preliminary and intermediate courses at King's College and elsewhere, while 164 were undertaking their final studies at the hospital. In addition there were 65 qualified men and women who were at the school preparing for higher degrees and diplomas. Sympathetic reference was made to the loss sustained recently by both the hospital and school in the death of Lord Hambleden.

The inaugural address was delivered by Professor ERNEST BARKER, lately principal of King's College, London, and now professor of political science in the University of Cambridge. Professor Barker gave a brilliant address, marred only at one point when, in speaking of the "syndicalist" tendency of doctors, he referred to the "British Medical Council" (*sic*) as the most highly organized of all British guilds. He took for his text the Greek word *physis*, which, he said, like many other words, especially those used by medical practitioners, had a very long history. This word originally meant "growth," but became widened until, like the Latin word *natura*, it came to include all nature, inanimate as well as animate. It was from this word that "physio" and "physician" were derived. "Physio" was the study of the processes of nature, and "physician" a man concerned with those processes, partly by understanding them, which was his science, and partly by conducting them, which was his art. The first to separate medicine out of philosophy was Hippocrates. He took out of the whole body of curious inquiry into *physis* at large the one subject of the physical processes of the human body, and said that that was enough for him.

The orator proceeded to compare Hippocrates and Aristotle, dwelling especially on the work of Hippocrates entitled *Airs, Waters, and Places*. Hippocrates was no determinist, and he acknowledged frankly that human institutions and laws might remedy the effects which climate, left to itself, would always produce. The same spirit of eager scientific inquiry appeared in Aristotle, who was possibly indebted to the school of Cos. The spirit of scientific research as exemplified in Aristotle consisted in the observation of the attributes of whatever was studied, experiments and dissection of specimens, and the endeavour to find some explanation of those attributes. The members

of the school of Hippocrates were adepts in observation. In the field of experiment they did not achieve much, their strength lay in simple observation of cases whereby they sought to explain the origin of disease and to apply the appropriate remedy. All this, Professor Barker believed, affected Aristotle, both directly in his biological studies and indirectly in his study of politics. Aristotle was himself the son of a court physician, and might have helped his father, medicine being a hereditary calling amongst the Greeks. He had a mind peculiarly fitted for zoological study, and declared that the study of every kind of animal should be ventured on without distaste. That was the temper of the physician also, and Aristotle followed the physician in his eager observation of structure of parts and organs and in the use of dissection. In Aristotle's *Politics* there were traces of the doctor, or at any rate of the zoologist. Just as the doctors of Cos observed their cases and drew their conclusions, just as Aristotle the zoologist, influenced by them, recorded his observations and made his attempts at explanation and theory, so Aristotle the political philosopher constructed on the basis of the observation of 158 constitutions a theory of politics. He divided those constitutions into normal and perverted, the latter being greedy, tyrannical, and selfish oligarchies. The fifth book of the *Politics*, which was devoted to these perversions, had been called Aristotle's study of the pathology of the State. He also sought to prescribe remedies, his main prescription being "moderate diet." He pointed out, for example, that the over-exercise of power brought about its downfall.

The Aims of a thousand years ago combined medicine and philosophy, the two were signally associated also in the school of Cordova, and in the court of the Roman emperor Frederick II. The sixteenth century was a great age for the philosophic physician, the names of Servetus, who died at Geneva for his faith, of the Italian physicians Eustachius and Fallopius, after both of whom parts of the human anatomy were named of Harvey, and many others came to mind. Two other English doctors were to be commemorated in the same connexion. One was Thomas Linaeus, a Greek scholar, the founder of two lectureships—"one, in gratitude, for Oxford, and the other, in pity, for Cambridge." The other was Thomas Sydenham, friend of John Locke the philosopher, and sometimes called the English Hippocrates.

In conclusion, Professor Barker advised the student to learn to clothe his physics with some philosophy and some general wisdom. There was no nobler figure than that of the wise doctor, who maintained breadth of interest and general capacity of mind. He recalled in this connexion Sir Thomas Browne, and also a modern one whom he happened himself to have known—Sir William Osler. Gratitude was due also for the physician's humanity, which was wrapped up with his skill, Hippocrates said, "If you have love for your fellow men you will have also love for your art."

A vote of thanks to the orator was proposed and seconded by Professor G. F. STILL and Sir CHARLTON BRISCOE.

THE MIDDLESEX HOSPITAL

ANNUAL DINNER

The annual dinner of the Middlesex Hospital was held at the Savoy Hotel on October 2nd. PAUL ARTHUR CORNWORTHY, chairman of the hospital, presiding. After the loyal toasts had been duly honoured, Prince Arthur proposed the toast of "Prosperity to the Middlesex Hospital and its Medical School." The urgent necessity of reconstructing the hospital created by the dangerous condition of the old building had, he said, been faced with courage and confidence. Apparent disaster had served as an incentive not merely to reconstruct but to develop in such a way that the hospital and its school should become factors more powerful than ever in the prevention and treatment of disease. His close association with the institution for four and a half years had taught him that hospitals were not merely institutions for tending the sick, but were in reality the guardians of national health. In his view it was vital that everyone in the country should

he taught to value properly the need for trial and experiment, in both the clinic and laboratory, in relation to every aspect of disease. The public must realize that the voluntary hospitals laboured unceasingly towards the end of preventing disease, and that its responsibility to these institutions was governed as much by self-interest as by charitable feeling. Reviewing progress made, Prince Arthur said that the building of the new west wing was nearing completion, the central boiler-house was completed, the Courtauld Institute of Biochemistry was full of determined workers with a set purpose before them, and the first section of the new nurses' home, the gift of an anonymous donor, would be completed within twelve months. The whole history of the voluntary hospital system contained, he believed, no finer record than theirs, no higher inspiration, no greater encouragement to anticipate the final success of their contribution in promoting the cause of health and happiness. The scheme of development included the provision of a block for paying patients. The governors held that the voluntary hospitals should be available not for one class only, but other classes should be brought within reach of their benefits, and they had determined that such an extension should be made. They could, however, obtain the necessary capital only from two sources—from those who would directly benefit and from those with wealth and goodwill. The outlook had been gloomy but their persistent courage did not go unrewarded. He was proud to say that a friend of the hospital had put at their disposal the munificent gift of £125,000 which would enable them to realize their great ambitions. The new service would now become an integral part of the hospital's functions and would constitute an example of the intelligent use of opportunity for the good of as many as possible. He was confident that the admiration and gratitude they felt for the donor would find responsive echo in the hearts and minds of those who would benefit directly and of the whole country. Mr S A COURTALD, responding, said that the generous gift ensured the successful completion of the hospital's great reconstruction scheme. He had had convincing personal evidence of the real value of the hospital's pathological institute to the country practitioner lacking the facilities for the laboratory investigations essential to diagnosis. Mr ERIC PEARCE GOULD, dean of the Medical School, in the course of a most amusing speech, modestly referred to the tremendous work that had been done by everybody except himself. He announced that this was probably the last annual dinner at which he would be present in his function as dean of the Medical School. Dr G H DOBNEY also replied. Dr HENRY MACCONAIG proposed "The Guests" in graceful terms, and Surgeon Vice-Admiral GASKELL, Medical Director-General, R.N., and Dr E W AINLEY WALKER, dean of the Faculty of Medicine at Oxford University, replied. Admiral Gaskell made a plea for the sending of the best type of man into the medical service of the Royal Navy. He was very glad to say that during the past year some of the best recruits to his service had come from the Middlesex Hospital. Dr AINLEY WALKER deplored the tendency in medical education to multiply a smattering in specialities. However much the student of medicine was given small doses of this, that, or the other specialization, he would find, after half a dozen years of practice, that knowledge had advanced and methods changed. Only one thing was never out of date and that was a trained mind. The function of medical education was the training of the mind of the medical student. Mr ROBERT L HUYTER, proposing the health of "The Chairman" announced that Lord Woolvington, who made such a generous gift to the Middlesex Hospital, was also the donor of £50,000 towards the fund for the restoration of St George's Chapel, Windsor. After his health had been drunk with musical honours the CHAIRMAN responded with a delightful speech, in which he said that what had struck him above all in the Middlesex Hospital was the great pride that all those connected with it took in the fact that they were Middlesex men. At the conclusion of the dinner, students, past-students, and their guests adjourned to a reception room for conversation and the renewal of old associations.

ST MARY'S HOSPITAL

OLD STUDENTS' DINNER

THE annual dinner of the past and present students of St Mary's Hospital School was held on October 5th at the Trocadero Restaurant, with Dr E G MOON of Broadstairs in the chair, supported by Sir John Rose Bradford, President of the Royal College of Physicians, Surgeon Vice-Admiral Gaskell, Air Vice-Marshal Munro, and senior members of the hospital staff. The attendance of students of various periods was larger than at any previous dinner.

Proposing the toast of "St Mary's Hospital and Medical School" the Chairman paid a warm tribute to the high traditions characteristic of both. With many anecdotes he illustrated the progress of the hospital in the past, making special reference to the building of the Mary Stanford Wing, and to Sir John Broadbent. Lieut-Colonel H E VEREY, D.S.O., deputy chairman of the hospital board, replied to the toast, and expressed deep regret at the absence of Mr A R PRIDEAUX, who, after a long connexion with the hospital, including eleven years of chairmanship of the board, had been obliged to resign for reasons of health. Mention was also made of the great loss sustained by the death of Mr Maynard Smith. Colonel Verey reported that the hospital had ended the last year with a financial balance on the right side, but it had to be remembered that the new buildings, including wards and operating theatres, would impose an additional annual expenditure of £7,500. He commented on the necessity of building a new medical school, inoculation department, and nurses' home; this would make available the accommodation for paying patients which he regarded as one of the greatest needs of the present time. In the three essential departments of the work of a great hospital—namely, research, medical tuition, and the care of patients—St Mary's had won a very high reputation in the world. The toast was also responded to by Dr C M WILSON, dean of the Medical School, who referred to the part taken by co-education in providing for the increasingly heavy expenditure since the war. The entry of students continued to be satisfactory, but there was room for still further increase in this respect. Towards the sum of £160,000 required for the new school buildings about £100,000 was still wanted; this would be easily obtained if the fine example set in collecting money during the past year by the Pathological Institute, led by Sir Almoth Wright and Dr John Matthews, was followed. Dr Wilson added that the virtue of any medical school was to be found in the quality of the students who went out from it to take up work in all parts of the Empire; he paid a high tribute to the character of the present students, which justified confident hopes of the standard being maintained.

Mr V WARREN LOW, senior surgeon to St Mary's Hospital, proposed the toast of health and continued prosperity to the Chairman. In a warmly appreciative speech he referred briefly to Dr Moon's many-sided ability, as a sportsman he had been distinguished in football, cricket, and golf. He was also a great-hearted man, and a skilful and highly respected general practitioner, to whom very many people brought their troubles for solution.

THE PHARMACEUTICAL SOCIETY

ANNIVERSARY DINNER

THE Pharmaceutical Society of Great Britain held a dinner at the Hotel Victoria, London, on October 31st, in celebration of the sixtieth anniversary of the passing of the Pharmacy Act of 1868. Mr HERBERT SKINNER, president of the society, was in the chair.

Sir GREGORY FOSTER, Vice-Chancellor of the University of London, proposed the toast of "The Society and its Benevolent Fund," tracing the evolution of the modern pharmacist from the old-time alchemist and apothecary. How these people became pharmacists, he said, was not quite clear, but the change of name really was significant. He then referred to the educational work of the society, saying that he was specially interested in the school in its connexion with the University.

of London. No modern development has been more important than the association of pharmacy with the universities. The country was realizing that if it were to be properly served in the various activities of life it must be by trained men and women, who were only to be found among those who had that fundamental education on which the universities insisted before the candidates entered for degrees. There were now in Britain twenty five approved schools of pharmacy, three being connected with the universities of London, Glasgow, and Manchester. Their school in connexion with the University of London was growing steadily, and the men and women coming up for that course were improving in quality and calibre every year.

The PRESIDENT, in reply, said the Act of 1868 made confusion worse confounded, but it had a very warm corner in the heart of every pharmacist. The seed of goodness it contained was that for the first time it united chemists and druggists with the Pharmaceutical Society, the keystone of the Act was unity in pharmacy, and that was the greatest thing for which they could give it credit. It was the first Act that recognized their authority as the sole dispensers and distributors of poisons, and it was not until 1911 that they had the National Health Insurance Act, which made them dispensers to the nation, under that Act nearly sixty million prescriptions were dispensed annually. The Act of 1868 made the society the authority for carrying out the poisons law of the country, and for sixty years they had done so faithfully for the protection of the public only. He hoped they would go forward with this work for the benefit of the public, that, in pharmacy as in medicine, was the only test that they were doing their job.

Mr E T NEATHERCOAT proposed the toast of The Houses of Parliament, remarking that in future legislation Parliament should very carefully consider the policy and practice of the pharmaceutical leaders of the last sixty years. In responding, Sir GEOFFREY BUTLER, M.P., commented on the growth of a new interest in the nation's health. In this matter, he said, the Houses of Parliament were powerless alone, it was only in collaboration with bodies such as their society that permanent progress could be made.

Replying to the toast of The Guests, proposed by Mr L MONROE PARRI, vice president of the society, Sir ARTHUR ROBINSON, Secretary of the Ministry of Health, said it was a curious thing that in this country when one wanted to govern a profession well one asked it to govern itself. In his own time this practice had been extended to nurses and dentists, and others were asking for similar privileges. There was room for doubt as to this in some cases, but none in the case of the pharmacists. Sir Arthur Robinson then referred to the services rendered by the society and its laboratory in the administration of the Therapeutic Substances Act. He endorsed what had been said regarding the high level of performance in the work done under the National Health Insurance Act, saying that they should be proud of the way in which that public service was performed.

Among those present were Sir Wilfred Sugden, M.P., Sir W H Willcox, Sir Henry Jackson, Surgeon Vice Admiral A Gaskell, Medical Director General R N. Mr Colin Smith, Deputy Clerk of the Privy Council, Professor W E Dixon, Professor F T G Hobday, Professor H G Greenish, Dr J P Share Jones, Mr R B Pilcheg, Mr G Stubbs, Deputy Government Chemist, Dr Alfred Cox, Medical Secretary of the British Medical Association, and Dr P Haas.

OPENING OF THE SCHOOL OF PHARMACY

The inaugural address at the opening of the eighty seventh session of the School of Pharmacy was given on the afternoon of the same day in the hall of the society by Mr REGINALD BENNETT, chairman of the British Pharmaceutical Conference, who spoke on pharmacy as a career. He said that pharmacy had not yet acquired the material recognition that was its due. It was only by united efforts in educating public opinion that its claims could be brought home to the uninitiated. In aiming at the enhancement of status there was a constant demand for improvement in matters educational, technical, and ethical. The course that pharmacists should pursue was to cultivate assiduously the scientific side of pharmacy, in the promotion of pharmaceutical research, and in keeping pharmacy abreast of advances in biochemistry, pharmacology, and kindred subjects. Only by giving first place to the professional side would it be possible to maintain and to enhance the esteem in which pharmacists were held by their fellow men.

ROYAL VETERINARY COLLEGE

At the opening of the new session at the Royal Veterinary College on October 2nd, Sir Arthur Weigall, who presided, said that the college was going through a period of difficulty. Governments had in the past shirked their responsibilities in regard to the veterinary profession. A departmental committee had, however, been appointed to inquire into the future of the college, and there was thus a possibility of the responsibilities being placed on the shoulders that ought to bear them. Sir Merrick Burrell said the fact that the college was in its present position was not altogether the fault of the governors. In 1919 they made an appeal to the authorities for help, but it was shelved. The seriousness of the present position could not be exaggerated, and if the governors did then duty from the purely financial point of view they would close the college to avoid bankruptcy. But they could not do that, education must go on. He hoped it would be the departmental committee's duty to ask for everything it thought necessary. Professor F T G Hobday, principal of the college, said that for the present session there was one of the highest entries they had had for many years. They desired a minimum of £250,000, and some of the money was on the way.

OLYMPIA MOTOR SHOW.

MORE POINTS FOR MEDICAL MEN

[FROM OUR MOTORING CORRESPONDENT]

DISCUSSION of the relative merits of different makes of car is particularly popular during the period of the annual motor show, which is now proceeding at Olympia and will continue until Saturday, October 20th. In point of fact choice of car nowadays is determined far more by the means of the purchaser, the presence or absence of this, that, or the other fitting, and the individual's aesthetic preference for certain types of bodywork, than by any objective variations in the mechanical efficiency of the cars on the market. The improvement in motor engineering has been such that, generally speaking, all cars may now be depended upon to give efficient service over a long period, if only attention is given to the ordinary problems of lubrication and care and adjustment of machinery.

Price not the Only Factor

Medical practitioners require cars that, despite daily use in all weathers, will maintain the good appearance of their external and internal bodywork for a long period. A little reflection will show that the lowest priced car is not necessarily cheapest in the end. The popular priced cars, while there is no question of their being excellent value for money, must in some directions fall short of those costing more. Examples that come to mind are the quality of the paintwork and of the upholstery. Artificial leather, which in some instances is adopted for the latter, though meeting well enough the requirements of a section of motor users, has not, nor is it claimed to have, the wearing qualities of real leather. It is therefore suggested that doctors looking round for a new car should not let the question of price be the only determining factor in their final decision.

Standardization of Controls

We appear to be still far from achieving any degree of uniformity in the control gear of cars. It is therefore gratifying to note that the Standardization Committee of the Society of Motor Manufacturers and Traders is taking steps to bring about some standardization in this direction. As examples of unnecessary varying practice one may cite accelerator pedals, which on some cars are to the right of the brake pedal and on others between the clutch and brake pedals, the former position being recommended. The position and direction of movement of steering wheel ignition levers, and of throttle control levers, are at present also determined by the individual designers. It is proposed that ignition levers should always be to the left and move upwards for advance, and that throttle levers should be on the right and open on the upward movement. Thus the levers, when nearest the driver, would be in the

retarded and closed positions. Similarly, a standard form is recommended for the different speed positions of the change speed lever for three- and four-speed gearboxes.

The Lighting of Cars

In the section of accessory exhibits—a section rich in devices and of contrivances claimed to enable the light of motoring—are contained a large number of anti-dazzle devices and of contrivances claimed to enable the light of lamps to penetrate through the foggiest of atmospheres. One of the most useful novelties to which attention may be drawn is the new anti-dazzle "dip and switch" reflector shown by Joseph Lucas, Ltd. About a year ago this firm introduced a dipping reflector which has been widely adopted. In the new device the headlight reflector on the near side is arranged to dip and at the same time automatically to turn to the left and light up the near side of the road. Simultaneously the off side headlight is automatically switched off and remains out during the whole period of dipping. Thus, in addition to avoiding the dazzling of oncoming drivers, will be found useful, it is claimed, when fogs and mists are encountered.

Last week reference was made to the importance of giving due weight to reliable lighting when choosing a new car. The batteries must be regarded as important as the dynamo and starter themselves. A number of firms now specialize in making these for use in motor vehicles, among them being Vandervell's, Oldham's, Lucas's, and the Chloride Electric Storage Company. The latter are the makers of the well known Exide batteries, for which a long life is claimed. The firm rightly point out that against the cost of a battery must be reckoned the degree of service it renders—another instance of the importance of not over-stressing the price factor.

Unsplinterable Glass

A noteworthy feature of the show is the increasing attention now being devoted to the manufacture of unsplinterable glass. In view of the great increase in motor traffic and the consequent greater risk of accident, there is no question of the desirability of its employment for wind-screens and for the windows of covered cars. On most cars it is at present only fitted at an extra charge, but most doctors using their cars in traffic would consider this extra charge worth paying. The pioneer of safety glass was the Triplex Company, but there are now several other varieties available.

Some Notable New Cars

The outstanding feature of the show is the large number of six- and eight-cylinder cars, the prices of which are no more than had to be paid a few years ago for the better-class four-cylinder vehicles. Moreover, a tour of the exhibition reveals the fact that, despite the American and foreign bid for the car made in this country, British manufacturers have nothing to learn from them in the art of motor construction, and that it is possible to find British cars meeting every possible requirement.

One of the surprises of the exhibition is the new six-cylinder car shown by Armstrong-Siddeley Motors, Ltd., which is listed at £250, either as an open two or four-seater, and at £275 as a four-seater fabric saloon. The new chassis is similar to the firm's 15 h.p. car introduced a year ago, and has a side-valve engine with a bore and stroke of 56 by 84 mm. A single-plate clutch conveys the drive to a centrally controlled three-speed gearbox, which is mounted on the forward end of the propeller shaft torque tube. The wheel base of the vehicle is 8 ft 9 in., and the track 4 ft., semi-elliptic springs are used all round, and the steel disc wheels are shod with 27 by 44 in. balloon pneumatic tyres. The equipment of the vehicle is very lavish, and includes speedometer, clock, petrol gauge, and unsplinterable glass in the windscreen. The firm are also continuing to manufacture their 14-h.p. four-cylinder, and 15-h.p., 20 h.p., and 30 h.p. six-cylinder cars. Attention is drawn, moreover, to this firm's display of what is known as the "self-changing" four-speed gearbox, reference to which was made last week, and which can now be fitted at an extra cost to the 20-h.p. and 30 h.p. cars. It may also be mentioned that the Armstrong-Siddeley vehicles are

provided with a central lubrication system, the operation of a pedal forcing a supply of grease to all parts of the mechanism requiring it.

The Popular Morris Vehicles

There are probably no more popular cars in this country than those which bear the name Morris. Considerable interest attaches, therefore, to the 1929 programme of the Morris Company. It has been known for some time that the firm had decided to put on the market a smaller edition of their Cowley car, and so to enter the field which has so far been practically monopolized by the Austin seven. It is claimed for the new Morris minor, although its prices have been fixed at the same level as the Austin, that it is intended less as a competitor of the latter than as an effort to popularize the use of motor vehicles among the section of the public to whom such prices would represent an outside limit. The new vehicle has already been so widely described that it need here be only mentioned that it is fitted with a four-cylinder engine with a tax rating of 8-h.p., and that it has a petrol consumption of fifty miles to the gallon, a three-speed gearbox, wire wheels with 26 by 3½ in. pneumatic tyres, brakes on all four wheels as well as one behind the gearbox, dynamo lighting and starting, and bumpers both fore and aft. The new car is being supplied both as an open four-seater and as a saloon, the wheel base being 6 ft 6 in. and the overall length 10 ft 2 in.

The improvements in the Morris-Cowley range of 11 h.p. cars, the saloon of which is now priced at £190, comprise a lower chassis, improved springs, dipping headlight reflectors, an electric horn, bumpers, and better bodywork. Similar improvements have been made in the 14/28-h.p. Morris-Oxford cars, the prices of which range from £200 to £277 10s for the saloon de luxe. There is also a 16/40-h.p. four-cylinder Oxford at prices from £295 to £330, while for the 1929 season the Morris Company are arranging to devote more attention to the 17.7-h.p. six-cylinder car, which was introduced last year, and is now being built in coupe and saloon forms at prices varying from £305 to £390. As it is impossible to show a full range of the Morris cars in the limited space available at Olympia, the firm of Stewart and Arden, Ltd., as sole London distributors, closely associated with the Morris productions, are holding a special exhibition during the period of the motor show both at their showrooms at 103, New Bond Street, W., and at their service and repairs establishment at Acton, W.3, which latter is claimed to be the largest of its kind in the world.

1 Citroën Light Six

Users of Citroën cars—which are a very popular type with many doctors—will be interested in examining the new light six-cylinder model, the engine of which has a bore and stroke of 72 by 100 mm. Ignition is by coil and distributor, and the Solex carburettor is supplied with petrol from a tank at the rear through the medium of an Autovac. Steering is of the worm and wheel type, with provision for adjustment. Semi-elliptic springing is employed all round and shock absorbers are fitted. The final drive is by spiral bevel gear, the rear axle incorporating oil baffles of a particularly effective kind. The car has a very attractive appearance, with high, narrow radiator, well-placed lamps, and smooth-lined all-steel bodywork. As a four-door saloon it is priced at £295. A feature of the whole range of Citroën cars, which includes in addition to the new "six," 13/30-h.p. and 12/24-h.p. four-cylinder models, is a wider track, enabling wider bodies to be fitted. By dispensing with body cross-members and mounting direct on the frame, the bodies, in addition to being 2 in. wider, are lower, with a pleasing absence of valance.

The Austin Range

The policy of the Austin Motor Company is to embody any improvements which appear to be desirable in their various models as and when opportunities occur, and not to keep them back for the purpose of introducing new cars at the annual exhibition. In this they are following the long adopted policy of such soundly established motor concerns as Rolls-Royce. Although, therefore, the show discloses nothing sensational in connexion with the Austin

cars, one finds a number of detail changes that have been made since the last exhibition. For example, in the ever-popular "Seven," larger headlamps, mounted forward and fitted with separate dimmer bulbs, are now used, the dash has also been provided with ventilators, while an improvement of some importance is that the brake drums are now secured to the wheel hubs. The Austin 12-h p four-cylinder, the 16-h p six-cylinder, and the 20-h p "fours" and "sixes" have similarly, at various periods during the past year, been subjected to slight alterations to afford users greater convenience and simpler service. The petrol tank, for instance, can now be filled without disturbing the driver, the filler having been moved to a more accessible position, and a petrol depth gauge is now fitted on the dash.

In addition to these chassis changes, various new body models have been added to the Austin range, the "seven" coupe at £135 being a notable example. Others include the Burnham saloon and four-window fabric saloon on the 12-h p chassis, and an improved saloon on the 16-h p six-cylinder chassis. There is no more popular car among doctors than the Austin 12-h p. The prices of this have been reduced, and now range from £245 to £315. For an additional £50 users have now the option of the Austin 16-h p "light six," which bids fair to become as popular in the market for which it caters as the "seven" in its own.

Humber and Standard Cars

The chief feature at the Humber Company's stand is a new 16/50-h p six-cylinder car the engine of which has the inlet valves inclined in the head with the exhaust valves in the usual position at the side. The Humber 9/28-h p four-cylinder car has undergone considerable improvement, while in all models one notices a redesigned radiator, dipping headlights, and a stop signal combined with the tail light.

The Standard Motor Company, Ltd., are retaining their 9-h p, 14/28-h p, and 18/42-h p four-cylinder cars, and in addition are introducing a new 15-h p six-cylinder vehicle. The "fours" are unaltered in chassis design, but the 9-h p fabric saloon has been much improved in appearance. A new model 9-h p has also been introduced, this is known as the "Teignmouth" saloon, the special features of which are separate bucket seats and the "Stanlite" roof, which can be opened or closed as desired. The chassis of the new car is identical with the other 9-h p models, with the exception of a 7 in. longer wheel base, this being 8 ft 3 in. The new 15-h p six-cylinder car is an extremely interesting model, and has been designed to give a high top gear performance. The engine, which has a bore and stroke of 63.5 by 102 mm, is provided with a seven-bearing crank shaft. A unit construction four-speed gearbox is used, and semi-elliptical springs fitted with rebound leaves are employed front and rear. The cars on view include an attractive fabric saloon known as the "Exmouth," listed at £325.

More Coventry-built Cars

A car attracting considerable attention is that shown by the Alvis Car and Engineering Co., Ltd.,—a 12/75-h p four-cylinder vehicle, notable in that the engine power is transmitted to the front wheels instead of as usual to the rear. At present the car is mainly designed for sports use, but it may be that sooner or later the front drive will become more general. The Alvis Company are also showing their 14/75-h p four-cylinder cars, which, although on more orthodox lines, are well worth examining. The chassis on which an Alvis light saloon body is mounted is particularly attractive.

The most striking feature of the Hillman Motor Car Company's programme for the coming season is the introduction of a 197-h p car with a "straight-eight" engine, to be marketed as a saloon at £485. The specification includes unsplinterable glass, dipping headlight reflectors, wire wheels, servo-operated brakes, etc. The Hillman 14-h p four-cylinder cars, which have proved very successful during the past year, are being made with over two

hundred detail improvements in the chassis. Of these the more important are a 4 in. wider track, lower build with same ground clearance, deeper and more handsome radiator, electrically controlled dipping headlamps, and increased strength throughout. It is noticeable that the saloons are not only wider, but, while permitting the same head room, 3 in. lower than formerly. In the bodies, which have steel panelling, valances have been eliminated.

During the past few years Riley (Coventry), Ltd., have come rapidly to the front as builders of speedy but reliable cars. A special feature of the Riley "nine" is that it has four speeds, and that the third speed gearwheels are in constant mesh and claimed to be just as quiet as the top gear. Among the body designs is a new "Biarritz" saloon, in which special attention has been paid to the construction and mounting in order to minimize interior noises. The new Riley 14-h p six-cylinder car may be described as a larger edition of the "nine." Its R A C rating of 13.5-h p is no clue to the power development capabilities of the engine, which is fitted with overhead valves. In addition to a touring car there are two varieties of saloons supplied on the new 14-h p chassis at £495 and £525 respectively.

A notable alteration in the plans of Vauxhall Motors, Ltd., is that they have ceased to manufacture their 30/98-h p and sleeve-valve-engined cars, in order to concentrate on the 20/60-h p six-cylinder model introduced a year ago. Into this they have incorporated a number of improvements. By a slight increase in engine size, and by the redesigning of the head, the intake manifold, the cam shaft, and the silencer, increased power to the extent of about 25 per cent is claimed. A choice of nine designs of open and closed bodywork at prices ranging from £495 to £695 is available for the new chassis.

Having commenced this week's review of the show with what may be termed the popular range of car exhibits, it may be well to close with a reference to the exclusive vehicles of the Rolls-Royce Company, whose exhibit is always the centre of interest and admiration at Olympia. The various models displayed this year are no exception to the rule. The 40/50-h p car is represented, among others, by a six-cylinder "Phantom" chassis with a Barker enclosed limousine body seating six persons. The price of the complete vehicle is £3,037. The smaller 20-h p six-cylinder Rolls-Royce is also on view, one, priced at £2,042, being fitted with a Thripp and Maberly enclosed drive limousine body painted claret and black. Needless to say, the cars, being built to a quality rather than a price standard, are magnificent examples of the modern art of car construction.

Next week it is hoped to review other cars exhibited at Olympia, and also to draw attention to some of the more interesting accessory exhibits in the galleries.

SEGREGATION OF THE MENTALLY DEFICIENT

THE Mental Deficiency Act of 1913 is in itself beneficent. By its provisions the congenitally weak-minded members of the community may be segregated, cared for, and scientifically treated and trained. By its means they can be delivered from the squalor and wretchedness of their home lives, as often as not with mentally defective parents, and be placed in sheltered surroundings, where they may be enabled to lead happy lives, often of surprising usefulness. Nor are the benefits of their segregation confined to themselves. The community is relieved from much of the burden of poverty, crime, and disease which are directly traceable to this mentally defective population. It is therefore of the utmost importance that the intentions of the Legislature should be fully realized in the administration of this Act. The present position is far from satisfactory, and it must be a matter of grave concern to all who have the best interests of the country at heart.

The Commissioners of the Board of Control¹ report that urgent cases are frequently brought to their notice in which prompt action is necessary in the interest both of the individual and the community, and that no accommodation is available. The lack of accommodation becomes every year more serious, and the Commissioners fear that unless a great effort is made in the immediate future it may become impossible to administer the most important sections of the Act. To appreciate aright the present difficulties which are being encountered in the functioning of the Mental Deficiency Act, it is necessary to recall its main provisions and the conditions which brought these into being.

A long and arduous campaign by enthusiastic social workers who were profoundly dissatisfied with the neglect of the weak-minded members of the community, and the attendant growth of all manner of crime, resulted, after repeated representations to Parliament, in the appointment in 1904 of the Royal Commission on the Feeble-Minded. After a searching inquiry, extending over four years, this Commission presented a unanimous report, in which it was stated that the evidence compelled the conclusion that there were numbers of mentally defective persons whose training was neglected, no sufficient control was exercised over them, and their wayward and irresponsible lives were productive of crime and misery. The Commission was convinced that much misery and injury resulted to these persons and to others, and that useless expenditure occurred, wasteful both to the community and to the individual families. As a result of the labours of this Commission the Mental Deficiency Act came into being, and was in full operation on April 1st, 1914. It accepted the principle of unity of control which the Commission had recommended, but by dividing the authority mainly between the Board of Control and the Board of Education—this latter body being responsible for feeble-minded children between the ages of 7 and 16—and by setting up a highly complicated procedure, it cannot be said to have brought about the co-ordination of activities which the Commission had envisaged.

Unfortunately, the advent of the war made it impossible for either the Mental Deficiency Act or the Elementary Education (Defective and Epileptic Children) Act to come into complete operation. Rigid economy had to be enforced, and it became necessary to postpone many schemes for the accommodation of mentally defective persons, and to restrict the operation of the Act to such cases as required immediate control. Local authorities, however, were urged to proceed with their duties of obtaining all necessary information with regard to the number and condition of defectives within their own areas, so that everything might be in readiness for the full functioning of the Act when circumstances permitted. This duty of detecting and certifying defective persons had none the less been undertaken by only a few of the local authorities, but it was hoped that when the armistice came all such deficiencies would be remedied. Unfortunately, the Board of Control was again under the necessity of postponing provision for defectives owing to the still urgent need for economy. Many questioned seriously, as did the Board of Control, the wisdom of a policy of retrenchment with regard to expenditure on mental defectives at a time when owing to widespread unemployment, the feeble-minded must necessarily be the first to be thrown out of work and into all manner of temptation. Very slow progress was made in the years which followed. Still, in 1921, Government instructions retarded development of work under the Mental Deficiency Act, again the county and county borough councils had to be informed that the programme for 1922 must be "restricted to the execution of commitments already made and which cannot be postponed." During this period, as since, the work of the Voluntary Central Association for the Mentally Defective admirably supplemented the necessarily limited operations under the statute.

Notwithstanding repeated representations to local authorities to assume their duties under the Act, the Board of

Control was still in 1925 writing that "the subject which calls for the most serious attention is the want of accommodation for all types of defectives," and was pointing out that hundreds of urgent cases had been, and were being, discovered for which no vacancies in existing institutions were available. According to the Board's report for 1925, the number of local authorities who had provided any accommodation for defectives was only 17 out of the 124 under the Act. Very slow progress continued to be made, and this was quite inadequate to the urgent needs of the situation.

Meanwhile, matters were further complicated by the ever-increasing number of post-encephalitic patients whose immorality and criminal conduct, the outcome of this disease, constituted a serious problem. Their case was not met by the Mental Deficiency Act of 1913, according to which mental defect must have existed from birth or from early years. To meet the need of placing such sufferers in appropriate institutions where they would receive the necessary medical treatment, the Mental Deficiency Act of 1927 was placed upon the statute-book. This Act, by altering the definition of the four categories of mental defectives given by the Act of 1913, enabled provision to be made for post-encephalitic and other cases "of arrested or incomplete development of mind existing before the age of 18 years, whether arising from inherent causes or induced by disease or injury." In addition, various difficulties which had arisen as a result of the drafting of the Act of 1913 were removed.

The position, however, with regard to the insufficiency of accommodation is more serious than ever. The Board of Control can be warmly congratulated on the unabated zeal it has shown in urging, day in and day out, the local authorities to fulfil their duties, matters could not have been more plainly stated. Again and again the Board has pointed out the degradation, pauperism, crime, and disease which follow the neglect of the mentally defective, and instance after instance has been quoted.

The present report (for the year 1927) quotes numerous histories supplied to the Board by local authorities, the following instances may be cited.

Father Welsh collier Mother Feeble-minded (1) Daughter born 1895 feeble-minded in institution for three and a quarter years died therein of influenza and pneumonia (2) Son born 1899 feeble-minded in certified institution for four years died therein of bronchial pneumonia (3) Son born 1897, imbecile under care in institution for mental defectives since August 1915 (4) Son born December 1900 imbecile under care in institution for mental defectives since March, 1918 (5) Son born August, 1904 imbecile under care in institution for mental defectives since September 1920 (6) Daughter born October 1908, feeble-minded under care in institution for mental defectives since March 1928. These are the six mentally defective children of one family there were no other offspring.

Father in and out of mental hospital Mother feeble-minded (1) Daughter aged 29 feeble-minded under care in mental deficiency institution since August 1921 (two illegitimate children) (2) Daughter aged 24 feeble-minded under care in mental deficiency institution since March 1921 previously sent to industrial school for consorting with prostitutes (3) Daughter aged 17 imbecile under care in mental deficiency institution since January 1928 found wandering round army camps (4) and (5) Two sons unemployable.

Father described as being fairly normal Mother mentally defective (1) Son aged 14 an imbecile under care in mental deficiency institution since April 1927 (2) Daughter aged 11 feeble-minded under care in mental deficiency institution since April 1927 (3) Son aged 14 feeble-minded in Poor Law institution awaiting removal to institution for mental defectives (4) Son aged 7, feeble-minded under care in mental deficiency institution since July, 1927. The parents of these four mentally defective children have themselves received indoor relief for a number of years.

Such histories afford a glimpse into the devastating effects of neglect to segregate the mentally defective population in our midst. It is even possible, as matters now stand, for mental defectives who have been certified as unable to manage themselves and their affairs, or as requiring care, supervision, and control, to become married. In days of enlightenment these things should not be, and it is the bounden duty of all who have cognisance of the facts to support every demand for the full operation of these Acts.

Scotland.

Extension of the Scottish H use

WE publish in the *Supplement* this week a full account of the ceremony on October 4th, when the extended premises of the Scottish House of the British Medical Association in Drumsheugh Gardens, Edinburgh, were formally opened by Sir Robert Philip, immediate Past-President of the Association.

New Edinburgh Professor

Professor W. T. Ritchie, who occupies the chair of medicine in the University of Edinburgh in succession to Professor G. Lovell Gulland, delivered his inaugural lecture in the anatomy classroom of the University on October 4th. Principal Sir J. Alfred Ewing, who presided, said that the subject of medicine was enormously progressive at the present time, it was becoming increasingly experimental, and, one might say, full of the spirit of adventure. Doubtless the new professor would require more experimental facilities than in the past, although it might be difficult for the University to provide these. Professor Ritchie remarked that there was a striking difference between medicine to-day and that of thirty years ago, corresponding to the changes which had emerged in other spheres of material and intellectual life. The advance in medicine had not been achieved by clinical observation only, but by the application to medicine of knowledge from all branches of science. The fame of a medical school depended to a considerable extent upon the contributions which it made to the advancement of medical science as well as upon the educational value of its instruction. In Scotland the organization of medical education was, like the forms of Church government and legal procedure, an expression of the history and social life of the country. In the nineteenth century a professor of medicine delivered a lengthy course of systematic lectures, supplemented by clinical instruction, and his departmental needs were met by some simple laboratory apparatus. In the twentieth century, however, a professor of medicine needed not only clinical material, but a department in which the staff could investigate some of the dark places of internal medicine and the student could be brought into close touch with the subjects he was studying. To illustrate his teaching the physician needed the patient, and it might be wondered why some or all of the instruction in the course in Practice of Medicine was not given within the Royal Infirmary. Problems such as this could be solved by a spirit of sympathetic co-operation between the various components of the medical school. The speaker concluded by saying that if generous benefactors were to reconstruct, equip, and staff the department of medicine, and to endow research fellowships in medicine, they would be conferring inestimable benefit not only on the University of Edinburgh, but upon medical science generally.

Scottish Association of Insurance Committeees

The sixteenth annual conference of the Scottish Association of Insurance Committeees was held at Elgin on September 21st and 22nd. Mr H. W. Graham, who took the chair, remarked that passing events had conspired to delay the development of health service which was ultimately inevitable, under the domain of national insurance medical benefit was still confined to irreducible minimum services, but this would before long be much expanded. The announcement that the present pharmaceutical service would be continued led to a lively discussion. Dr E. K. Mackenzie criticized the official means employed to bring about a reduction in the cost of prescribing, and contended that the method of surcharging medical men was making insured persons the scapegoats of the Act. He believed that medical men throughout the country, in order to escape being surcharged, were differentiating between their insured and non-insured patients. He also objected to the attempt which was being made to prevent medical men from prescribing flavouring agents. Sir Henry Keith, in objecting to this amendment, said that it was the wish of the Executive to get the best medicine and the best attention available for the insured person but it was necessary if supervision should be exercised over the cost.

No charge was made against the medical profession as a whole, but amongst insurance practitioners some required to be watched in regard both to the character of the drugs they prescribed and the frequency with which these were given. He believed that some young doctors should have a careful education in prescribing in a druggist's shop, so that they might know the real value and the effect of quantities. The amendment to the report was finally defeated by a large majority. An address delivered by Dr Hugh Miller contained a plea for the lessening of what he termed "the prestige of the bottle." He said that often the only thing that a patient desired, and sometimes the only thing that a doctor could do for him, was the prescription of a bottle. There was undoubtedly a movement to lessen the prestige of the bottle, but so long as most consultants continued to prescribe as freely as they generally did it was difficult to persuade insured persons that drugs were not essential in all cases. The speaker believed that there was room for institutions—run on more modest and economical lines than the general hospital—where cases of ordinary illness could be adequately treated and nursed, he thought that with such institutions it would be possible to check illness at an early stage, and that they would, further, have an educative effect on the people. He believed that it was being realized more and more that the worker's home was not an ideal place in which to treat illness, and that sooner or later the problem of providing suitable accommodation would arise. Dr J. Parlane Kinloch, medical officer of health for Aberdeen, delivered an address on the adequacy of the medical service, in which he said that the present inadequacy of the hospital system was likely to be remedied by the unification of the health services proposed in the Government memorandum. There had, so far, been a failure to link up the general medical practitioner with the official public health service of his area. No medical service, however, would ever be adequate unless the general medical practitioner was an integral part of it, and at the present moment the British Medical Association was giving earnest consideration to the question of enabling the general practitioner to take his part in the health service scheme. Public medicine had to some extent encroached on private practice with the sanction of the legislature, but the speaker believed that public health organization would fail to provide an adequate medical service for the community until the general medical practitioner became an executive medical officer within the service. They might assume that the school medical service and the purely domestic service were to be transferred to the town councils under the present Government proposals, and it was almost inevitable that with such a transference there would be an extension of these two services. He thought that the time had come when the general medical practitioner should be re-established in his position of full responsibility as family doctor—responsible for watching over the family health, and for the prevention of disease with the help of the whole official machinery that the local authority had provided.

Sanitary Congress at Ayr

The fifty-fourth annual congress of the Royal Sanitary Association of Scotland was held at Ayr from September 5th to 8th, when over three hundred delegates were present from county councils and other local authorities throughout Scotland, and from various cities in England. Dr A. S. M. Macgregor, medical officer of health for Glasgow, presided. Colonel P. S. Lelcan, professor of public health in the University of Edinburgh, read a paper on public education in the art of health. Referring to the cost of sickness, he said that in Scotland during the year 1927 the destitute sick had cost the community £360,000, the mentally unfit £910,000, the maintenance of hospitals £2,185,000, while under the national health insurance scheme medical benefit had cost £951,000, and sickness benefit £2,124,000. It might be estimated, further, that about £3,000,000 was spent in connexion with sickness by the uninsured persons in the community. In addition to these disbursements, however, the nation also lost the value of the work that the sick would do if they were fit. Seeing that the 1,800,000 insured persons lost on an average fifteen and half days' work each year on account of sickness lasting

more than three days, it was a fair assumption that there was a yearly loss to the State of 7,400,000 weeks' work, which might be valued at £22,110,000. The total annual loss for Scotland produced by sickness might therefore be put down at the arresting figure of £31,461,000, while behind this loomed a sinister mass of uncalculable items which was probably larger still. This want of fitness had been indicated by the wartime discovery that in some districts 80 per cent of the mulo population were unfit for front line service. There was a marked contrast between the losses due to strikes or unemployment, and the heavier losses caused by sickness. The crushing burden of rates upon industry was increased by the cost of treatment and benefit of sick workers hanging on to those remaining fit, who were already staggering under the load, in Scotland every six workers, including women, had to support on an average eleven other persons, including one breadwinner who was sick. Turning to the causes of unfitness, the speaker said that even at the end of last century it had been computed that the universal application of the knowledge which then existed in regard to communicable diseases would permit of their eradication within fifty years. The knowledge of the general public, however, lagged hopelessly behind, for they had never yet been systematically taught even the elementary principles in the art of healthy living. The boards which had examined 2,400,000 men for war service concluded that out of every nine men of military age three were fit, two were decidedly infirm, three could almost be described as physical wrecks, and the remaining man was a chronic invalid with a precarious hold on life. The latest recruiting figures still showed that Scottish recruits were being rejected as unfit at the rate of 34 per cent. Unwise choice of food and bad cooking were responsible for a great deal of illness, so that digestive troubles ranked second in the list of ailments causing lost time, of which they accounted for one-fifth of the total. It had been shown also that cool fresh air was a great preventive of disease. From a host of examples might be taken the fact that raising the heat in schools by 70 F had reduced the work done by 10 per cent, and raised the sick rate by 18 per cent, and the respiratory diseases rate by 70 per cent. Similarly in cotton factories the same rise of temperature had reduced the workers' output by 15 per cent, and a rise of 15 per cent had caused a 25 per cent drop in work by the spinners. Other matters affecting health were debated at the congress. These included a discussion on the subject of simplifying the nomenclature of the grades of milk, and the congress resolved to communicate with the Board of Health and the Board of Agriculture with a view to having a revision carried out. Judge Andrew M. Hunter, convener of the public health committee, Avr, read a paper on the need for simplification in certain aspects of public health administration. This dealt largely with a consideration of the recently issued White Paper, in which it is proposed to hand over to county and other authorities the services in the smaller burghs affecting housing, town planning, hospitals, infectious diseases, maternity and child welfare, sale of food and drugs, water, drainage, and prevention of river pollution. A discussion on housing was introduced by Mr W. F. Hamilton, who considered that the problems involved were more difficult in the smaller burghs than in the large centres. The future of municipal services in regard to the treatment of tuberculosis was also discussed. Dr John A. Wilson, assistant medical officer of health for Glasgow, expressed the opinion that there was need for further development of the outdoor clinic in connexion with non-pulmonary tuberculosis, the hospital treatment of pulmonary tuberculosis had served a valuable function in removing highly infectious cases from overcrowded areas, and so limiting the spread of infection, even if it had not produced any appreciable alteration on the course of the individual case.

Banffshire Nursing Association

The annual meeting of Banffshire County Nursing Association was held on September 18th, in Gordon Castle, Fochabers. Lady Findlay of Aberlour presided, and in reviewing the work of the past year said that the scheme

of county nursing had been working hand-in-hand with public health activities under the medical officer of health and the education authority. She believed that no district which had a nursing association would wish to go back to the former state when a nurse was not available, and she hoped that in a short time every district in the county would be provided with a nurse.

Ireland.

Royal Victoria Hospital, Belfast New Maternity Scheme

Her Excellency the Duchess of Abercorn and Professor Lowry of the Queen's University of Belfast recently visited Londonderry, addressing meetings in connexion with the new maternity scheme, in order to obtain assistance for the building of the maternity wing of the Royal Victoria Hospital at Belfast. At a meeting of women held in the Mayor's Parlour, Londonderry Guildhall, on October 5th, the view was unanimously expressed that those interested should give all practical assistance to the Belfast project, and it was agreed that when the Londonderry scheme was set on foot it would receive their whole-hearted support. The question of providing facilities for ante-natal supervision and treatment in Londonderry and the district was emphasized.

Hospital Finance in the Free State

In a recent special article in the *Irish Times* on the finances of Irish voluntary hospitals the balance sheets of five hospitals, representing a total of about 600 beds, have been analysed for the two quinquennial periods 1909-13 and 1922-26. It is not claimed that the analysis is complete, this, indeed, would be impossible owing to the want of uniformity in the preparation of hospital balance sheets, but certain striking points are brought out. The total expenditure of the five hospitals for the first of these periods was just over £192,000, and for the second period £367,000—an increase of £175,000. Stated otherwise, an annual sum of £38,000 was required for the maintenance of these 600 beds in the pre-war period, as compared with £73,000 in the post-war period. No details concerning expenditure need be given, but in answer to possible criticism it may be stated that a portion of the sums named in each period was employed in new construction and in additions to existing buildings. With the advance of medical science, however, modifications of existing structures are repeatedly required, any sum thus spent may be regarded as ordinary expenditure. It may be asked whether there is any evidence of a decline in expenditure since 1922. A comparison of the actual expenditure for the year 1922 with that of 1926 shows that there is not, in the first of these years the expenditure was, in fact, a few hundred pounds less than in 1926. In considering income it is important to consider how the additional expenditure in the post-war period has been met. Only three important sources will be considered—pay-patients, subscriptions, and dividends from invested funds—but it may be added that the grants made by the Hospital Sunday Fund, by the corporation of Dublin and by other townships, and the payments made to some hospitals for special services, are much valued by all hospital secretaries, owing to the fact that they can count, with a fair degree of assurance, upon the amounts derived from these sources. The most cursory survey shows that the income derived from pay-patients has been largely the means of preventing the hospitals from passing into bankruptcy. In the period 1909-13 the total income from pay patients amounted to only £10,315, while in the years 1922-26 no less than £120,258 was obtained from this source. This is a fact that the public should fully realize. Hospital abuse has practically disappeared in the old sense of the word, while in its place there is a tendency for a new abuse to arise, through the fact that there is sometimes difficulty in securing the admission of a patient who is unable to pay something for maintenance. This is economically unsound, it is obvious that a sick person,

dependent only on insurance money, may at times be compelled either to leave his family to starve or to refrain from seeking hospital treatment. It should be remembered that it was for this very class that the hospitals were originally founded, and that it is to help them that voluntary subscriptions are forthcoming. Moreover, the establishment of a class of pay-patients in public hospitals has gradually led to a change in the relation of hospital patients to the staff of a hospital. Formerly no member of a hospital staff received any payment from patients treated by him in a public hospital, now in some hospitals it is agreed that members of the staff may take moderate fees from patients paying for their maintenance. Looking ahead it seems likely, indeed, that isolated private nursing homes will tend to disappear, and that in their place private wings will be attached to the public hospitals. This has taken place in many other cities, and makes for both efficiency and economy. It is important to consider whether the hospitals can depend upon a steady or increasing income from pay patients. Unfortunately, an examination of the figures suggests that the maximum has been reached, and, indeed, passed. In 1922 the sum of £27,800 was obtained, as compared with £22,900 in 1926, the difference is probably due to the fact that in the former year several hospitals received into their wards army pensioners, who were paid for by the British Government. No further decline in the present figures seems to be likely, but it is extremely improbable that more than £22,000 annually can be raised in this way. The term "subscriptions" includes special donations and legacies, it is a common belief among hospital governors that the revenue from this source has declined, and, as a matter of fact, there has been a fall in some hospitals, but when the figures of the five hospitals are examined as a group, the rather surprising fact emerges that £76,000 was obtained in 1922-26, as compared with £64,000 in 1909-13. The increase is perhaps due in part to special appeals, but special appeals are among the recognized methods of obtaining hospital funds. Those hospitals that have undertaken special appeals, of course, show the results in their balance sheets, while those who have abstained show a decline in their subscription list. Only a trained auditor could give an accurate account of the income derived from invested funds, as some of these funds are specially earmarked for special purposes. It may, however, be stated at once that, although one among the five hospitals under consideration has apparently been compelled to sell a portion of its securities in order to pay its overdraft, the total income from dividends has increased by about £1,000 per annum. In 1909-13 the average annual income was just under £9,000 in the later period it was just over £10,000. In other words, investments must have increased in the interval by about £20,000. This fact is, of course, highly satisfactory, but at the same time it must be realized that even if this £20,000 were expended immediately for the purpose of wiping out debts, it could only be regarded as a temporary expedient.

Finally, the actual present position regarding the Irish voluntary hospitals may be considered. The combined overdraft of these hospitals at the beginning of the current year amounted to just over £40,000 but on the other hand, the additional debt incurred during 1927 was less than during previous years. It seems likely, in fact, that if the overdraft could be wiped out these hospitals could carry on satisfactorily on their present basis, and would be able, at any rate approximately, to balance their budgets. The accumulated debt, however, is pressing heavily, and requires a considerable sum yearly in interest, and it must be admitted at once that there does not appear to be any immediate prospect of reducing it to any extent. It has been suggested that the number of beds might be diminished, and that too many hospital beds are maintained in Dublin. This last statement can be denied, there are no more beds maintained in Dublin in proportion to the population served, than there are in other large centres, and every hospital has had a waiting list during the greater part of the year. The writer of the article is not prepared to offer any solution of the hospital problem, but he hopes that his presentation of the facts may provoke a more general discussion of the matter and excite more interest than has been shown recently.

England and Wales.

Theory and Experience in Medicine

SIR ARTHUR KEITH addressed the annual meeting of the Chartered Society of Massage and Medical Gymnastics, held in London on October 5th, on the conflict between theory and experience in the practice of medicine. He began by recounting an incident in his early career, forty years ago, when, in the company of an old practitioner, he visited an upland farmhouse in Aberdeen to see a patient who was prostrate with deep-seated pain in the back. The practitioner proceeded, by dry cupping, to dilate the superficial vessels, and brought about complete relief. Here, to the young man's astonishment, science and empiricism were shown in conflict, and empiricism won, hands down. That was typical, said Sir Arthur Keith, of the conflict which had been going on in medicine for centuries. In any medical journal of any period would be found articles in which the competing claims of science and empiricism were canvassed. It was out of such conflict that medicine advanced to higher things. Young men and women entered the profession with high resolves to make science their sole guide in practice, and soon discovered themselves involved in this conflict. The conception which he himself had formed of science at the time he entered medicine was represented by the kind of knowledge which had been revealed by Pasteur or by Koch in their respective spheres. He set out with the idea that science was creative and should always precede practice, and he had gone a long way on his medical journey before he discovered that he had formed an altogether wrong conception of science. Science performed her best service, not by moving ahead of practice, but by following in the rear. Cod-liver oil furnished a homely example, it had been used by medical men for generations, though science found no virtue in it, and then, in modern days, came the discovery of its particular value, to justify the medical faith which had been born of experience. During the long and dry winter in Newfoundland the natives lived on salt pork, margarine, and preserved vegetables, in the spring many of them suffered from night blindness. The popular remedy was bird's liver, raw or cooked. Twenty years ago this would have been thought an example of superstition, but again science had provided the justification. Captain Cook's exacting dietetic rules for his crew, whereby the sailor who refused to eat his ration of vegetable hash suffered stripes on his bare back, were successful at the time and had since been justified by the scientific explanation forthcoming in the twentieth century. Edward Jenner found by experiment that he could confer on human beings immunity from small-pox by inoculating them with cow-pox. Jenner could not explain it in scientific terms, but the method he had employed empirically was employed afterwards scientifically by Pasteur, though science had not even yet ousted experience in treatment by immunization. Quinine, digitalis, opium, arsenic, mercury, and many other useful drugs had been brought into treatment, not as the result of scientific inquiry, but of chance discovery. The value of light as a therapeutic agency of the highest value was not a modern discovery for there never had been a time when human beings did not instinctively bask in the sun. Science played a twofold part in medicine, sometimes moving ahead of practice (as in glandular therapy), and sometimes justifying experience, so that science and experience ultimately became reconciled. It might be said, then, that there was no real conflict, but there was real conflict between magic or superstition on the one hand and science on the other—a conflict in which there could be no compromise or reconciliation. The body was endowed, said Sir Arthur Keith in conclusion, with certain recuperative powers, and all that science could do was to assist them. But these powers came into exercise also after the charlatan had had his innings and for this circumstance, of course, the charlatan took the credit. There were numbers of people in this country as superstitious, in a medical sense, as the natives of Africa who believed in their rain doctors, and when the rain came gave all the credit to the magician, while the thunder cloud received none.

Retirement of Dr F M Tindall

On the occasion of his retirement from active practice Dr Frederick M Tindall of Bedlington, Northumberland, was entertained at a complimentary dinner in the Queen's Head Hotel, Morpeth, on September 26th, by a number of his professional colleagues and other friends, and was presented with a massive silver salver, suitably inscribed. Dr H S Brown presided, and the presentation was made by Mr George Baker, who said that the departure of Dr Tindall from the district where he had laboured for thirty-two years would leave a gap that would be very difficult to fill. In his reply, Dr Tindall recalled the working conditions of the colliery surgeon thirty years ago, and compared them with those now prevailing, adding that all would agree that great progress had been made from both the medical and social standpoints. Tributes to his professional and social qualities and to his position in the field of medicine were made by Drs Beaton, Dickie, Hudson, and others. Dr Tindall, who graduated at the University of Aberdeen in 1886, is a past-chairman of the Blyth Division of the British Medical Association and a justice of the peace, he is now taking up his residence at Bridge of Allan, in Scotland.

A London Child Guidance Clinic

The Jewish Health Organization of Great Britain maintains, at the Jews' Free School, Bell Lane, Spitalfields, E, a child guidance clinic for the study and treatment of maladjusted and delinquent children and adolescents of any race or creed. Advice is given also on special problems, such as the need for vocational guidance and the placing of mentally or otherwise defective children requiring institutional treatment. The clinic is also prepared to undertake the examination of young offenders and young persons whose conduct betrays abnormality, and to supply reports to magistrates and teachers. Children may be sent into the country or temporarily placed with foster parents or in convalescent institutions according to individual requirements, in certain cases special training is prescribed and arranged. School care committees have been co-operating with the clinic by referring cases, by collecting information, and by assisting in the suitable placing of cases. The staff of the clinic consists of two psychiatrists, a psychologist, and a specially trained social service worker, it is open on Mondays, Tuesdays, Wednesdays, and Thursdays from 5.30 p.m. to 7 p.m. Students of social science who intend qualifying for mental welfare work are afforded opportunities for practical training, while the material accumulating in the course of the work is at the disposal of research students at all times. It may be recalled that, as recorded in our issue of June 2nd (p. 957), the Education Committee of the London County Council recommended the acceptance of an offer by the Child Guidance Council for the establishment of a child guidance clinic similar in scope and aims to that described above, and that this clinic is to be established next year.

Correspondence.

BAYLISS AND STARLING MEMORIAL

SIR,—May I take advantage of your correspondence columns to draw the attention of your readers to the fund which is being raised to provide a memorial to the late Professors Sir William M Bayliss and E H Starling?

Many subscriptions to this fund have now been received from all parts of the world, and the committee is particularly grateful to those contributors in foreign countries who have so liberally assisted. Although a considerable sum has now been raised, this is not quite large enough to provide a good annual studentship.

In thanking those of your readers who have so generously assisted the fund, may I remind those who intend to do so but have overlooked the matter that subscriptions may be sent to me at the Department of Physiology and Biochemistry, University College, Gower Street, WC1, and cheques should be crossed "Bayliss Starling Memorial Fund"—I am, etc.,

London, W C Oct 5th.

O LOYATT EVANS,
Secretary of Committee.

RADIUM IN THE TREATMENT OF CARCINOMA CERVICIS

SIR,—It is questionable to what extent a controversial correspondence advances any given problem. So often it degenerates into personalities and causes bitterness.

My excuse in the present instance is the fact that the paper by Mr E Farquhar Murray in your issue of October 6th (p. 609) is liable to do a great deal of harm to the progress of the treatment of carcinoma of the cervix uteri, and I am sure that the author will accept my remarks in the spirit in which they are written.

The fact that from his paper it is obvious that he is not biased against radium makes it all the more regrettable that he has obviously not had time to read any of the recent literature, and is using a technique that was given up by the rest of the world at least five years ago.

Many of the points he raises, such as the advisability of using radium before performing Wertheim's hysterectomy, are far from settled. Surely, however, he does not base his conviction that radium has not "superseded the radical operation" on the eighteen operable cases that he has treated with a hopelessly inadequate dose? The technique of radium treatment of carcinoma of the cervix uteri is still a long way from being standardized, but there are at least two recognized methods by which the local growth can be made to disappear in practically 100 per cent of operable cases.

The problem before us now is how to deal with those cases where the glands are involved. This is being tackled at St Bartholomew's Hospital, both by x rays and intra-abdominal insertion of radium. Whatever the future technique may be, there is one thing quite certain, that we shall never go back to putting 50 milligrams of radium element up against the cervix for twenty-four hours—I am, etc.,

MALCOLM DONALDSON

London W 1, Oct 6th

PULMONARY ASBESTOSIS

SIR,—Dr Cooke (September 29th, p. 585) offers objection to certain opinions which I ventured to express with regard to the curious brown bodies found by himself and others in cases of pulmonary asbestosis. As to their diagnostic value in this disease I merely stated that, so far as I was aware, they do not occur except in the lungs of asbestos workers. It is most unlikely that such striking and remarkable bodies have been missed by morbid histologists in the past, and I submit that if Dr Cooke would demonstrate their presence in the lungs of other than asbestos workers it would be much more convincing than theoretical deductions from *in vitro* experiments. They have not been present in any lungs, silicotic or otherwise, which I have examined microscopically, save only the four cases of asbestosis which we have encountered in Leeds. Six other fatal cases of this disease have been reported so far, and in all of them the bodies were present in abundance. Simson, in South Africa, investigated as controls sections of lungs from a large number of Rand miners who had died from silicosis and tuberculosis. The results were in every case negative.

The opinion which I expressed (not an original one) that these bodies are derived from the inhaled asbestos dust follows naturally from what has been said. I admit that complete proof is lacking, but I do not agree that Dr Cooke's observations "suggest diametrically opposite conclusions." Rotation of the plane of polarized light and a particular x-ray pattern are related to the structure of the asbestos, and these properties are not necessarily retained when this substance has had the opportunity of undergoing changes, physical or chemical, as a result of prolonged immersion in the body fluids. The fact that the peculiar bodies have a lower content of iron than certain samples of asbestos dust is also no argument against the hypothesis, since there may have been an addition of iron-free substances to the original material. Various physico-chemical possibilities in these and other directions are discussed by both Stuart McDonald and Simson.

I look forward with keen interest to the results of Dr Cooke's experiments on the silicating of micro-organisms, but would warn him that I shall take some convincing that the peculiar bodies of asbestosis are in any sense organismal in nature.—I am, etc.,

Leeds Oct. 4th.

M J STEWART

CLINICS FOR ACTINOTHERAPY

SIR,—The medical profession has been circualized by a company styled National Sun Ray and Health Centres, Ltd., which proposes to open clinics for the administration of retinotherapy and physiotherapy in London and the provinces. I leave space to comment on some of the statements therein, and in particular on the plea made for the support of the profession.

Among the chief reasons given for the formation of the company are an increasing public demand for ultra-violet light treatment, and the inability of the busy general practitioner to afford the time to supply this demand individually, or to study a specialized and comprehensive branch of therapy. Surely, Sir, it is common knowledge in the profession that wherever there is a supply of electricity there is now a doctor, whether he be general practitioner or specialist, who is conversant with the recent literature on this subject and prepared to give ultra-violet ray treatment to suitable cases individually, in privacy and comfort.

Let us examine another statement.

There is a regrettable tendency for these valuable therapeutic modes to become discredited owing to their misuse by the unskilled and unqualified. It is hoped that the medical profession will realize that this company's activities will offer it an excellent opportunity for retaining such modes of therapy under its own control whilst avoiding the necessity for actually providing such treatment itself.

This company is not a charitable concern designed to relieve or assist in the work of the great voluntary hospitals. We may assume that its shareholders hope to obtain a reasonable return for their investments. They will no doubt take steps to "tell the world" what wonderful boons they are prepared to bestow upon mankind. Presumably the blessing of the profession is solicited as an important part of the advertising scheme. And we to see in glaring type in the lay press "Under medical supervision," "Supported by the British Medical Association," "Supported by the medical profession," above a long list of the diseases which the company has treated with conspicuous success?

Thousands of medical men and members of the Chartered Society of Massage and Medical Gymnastics (who are pledged to work only under medical supervision) are expert in the administration of physio-therapeutic measures and have sunk capital in expensive plant. There is no member of the community who is now debared from the advantages of such treatment by reason of expense or lack of facilities.

Is a company with a big financial backing and employing medical men to be allowed to advertise when the humble practitioner does so at the peril of his career? What, too, will be the position of the "whole-time registered medical practitioner experienced in this branch of medicine" who is to be in charge of each centre? As a unit in a business concern he must endeavour to make things pay, and his efficiency, one imagines, will be judged by business men according to the profits which he shows in his returns. He must be prepared to treat patients who come to him as the direct result of advertisements in the lay press on their own initiative and without the knowledge of their own doctors. He will lose, therefore, the advantage of any previous knowledge of the patient's condition and idiosyncrasies, and it is doubtful whether he will have the time to investigate these thoroughly on the spot. Day by day he will be subject to the insidious temptation to take the run that every applicant is a suitable, or at all events a not unsuitable, case.

I should have thought, Sir, that any medical man of standing would decline to take service in a treatment concern which does not give him a free hand and does not keep its activities within the recognized limits of medical etiquette and ethics.

The profession is being asked to give its support to a company which, to suit its policy and financial returns, may decide to undertake any form of treatment, whether by physiotherapy, drugs, appliances, or manipulation. To some it may seem a trivial matter to lend name and influence to a scheme to exploit ultra-violet ray treatment, but what is there to prevent an extension to surgery, diseases of the ear, nose, throat, eye, and skin?

What is there to prevent a company being floated to provide orthopaedic or skin treatment and living as one of its "reasons d'être" that "the activities of unqualified persons who exploit these methods for gain, at the expense of the public, will best be combated, and they look forward with confidence to the co-operation of the medical profession." Bone-setters and beauty specialists may and do exploit the public, but the orthopaedic surgeons and dermatologists do not require the assistance of a company formed for profit in putting their house in order.

The circular letter may be characterized as an attempt to gain the blessing and support of the profession for a scheme the lines of which cut clean across the principles which the profession has always upheld as being in the best interests of the public.

The profession looks to the British Medical Association to lead it in these matters. I trust that the Ethical Committee, and through it the Council, will lay it down in no uncertain terms that if any trading company, one of whose objects is the cure or treatment of disease, wishes to have the support of the Association and profession it must conform to the rules which govern the private practitioner—I am, etc.,

Newcastle upon Tyne Sept 27th

WHATELY DAVIDSON

ANAESTHESIA FOR TONSILLECTOMY AND
REMOVAL OF ADENOIDS

SIR,—I am much interested to see from the letter of Dr. A. H. Morley (September 29th, p. 585) that attention is being drawn to the safety and efficiency of the anaesthesia for tonsil and adenoid operations. I cannot agree with all his points, for, in my opinion, nitrous oxide gas and oxygen is the ideal anaesthetic for the safety and comfort of the patient, and with an efficient machine gives the operator as much time as he wants for the operation. In fact, it is the usual anaesthetic in the United States of America, and to a large extent in Canada also. I can many tonsil and adenoid cases operated on, the method generally was to separate off the anterior pillar of the fauces from the tonsil, sometimes by blunt dissection and sometimes with a knife, then to remove the tonsil by means of a snare, bleeding points were ligatured with catgut, sometimes as many as a dozen points were tied, and all oozing stopped. The average time was ten to fifteen minutes, against the usual two minutes of the English surgeons who use a guillotine. Mostly the operations were done sitting up in a dental chair. I never saw any trouble with the anaesthetic. I agree that if you are going to use ether any way a Clover's inhaler is the best method, and certainly does prevent shock to a large extent. The article by Sir Charters J. Symonds on the method of employment of Clover's inhaler (September 29th, p. 581) is instructive. When I was taught it we always used nitrous oxide for induction and then followed on with ether.

There is an article in *Anaesthesia and Analgesia* for August, 1926, entitled "A report on the use of carbon dioxide 25 per cent and oxygen 75 per cent and its effect on the reduction of the coagulation time of the blood," by Cline N. Chipman, M.D., anaesthetist, Washington, D.C. He says:

About one year ago Dr. Ben Morgan informed me that carbon dioxide 25 per cent and oxygen 75 per cent when used in a closed inhaler would produce general anaesthesia. Knowing the work Professor Landell Henderson, Dr. W. H. Haggard and others were doing with carbon dioxide to stimulate respiration I was anxious to use the higher percentage of CO₂ with oxygen and see the results. I started using CO₂ 25 per cent + oxygen 75 per cent in adult tonsil cases as the preliminary anaesthetic in place of nitrous oxide-oxygen. The CO₂ 25 per cent + oxygen 75 per cent was started and it was found that after six to ten inhalations the patient was unconscious. Then ether was admitted to the mixing chamber until the patient was anaesthetized. He was then transferred to the operating table where the anaesthetic was continued by the vapour method. It was marked from the first that the patient was anaesthetized quicker and without any resistance or struggling.

He goes on to say that there is reduced bleeding and quotes many tables to show that the coagulation time of the blood is reduced by CO₂ 25 per cent and oxygen 75 per cent followed by ether. The article is much too long to quote fully. I have quoted so much to show that carbon dioxide can be used direct instead of waiting for the

percentage necessary to be built up from the patient's own respirations

I have used the method myself several times, and can vouch for the speed with which patients can be thoroughly anaesthetized with it—I am, etc.,

Dorcas er Oct 4th

E J CHAMBERS

TRAUMATIC ASPHYXIA

SIR,—Lieut-Colonel Coullie's interesting note upon traumatic asphyxia (*Journal*, September 28th, p 569) prompts me to record a similar case seen in September, 1923. I was called to the patient at hospital late one night as a possible case of head injury, and the following notes were made the next day.

Mr — aged 50. He has enjoyed good health until seven years ago. He then began to have curious attacks, which he describes as follows. He would quite suddenly find himself looking upon a panorama which he at once recognized as being that of Cerbere, a small town in the Pyrenees, which he has never visited, but which he knows well by name in that he has had business dealings with the place. This vision is quite transitory but leaves him feeling a little dazed so that at times it has interrupted his conversation. He will also at times wake in the morning feeling that he has dreamed the same vision. On these occasions his wife has often remarked that he has breathed heavily and kicked during the night. On one occasion he found on waking from one of these dreams that he had bitten his tongue and passed water in the bed. There is thus no doubt whatever that he has been suffering from minor epilepsy.

To-day at about 2 p.m. he was driving his car from his office along the Tower Bridge Road with his son sitting next to him. His son noticed the car suddenly slowing down and turning to his father found him apparently bending forward over the wheel. He at first thought he was trying to make an adjustment to the gear lever. Finding however that he did not reply to a question the boy took out the gear and put on the brake. He then found his father unconscious and intensely cyanotic.

The patient was forthwith brought up and admitted to Guy's. On admission he was quite conscious and no abnormality was detected in his reflexes. His left eye was bloodshot with a subconjunctival haemorrhage in the outer canthus. This eye was also slightly protruded. His pulse on admission was 84 subsequently it fell gradually to 60. When I saw him at 1 a.m. both eyes were definitely protruded and the outer canthus on the right, and the whole conjunctiva on the left suffused with scarlet blood. There were small petechial haemorrhages all over the scalp and the upper part of the cheeks and also on the posterior part of the soft palate. There was also a well marked ring of petechial haemorrhages around the neck more on the right side than the left at the point where one might suppose his collar to have been. On inquiry it appears that he has always been in the habit of wearing a very tight collar and this was not released for some minutes after the fit probably not for a quarter of an hour.

The patient is perfectly clear and sensible and gives an excellent account of himself. The fundi are normal there is no paralysis of the cranial nerves. The right side of the face seems to move rather less than the left especially in expressional movement. The tongue is protruded slightly to the right. The wound of a recent bite is present on its left margin. No other abnormality in the nervous system or elsewhere was detected. Heart normal. Spleen not palpable. Temperature normal.

The proptosis in this case was very striking and had suggested a fractured base to those who had seen him.

In view of the long history of epileptic attacks with visual hallucination, I considered the possibility of haemorrhage into a tumour, but thought it probable that the subcutaneous, submucous, and subconjunctival haemorrhages were due to the intense congestion of the epileptic attack aggravated by the tight collar.

Two days later the proptosis of the right eye was almost gone and that of the left eye much less marked, and I concluded that the second alternative was probably correct—I am, etc.,

London W. L.

C P SYMONDS, M.D.

SECURITY OF TENURE IN PUBLIC POSTS

SIR—I notice in the correspondence columns of your issue for September 28th (p 587) a letter from Dr H C McManus, in which he gives to those thinking of entering the public services a warning on the important subject of security of tenure of medical appointments under such local authorities as boards of guardians, county boroughs and county councils. Speaking as one who has held public appointments in a full-time capacity for a considerable number of years, I can assure those to whom Dr McManus directs his words of warning that in practice the danger of dismissal at three months' or any other notice is extremely small, and need not be regarded as a factor of

any importance in the consideration of whether to enter the public services or not.

In theory it is, of course, quite correct to state that a public body has in general the legal right to dismiss a medical officer without assigning a reason for this action and without any sort of impartial inquiry. Even this statement is only partially correct, as many medical officers of health cannot, by the terms of their appointment under the Sanitary Officers' Order, be dismissed without the consent of the Ministry of Health. This consent is given after a most careful inquiry, at which the medical officer concerned is afforded full opportunity to present his case, and only if the grounds for dismissal are entirely adequate. Appointments of this kind are, however, only a small proportion of the total number of public health and other posts occupied by medical practitioners, so that, in theory, it is quite correct to say that a local authority has the power of dismissal in the majority of cases, provided that due notice is given according to the terms of the appointment. It is, however, one thing to have this power and, in practice, quite another to exercise it in an arbitrary fashion. Experience shows conclusively that local authorities are, on the whole, extraordinarily reluctant to dismiss any permanent official except upon the strongest grounds, and this reluctance is still more marked when the official has many years of service to his credit. I have never come across a case, or even heard of one, where a doctor has arbitrarily been given three months' notice to leave, just before he becomes eligible for his pension, and I feel sure that many men will serve all their lives under a local authority without an example of this kind coming within their official experience. I am not suggesting that this kind of thing has never happened in the past or will not happen in the future. No doubt Dr McManus, before writing, has had such a case brought to his notice. But the risk of an efficient medical officer being dismissed on inadequate grounds is, in the public services, extraordinarily small, and need hardly weigh in the balance to any extent at all in the minds of those younger medical practitioners who are considering the question of devoting their professional career to the public services. Most of us, indeed, regard the security of tenure in a public appointment as, to all intents and purposes, absolute, granted a not too exacting minimum standard of efficiency and reasonable conduct, and this is admittedly one of the attractions of official employment to the minds of many people.

On the whole, except perhaps in the matter of salaries, local authorities treat their officials, and especially their senior and professional officials, extremely well, and instances of really serious injustice on the part of a council or committee towards a member of their staff are few.

It is an imperfect world, and medical practitioners in the public services have to put up with many things, but fear of dismissal is not one of these. To speak candidly, local authorities generally err in the opposite direction to that suggested by Dr McManus—I am, etc.,

W M FRAZER,

Medical Officer of Health, County Borough of Dewsbury

October 2nd.

SIR,—Dr McManus has rendered a public service by his letter on security of tenure in public posts. These facts should be well known and not concealed as at present. In 1921 I was glad to read that the British Medical Association had succeeded in getting security of tenure for medical officers of health. I have ever since been trying to ascertain whether this did or did not also apply to assistant medical officers. Since it as yet does not, it is to be hoped the British Medical Association will again exert its influence to obtain this measure of justice for this large body of doctors. Obviously a pensions scheme is a mere farce unless there is security of tenure.

I see in the October number of the *Fortnightly Review* an article headed 'The growing burden of the rates,' in which it is stated that all employees of local government authorities have security of tenure. The sole exception apparently is the body of assistant medical officers. This amply explains the rather low status of these doctors.

Since the Local Government and Other Officers Superannuation Act, 1922, came into force the only effect it has

had has been to render local authorities unwilling to appoint any but the youngest available candidates. Older and more experienced doctors are passed over in favour of younger candidates. Skill and experience are less desirable than youth. The local authorities are thus showing themselves plainly unwilling to pay pensions to the doctors, and it is conceivable that in the years to come Dr McManus's "extreme case" is only too likely to happen.

Let us hope that the doctors concerned may become articulate, nay, vociferous, and that the British Medical Association will champion their cause effectively.—I am, etc.,

October 1st

M B

BACTERIAL FLORA OF THE INTESTINE

SIR,—I observe that Professor Cruickshank, in his address at Cardiff (September 29th, p. 555), has seen fit to admonish "certain bacteriologists" for various heresies. I gather that he has honoured my paper on residual vaccines as representative of the outpourings of this class of person. I therefore find myself singled out as their representative.

Professor Cruickshank demonstrates that the intestinal flora vary greatly in health and he believes that the mere presence of an abnormal organism in the faeces would suggest to "certain bacteriologists" the desirability of a vaccine. He believes wrongly. He then cites a number of organisms named by me as probable causes in various intestinal toxæmias occurring in some individuals. Among other organisms quoted was *B. coli communis*. This last organism was so classed because, although presenting certain abnormalities it appeared to resemble the colon bacillus rather than any other organism. But a vaccine was not made unless the organism formed a high proportion of the total flora. Such a position would have been obvious if the statement in the preceding paragraph had been grasped—namely, that two thirds of the specimens sent for examination were rejected as unsuitable for the preparation of a vaccine.

The incidence of streptococci in rheumatic affections also earns his scorn on the same grounds. I can therefore add together the figures of both groups. 26 cases treated, 75 successful. Professor Cruickshank further states that the results of vaccine treatment cannot be construed as proof of a causal organism. If he is waiting for Koch's postulates to be fulfilled I would refer him to a correspondence on the difficulties of modern bacteriological research which appeared, if I recollect aright, in this *Journal* some months ago.

Any discussion of the actual therapeutic results obtained by me is carefully avoided. They are difficult to explain away and most inconvenient to Professor Cruickshank's own contentions. The chance of these cases resolving spontaneously was assuredly not better than 1 in 10, if, therefore, the association of vaccine therapy with the disease corresponds with the raising of the proportion of successful results to 3 in 4, and that happens over a series of 26 cases, it is a fair assumption that there is a connexion between the two events.

The effect of a high carbohydrate diet and of purging is not such original information as he appears to suppose. I would suggest also that while "certain bacteriologists" are acquainting themselves with the better bacteriology Professor Cruickshank might enlarge his knowledge of the laws of probability and apply it to the figures that I have given. He would then discover that while there is a chance that he is right it is about a hundred times more probable that he is wrong. He also assumes, without a shred of proof, that the intestinal mucosa is invariably intact and capable of resisting the invasion of these organisms and their toxins, and will always remain so. I am ignorant concerning the reference to examining a film of faeces for streptococci.

I have to complain of the evasion of the issues raised in my paper and so must request Professor Cruickshank to apply himself to the following:

1. A case of rheumatoid arthritis on a normal diet and without purging shows on repeated examination a pure culture of some streptococcus in the faeces.

2. What positive proof is there that the patient's intestinal mucosa is impermeable to streptococci and their toxins?

3. An autogenous vaccine is prepared and administered.

4. The patient improves greatly.

5. If the vaccine is not responsible am I to assume that three out of four cases of rheumatoid arthritis will resolve spontaneously? If not why does that proportion improve on an autogenous vaccine?

6. Since I do not believe that the intestine is the only source of bacterial invasion, am I to understand that bacteria in some higher area of the tract, say tonsil and pharynx, cannot cause rheumatism?

I do not claim that my results in vaccine therapy prove with certainty that these organisms can be causal, but I do assert that the results raise that matter from a vague possibility to an arguable probability. Finally, I realize that the fact that all my results were assessed by independent practitioners must have a cramping effect upon destructive criticism. I anticipated Professor Cruickshank.—I am, etc.,

Manchester Sept 30th

C E JENKINS

X-RAY DIAGNOSIS

SIR,—Please accept my congratulations on the inspired common sense of your leading article on "X-ray diagnosis" in the current number of the *Journal*. It should dispel some mental fog on the subject.—I am, etc.,

London W Oct 6th

J H DOUGLAS WEBSTER

SIR,—Surely the difficulties of accurate diagnosis of the case of nictal stone described by Mr C Thurstan Holland and Dr Herbert Williams in your issue of October 6th (p. 601) have been exaggerated.

Pyelography and urography will give all the information that is needed in determining, first, whether a stone is present in the upper urinary tract, and secondly, if a stone is present, whether the kidney is "extensively disorganized."

It is perhaps unnecessary to emphasize the importance to the surgeon, and to the patient too, of the former being in possession of more than one catheter, urethral or ureteric, when he makes an examination of a genito-urinary case.—I am, etc.,

London W Oct 8th.

A CLIFFORD MORSON, F.R.C.S.

The Services

DEATHS IN THE SERVICES

Colonel Llewellyn Thomas Manly Nash, C.M.G., A.M.S. (ret.), died after a long illness in Queen Alexandra Military Hospital, Millbank, on September 9th. He was born in London on April 7th 1861, was educated in the school of the Royal College of Surgeons, Ireland, and took the L.R.C.S.I. and L.K.Q.C.P. in 1884. After acting as medical and surgical resident at the Royal City of Dublin Hospital, he entered the R.A.M.C. as surgeon on August 1st, 1885, was promoted to colonel in the great war promotion list of March 1st 1915, and retired on April 7th, 1918. He served on the north-west frontier of India in the Mianwai campaign of 1891, when he was mentioned in dispatches in the *London Gazette* of September 15th, 1891, and gained the frontier medal with a clasp, and in the Hazari campaign of the same year, receiving a clasp. During the great war of 1914-18 he went to France in August, 1914, with the original expeditionary force, when he was in command of a hospital at Rouen subsequently becoming A.D.M.S. to the 8th Division. In 1915 he was invalided to England and, after serving at the headquarters of the Eastern Command in December 1916 was sent to Blackpool to organize the R.A.M.C. centre there which rose to nearly 20,000 officers and men. In August, 1917, he was appointed A.D.M.S. in Sussex. He was mentioned in dispatches in the *London Gazette* of February 17th 1915, and received the C.M.G. on February 18th 1915. In 1901 he married Editha Gertrude, daughter of the Rev Charles Sloggett.

Lieut. Colonel William Lemon Lane, R.A.M.C. (ret.), died at Southsea on September 1st, aged 78. He was born in India on May 28th, 1850, was educated at Edinbrough, where he graduated as M.B. and Ch.M. in 1871 and entered the army as surgeon on August 4th 1878, becoming lieutenant colonel after twenty years service and retiring on May 11th, 1904. He served in the South African war in 1901-2, taking part in operations in the Transvaal and in the Orange River Colony, and received the Queen's medal with three clasps. His two younger brothers also served in the R.A.M.C.—Colonels A.V. Lane and C.A. Lane.

Obituary

DIARMID NOËL PATON, B Sc, M D, LL D, F R S,
Late Regius Professor of Physiology in the University of
Glasgow

D NOËL PATON—whose death on Sunday, September 30th, at Stobo, Peeblesshire, was briefly announced in our last issue—had only recently intimated his desire to retire from the professorship of physiology in the University of Glasgow—in fact, the necessary appointments in consequence of his resignation have not yet been made. He was a born and indefatigable worker, and had always prayed that he might be taken away suddenly and after his power for work had gone. Since his official resignation some few weeks ago he had not been quite in his usual health, and on Sunday, during a walk to his favourite Tweed, where many a happy day had been spent casting the fly and no doubt meditating on the problems of life which he was so fond of probing, he passed suddenly away.

Diarmid Noel Paton was born in Edinburgh in March, 1859. He was the eldest son of Sir Joseph Noël Paton, the distinguished artist and Royal Scottish Academician, and nephew of Walter Hugh Paton, another well-known painter, so that there is little wonder that he inherited a distinctly artistic temperament. He received his early education at Edinburgh Academy, where, as Professor Cathcart has noted, he had as classmates "W. Hardman, afterwards professor of zoology at Liverpool, John Haldane, the Oxford physiologist and philosopher, and D'Arcy Thompson, the present occupant of the chair of zoology at St Andrews." It is said that it was at Edinburgh Academy where his bias towards science first declared itself, and one wonders what was the influence which led this galaxy of talent in this special direction. From the Academy Noël Paton passed to the University in his native town, and first graduated in science in 1880, when he was awarded the Baxter Scholarship for special distinction. In 1882 he received the degrees of M B, C M with first-class honours, a performance which was repeated in 1885, when he was awarded a gold medal for the thesis which he submitted for the degree of M D. After graduation he spent some time in post-graduate study in Vienna, returning again to Edinburgh to serve as house-physician, first in the Royal Infirmary, and later in the Royal Hospital for Sick Children. These latter experiences undoubtedly influenced his outlook and sympathies, for most of Paton's energies have been devoted to the study of eminently practical aspects of medicine, as his work on diabetes, rickets, and nutrition amply testifies. In 1884 he was offered and accepted a biological fellowship in the physiological department at Edinburgh University, under his old teacher, Professor Rutherford. In 1889 he was appointed

director of the research laboratory of the Royal College of Physicians of Edinburgh, and thus was able to devote his whole time to medical research and teaching. During this period he made many contributions to medical literature and carried on a most successful extramural class of physiology at the Surgeons' Hall, so that he was peculiarly equipped for the professorship of physiology in the University of Glasgow, to which the King appointed him in 1906. In 1914 his position in the scientific world was acknowledged by his election as a Fellow of the Royal Society, and in virtue of his gifts as an investigator he served as a member of the Medical Research Council from 1918 till 1923. In 1919 his Alma Mater, Edinburgh University, conferred on him the honorary degree of LL D.



PROFESSOR D NOËL PATON M D, F R S

It is as the Regius Professor of Physiology in the University of Glasgow that Noel Paton will be chiefly identified. This is most fitting, since he spent his most vigorous years in unrelenting work on her behalf and that of her students. Without doubt Paton was one of the most ideal professors in the medical faculty of the University of Glasgow within living memory, for he possessed in a marked degree that rare combination of qualities so essential for the head of a university department. One often hears of the professor who goes on delivering the same lectures year after year. Not so Paton, who was a firm believer in the doctrine that his chief duty as a teacher is to make the student an observer and a true student of nature. In order, therefore, that the student might commence on his study of medicine and surgery with a well-equipped mind so far as physiology is concerned, a most important attribute as the old name of his subject "Institutes of Medicine" signifies, Paton would not infrequently revise completely and rearrange his whole course of instruction. This meant a considerable amount of labour and

organization, as he always had a large department under his care, but this he considered well expended if his aim was fulfilled. This aspect of Noel Paton's work as a teacher cannot be too strongly emphasized.

But the teaching of the student in the elements of physiology was not Paton's only interest, important as this may be in giving to the youth a sane outlook, like all great teachers, he appreciated that his ignorance was greater than his knowledge, and all his life he was an energetic explorer into the unknown fields. Invariably he was working at some problem of life, and consequently has left his impress on many aspects of physiology and medicine. His work on urea, the physiology and pathology of the parathyroid glands, on respiration, his dietary studies of the labouring classes, and his investigation of the relationship between poverty, nutrition, and growth are all of the first importance, and will require serious consideration by all subsequent workers.

Paton was a true and an able researcher, he was always asking himself the why and the wherefore, he could not

deceive himself by a mere play of words, and he was never ashamed of admitting his ignorance. He might have theorised, but he frankly admitted that they were theories and merely signposts for directions of inquiry. He was also undoubtedly possessed of the rare faculty of imagination, which is not surprising when we recollect that both his father and uncle were distinguished artists.

As well as being a searcher after truth himself, he had the gift of inspiring others with the same ambition, and no man ever attracted a larger band of workers round him. His department was always open to anyone who needed facilities to work at a problem, and when once a man or woman gained entrance to a corner in his workshop Paton gave of his advice and help in no stinted fashion. His was the department to which all those eager to engage in comparative medicine and surgery turned. Not only was he an excellent director, but he was at the same time an ideal co-worker. He was a stimulating colleague; he always took a big share in the work of any investigation with which he was associated, and he gave and took criticism in the freest manner, so that at the end of the task one's admiration for his mental powers and regard for his genuineness were enhanced.

That Paton was a big and generous man there is no question. He had a great presence; he was tall, with regular, almost beautiful, features, and a kindly expression. He was as open as the day, in fact, his frankness and his loyalty to friends and his intolerance of dishonesty must often have brought trouble to himself. With the utmost truth it may be said that his is a memory which will remain as a great stimulus to a vast number of students and co-workers.

L F

[The photograph reproduced is by J Russell and Sons Ltd London.]

Dr JAMES THOMAS CURRIE LAING, who died in London on October 7th at the age of 57, received his medical education at Edinburgh, where he graduated M.B., C.M. in 1892. He was a member of the British Medical Association. We are indebted to Sir James Purves-Stewart for the following appreciation. The death of Dr J. T. C. Laing, or "Jimmy Laing," as he was affectionately called by his friends, colleagues, and patients, comes as a shock and an irreparable loss to all who knew him. Jimmy Laing was the finest type of Scot, a man of strikingly handsome physique and athletic build, tall, lean, and muscular, in his youth a fine boxer and throughout his life a keen sportsman. After graduating in Edinburgh in 1892 he was for a time house-surgeon to the late Professor Annandale. He then lived several adventurous years, first at the Klondike gold rush, when he held the post of assistant surgeon at the Good Samaritan Hospital, Dawson City, and later as a surgeon attached to the Canadian Scouts in the South African war. Subsequently he was induced to settle in London, where, by sheer force of personality, he speedily built up a practice of ever-increasing importance, not confined to London, but ultimately extending far beyond it. During the late war he did valuable work in London as physician to various hospitals for officers, and was mentioned in dispatches. For many years he was the popular secretary of the Edinburgh University Club of London, and later its vice-president. Up till about a year ago he sustained the burden of a large practice, apparently without effort. It then became evident to his friends that his physical strength was flagging. Despite a voyage to South Africa early in the present year, he found himself unable to continue his work in London, and accordingly spent the summer quietly in Scotland until a few days ago. He then returned to his home in London, where he rapidly succumbed to a pulmonary affection at the age of 57. Success never spoiled him, nor did he ever waver in loyalty to his friends. There was a singular charm about him which seemed automatically to attract the affection of his fellow men. His loss leaves a gap in the wide circle of his friends throughout the country which cannot be filled. If it be true of the good man that his works do live after him, then surely Jimmy Laing's memory will remain warm in the hearts of all who had the privilege of his friendship. Gay, debonair, humorous, modest, kindly, and wise, every-

one who knew him will agree that he possessed all these qualities. He leaves behind him a widow and youthful daughter and son, to whom the deep sympathy of his friends will be extended.

We regret to announce the death, at the age of 73, of Professor HOLGER RASMUS LILJEN MÖND, who was a pioneer of otology and laryngology in Denmark. He was the author of works on congenital deafness and deaf-mutism, and of a small textbook on diseases of the upper respiratory tract. An English translation of his work on deaf-mutism appeared in 1894. He had many friends in England, and his widow is the daughter of Mr S. Nash, formerly Danish consul at Cardiff.

The following well-known foreign medical men have died recently: Dr PROKOP FREIHERR VON ROKITSANSKY, professor of medical pathology and therapeutics at Innsbruck; Dr GUSTAV VON SCHLEICH, professor of ophthalmology at Tübingen; and Professor H. VON BARCKLEBEN, a Berlin gynaecologist, aged 54.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

THE outgoing Vice-Chancellor, the Rev G. A. Weekes in the course of his valedictory address in the Senate House on October 1st referred to the recent offer by the International Education Board of the Rockefeller Foundation to contribute £250,000 to the University Library Building Fund and explained that this munificent offer formed part of a larger proposal to provide for new and much needed developments in the physical and biological studies of the University. The offer in its entirety amounted to a gift of £700,000, on condition that the University should raise the balance of the sum required for the completion of the whole scheme. The offer had been considered, with approval by the Council, the General Board, and the Financial Board but had not as yet been laid before the University. Mr Weekes referred also to the loss sustained by the University through the death of Mr G. E. Wherry, consulting surgeon to Addenbrooke's Hospital, and for many years university lecturer in surgery. The building in Tennis Court Road which has been provided for the departments of pathology and animal pathology by a grant from the trustees of the Rockefeller Foundation and by the Gates Bequest is now in occupation and will be ready for the formal opening ceremony next term.

UNIVERSITY OF LONDON

At the September matriculation there were 100 successful candidates in the first division and 373 in the second division, 27 others took the supplementary certificate in Latin.

UNIVERSITY OF LEEDS

THE following candidates have been approved at the examination indicated:

FINAL M.B. CH.B. (Part I)—J. Kink H. T. Knowles J. Looke and G. J. Marks

UNIVERSITY OF LIVERPOOL

THE following candidates have been approved at the examination indicated:

D.P.H.—Enid Baile C. A. Birch Margaret W. Blackwood B. T. Chadwick, A. Wahid

UNIVERSITY OF GLASGOW

THE following candidates have been approved at the examination indicated:

FINAL M.B. CH.B.—T. Anderson T. H. Anderson J. Barr N. Bernstein D. Cameron I. Campbell, H. Chapman T. L. Chapman W. J. Christie Mary C. Clark J. P. H. Cogan E. Collier R. Cordner, W. L. Cuthbert N. Douglas G. S. Easton T. Elliott J. Ferguson W. J. L. Francis J. B. Gaylor D. Glen R. F. Glen Christina A. Greenhields, Elizabeth Grierson B. Gyer D. M. Hart T. A. Haslett Y. B. Henderson J. A. Hill J. Jamieson Elizabeth P. Macadam, D. Macartney W. G. T. Macfie A. M. Macgregor A. Macintyre, C. MacKenzie W. Mackie, G. MacLennan H. R. MacLennan J. S. McMillan A. Macnab W. H. W. M. Whittor, A. Miller J. G. Miller R. G. Miller * G. L. Montgomery J. V. Ogilvie W. L. Read W. Robertson J. A. Roushead J. D. Russell T. B. Scott, J. Simpson, C. E. Stewart Margaret C. Templeton A. G. Thomson J. Todd, J. Trotter A. Weir Bessie L. M. Weir C. H. Wilkie W. J. Woodward, * J. Younce D. K. M. Chalmers D. M. Haugh Mary E. Minihan E. A. Robertson

* With distinction in midwifery

ROYAL COLLEGE OF SURGEONS OF ENGLAND

THE annual meeting of Fellows and Members will be held at the College, Lincoln's Inn Fields W.C. on Thursday, November 15th, at 3 p.m.

Medical News.

THE fourteenth annual conference of the National Association for the Prevention of Tuberculosis will be held in the Great Hall of the British Medical Association House, Tavistock Square, W.C.1, on October 15th and 16th. Sir Arthur Stanley will formally open the conference. The first day's discussion will be on the occurrence of tuberculosis among primitive people and the speakers will include Dr. R. O. Ferguson, Director of Medical Services of the Saskatchewan Anti-Tuberculosis League, Dr. J. J. Vassal, ex-Director of Health for French Equatorial Africa, and Professor S. Lyle Cummins. On the second day the subject for discussion will be the principles underlying a national anti-tuberculosis scheme, and the speakers will include Sir Robert Philip, Dr. Howard Holbrook, medical director of the Mountain Sanatorium, Hamilton, Canada, and Dr. G. Lissant Cox, tuberculosis officer for Lancashire.

A DINNER of the combined Yorkshire Associations of Scottish Graduates will be held at the Queen's Hotel, Leeds, on Friday, October 19th, at 7 p.m. The guests of the evening will be the three parliamentary representatives of the Scottish Universities, Sir George A. Berry, M.B., LL.D., Mr. John Buchan, LL.D., and Mr. J. M. Cowan, M.A. The chair will be taken by Dr. J. B. Baillie, Vice-Chancellor of Leeds University. All graduates of these universities resident in Yorkshire, whether members of the various associations or not, are invited to attend and to bring guests (including ladies) if they so wish. Tickets and any further information may be obtained from the honorary secretary of the combined dinner, Dr. William MacAdam, 40, Park Square, Leeds.

THE St. Thomas's Hospital annual old students' dinner will be held on Friday, October 26th, at 8 o'clock, at St. Thomas's House, Lambeth Palace Road, S.E. The chair will be taken by Mr. L. F. White, F.R.C.S.

At the annual festival service of the Guild of St. Luke in Westminster Abbey on Sunday, October 21st, at 6.30 p.m., the preacher will be the Rev. Canon C. S. Woodward. No tickets for admission are required, and medical practitioners are invited to attend.

THE Long Fox Memorial Lecture will be delivered by Dr. J. Odory Sykes in the Physiological Theatre of the University of Bristol on Friday, October 30th, at 8.30 p.m., the subject is the relation of erythema nodosum to tuberculosis and other diseases.

A MEETING of the Tuberculosis Association will be held at the house of the Royal Society of Medicine, 1, Wimpole Street, W.1 on Wednesday, October 17th, at 5.30 p.m., when Professor K. H. Plimmer will read a paper on recent work of vitamins. At 8 p.m. there will be a discussion on artificial pneumothorax treatment from different aspects.

THE first meeting of the new session of the West Kent Medical-Chirurgical Society will be held at the Miller General Hospital, Greenwich, to-day (Friday, October 12th), at 8.45 p.m. After the routine business a series of clinical cases will be shown.

As already announced, the second International conference on light and heat and medicine and surgery will be held in the University of London buildings at South Kensington from October 29th to November 1st. Sir Henry Ganvalm will discuss light therapy in relation to surgical tuberculosis, Dr. M. Weintraub its use in pulmonary tuberculosis, and Dr. W. J. O'Donovan its application in skin diseases. Dr. W. Kerr Russell will speak on apparatus for the production of ultra violet rays for medical purposes and Dr. C. B. Heald the development of new electrotherapeutic apparatus. Several speakers from foreign countries will take part in the conference. Dr. Franz Nagelschmidt (Berlin) will describe a new method of applying heat by diathermy and will open a discussion on ion treatment, Dr. W. Flakamp (Erlangen) will discuss light and heat in gynaecology, Dr. A. J. Cemach (Vienna) will give an address on ultra violet therapy in otorhino-laryngology, and Dr. M. J. Dorcas (Cleveland, U.S.A.) will read a paper on the distribution of energy from various types of arcs. An exhibition to be held in connexion with the conference will be opened on October 29th at 2.30 p.m. by Sir John Snell, chairman of the Electricity Commissioners, with Dr. I. E. Fremautle, M.P., in the chair.

The British Institute of Philosophical Studies has arranged for two courses of lectures during the forthcoming Michaelmas term: (1) Four great philosophers and the modern outlook, by Professor L. J. Russell, (2) Contemporary philosophy, by the director of studies, Mr. Sydney Hooper. A syllabus can be had on application to the temporary offices of the Institute, 88, Abingway, W.C.2.

A COURSE of nine lectures on "The indebtedness of industry to pure science," under the auspices of the Faculty of Science, will be given at King's College, Strand, W.C., during the Michaelmas term on Wednesdays at 5.30 p.m., beginning on October 17th, when an introductory address will be delivered by Sir Oliver Lodge. The succeeding lectures will be given by members of the staff, among them will be an address, on November 7th, by Dr. F. A. P. Aveling on "The human factor," while a week later Professor R. J. S. McDowall will speak on "Physiology and national efficiency." Admission is free, without tickets.

AMONG the public lectures to be given at University College, Gower Street, W.C.1, during the winter months of the year is a course of three by Dr. John Owens on "Smoke pollution of the air and public health." The first lecture will be given on Friday, November 2nd, at 5.30 p.m., with Sir Napier Shaw in the chair, and the others on Friday, November 9th, and Wednesday, November 14th, at the same hour.

THE Fellowship of Medicine and Post-Graduate Medical Association announce that the opening lecture of its new series will be given by Mr. O. Max Page, on Monday, October 15th, in the lecture hall of the Medical Society of London, 11, Chandos Street, Cavendish Square, W., the title of the lecture will be "Some points in the treatment of fractures." On Wednesday, October 17th, clinical demonstrations will be given by Mr. Jefferson Fawcett, at the Golden Square Throat Hospital, at 3 p.m., and by Dr. G. B. Dowling at the St. John's Hospital for Diseases of the Skin, at 4 p.m., and at the same hour will be the second demonstration of the series undertaken by Dr. S. H. Dawkes, at the Wellcome Museum of Medical Science, 35, Gordon Square, W.C.1, his subject being "The transmission of harmful diseases." The above lectures and demonstrations are open to the medical profession without fee. A fortnight's morning course by the honorary staff of the Hospital for Sick Children will begin on October 15th, and Professor Lennox Mollroy will give four lecture demonstrations on ante-natal treatment at the Royal Free Hospital beginning on Friday, October 26th. There will be a general practitioners' course at the Hampstead General Hospital from October 29th to November 10th, from 4.30 to 6 p.m. daily. Special courses will be held during November, in medicine, surgery, and gynaecology at the Royal Waterloo Hospital for Children and Women, in neurology at the West End Hospital for Nervous Diseases, in ophthalmology at the Royal Westminster Ophthalmic Hospital, in proctology at St. Mark's Hospital, in urology at St. Peter's Hospital, and in venereal diseases at the London Lock Hospital. Copies of all syllabuses and other information may be obtained from the Secretary of the Fellowship, 1, Wimpole Street, London, W.1.

THE Marquis of Reading presided for the first time as Chairman of the Grand Council of the British Empire Cancer Campaign at its quarterly meeting held on October 8th. The proceedings opened with a vote of condolence on the death of Dr. Robert Knox, one of the founders of the Campaign and a member of the Grand Council. The following grants were approved on the recommendations of the appropriate committees of the Campaign—£500 as a supplementary grant towards the maintenance of cancer research work at the Middlesex Hospital, £500 to the Cancer Research Committee of the London Association of Medical Women's Federation for the salary of its research officer for one year, £200 to Mr. Nevill Willmer of Manchester University for the continuation of his research work, £50 to the Clinical Research Committee of Guy's Hospital towards the cost of an investigation on organic compounds of lead with a view to their therapeutic use, and a sum of £1,500, spread over a period of three years, to the Middlesex Hospital for the salary of an assistant histologist. A donation of £3,000 was announced from an anonymous donor, in addition to a previous sum of £10,000 from the same benefactor. A letter was received from the newly formed International Cancer Committee, which has been set up to deal with the organization of International Conferences on Cancer in future years, and the Grand Council nominated Mr. W. Sampson Handley, Dr. R. G. Cantl, and Professor Archibald Leitch as its representatives on this International Committee. Approval was given to the proposed scheme for setting up a special committee to investigate and report upon the data and results that had become available through the International Conference on Cancer held in July. The Grand Council elected Sir Thomas Horler as its representative on the Scientific Advisory Committee, nominated jointly by the Royal Society, the Medical Research Council of the Privy Council, and the Campaign.

THE post-graduate courses of instruction at the National Hospital, Queen's Square, Bloomsbury, recommenced on October 8th and will be continued on succeeding Mondays, Tuesdays, Thursdays, and Fridays terminating on November 30th. The course consists of out-patient clinics, clinical lectures and demonstrations, lectures on the pathology of

the nervous system, and on the anatomy and physiology of the nervous system, together with clinical demonstrations on methods of examination. Any part of the course may be taken separately. The fee for the course, including pathology demonstrations, is £5 5s., for those holding perpetual tickets £3 3s., and clinical clerks £4 4s.

THE Central Midwives Board for England and Wales, at a meeting on October 4th, had under consideration a communication from the Association of Municipal Corporations enclosing a letter to the Ministry of Health in regard to the conduct of cases before the Board. In this letter the Association urged the Ministry to give effect to a resolution adopted by the City Council of Canterbury expressing the opinion that the conduct of cases before the Central Midwives Board should be left in the hands of local authorities, that the attendance of witnesses should be made compulsory, and that all evidence in such cases should be given on oath. The Board approved Nether Edge Hospital, Sheffield, as a training school, subject to certain conditions, and also granted approval *pro tem*, as a lecturer, to Dr. W. B. Wishart.

THE fifth international congress for the treatment of industrial accidents and industrial hygiene, which was held at Budapest during the first week in September, was opened by Professor Kaufmann of Zürich, who delivered a lecture on the differentiation of trauma and disease. Sir Thomas Oliver read a paper on the influence of industrial poisons on the different organs, with special reference to lead, arsenic, and mercury. Among the other subjects considered were the physiological response to the vapours of methyl and ethyl salts, the nervous sequelae of accidents, pulmonary asbestosis, and the medico-legal aspects of occupational disease. The congress was visited by a large number of delegates from many countries.

AS on several previous occasions the Société Médical du Littoral Méditerranéen has arranged an international medical tour of the Côte d'Azur to take place just after Christmas. Assembling at Marseilles on the evening of December 26th, the party will spend two days in visiting that neighbourhood and then, proceeding afterwards to Hyeres, Cannes, Juan les Pins, Antibes, Nice, Monaco, and other places, where scientific demonstrations, therapeutic discussions, etc., will be arranged. Visits will be made to various centres of interest, including Dr. Veronoff's laboratory and the oceanographic museum at Monaco. At the conclusion of the tour, on January 5th, members of the party may proceed on an excursion to the Alps or on an excursion to Corsica, or may spend some days at Nice. Particulars may be obtained from Dr. M. Fanro, 24 rue Verdil, Nice.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the British Medical Journal, alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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All communications with reference to ADVERTISEMENTS as well as orders for copies of the JOURNAL, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBERS of the British Medical Association and the British Medical Journal are *ALSEUM 9561 9562 9563* and *9564* (internal exchange, four lines).

The TELEGRAPHIC ADDRESSES are EDITOR of the British Medical Journal, *Anthology Westcott, London*.

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements etc.) *Articulate Westcott London*.

MEDICAL SECRETARY *Medicera Westcott London*.

The address of the Irish Office of the British Medical Association is 16 South Frederick Street, Dublin (telegrams *Bacillus Dublin* telephone 62550 Dublin), and of the Scottish Office 7 Drumshugh Gardens Edinburgh (telegrams *Associate, Edinburgh* telephone 24361 Edinburgh).

QUERIES AND ANSWERS

TREATMENT OF POST NASAL CATARRH

"A. X." asks for advice with regard to the treatment of an otherwise healthy man aged about 60 who has suffered from post-nasal catarrh for two years. No benefit has resulted from a course of anticholinergic vaccines or the use of an atomizer. There is a copious viscid and sometimes purulent secretion from the pharynx and back of the nose, with occasional dribbling from the nostrils.

INCOME TAX

Fees Paid by Practitioners

"W. J. M." has been requested by the income tax authorities to supply the names and addresses of medical men to whom he has paid fees of £10 and upwards during 1927-28 for assistance at surgical operations.

The relative statutory provision in Section 105 of the Income Tax Act, 1918, under which an "employer" can be called upon to give such particulars in respect of persons "employed" by him. The objection which, as it seems to us, our correspondent may very well be entitled to make is that the medical men in question are not in his employment, but both are in the position of jointly earning fees for work done for a patient. The question raises a somewhat difficult point of general law, but the normal case would, we think, fall outside the statutory rule.

LETTERS NOTES ETC.

MR. FRANK ROMER (London, W.) asks our help in regaining touch with the secretary of a medical society with whom he has been in correspondence about the reading of a paper. His dilemma arises from the accidental destruction of letters and memoranda during a holiday.

MALIGANCY AND THE ENZYME

DR. W. C. MINCHIN (Sheerness-on-Sea) in reply to Lieut. Colonel V. N. Whitmore's inquiry (September 15th, p. 514) writes to suggest a simple explanation. While Murphy and his fellow workers are satisfied that cancer is due to ferment Gye has shown by filtering cancerous material that neither the filtrate nor the material left on the filter was active though when they were again mixed, activity was restored. Dr. Minchin suggests that these results are more similar than might appear at first sight and he quotes Chaston Chapman's book on brewing, in which, after a review of some of Pasteur's work upon yeasts, reference is made to Buchner's discovery in 1897 that the liquid contents of the yeast cell when added to a fermentable liquid, could excite fermentation in the absence of any cells. Buchner concluded that fermentation resulted from the activity of an enzyme secreted by the yeast cell to which he gave the name "zymase." Harden found by passing yeast juice through a Chamberland filter impregnated with gelatin that neither the filtrate nor the residue could bring about fermentation separately, though by mixing the two portions activity was restored. Harden recognized, thus, that the enzyme which remained on the filter required contact with the filtrate, the active constituent of which he designated the coenzyme, the true chemical nature of this is still undetermined. Dr. Minchin adds: "I have shown in my book on the tubercle virus published by Messrs. Baillière, Tindall and Cox that yeasts are always to be found in cancerous and tuberculous material even in the filtrates and diseased tissue. A direct photomicrograph in my possession of a section of a cancer growth of the tongue plainly shows budding yeasts when stained by the Ziehl method."

EXAMINATION OF THE FAECES FOR TUBERCLE BACILLI

DR. C. D. GALLAGHER (assistant medical officer, Levensden Mental Hospital) has contributed to the annual report of the Metropolitan Asylums Board for 1927-28 an account of an investigation into the examination of the faeces for tubercle bacilli in the case of mental patients. He concludes that the direct smear examination of faeces is worthy of employment in all cases. In the event of a negative result being obtained the concentration method with litmus may be tried. In some cases of febrile symptoms occurring in low grade tubercles such investigation of the faeces has been found to be helpful in clearing up the diagnosis since these patients cannot as a rule, be taught to expectorate their sputum, which they swallow.

FALLING BIRTH RATE AND CRUMBLING EMPIRES

DR. GEORGE JONES (Downe, Kent) writes Dr. Stephenson (October 6th, p. 634) refers to the fall of the West Roman Empire under Honorius in 410. He thinks it was due to the increase of the parasite class which demanded *panem et circenses* both free and at the expense of the provincials. Now the East Roman Empire survived for another thousand years. Constantinople was no better than Rome. What does seem to have been the immediate cause of the fall of Rome was the murder of Stilicho at the instigation of the cowardly Emperor Honorius who skulked in the marshes at Ravenna while the barbarians entered Rome. We ought to remember that under Justinian Africa and Italy were largely free from barbarians, but the civilization of the West Empire was never recovered. There must have been other causes in operation when they were. Gibbon has hinted only too clearly to those who read between his sonorous lines. The utter misery of the West under the barbarians may be gathered from Salvian's *De Gubernatione Dei* or from Cardinal Newman's University Studies. Not even Russia has gone through worse experiences.

VACANCIES

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 48, 49, 50, 51, 54, and 55 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 52 and 53.

A short summary of vacant posts notified in the advertisement columns appears in the Supplement at page 163.

The Harveian Oration

ON

CARDIO-VASCULAR DISEASES SINCE
HARVEY'S DISCOVERYDELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF
LONDON, OCTOBER 18TH, 1928,

BY

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PROFESSOR OF PHYSIC, CAMBRIDGE

INTRODUCTION

THE President's command to deliver the 272nd Harveian Oration in the tercentenary year of the publication of the *Exercitatio Anatomica de Motu Cordis et Sanguinis in Animalibus* is an honour to be prized with humble gratitude, but with a due sense of its heavy responsibility, by any man, especially by one whose father obeyed the call to this high duty fifty-five years ago.

The tercentenary of the publication of Harvey's immortal discovery was appropriately and splendidly commemorated by the celebrations organized by this College. In no way could its significance have been more suitably and graphically shown than by the remarkable cinematograph films of Harvey's original physiological experiments as repeated by Sir Thomas Lewis and Dr H. H. Dale, Fellows of the College, who have been eminent in obedience to Harvey's exhortation "to search and study out the secrets of nature by way of experiment." Further, the historical aspect of the tercentenary has been permanently assured by the publication by the College of a facsimile of the first edition of the *De Motu Cordis*, and by the appearance of two other Harveian books, a reproduction of the first English translation in 1653 of the *De Motu Cordis* (Nonesuch Press), and *A Bibliography of the Writings of William Harvey, M.D.* (Cambridge University Press), both due to the pious devotion of a licentiate of the College, Mr Geoffrey Kovnes.

John Freind, the elegant scholar and eminent physician, when commenting on the history of the circulation, wrote in 1725:

"From this discovery of our great countryman [Harvey] many improvements even in the cure of distempers might be made. He had thoughts of composing such a work himself to show the advantages of this doctrine in relation to practice but was prevented by sickness and death. The design of the Architect was very noble and I with some of his successors might finish it. At present I shall hint only at two or three particulars which will convince us of what use a perfect knowledge of the circulation may be to us, if rightly applied, in the practical part of our profession."

If more than two centuries ago the learned author of *The History of Physic from the Time of Galen to the beginning of the xvi Century* apparently thought the task difficult and accordingly acted with wise discretion, it is now obviously, from limitations of both time and capacity, impossible to attempt more than the barest outline of the accumulated knowledge of the diseases of the circulatory system since Harvey's time. An attempt to piece together the history of the various forms of cardiac disease is attended by no small difficulties: the same ideas often occur to several minds at the same time, but simultaneous and identical solutions are not published synchronously, thus making it far from easy to decide who really deserves the rather barren crown of priority. Another obvious objection to such a subject is that it entails lists of men and dates, but as many of these names are those of Fellows of this College it will surely be in obedience to Harvey's injunction to commemorate these benefactors of the College, for can any benefaction be more welcome than new and true knowledge?

The knowledge of cardio-vascular disease, which was very slight at the time of the discovery of the circulation,

has since come through several channels: (1) the accumulation of data provided by anatomical observation, normal and morbid, (2) unaided clinical observation, (3) as the result of the application of instruments of precision to the examination of patients, and (4) the information derived from physiological and pathological experiments. Though these four headings are attractive as a means of sketching the advance of knowledge, it is in practice difficult, and indeed somewhat inconvenient, to follow them out rigidly or attempt to make them absolutely watertight, there will therefore be much overlapping, as will at once be only too obvious.

ANATOMICAL OBSERVATION

Anatomy is an indispensable step to the more complex science of physiology, which explains the vital forces of the body, and thus, though it may be helped by anatomy, demands observation of, or experiment on, the living organism. Fabricius's description of the valves in the veins stimulated Harvey to find out their use by the experimental method. Gaskell's physiological demonstration of the muscular continuity between the auricle and the ventricle was made on reptiles, and was supposed to be confined to them until 1893, when the auriculo-ventricular bundle was described in mammals by Stanley Kent and by W. His, junior, in 1906. Tawara gave a full account of the junctional system, including the auriculo-ventricular node and the bundle previously described by Kent and His, the fibres of the bundle being continued into the Purkinje fibres which line the interior of the ventricles and communicate with their muscular fibres, this was followed in 1907 by Keith and Flack's discovery of the sino-auricular node, the normal pace-maker of the mammalian heart, the later anatomical observations were subsequent to, and directly stimulated by, the needs of the new cardiology, for Mackenzie's epoch-making book on the pulse was published in 1902. Thus it may be noted that, just as medicine is deeply indebted to the experimental method, so also science owes a debt to medicine, and that they two "according well may make one music as before."

The Capillaries

The tercentenary of the birth of Marcello Malpighi, the father of histology, on March 10th, 1628, and that of the *De Motu* appropriately coincide, for in 1661 he provided the final proof of Harvey's discovery by recognizing the capillaries in the frog's lung. He also saw the red blood corpuscles in the mesenteric vessels of a hedgehog, but as he regarded them as fat cells, Antony van Leeuwenhoek, who described them fully in his *True Circulation of the Blood* in 1686, has the credit of their recognition. Johannes Swammerdam, however, had actually noted the presence of red blood cells as early as 1658, but his observation was not made public until 1738, when Boerhaave brought out Swammerdam's *Biblia Naturae*.

After the discovery of the capillaries there was a long interval before this most essential part of the circulatory system received due attention. Thomas Young in 1808 had the foresight to assume as probable variation in the size of the capillaries. The view that the capillary circulation was a mere passive communication between the arterioles and the venules was definitely modified by Stricker's observation in 1865 that the capillaries became constricted from swelling of the endothelial cells. In 1873 Rouget observed on the surface of capillaries the cells which bear his name, and described their contraction. In 1879 Roy and Graham Brown showed that the calibre of the capillaries is constantly changing without corresponding alterations in the arteriolar pressure. The study of the capillary circulation then languished, but the invention of capillary microscopy by Lombard in 1912 again stimulated investigation, and it has now been proved that the walls of the capillaries have independent powers of changing their calibre.

The capillary circulation, thanks to the experimental labours of Dale, Laidlaw, Richards, Krogh, and Lewis, has been placed in a new light. It appears that the capillary area as a whole is in a constant state of flux, while the great portion is relatively empty, various parts of it open for a time, so that with a constantly changing

condition of the constituent portions the average total path remains about the same and maintains the peripheral resistance. Normally only a very small proportion of the whole available capillary area is open, for if it were universally open all the blood would stagnate there. The varying dilatation of the capillaries corresponds, as Krogh demonstrated in muscle, with the needs for it.

The question whether the circulation in the nervous system, the lungs, and the coronary vessels is under the same nervous control as the rest of the general systemic capillaries has been exhaustively investigated and is referred to briefly elsewhere, the effect of adrenaline on the vessels—contraction or its absence—has been employed as a criterion of the presence or absence of vasomotor fibres, but can hardly—for example, in the case of the coronary arteries—be regarded as devoid of exceptions due to a species difference in the nerve supply and reactions.

Morbid anatomy must also be supplemented by clinical observation or by experiment, the example set by Harvey of always submitting to the test of physiological proof the explanations suggested by anatomy, which is completely instructive only when elucidated by physiological experiment, was followed with regard to morbid anatomy and its correlation with symptoms by Morgagni, Corvisart, Laennec, Hope, and later the experimental results obtained by Claude Bernard, Cohnheim, Roy, Starling, and many others were brought to supplement the teaching of the *post-mortem* room.

It was not until the eighteenth century, with the publication of observations on morbid anatomy made by Raymond Vieussens (1715), Lancisi (1718, 1740), and Morgagni (1761), and the first treatise dealing specially with diseases of the heart by J. B. de Senac (1749), that cardiac disease was really recognized. Theophilus Bonetus, in the first volume of his *Sepulchretum* (1679), collected a number of observations on palpitation and cardiac pain during life associated with polyp in the heart, calculi in the myocardium, inflammation of the heart, acute inflammation, effusion, and adhesion of the pericardium, and aortic aneurysm, and thus prepared the way for Morgagni and others. Vieussens and Morgagni recorded a number of valvular lesions, and Lancisi in 1718 described vegetations on the valves and noted dilatation and hypertrophy, but applied the term "aneurysm" to the former, in his posthumous book (1740) syphilitic lesions of the heart were outlined. De Senac described ulceration, abscess, and inflammation of the heart, "the hairy heart" of aortic pericarditis, and, in a short chapter, malformations.

Corvisart and his pupils, Laennec and Bouillaud, carried on the anatomico-clinical investigation of cardiac affections, and among the Fellows of this College James Hope (1801-41) set a fine example in this respect.

[The Quater then considered in some detail the anatomico-clinical history of various cardio-vascular diseases.]

UNAIDED CLINICAL OBSERVATION

Under the heading of unaided clinical observation the use of the stethoscope may perhaps be included, as it is artificial to separate the employment of this instrument of precision from that of direct auscultation. In this section the history also is outlined of some cardiac disorders—dyspnoea, angina pectoris, coronary thrombosis, the Stokes-Adams syndrome—which give rise to characteristic clinical pictures. As would naturally be anticipated the history of cardiac diagnosis shows that in the main recognition and correlation of symptoms came first and the invention of physical methods of examination later. Albertini of Bologna laid stress on palpitation and dyspnoea as evidence of cardiac disease, and ascribed the latter to venous stasis in the lungs. He also made use of palpation, which was little employed before his time, or indeed for a hundred years after, until Corvisart revived it and drew attention to thrills.

Percussion was described by Leopold Auenbrugger of Vienna in a pamphlet of twenty-two pages in 1761, the year in which Morgagni's great work on morbid anatomy, *De Sedibus et Causis Morborum*, appeared, and so should have been a means of correlating physical signs with gross structural changes. But though praised as worthy of all attention by his senior contemporary Albrecht von Haller

of Berne, and translated into French by Rozier de la Chassagne, and published in Paris in 1770, the conservatism responsible for opposition to Harvey's discovery delayed the acceptance of Auenbrugger's percussion. It was thus long before its time and did not receive any recognition until, in 1808, the year before the author's death, J. N. Corvisart translated it into French for the second time.

Auscultation, though in practice and in our minds dating from Laennec and the invention of the stethoscope, was not an absolutely new idea in 1819. The story of the invention of the stethoscope by Laennec has often been told. In 1816 he noticed boys in a court of the Louvre at play with the ear applied to long pieces of wood listening to the transmitted sound of a pin scratch at the opposite end. He immediately put this hint into practice, as he says, by applying a rolled up quire of paper to the chest of a stout girl with symptoms of heart disease, and was electrified by finding that the heart sounds were more audible than to the direct ear. He keenly practised this method at the Necker Hospital, where, however, Granville, as an onlooker on September 16th, 1816, states that the original birth of mediate auscultation actually occurred on the chest of a male patient. Laennec then devised a wooden cylinder $1\frac{1}{2}$ inches in diameter, a foot long, and perforated longitudinally by a bore three lines wide, this he regarded as too simple to require a name other than "the cylinder" or "baton", but eventually, as somewhat barbarous names, such as "sonometra," "pectorilogue," "thoracoscope," "cornet de papier," and "cornet médical," appeared on the horizon, he suggested, if it must have a name, "stethoscope." With his knowledge of morbid anatomy he correlated the local lesions with the corresponding physical signs, like his teacher Corvisart, thus advancing the anatomico-clinical method and the special pathology of the organs, and in the extraordinarily short time of three years his classical work *Auscultation médiate* appeared, about August 15th, 1819. While correcting the proofs he had been busily making stethoscopes so that every buyer of his book might be properly equipped, in fact, it is probable that at the time of his death every existing stethoscope was the work of his hand (Thayer).

Though the stethoscope has some obvious advantages over the naked ear, the enormous advances that followed its introduction were not so much due to the stethoscope as a mechanical instrument as to the psychological effect that this new method exerted on Laennec, who otherwise would not have so ardently pursued auscultation as a means of diagnosis. It was much the same with regard to the pleximeter introduced by P. A. Piorry in 1828, which in itself, apart from its temporary influence in stimulating investigation, is inferior as a method of eliciting physical signs to Auenbrugger's direct percussion, which it was intended to supersede.

Laennec's original stethoscope underwent modifications by him, by Piorry, who reduced the thickness of the stem to that of the finger, by C. J. B. Williams, and others. The invention of the binaural stethoscope was the subject of some dispute as to priority, as is shown in the pages of the *London Medical Gazette* for 1840-41. Sibson used one in 1838, Burne in 1840, and Golding Bird stated that Babington at Guy's Hospital had used one for some time. In America, where it was introduced in 1850 by Cammann, its vogue became general much earlier than in this country. Auscultatory percussion, or a combination of the two methods enabling the vibrations produced by percussion to be directly transmitted to the ear by the stethoscope, was advocated by Cammann and Clark in 1840. More modern developments are the phonendoscope and the differential stethoscope.

Until auscultation had become somewhat elaborated the diagnosis of heart disease depended on general symptoms, such as dyspnoea, palpitation, a weak and irregular pulse, and there was not any discrimination in diagnosis. In the posthumous edition of Matthew Baillie's *Morbid Anatomy* (1825) it is stated that "no observations have yet been made by which practitioners can ascertain with any precision what set of valves is diseased." But Laennec's *Auscultation médiate* stirred the waters to much purpose. Bouillaud, Hope, Williams, and Elliotson bear

extremely active in tabulating the physical signs with the valvular lesions and accumulating data—the time, propagation, and characters—so as to determine the significance of murmurs. Hope's *Treatise on Diseases of the Heart and Great Vessels* (1832), though somewhat unwarred by his disputes with Bouilloud, chronicled a most notable advance, having carried on experimental research he was able to apply physiological principles to unravelling the haemodynamic problems of cardiac disease.

During the latter half of the last century an exaggerated importance was attached to cardiac, and especially systolic, murmurs as evidence of heart disease. With "the passing of morbid anatomy," or the overshadowing of gross morbid changes by the renewed attention to symptoms and physiological efficiency, there has now resulted a diminution in the importance attached to the physical signs of cardiac disease. But the traditional stress laid on the presence or absence of a murmur as the criterion in determining whether the heart was or was not seriously affected, though qualified by the warnings of W. T. Gardner (1862), Thomas Watson, Andrew Clark, G. W. Balfour, and others, did not become fully discounted until after the war, and then largely by Mackenzie's insistence.

CARDIAC DYSPOEIA

As a result of work done during and since the war, cardiac dyspnoea may be divided into (1) simple, in which there is increased irritability of the respiratory centre from oxygen want brought about by diminished blood supply to the centre, in these cases, occurring in the young, especially with mitral stenosis, and comparatively early, the cyanosis being bright, Fraser, Ross, and Dreyer found a definite alkalaemia, and Lewis and Barcroft noted the absence of acidemia, (2) cases of a more complicated nature, often arterio-sclerotic or cardio-renal, in older people, with myocardial degeneration, dyspnoea occurring later and the cyanosis being of a leaden hue (Fraser). In these cases there is acidemia (Lewis and Barcroft) and stimulation of the respiratory centre by the increased hydrogen-ion concentration, the fundamental idea that acidemia causes breathlessness being directly deducible from Haldane and Priestley's work (1905). These cases manifest true cardiac asthma with a sudden onset, which was ascribed by Lewis, Ryffel, Wolf, Cotton, and Barcroft (1913-14) to sudden waves of acidemia. The attacks are probably much allied to those long known as renal asthma, which, as pointed out by Loonns (1873) and Stephen Mackenzie (1889), are greatly benefited by hypodermic injection of morphine. These paroxysmal attacks of cardiac asthma were mentioned by Heberden, who culminated from his picture of angina pectoris the symptoms of breathlessness, but there is a close relation between the three conditions of angina pectoris, oedema of the lung, and cardiac asthma (Prott), which may be combined or confused with each other. Hope in 1839 gave an account of cardiac asthma, but rather confused the issue by bringing in ordinary cardiac dyspnoea and Cheyne-Stokes respiration. Clinically James Mackenzie drew special attention to the true cardiac asthma about which scepticism had been expressed. The value of morphine hypodermically in the paroxysmal dyspnoea of cardiac asthma has recently been emphasized (Fraser), and it may be noted that, on more general grounds, Clifford Allbutt in 1869 recommended morphine in cardiac disease by the then comparatively new method of hypodermic injection, the syringe having been invented by F. Ryd in 1845 and Alexander Wood in 1855.

ANGINA PECTORIS

Angina pectoris was first described on a good basis of cases, twenty in number, by the British Celsus, William Heberden the elder, in a paper entitled "Some account of a disorder of the breast," read before this College on July 21st, 1768. In the text he says "The seat of it, and sense of strangling and anxiety with which it is attended, may make it not improperly called angina pectoris," and his posthumous *Commentarii de Morborum Historia et Curatione*, 1802, show that altogether he had seen a hundred cases. Isolated cases had been reported before this. Seneca in his epistles to Lucilius recorded his

own sufferings, which may well have been those of angina sine dolore, and at any rate were by his medical attendants called a "Meditatio mortis", the Earl of Clarendon described the sudden death of his father, Henry Hyde, in 1632, and Morgagni the case of a woman who died in 1707 with a characteristic distribution of the pain and was found to have a dilated and calcified aorta. Hoffmann recorded another single case "de spasmo proecordiali a motu corporis" in 1734, Rougnon, professor of medicine in the University of Besançon, wrote a letter to M. Lorry dated February 23rd, 1768, earlier in the same year as Heberden's more complete account, describing a case of angina with a necropsy, and accordingly in France a claim for priority was made for him by Huchard. On November 17th, 1772, two further communications on the subject were made to the College, Heberden read a letter addressed to him by a man signing himself "Unknown," who, having seen an abstract of Heberden's original paper in *The Critical Review*, recognized the resemblance to his own experiences, gave an account of them, considered by Osler as one of the best extant, and expressed a wish that in the event of his death there should be a necropsy, this, when performed by John Hunter, did not reveal anything save slight calcification of the aorta, but Edward Jenner, who was present, wrote to Caleb Hillier Parry, "I can almost positively say the coronary arteries of the heart were not examined." The other, though less dramatic, communication made at this meeting, by John Wall of Worcester, has perhaps hardly received its due meed of attention, for in his letter to Heberden describing the post-mortem examination of a case of aortic stenosis with angina, the first inch of the aorta is stated to have been partly ossified, and the spasm of the pectoral muscle is ascribed to "an irritation on the nerves of the thorax and heart," and the following comment is added "Perhaps it may throw some light on this affair to consider that the nervi intercostales or sympathetici distribute many branches to the heart, arteria pulmonalis, and aorta." He thus, perhaps, in the first place anticipated James Mackenzie's view that the pain of angina is partly due to spasm of the intercostal muscles and Charlton Briscoe's suggestion that the spread of pain depends upon irritation of one of the expiratory muscles, and in the second place suggested Corrigan's and Clifford Allbutt's conception of the aortic origin of anginal pain. The association of coronary disease with angina was first recognized by Edward Jenner from post-mortem examination, though it is possible that John Hunter, on whose account, as his anginal symptoms dated from 1773, Jenner kept silence, knew or suspected it in 1776, when John Fothergill published a fatal case of angina in which at the necropsy Hunter found that "the two coronary arteries from origin to many of their ramifications on the heart were become one piece of bone." Jenner, who is said to have diagnosed angina in Hunter in 1777, never directly published anything on this subject, but he communicated his opinions to C. H. Parry, who in 1788 read a paper—"An inquiry into the symptoms and causes of the syncope anginosus, commonly called angina pectoris, illustrated by dissections"—to a small medical society in Gloucestershire of which Jenner was a member, and came to the conclusion that coronary disease was the cause. In this paper, not published until eleven years later, he quoted the case of ossification of the coronary arteries published by Black of Newry in 1795, and pointed out that he and Jenner had independently come to the same opinion in 1788.

The explanation of the causation of angina pectoris by coronary disease was, as pointed out by Osler, given by Allan Burns, the Glasgow anatomist and surgeon, who in 1809 ascribed the symptoms to anaemia—or, as it might now be expressed, anoxaemia—of the heart muscle resulting from coronary obstruction. This conception is now known as intermittent claudication—a term introduced by Bouley in 1831 in regard to horses and applied to man by Chrociot in 1858—and perhaps more intelligibly as intermittent limp (Erb). Benjamin Brodie in 1846 explained angina pectoris on these lines rather more fully, and Potain in 1870 expressed the same opinion. The view that disease of the base of the aorta was one of the causes of angina pectoris, perhaps dimly foreshadowed by Wall (1772) and

Baumes of Montpellier (1808), was put forward by Dominic Corrigan in 1837, and independently by Allbutt from 1894, with confirmation from our Honorary Fellow, K. F. Wenckebach, in the special lecture he gave in this library on May 5th, 1924, when he accordingly advocated division of the depressor nerve. James Mackenzie considered that angina is due to cardiac failure, a revival of the view held by Parry (1799) and supported by Stokes (1854), and Danielopolu put forward the slightly different explanation that myocardial intoxication by fatigue products is responsible for angina.

The syndrome of angina pectoris, ascribed to various factors, has been divided into (1) true organic or major, and (2) functional, pseudo, mock, false, vasomotorial, or minor. John Latham (1813) described a spurious form as angina nothi, Laennec (1818), who had two attacks, did not accept coronary disease as the cause, considered mild cases as common, and described it as neuralgia of the heart. Desportes (1813) had previously expressed a similar view. Forbes, the translator of Laennec's *Auscultation mediate*, spoke of organic and of functional angina, subdividing these two main categories. Lartigue (1846) and Walke independently introduced the term "pseudo-angina," which has not escaped criticism from Allbutt and Mackenzie. Nothnagel in 1867 brought in the term "vasomotorial angina," and toxic angina, especially that due to tobacco, was described by Huchard. Angina sine dolore, a form of true or major angina, was so named by W. T. Gairdner (1877). The distribution of pain and cutaneous tenderness was investigated by James Mackenzie (1892) and Henry Head.

Division of the cervico-thoracic sympathetic containing the sensory nerves of the heart and aorta as a means of relieving the pain of angina was suggested in 1899 by François-Franck, the physiologist, but not put into practice until 1916 by Jonnesco of Bucarest. The treatment by amyl nitrite was initiated in 1867 by Lauder Brunton, when a house-physician, on the grounds that he found the blood pressure high in an attack and, having heard from Arthur Gamgee that amyl nitrite lowered the blood pressure, logically and successfully employed this drug.

In the tercentenary year of the publication of the *De Motu Cordis* it is interesting to find that the coronary circulation, on which R. Lower, R. Vieussens (1706, 1715), and Adam Christian Thebesius (1708) worked, has been investigated after the Harveyan manner. Wearn finds that the blood in the coronary arteries may pass into the Thebesian vessels and so into the ventricles or auricles without entering the capillaries, there being either a direct communication between the coronary arteries and the Thebesian veins, or more probably between the arteries and large veins and thence into the cavities of the heart. Further, he argues, from observations on two cases of gradual complete obliteration of the orifices of both coronary arteries, that the Thebesian vessels may take on the new function of supplying the heart muscle with blood from the cavities of the heart a view to some extent previously expressed by Pratt. The coronary blood flow depends on the arterial pressure, but opinions differ as to the relative importance of the diastolic and systolic blood pressures in the aorta. In this year Aurep and King have shown by experiment that the coronary blood flow is not determined by either the diastolic or the systolic pressure in the aorta singly, but follows closely changes in the arithmetical average of the diastolic and systolic aortic pressures, which in most cases is a sufficiently accurate measure of the true mean pressure.

CORONARY THROMBOSIS

The syndrome of thrombosis of the coronary arteries, long included in angina, has quite recently been isolated, though Harvey's description of Sir Robert Dore's case, in his second Disquisition to J. Riolan in which the wall of the left ventricle was ruptured apparently as the result of "an impediment to the passage of the blood from the left ventricle into the arteries" has now been recognized as an early example (Wearn). The syndrome, first described in 1910 by Obrastzow and Strachenko and again in 1912 by J. B. Herrick, is, now that its characteristic features have been pointed out, obviously a frequent event

this year. Parkinson and Bedford published one hundred clinical cases and in addition eighty-three *post-mortem* cases. Isolated cases had been reported in 1884 by Leyden and even diagnosed by Hammer in 1878, and it is now easy to wonder why coronary occlusion, long recognized pathologically, had not been correlated earlier with a clinical picture. Cases of angina with pericarditis had been recorded (Steell), and the occurrence of the status anginosus, or pain lasting for hours or days, in contrast to the pain of angina, which is a matter of minutes, was noted by Huchard. Both these phenomena belong to the syndrome of coronary thrombosis. Rapid and sudden death may be due to ventricular fibrillation or to rupture of the infarcted area as in Harvey's case, recovery may occur, but myocardial failure, cardiac aneurysm, rupture, or recurrent thrombosis may follow.

STOKES-ADAMS SYNDROME

J. B. Morgagni in 1761 mentioned two men aged 68 and 64 years with slow pulse rates, one "twenty-two without one-sixtieth part of an hour," dating from the time they were "first attacked with epileptic paroxysms, beginning from the belly". Heberden in 1768 described a pulse seldom above thirty associated with torpidity. Andrew Duncan described the same events in 1793. Bright in 1831 recorded the clinical features of a case with a necropsy showing a much enlarged heart. The condition was called "maladie de Stokes-Adams" by Huchard after the two Irish physicians, Robert Adams and William Stokes, who gave accounts of it in 1827 and 1846 respectively and laid much stress on fatty degeneration of the myocardium, indeed, they transferred to that condition many of the symptoms of complete heart-block. This, of course, was long before Gaskell's physiological explanation (1883) of heart-block, which is usually, but not invariably, primarily responsible for the syndrome. Galabin in 1875 first published tracings of the independent contractions of the auricles and ventricles, and ten years later Chauveau's tracings also showed this in a man with an auricular rate of sixty to sixty-five and a ventricular rate of twenty-one to twenty-four. Osler pointed out the various forms of the Stokes-Adams syndrome, especially the rare cases with gross extrinsic lesions exerting pressure on the medulla or the vagus, such as those of Holberton, Leprie, and Boffard, and to his writings the general recognition of the syndrome is due in no small degree. Recently it has been shown that the ventricle may pass into fibrillation, and that the direct injection of adrenaline into the heart will start the circulation again even if it has stopped for four or five minutes. Subcutaneous injection of adrenaline has been found to arrest the syncopal attacks (Phear and Parkinson), but not to prevent them. For this purpose Colin and Levine had recourse to barium chloride by the mouth, which, by increasing the irritability of the ventricle, was successful in preventing the attacks. An interesting account of his own experiences during the last seven years of his life was given by W. T. Gairdner.

EXAMINATION OF PATIENTS WITH THE AID OF INSTRUMENTS OF PRECISION

Sphygmomanometry

The history of blood pressure really begins with Stephen Hales, minister of Teddington, who with a sound training in Newtonian physics, applied this knowledge to biology and physiology. Before 1723 he tied tubes into the arteries and veins of animals and estimated the pressure in the capillaries, thus being far in advance of his time. In a mare he found that the blood pressure was equal to a column of blood of eight to nine feet. Nearly a century passed before the subject was further investigated, and then Poiseuille (1828) employed a U-shaped mercurial manometer (haemodynamometer). The clinical estimation of blood pressure by instrumental means was first attempted by Vierordt in 1855 by measuring the weight necessary to stop the arterial pulsation, but von Basch, in 1880, invented a sphygmomanometer on this principle, which was applied locally over an artery and was widely used. This underwent modifications among others by Potain, Marey, Mosse, and Hürthle. Attention should be drawn to F. A. Mohomed's laborious observations on blood pressure made between 1874

and 1881, not with a sphygmomanometer, but with his own form of Marey's sphygmograph, which led him to anticipate much that is now known and far more easily verified—for example, he described a pre-albuminuric rise of blood pressure in Bright's disease, which, with von Basch's conception of "latent arterio-sclerosis" and Huchard's pre-sclerosis, led up to the recognition of primary or essential high blood pressure or hyperpiesia. The present sphygmomanometric methods became generally available as a result of Riva-Rocci's modification of von Basch's instrument. The publication of Korotkoff's auditory or auscultatory method in 1905 has made estimation of the diastolic pressure both easy and accurate for all conditions except some cases of aortic regurgitation.

The general use of the sphygmomanometer in this country was largely due to Clifford Allbutt, Bruntow, and G. Oliver. The greater stability of the diastolic than of the systolic pressure, and therefore its greater diagnostic value, the importance of the pulse or differential pressure, and a correct estimation of the significance of abnormal pressures have gradually become established. Allbutt described the occurrence of high blood pressure without renal disease, and introduced for this the word "hyperpiesia." He also insisted that long-continued high blood pressure may cause, but is not due to, arterio-sclerosis.

The sphygmograph, first invented by K. Vierordt in 1855, and improved by Marey (1860), who did so much to popularize the method of graphic registration, Mahomed (1872), Burdon-Sanderson (1867), R. E. Dudgeon (1882), Pond, von Jaquet, and others, was much used, though the information it provided was somewhat limited, it was the first step in the application to cardiology of the graphic method of record, which has since thrown so much light on haemo-dynamics. By means of his clinical polygraph (1902) James Mackenzie, then of Burnley, correlated the arterial and venous pulses with those of the heart, and thus brought order out of the chaos of cardiac irregularities, distinguishing the unimportant, such as the extrasystoles of sinus arrhythmia, from those, such as pulsus alternans, pathognomonic of grave organic disease of the heart muscle.

The Electro-cardiograph.—The potential bearings of investigating the electric currents produced by the cardiac contractions, recognized in 1843 by Matteucci of Pisa and in 1856 by Kölliker and Müller, were examined with the capillary electrometer by Sanderson and Page (1878), Gaskell (1891), Starling and Baylis (1890), and A. D. Waller. In 1903 Willem Einthoven of Leyden first described the string galvanometer, which was a great advance on the capillary and other galvanometers, and utilizing Waller's observation that curves of the cardiac contractions can be obtained from the limbs of animals without opening the chest, he, as Sir Thomas Lewis says, laid the foundation of human and experimental electro-cardiography, and by papers published in 1907 and 1908 led to modern electro-cardiography and the final analysis of the arrhythmias. The fundamental knowledge thus acquired by methods demanding delicate instruments it has fortunately been possible to correlate in many instances with simple indications which can be employed at the bedside. Wenckebach, Thomas Lewis, and their followers have thus exactly localized the site of disorders and morbid changes in different parts of the heart muscle, and particularly in the junctional system, such as lesions of the right or left branch of the auriculo-ventricular bundle, and the Purkinje arborizations, thus providing evidence of myocardial degeneration and impending cardiac failure earlier than can be detected by other means of examination.

Auricular flutter was described as long ago as 1837 by MacWilliam as the result of weak faradization of the mammalian auricles. Clinically, however, it was not recognized until much later by W. T. Ritchie and by Hertz and Goodhart. A healthy auricle responds to a single stimulus by a single contraction, but if the refractory period of a ring of muscle, as in the auricles, is shortened, the wave of contraction travels round continuously and is spoken of as a circus movement. This physiological observation of G. R. Mines was further elucidated as the condition in auricular flutter by Thomas Lewis and his co-workers. The

auricles contract extremely rapidly—200 to 300 or more times a minute, the ventricular rate being usually half that. The treatment consists in the production of a certain degree of heart-block by digitalis, or more radically by directly acting on the muscular tissue of the auricle by quinidine sulphate.

The development of knowledge about auricular fibrillation illustrates the close interdependence of clinical medicine and experimental work. Auricular fibrillation, long familiar to physiologists, was first recognized in man by Cushing and Edmunds in a case under their care in 1901 and published in 1906, the fibrillation being ascribed to vagal inhibition, but their diagnosis of fibrillation was received with doubt. In 1902 Mackenzie had recognized the complete irregularity of the pulse now known to be characteristic of auricular fibrillation, and on the ground of the absence of the auricular wave in the jugular tracings argued that the auricles had ceased to contract and were paralysed. In 1907 he abandoned the idea of paralysis, as in some cases, at any rate, the muscular fibres of the auricles were found by Keith to be hypertrophied, and argued that the auricular and ventricular contractions occurred simultaneously as the result of irritability of the auriculo-ventricular node, and called this "nodal rhythm." In 1910 Rothberger and Winterberg, and Lewis, by means of the electro-cardiograph, proved that the auricular condition was one of auricular fibrillation. The condition of nodal rhythm or simultaneous contractions of the auricles and ventricles due to the stimulus starting in the auriculo-ventricular instead of in the sino-auricular node occurs, but is uncommon.

Auricular flutter and auricular fibrillation are closely related, and in the same heart one may be transformed into the other, thus under quinidine fibrillation returns through impure and occasionally pure flutter to a normal rhythm (Lewis, Drury, Hlescu and Wedd). They are both due to circus movement in the auricles depending on shortening of the refractory period in the muscle fibres. But in auricular fibrillation the refractory period of the muscle is shorter, and as a result the path taken by the circus movement is shorter and more irregular than in flutter (Lewis 1921). The muscle fibres of the auricle contract independently of each other, and much more rapidly than in flutter. The auricle fibrillating at the rate of 450 times a minute overwhelms the conducting capacity of the auriculo-ventricular bundle, so that some only of the impulses reach the ventricle, and these are so irregular that the characteristic pulse results.

Quinidine sulphate and digitalis relieve the subjects of auricular fibrillation in different ways. Mackenzie showed the value of digitalis in auricular fibrillation while recognizing that it did not restore the auricular contractions, and Cushing and others proved that it acted by inducing a certain amount of heart-block. An enormous amount of experimental work has been done upon the action of digitalis on the heart of cold- and warm-blooded animals, the effects on the two being different. In the mammalian heart contractility and inhibition are increased and then conduction is impaired. The observations of Lewis and his co-workers upon the action of certain drugs upon fibrillation of the auricles, in 1922, showed that quinidine sulphate lengthens the refractory period, and so, by closing the gap between the wave and the advance of the circulating wave, tends to abolish auricular fibrillation but in addition it has the antagonistic effect of slowing conduction and so widening the gap between the successive waves. Successful treatment therefore depends on the first effect being predominant, and so enabling the normal pacemaker to regain control.

Paroxysmal tachycardia was described by Cotton (1867), called tachycardia by Gerhardt (1881), received its full title from Bouverot (1889), and was critically considered by Herringham (1897). The polygraph and the electro-cardiograph in Mackenzie's and Lewis's hands have thrown much light on this clinical syndrome, showing that it is not simply an acceleration of rate, but that the rhythm is abnormal as a result of the stimulus originating not in the sino-auricular node but elsewhere. The ectopic stimulus may start in the auricle, so that transient attacks may

be due to accelerated nodal rhythm (Lewis), to auricular flutter, to auricular fibrillation, or may even originate in the ventricle.

PHYSIOLOGICAL AND PATHOLOGICAL EVIDENCE

Essential in all branches of medicine, in none, except perhaps in neurology, has experimental physiology been more inseparably connected with progress than in the cardio-vascular system. Clinical observation alone, though in the hands of the greatest intellects, has laboured long and often ineffectually, but when aided and corrected by experimental control has rapidly brought about an advance in cardiological knowledge. This difference in the results given by these two ways—clinical observation and experiment—of obtaining new knowledge in medical science, which is so disappointing to the pure clinician that he may not unreasonably contest the statement, depends on the inherent potentialities of the two methods. In clinical observation the conditions cannot be arranged to meet the exact requirements as can be done in a laboratory. The clinical ward has been called "the physician's laboratory," but obviously this phrase does not confer the same opportunities for exact determination of questions as are provided by the experiments of the physiological laboratory. On the other hand, some care must be taken in transferring the results on animals to the more complex conditions in man. As disease, according to Claude Bernard's definition, is a physiological reaction in altered circumstances, it is obvious that the laws of these reactions can be much more surely established and the modifying circumstances varied and controlled by well-considered animal experiments. Further, animal experiments prepare the way for the application of somewhat similar methods to man—thus Stephen Hales's experiments on blood pressure find their clinical representatives in the modern sphygmomanometers. Marey's tambours and Mackenzie's polygraph, the observations of electrical changes in muscular contraction eventually led up to the electrocardiograph. Gaskell proved that the cardiac contractions arise in the muscular tissue independently of the nerves and ganglia, and that the auricles and ventricles have their own automatic rhythm, though normally obedient to the influence of the sinus. This was to some degree fore-shadowed by Harvey's observation that if the ventricle of an eel or of various fish is cut into several pieces contractions continue in the several portions. It must not be forgotten that the recognition in 1672 of muscular irritability by Harvey's fellow countryman, Francis Glisson, which was revived by Albrecht von Haller, who in 1757 stated that the cardiac contractions originated in the muscle, was the first step in the recent elucidation in Gaskell in physiology and in pathology by Lewis and others of cardiac problems.

Although in his second letter to Riolaui in 1649 Harvey showed that he was familiar with local disturbances in the character of the cutaneous circulation it was not until long after the great conception of the circulation as a whole was established that its local characters received special consideration. The effects of embolism, studied by Viechow (1846-56) and independently in this country by W. Sewallhouse Kirkes (1852), led, from the resulting lesions, to the realization of end-arteries in the kidney and brain on the one hand, and on the other hand to the recognition of the peculiarities of the circulation in the spleen, lung, and liver, the two last having nutrient arteries (bronchial and hepatic) in addition to the vessels (pulmonary artery and portal vein) conveying blood to be modified in those viscera.

Nearly fifty years ago Roy pointed out that the splenic circulation differs from that of other organs in the important particular that the force which drives the blood through the organ is not the arterial blood pressure, but chiefly, if not exclusively, the rhythmic contraction of the muscular fibres in the splenic capsule and trabeculae. Barcroft's observations suggest that in the spleen there are alternative circulations, and that the blood of the large splenic artery may either (1) when not required elsewhere, as it is in the emergencies of exercise or haemorrhage, accumulate in the splenic pulp, there to undergo changes, or (2) rapidly traverse a by-pass, and incidentally, like

the bronchial arteries to the lungs and the hepatic artery to the liver, maintain the nutrition of the viscus. The blood stored in the spleen may contain as much as a quarter of the red cells, and, as shown by Barcroft's experiments with CO poisoning, be practically cut off from the general circulation, and so remain free from a poisoned state ruling elsewhere. Anoxaemia stimulates the smooth muscle fibres in the spleen and so drives out the resting blood, it thus, as Henry Gray (1854) pointed out, regulates the quantity and quality of the circulating blood. While serving as a reservoir the spleen also acts as a metabolic refinery for the red blood cells and a manufactory for the white cells. The resting blood in the spleen deposits any foreign matter, such as bacteria, protozoa, and cells of malignant growths, which may either be destroyed the process being an immunological asset, or remain and by multiplying there account for the splenomegalies of chronic diseases, such as malaria, kala-azar, "splenic anaemia." As an important storehouse of reticulo-endothelial cells the spleen is concerned with the destruction of the red blood corpuscles, increasing their fragility by what Botazzi (1895) called its haemokatalytic function, and plays an important part in the first stage of the transformation of effete haemoglobin into bilirubin.

Weaver's even more recent evidence that the blood in the coronary arteries has alternative circulations, either through the capillaries into the coronary sinus, as usually considered, or directly into the Thebesian or other veins and so into the cardiac cavities, is of obvious importance in connexion with angina pectoris.

These data have a bearing on the question of the reserve power of the organs, which in the past has been regarded as mainly or entirely quantitative in character. Now it would appear that the reserve power may also depend on the utilization of potential alternative courses of the circulating blood, and that in pathological conditions compensatory processes may maintain the reserve of an organ, as has been mentioned in the case of the heart in coronary obstruction, and is perhaps also shown in the increased size of the hepatic artery in cirrhosis of the liver. The variations in the state of the capillaries—full or empty—in different areas of the body, which Thomas Young clearly anticipated in his forgotten Croonian Lecture before the Royal Society in 1810, have been recently brought out by the work of Krogh, Lewis, Drile, and others.

A more accurate knowledge of the unit blood supply of the kidney and liver is important so as to understand the mechanism and distribution of changes likely to result from blood-borne toxæmias or septicaemias and from chronic vascular disease. With the help of x rays and radio-optic injection mass, normal and pathological kidneys have been investigated, with results encouraging as regards further knowledge about differences between arterio-sclerotic and glomerular nephritis (R. S. Graham).

The coronary arteries are provided with vaso-constrictor nerves from the vagus, and vaso-dilator from the sympathetic (Auer). Adrenaline undoubtedly dilates the coronary arteries of animals usually employed in laboratory experiments, accordingly Büdinger, at the suggestion of Morawitz and Zohn, treated cases of angina pectoris with hypodermic injections of adrenaline, but the results were negative. Barbour (1912) found that the action of adrenaline causes vaso-constriction of rings of human coronary artery thus differing from its effects in laboratory animals, and with Prince showed that in the monkey this difference also holds good, the coronary arteries of these two species being presumably supplied with constrictor fibres from the true sympathetic. Reference has already been made to Weaver's observations on the alternative courses in the coronary circulation.

Pulmonary Circulation.—The questions whether or not the branches of the pulmonary artery (1) are under the control of the vasomotor nerves, and (2) are acted upon by drugs in the same manner as the systemic vessels, are obviously of practical importance in connexion with the causation and treatment of haemoptysis and pulmonary oedema. The need of an authoritative lead from physiology on these points was very clearly expressed by James Andrew in his Harveian Oration of 1901. Vasomotor innervation of the pulmonary vessels was

denied until 1871, when C L Brown-Séquard, on experimental grounds, argued that lesions of the pons caused haemorrhages, and injuries of the medulla oblongata oedema of the bases of the lungs as a result of impulses transmitted through branches of the sympathetic leaving the cord in the upper dorsal region. Rose Bradford and Dean (1889, 1894) found that in the dog vasomotor nerve fibres derived from the upper dorsal nerve supply the pulmonary blood vessels, though the pulmonary vasomotor mechanism is poorly developed as compared with that regulating the systemic arteries. They also concluded that the pulmonary circulation is comparatively independent of the systemic, and that alterations in the blood pressure of the latter must be so considerable as to interfere with the action of the cardiac valves and produce regurgitation before affecting the pulmonary blood pressure. On the other hand, Brodie and Dixon, in 1904, denied the vasomotor control of the pulmonary circulation, and in 1928 Dixon and Hoyle confirmed this. In the meanwhile Fühner and Starling, using the heart-lung preparation, found a considerable degree of pulmonary vasoconstriction and a rise of pulmonary arterial pressure with adrenaline, and in 1905 François-Franck came to a similar decision. In a critical review of the extensive work on the subject Wiggers, in 1921, concluded that reflex vasomotor effects on the pulmonary circulation must be regarded as probable rather than proved.

The intracranial circulation is remarkable for the rigid cranial cavity and the water-bed of the cerebrospinal fluid. Whether or not the nerves accompanying the cerebral vessels exert a vasomotor function has been repeatedly investigated, but with discordant results. Roy and Sherrington (1890), L Hill (1896), and more recently Florey (1925) who found that the cerebral arteries and the cerebral ends of the capillaries react to mechanical, thermal, electrical, and chemical stimuli by contraction and dilatation, agree that there is not any evidence of nervous

control over the cerebral vessels. On the other hand, the existence of active functional control of the cerebral vessels by vasomotor nerves has been supported by Claudio Bernard (1858), Notthnagel (1867), Wiggers (1915), Forbes and Wolff (1928), and others. The experimental observations are of much interest in connection with the belief held by many clinicians that transient paralyses, such as occur without evidence of a gross lesion, may be due to spasm of the cerebral arteries analogous to that in Raynaud's disease. Osler (1911), in describing transient attacks of aphasia and paralysis in states of high blood pressure and arterio-sclerosis, accepted the view put forward by Peabody (1891), W Russell (1909), and others that they were due to transient spasm. Florey has thrown out the suggestion that possibly in pathological conditions, such as arterio-sclerosis, an abnormal metabolic product which has not any effect on normal blood vessels may produce spasm of damaged arteries.

The influence of the conditions of the cerebral circulation on the general blood pressure has been much discussed. Starling and Anrep (1925) showed that when imperfectly supplied with blood the vasomotor centre brings about a compensatory rise of blood pressure, thus confirming Cushing's earlier demonstration in 1901 that the vasomotor centre exerts a regulating influence whereby anaemia of the medulla oblongata is prevented when the intracranial pressure is increased above that in the cerebral vessels. This was supported by Bordley and Baker's (1925) observation that in arterio-sclerosis a high blood pressure was definitely associated with sclerosis of the arterioles of the medulla; this however, was contested by Keith, Wagener, and Kernohan, and Cutler's observations showed that gross vascular changes in the blood supply to the medulla were not responsible for blood pressure changes. Experimentally Florey, Marvin, and Drury (1928) found that lowering the blood pressure in the circle of Willis has not any influence upon the general blood pressure.

ON RECOVERY FROM SYMPTOMS OF INTRACRANIAL TUMOUR

BY

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THAT an intracranial tumour can exist without distinctive symptoms, and even without suggestive symptoms, is a proposition that has for its warrant the sure teaching of experience. Again, it is well recognized that even when symptoms of tumour are present there is often, in the course of one and the same case, a wide variation in the degree of their severity, and, indeed, a period of quiescence may be so prolonged and so pronounced as to cast suspicion on the accuracy of the diagnosis. The explanation of such experiences is that for the most part the symptoms associated with intracranial tumour are due less to the mass of the tumour than to circulatory disturbances (congestions, anaemias, oedemas, haemorrhages, softenings) liable to occur in its neighbourhood, and to interferences which the tumour may exercise on the circulation of the cerebrospinal fluid. Grant the absence of these accidents, and cerebral events and symptoms, in spite of the presence of a tumour may be slight, non-suggestive and even non-existent.* With these positions admitted, may it not be possible that symptoms, and even pronounced symptoms, of intracranial tumour may disappear, not merely for a more or less brief period, but completely and permanently? For if in an individual case the intracranial accidents or complications, and the symptoms which result from these, may after a period of activity subside, the possibility that such quiescence may be permanent can at least be contemplated. Assume that the tumour ceases to grow or perhaps shrinks in size, and that in this or in some other fashion it no longer causes the intracranial disturbances on which the

clinical evidences of tumour mainly depend, and it is no violent proposal to suggest the possibility of a clinical record in which the symptoms of intracranial tumour disappear completely and the patient regains a level of good health. The clinical history unfortunately, marches usually in the opposite direction, but there is nothing in the nature of things to render exceptions to this rule impossible, and the principal object of this communication is to suggest that such exceptions do actually occur. This suggestion has for its support case records (admittedly exceptional) marked in the earlier stage by symptoms regarded as conclusive of intracranial tumour, while later these symptoms disappear and the patient succeeds to good health. Such experiences, of course, call for an explanation, and the explanation here proposed is cessation of intracranial disturbances consequent on quiescence or shrinking of the tumour growth.

That recovery from symptoms of intracranial tumour, except for blindness due to optic atrophy, actually occurs there can be no doubt. Records of patients who in earlier years have suffered a severe illness characterized by headache, vomiting, and optic neuritis, and who, but for loss of sight, have later made a good recovery, are well established. It may be suggested that these cases are not cases of tumour, and it must be admitted that in exceptional instances the symptoms just quoted have existed and yet no tumour has been found on *post-mortem* examination,¹ such conditions as hydrocephalus,² serious meningitis,³ or sinus thrombosis⁴ may perhaps be advanced as alternatives to tumour. On the other hand, in many patients who are blind from optic atrophy after an illness distinguished by cerebral symptoms, competent clinical observers present at the time of the original illness have felt no doubt that the symptoms meant intracranial tumour and now and again in the brain of a patient included in this group and dying years after the primary illness, a tumour has been present to *post-mortem* demonstration. Thus it is certain that within the natural history of intracranial tumours room must be found for cases in which all active evidences of the presence of a tumour disappear, the former cerebral disturbances being

* A recent example is reported by Professor Sydney Smith *British Medical Journal* January 22nd 1927.

indicated only by blindness due to optic atrophy consequent on the earlier double optic neuritis. Clinical records of this order can be found in the writings of Jonathan Hutchinson, Hughlings Jackson, and others, and some years ago I published a detailed study of a number of such cases.¹

The usual story is of a severe and more or less prolonged illness which occurred in early life and was followed by recovery qualified by blindness, and examination shows atrophic optic discs. In some instances this is all, while in others there are, in addition to the blindness, such other evidences of cerebral disturbance as ocular or facial palsies, unilateral motor weakness, abnormalities of the tendon jerks or of the superficial reflexes. Again, some of these patients are liable to quasi-epileptic seizures or to mental instability, and individual instances have been noted in which, after a more or less prolonged period of good health, active and alarming symptoms of cerebral disturbance have recurred, followed by death or occasionally by a second recovery. The immediate point relative to the present argument is that after an illness having symptoms which suggested or even compelled the diagnosis of intracranial tumour, the patient, but for blindness the result of consecutive optic atrophy, may apparently get quite well and may remain well for years. Every now and again such an experience is described in the medical journals, and more or less numerous examples have been collected by the authorities already quoted. Two recent cases may be summarized as illustrations.

CASE 1

Thos W aged 65 admitted to hospital with left-sided pleurisy. He is blind and the optic discs are conspicuously atrophic. His loss of sight is attributed to a serious illness which lasted for two years when he was 8 to 10 years of age, with this exception he has had good health.

CASE 2.

Ellen C aged 45. When 18 she had "a heavy illness" of some twelve months duration and characterized by headache, vomiting and double vision. Since this she has been blind but has had fair general health interrupted occasionally by headache. Examination shows consecutive optic atrophy and paralysis of the left external rectus, but no other evidence of disease.

In Case 1 recovery is complete but for optic atrophy, in Case 2 there is, in addition to the optic atrophy, an ocular paralysis and some recurrence of headache. A *post-mortem* demonstration that cases such as these are really cases of intracranial tumour cannot often be obtained. Yet even this degree of evidence is not altogether wanting, and records of a few such cases have been completed by the discovery of a tumour at the *post-mortem* examination. A very impressive experience of this order is described by J R Lunn²—namely

CASE 3

A man, aged 27, was admitted to Marylebone Infirmary in October, 1887, with a story of failing eyesight and severe headaches since Christmas, 1886. The left eye was quite blind and the disc pale, the right eye was nearly blind and receding optic neuritis was present. He lived for seventeen years in the infirmary without symptoms of active disease except on two occasions a 'fit' attended by unconsciousness, he died after a similar seizure in 1904. *Post-mortem* examination disclosed a fibrocytic tumour the size of a pigeon's egg in the interpeduncular space and involving the optic chiasma.

A parallel case is recorded by Professor T K Monro.³ The patient was blind for thirty-seven years after the original illness, a myxomatous tumour was found in the cerebellum. In another instance, described by Dr Lloyd Roberts,⁴ there was, eight months after recovery from the original illness, a recurrence of the cerebral symptoms, followed by death, but in the interval the patient, though blind, had been "perfectly well." *Post-mortem* examination discovered a glioma of the cerebellum.

From such experiences it is manifest that an illness accompanied by severe cerebral symptoms, including bilateral optic neuritis, and followed by disappearance of all the symptoms except blindness due to optic atrophy, may have as its explanation the existence of an intracranial tumour. Presumably the tumour shrinks or ceases to grow and so no longer causes the circulatory and allied disturbances which are the immediate causes of the clinical symptoms associated with intracranial tumours. The proposal now made is that in rare instances this cessation of tumour activity may be accompanied, not only by cessation

of headache, vomiting, and the rest, but also by subsidence of the optic neuritis without damage to the optic nerve fibres, and consequently without prejudice to vision. In support of this proposition there are here submitted six case summaries—namely, one in which optic neuritis disappeared for some three years and then recurred, and the *post-mortem* examination revealed an intracranial tumour, one where the optic neuritis and other symptoms disappeared under antisyphilitic treatment, and four examples of complete recovery from symptoms (including bilateral optic neuritis) regarded by experienced observers as indicative of intracranial tumour.

CASE 4

A man (F W), aged 62 when first seen in 1916 had suffered for four years from occasional "giddy attacks," and in some of these had fallen to the ground, but had never lost consciousness, there were no objective signs of disease and no optic neuritis and an aural surgeon reported nothing beyond slight dry catarrh in middle ear. At the end of 1917 "attacks" had continued, and there was definite exudation at the right optic disc and some blurring of the edge of the left disc, the Wassermann test of blood and cerebro-spinal fluid was negative. In March 1919, he reported himself as much better, general examination was quite negative and the optic discs were regarded as normal. Early in 1920 he had a severe "attack" of giddiness with apparent unconsciousness (no convulsions) lasting some fifteen minutes. There was extreme optic neuritis in the right eye, loss in the left. The skull was trephined, but the patient died a few days after the operation, a firm fibrous tumour the size of a large cherry was adherent to the right petrous bone.

The feature of the case particularly relevant to the present communication is the disappearance, for a time at least, of the optic neuritis without damage to vision, though, as shown by the subsequent facts, the neuritis was undoubtedly caused by an intracranial tumour.

CASE 5

A woman (A H) aged 27, was admitted to hospital with a history (three months) of severe headache, vomiting and recently of double vision. Vision was 6/12 in each eye. There was extreme swelling of each optic disc, and paresis of the external rectus of the left eyeball. The Wassermann test was positive. Examination showed nothing abnormal in other respects. There was prompt improvement under treatment. Seen two years later she was in good health, the optic discs were whitish, with traces of former exudation, vision (each eye) 8/6.

The disappearance under appropriate treatment of clinical signs of intracranial specific disease is, of course, a familiar experience. But in the present series Case 5 takes its place as a proof that optic neuritis due to an "adventitious product" within the skull may disappear when the activity of the intracranial cause is reduced, and also, that optic neuritis so removed may leave vision intact. If this is true when the "adventitious product" is a specific mass, may it not be true also of other pathological masses—for example, tuberculoma? The three records quoted under "Case 3" would seem to give an affirmative answer.

CASE 6

A woman (Mrs T) aged 46, seen with Dr Gavin Barbour in October, 1920. She had complained for six months or so of severe headache which often prevented sleep and recently of dimness of vision, no vomiting. There was extreme exudation at each optic disc, no other objective sign of nervous disease was present and the blood serum and cerebro-spinal fluid gave a negative Wassermann reaction. In 1922 the patient reported herself well, the optic discs were white but there was no swelling. Vision right eye 6/6, left 6/18 (extreme myopic astigmatism). 1928 well, and active social worker.

Whether this is or is not a case of tumour, the record certainly shows that a severe degree of exudation at the optic disc (regarded as due to tumour) may be absorbed and vision be left unimpaired.

CASE 7

A woman (E C) now (1928) aged 35 was from May to August, 1903 an inpatient in the National Hospital, Queen Square with a history of attacks of pain in the head, giddiness and vomiting extending over two years. There was considerable exudation at each optic disc. Vision each eye (with myopic correction) 6/9. The case was indexed as 'intracranial tumour infratentorial (?) left cerebellar'.⁵ The symptoms ceased (except for one attack) during residence and the patient was instructed to return should there be any further attacks.

March 1st, 1921. Seen with Dr R D Bell of Luton. The patient had worked as a milliner since leaving the hospital, she had occasional headaches and in 1915 was ill for six months with attacks of pain in the head, giddiness and vomiting, she recovered and was at work again until two months ago when headache and giddiness were again troublesome, the optic discs

* I am indebted to the courtesy of Dr Macdonald Critchley, the medical registrar, for the opportunity of seeing the original notes.

looked suspicious but were not swollen no suggestion of atrophy vision (with glasses) 6/9 each eye no contraction of visual fields. In other respects there were no signs of organic disease.

August 31st 1928 Patient attended for examination by request. She was able to continue to work and examination showed her general condition and the ophthalmoscopic facts to be the same as in 1921.

In a word, a patient regarded in 1908, and by an experienced physician, as undoubtedly the subject of an intracranial tumour, is in 1928 in fair general health, and the former optic neuritis has disappeared without leaving optic atrophy as its sequel.

CASE 8

A boy (J L) aged 9 years seen with Dr Meikle in February 1924 gave a history of attacks of severe headache sometimes attended with vomiting extending over three months recently diplopia and dimness of vision and weakness of the left upper limb. Examination showed much exudation at each optic disc vision (each eye) 6/9 part paresis of the right external rectus and of the left lower face. He was admitted to hospital with a view to operation but gradually the headache and vomiting ceased, double vision disappeared and there was obvious recession of the swelling of the optic discs. In the end the boy left the hospital apparently quite well. Seen in November 1925 his weight had increased from 5st. 1lb to 7st. 7lb his mother described him as in perfect health. Examination was negative except that the optic discs were unduly white vision (each eye) 6/6. In August 1928 Dr Meikle reports him to be perfectly well.

In the early stage of this case there seemed no possible escape from a diagnosis of intracranial tumour. Does the completeness of the recovery and the persistence of good health qualify this conclusion? If not, then the case illustrates the proposition advanced in this communication—namely, that recovery from symptoms of intracranial tumour, when it occurs, may proceed to such a level as to include resolution of an optic neuritis and retention of a full standard of vision.

CASE 9

A boy aged 6 was seen in May 1894 by Mr Charles Higgins on account of failure of sight vision was found to be much depreciated there was exudation at each optic disc. He was later seen by Dr (afterwards Sir David) Ferrier who recognized double optic neuritis and symptoms of cerebellar disease and regarded the case as one of tumour. After this the boy was reported to have gone blind but when re-examined in 1907 by Mr Higgins the visual acuity in each eye was 6/6 and the optic discs though pale were otherwise normal.

When these case records are subject to examination as a whole it would appear that in Cases 1, 2, and 3 symptoms of intracranial tumour disappear except for blindness due to optic nerve atrophy, while in Cases 6, 7, 8, and 9 similar symptoms are followed by complete recovery and the reliability of the recovery is certified by freedom from symptoms for a term of years. Except in the degree of recovery attained, there does not appear to be any reason to draw a distinction between the two groups and Cases 4 and 5 may be quoted as emphasizing the identity of the pathological basis on which the several cases rest. Hence it would appear that the facts as here collected and quoted justify the following conclusions:

1 That headache vomiting, and allied symptoms indicative of intracranial tumour may cease the patient however remaining blind from optic nerve atrophy (Cases 1 and 2).

2 That in some of these cases post mortem examination years after the original illness has shown the presence of intracranial tumour (Case 3 References 7 and 8).

3 That in cerebral syphilis (presumably gumma) all the symptoms including optic neuritis, may disappear leaving the patient with normal vision (Case 5).

4 That similarly, in occasional cases—non syphilitic—symptoms of intracranial tumour including optic neuritis may disappear leaving the patient with normal vision (Cases 6, 7, 8, and 9).

5 That whilst it is no doubt generally true that success in operations for intracranial tumour would be promoted by earlier diagnosis the possibility of the natural subsidence of even pronounced cerebral symptoms might not be forgotten.

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VITAMIN A AS AN ANTI-INFECTION AGENT

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THE assigning of names descriptive of some particular function to distinctive vitamins has been a useful, although probably only temporary, step in the development of knowledge of these elusive entities, because their identification has so often depended upon the appearance of definite syndromes in animals whose diets have been deficient in certain respects. The use of the words "antiscorbutic," "antirachitic," and "antirachitic" in describing specific vitamins is an example of this, and from a clinical standpoint the nomenclature has been of great value. Vitamin A has always presented special difficulties to a clinically descriptive term because it has depended to such a large extent on a purely physiological criterion—namely, growth in young animals—for its detection. It is in consequence often referred to as the "growth-promoting" vitamin. Since the recognition of vitamin D (the antirachitic vitamin) as an entity distinct from vitamin A, those with experience of nutritional work have felt that to call vitamin A the "growth-promoting" vitamin is a misnomer, for good growth often takes place in its absence if the diet is otherwise complete. In fact, when growth ceases owing to the single absence of vitamin A from the diet, it often means that the animal is definitely ill—in the sense, as will be seen below, of its having developed some, and often a widespread infective condition. Indeed, the present paper supplies evidence in favour of the term "anti-infective" being applied to vitamin A.

From the early days of its recognition it has been thought that vitamin A was concerned with resistance to infection at least of a specific type. This is seen in its description as the "anti-xerophthalmic" vitamin but this appellation has never become widely adopted, partly because xerophthalmia in human beings, although related to vitamin A intake as suggested by the observations of Mori¹ and shown by Bloch,² is of very rare occurrence and partly because McCollum, Simmonds, and Becker³ have shown that this eye condition results from dietetic abnormalities other than vitamin A deficiency.

Several workers, including Drummond,⁴ Cramer and Kingsbury,⁵ and Steenbock,⁶ have commented on the susceptibility to lung infections of animals on vitamin A deficient diets. In the case of dogs E. Mellinby⁷ drew attention to the development of broncho-pneumonia in animals living on diets deficient in fat soluble vitamins. He pointed out that this tendency to broncho-pneumonia was independent of the condition of the bones, which is itself an indication of the vitamin D intake. For instance, when cod-liver oil was present in the diet the bones were well calcified and there was no tendency to broncho-pneumonia or atelectasis of the lungs. When butter-fat was the source of fat-soluble vitamin, the bones under certain experimental conditions were soft and portions of the lungs were often in a collapsed state, probably because of muscular paresis, but there was no broncho-pneumonia or other infective condition. When olive oil replaced butter, badly calcified bones, collapse of portions of the lungs, and broncho-pneumonia were commonly found. These results suggested that protection against infection of the respiratory tract was conferred by vitamin A and not by vitamin D.

Linked up with the problem of xerophthalmia and other infective conditions is that of the changes in epithelium induced by diets deficient in vitamin A. The first to draw attention to these epithelial changes was Mari⁸ in 1922, who described them in the larynx, trachea, and ducts of many glands including the Meibomian, submaxillary sublingual, and parotid glands of rats. Xerophthalmia he regarded as being due to the drying of the epithelium resulting from the suppression of activity of the lacrimal glands. Wolbach and Howe⁹ extended this work of Mari's

and described changes in the pancreatic duct and renal pelvis. They gave a detailed description of histological changes in epithelium, and came to the conclusion that infective changes are not responsible for the epithelial hypoplasia and keratinization, but are secondary to them. The diets used by Mori, and those of Wolbach and Howe, were deficient in vitamins C and D as well as A, but these other deficiencies were not regarded by them as affecting the problem.

This complication was eliminated by Goldblatt and Benischek,¹⁰ who tested the effect of a simple vitamin A deficiency. By this means they induced metaplasia of

columnar, cuboidal, and transitional epithelia to the squamous keratinizing type. When vitamin A was present no changes in the epithelium were observed. In the course of their work they found on making *post-mortem* examinations many cases of infection in animals which had lived on diets deficient either in vitamin A or vitamins A and D. These infective conditions included xerophthalmia, abscess of tongue, abscess of submaxillary glands, broncho-pneumonia, and enteritis. Abscesses beneath the tongue are of interest because of their frequency. They were first described as resulting from a vitamin A deficiency by Sherman and Munsell.¹¹

TABLE I (a) — *A*-Deficiency Basal + Vitamin D (Irradiated Cholesterol or Radiostol)

Rat No	Sex	Days on Diet	Xerophthalmia	Tongue Abscess	Alimentary Infection	Kidney Infection	Bladder Stone	Bladder Infection	Other Sites of Infection
23		128	++	++	+	+	+		
27		141		+	+	+	+		Lung
64	F	169		+	+	+	+		Gland of neck submaxillary glands thyroid testes seminal vesicles lung Mesentery
279	F	94		++	+	+		+	
280	M	95	++	++		+	+	+	Lung, prostate glands nasal sinuses, middle ear
289	F	75							Lung trachea.
233	F	64	+++	+	+	+			
319	F	107	+	+		+	+	+	Nasal sinuses.
286	M	78	++				+		
355	M	81		++	+		+		Nasal sinuses middle ear
291	F	79	+	++		+			Prostate glands Fallopian tube rectal wall nasal sinuses
323	F	83	+	++					Nasal sinuses middle ear
315	M	74	+++	+			+		
297	F	83		+++			+	+	
346	F	78		+++		+	+	+	Prostate
281	M	87	+	+++					
33		79		+		+		+	
418	F	62		+++					Cervical and submaxillary glands, nasal sinuses
415	M	63		+++					
282	M	90	+++	+++			+	+	Cervical glands
419	F	60							
345	M	108		++				+	Nasal sinuses
284	F	97		+++		+			Prostate middle ear
352	F	100				+		+	Prostate glands
286	M	79		+++	+		+		
292	F	104	+++	+++	+	+		+	Fallopian tubes pelvic floor
287	M	103		+	+	+	+	+	Prostate cervical and submaxillary glands thyroid
421	M	82		+++	+		+		Cervical and submaxillary glands, epididymis
389	F	92	++	+++	+			+	
296	F	111	++	+			+		Prostate glands
403	F	69	++	++					Nasal sinuses
420	F	80	+	++		+		+	
288	M	111	+	++++	+	+		+	Cervical submaxillary and prostate glands, seminal vesicle nasal sinuses
297	F	94			+	+		+	
456	F	70		+	+			+	Seminal vesicle cervical gland.
479	M	53		++				+	
40	M	74	+++	+++	+	+		+	Ileo-caecal glands
387	F	98	+		+	Stone			Seminal vesicle prostate glands.
285	M	116	+++	+	+	+		+	
481	F	63	+	+			+	+	
480	F	63	+	+					Cervical gland
388	M	107	++	++		+	+	+	
451	F	83		++				+	Middle ear
556	F	49	++	++					Nasal sinuses ureters seminal vesicles
389	M	115	+	++++		+			

A striking instance of epithelial hypertrophy and keratinization is that described by Fujimaki¹¹ at the cardiac end of the rat's stomach, induced by diets deficient in fat-soluble vitamin. This hypertrophy he described as cancerous, and certainly, when the centre of the swelling becomes infected, the appearance of the mass is very suggestive of cancer, although, in our experience, microscopic examination does not reveal malignancy.

Another morbid development related to vitamin A deficiency is that of infection of the genito-urinary tract, and the occasional appearance of stones in the bladder and less often of stones in the pelvis of the kidney. The production of stones in the bladder was first described by Osborne and Mendel,¹² and although this was at one time denied by McCollum¹⁴ as being due to vitamin A deficiency, the observation has been confirmed by Fujimaki¹⁵ and Van Leersum.¹⁶ Van Leersum found the stones to be usually composed of calcium phosphate, but occasionally they consisted of calcium oxalate.

McCarrison¹⁷ has also observed stone in the bladder of rats brought up on diets deficient in fat-soluble vitamins. A point of interest about his basal diet is that he included either oatmeal or atta (whole meal) in large quantities among the substances eaten. Since 1922 we¹⁸ have emphasized the special demand on fat-soluble vitamins made by cereals, and especially oatmeal, and this may be another instance of cereal and vitamin antagonism.

In view of the fact that practically all the experimental work except that of Goldblatt and Benischek¹⁹ has been complicated, in that the diets were deficient in both vitamins A and D, and often C, it was felt desirable to repeat the work with the special object of seeing why diets deficient only in vitamin A result in the death of animals eating them. The production of vitamin D by irradiation of ergosterol, as described by Rosenheim and Webster²⁰ and Windaus and Hess,²¹ made it possible to give diets deficient only in vitamin A. The results obtained confirm those above described, but the animals eating these diets were so uniformly attacked and ultimately killed by infective and prostatic complications as to make the investigation singularly impressive from a medical standpoint. It is, in fact, difficult to avoid the conclusion that an important, and probably the chief, function of vitamin A from a practical standpoint is as an anti-infective agent, and that a large number of common infective conditions are due to a deficiency of this substance in the diet of many people.

EXPERIMENTAL METHODS AND RESULTS

The composition of the basal diet used in these experiments was as follows:

Heated casein	400 grams
Rice starch	800
Salt mixture	80
Cane sugar	240
Marmite	160
Olive oil	160 c cm
Lemon juice	140
Liquid salt mixture	160

The liquid salt mixture had the following composition:

Calcium acid phosphate	176 grams
Potassium iodide	10
Water	2 000 c cm

The salt mixture was as follows:

Sodium chloride	92 grams
Magnesium sulphate	142
Sodium phosphate	185
Potassium phosphate	509
Calcium lactate	694
Ferric citrate	63
Sodium fluoride	1 gram
Manganese sulphate	4 grams

The casein was beaten in an electric oven for thirty-six hours at 120° C. The olive oil varied, in some cases it was omitted from the diet, in others it was given either unheated, or heated and oxygenated for periods of either six or twelve hours at 120° C. As this variable made little or no difference, so far as could be seen, to the outcome of the experiments, it will not be considered further. Vitamin

D was given in the diet in the form of irradiated ergosterol (radiostol 1/2 to 1 drop per rat daily). The age of the rats when the diets were started varied between 26 and 35 days, and their weights ranged between 35 and 50 grams.

In the control experiments where a source of vitamin A was included in the food, 0.5 gram of dried cabbage (dried at a temperature of 70° to 80° C for twenty hours) was generally added, and in other cases either butter (0.1 gram daily) or cod-liver oil (5 to 10 mg daily) was used as a source of vitamin A. In a few experiments which belong to another investigation other substances deficient in vitamin A have been fed to the rats, and the results are recorded in the tables. These included vegetable margarine, heated wheat germ, and ergot. The amount of vitamin A in these substances in the quantities given is negligible, but, as we have recently shown, ergot is a rich source of vitamin D.

I—Post-mortem Findings in Animals Fed on Vitamin A Deficient Diets

In the accompanying tables infection is indicated by +. The extent and intensity of infection in the case of xerophthalmia and tongue only are indicated by the number of + marks in each case.

TABLE I (b)
A Deficiency Basal Diet + Vitamin D + Vegetable Margarine

Rat No	Sex	Days on Diet	Xeroph	Tongue Abscess	Alimentary Infection	Other Sites of Infection
151	M.	46 Margarine			+	
316	F	70 Margarine		+		
341	F	41 Margarine			+	
305	V	86 Margarine			+	Nasal sinuses
337	F	19 Margarine	+		+	
348	M.	76 Margarine		++		
329	F	113 Margarine	+	++		Middle ear nasal sinuses

There was no kidney infection bladder stone or bladder infection in any of the animals in this group.

II—Post-mortem Findings in Animals Living on Diets Deficient in Vitamins A and D

TABLE II (a)—A-Deficiency Basal (no Vitamins A or D)

Rat No	Sex	Days on diet	Xeroph	Tongue Abscess	Alimentary Infection	Kidney Infection	Bladder Stone	Bladder Infection	Other Sites of Infection
RO				+	+				
RO				+					
RO									Lungs
RO		41		+	+		+		
RO		43							
RO		45							Lungs
RO									
RO			+		+	+			Lungs.
RO									Lungs
300	F	96	++	+++		+	+	+	Prostate glands.
293	F	100	+++	+	+		+		Nasal sinuses
289	F	74							
213	M.	93			+				
257	M	91	+	+		+		+	
299	F	115	++	++	+	+		+	Prostate glands middle ear nasal sinuses

TABLE II (b) —A-Deficiency, Basal (No Vitamins A or D)
+ other Substances

Rat No	Sex	Days on Diet	Xeroph	Tongue Abscess	Alimentary Infection	Kidney Infection	Bladder Stone	Bladder Infection
230	M	69 Heated wheat germ		+				
287	F	89 Heated wheat germ		+	+		+	+
81	F	83 Fat-extracted wheat germ						
68	M	47 Ergot (50 mg.)				Stone		
266	F	55 Ergot (50 mg.)	+++		+	Stone	+	
271	M	57 Fat-extracted ergot (100 mg.)						
272	F	83 Fat-extracted ergot (100 mg.)		++		Stone		

The wheat germ used in experiments 286 and 287 was heated for twelve hours at 120°C. Ergot used in 266 and 266 contained vitamin D but the fat-extracted ergot of experiments 271 and 272 was free from vitamin D. The nasal sinuses were infected in rat No 281.

The regularity with which stone in the pelvis of the kidney appears in animals whose diets contain ergot suggests that this substance plays some part in the development of the condition. It will be noticed that, without ergot, although infection of the kidney is common, stone in the kidney is rare. In other experiments, besides those given above, stones or gravel have been found in the renal pelvis when ergot has been a diet constituent.

ADDITIONAL DETAILS OF POST MORTEM EXAMINATIONS OF A FEW OF THE RATS OF VITAMIN A DEFICIENT DIETS

Rat 313—Tongue Left kidney twice normal size. Medulla replaced by pus so that only a thin strip of cortex remains. Left ureter extremely dilated being almost a quarter of an inch wide at its junction with the pelvis. Stone impacted at lower end. Right kidney enlarged, numerous necrotic areas in cortex, advanced pyelonephritis. Large quantity of necrotic epithelial debris in bladder.

Rat 284—Abscess of tongue involves most of tongue and has perforated on to the upper surface. Larynx contains a little pus. Kidneys slightly enlarged (more so left), white mottling of cortex, particularly marked in left kidney, slight pyelonephritis in both kidneys. Abscess in prostate glands. Large quantity of pus in both middle ears.

Rat 292—Tongue abscess. Marked xerophthalmia, pus in the anterior chamber of the right eye. Stomach contains dark brown blood. Pyloric mucosa inflamed. Both kidneys much enlarged, lower pole of right kidney almost reaching brim of pelvis, cortices mottled particularly marked in right kidney, great distension of the pelvis, which contain white necrotic material. Ureters grossly dilated (size of large intestine), fine sand at the lower ends, the right being inflamed and containing a blood-stained effusion. Pelvis intensely congested. Coils of small intestine adherent to the right fallopian tube and bladder. Intestine acutely inflamed and contains blood-stained serum. Right side of pelvic floor inflamed being a mass of necrosed friable tissue with an abscess extending down to bone. Fallopian tubes show small white cavity extending down to bone. Fallopian tubes show small white cavity (similar to those seen in the kidneys, and probably necrotic) scattered on the outer surface. Right tube inflamed and adherent to the pelvic floor and intestine. Spleen enlarged. This rat had haematuria prior to death.

Rat 287—Stomach full of blood. Pyloric mucosa injected and showing haemorrhage into it. Left kidney slightly enlarged with semipurulent fluid in pelvis. Left ureter dilated. A large number of small stones and much epithelial debris at base of bladder. Two sessile red projections springing from bladder mucosa (granulomata or papillomata). Very large abscess in right sub-maxillary gland extending to level of first rib and upwards to the mandible. Chain of enlarged longitudinal glands on left side, some commencing to suppurate. Small abscess in either thyroid. Pus from abscess shows in film numerous Gram positive diplococci. Gram negative bacilli, and a few staphylococci and streptococci.

Rat 421—Large abscess of tongue extending almost to the tip and communicating with another large abscess underlying the left mandible. The tongue abscess has perforated and there is pus

in the larynx. Stomach full of altered blood, mucosa injected with numerous atreaky haemorrhages, petechial haemorrhages on outer surface of cardiac portion, and cardiac epithelium shows a curious circumscribed rugosity at the upper pole. Bladder small and full of a bright yellow sandy deposit (showing chiefly calcium oxalate crystals). Spleen shows on its surface numerous circular white foci (similar to those often seen in the kidney). Right epididymis intensely inflamed.

Rat 258—Severe enteritis (chiefly of jejunum). Small amount of altered blood in stomach. Pelvis of left kidney much dilated. Left ureter enormously dilated, the distal end being inflamed and filled with the same type of necrotic material as is found in the bladder. Right ureter moderately dilated. Bladder grossly inflamed, mucosa covered with shaggy masses of granulation tissue and necrosed cells which are very adherent, whilst papillomatous like masses are numerous. Abscess at base of tongue has perforated and formed an abscess in the mid line of neck overlying the larynx, and communicates with an external sinus. Left seminal vesicle enlarged and appears caseous. Abscess in left prostate. Nasal sinuses full of pus.

III—Control Animals—Basal Diet + Vitamin D (Irradiated Ergosterol) + Some Source of Vitamin A (Dried Cabbage or Butter or Cod-liver Oil)

Fifty rats of the same age and weight were kept for longer periods than the foregoing on diets which, while made up in the same way as those of the other experimental animals, contained some source of vitamin A, generally dried cabbage, but in some cases hutter or cod liver oil. No gross infective lesion was found in any of these animals, the only pathological findings discovered being three cases of hepatic cyst of parasitic origin.

DISCUSSION OF RESULTS

The fact that in practically all of the rats on a vitamin A deficient diet upon which a detailed *post-mortem* examination has been made some and generally many organs have been found to be infected by micro-organisms, is a most striking result. Under these conditions the animals live for fairly long periods, varying in the foregoing cases from 58 to 169 days. During most of the time they eat their food well and show moderate growth. It is only during the last week or so of the experiment that they fail to eat up their ration and lose weight in consequence. It appears as if they continue in fair health until the infective process gets the better of their general condition, and brings about loss of appetite and weight, and ultimately death. The evidence for infection was in every case macroscopic, being based either upon the presence of definite pus or of an acute inflammatory process. This meets the objection to deductions made only on the basis of histological observation, pointed out by Gross.⁶ Sometimes microscopic examinations of the tissues were made. In those cases in which bacteriological examinations of infected tissues and of pus were made no specific micro-organism was found, this result agreeing with that of other investigators. Gram-positive diplococci were often found, but these were usually associated with streptococci, staphylococci, and Gram-positive and Gram-negative bacilli. Occasionally the pus from infected glands of the neck showed a few chains of streptococci and no other organisms.

It will be noticed that the addition of vitamin D makes no great difference to the experimental results under discussion, for whether vitamin A only or both vitamins A and D are deficient the animals die with well-defined infective lesions. In fact, it often appeared that the addition of vitamin D in the absence of vitamin A hastened the onset of the infective condition. The reason for this is probably that the presence of vitamin D stimulated the rate of growth, and thereby made a greater call on the vitamin A stores of the body, thus hastening the diminution of resistance. There is no doubt that the stores of vitamin A in animals living on a diet devoid of this substance rapidly disappear. Evidence of this is seen in the tests made on the livers of deceased animals for the presence of vitamin A by the method described by Wilson.⁷—a method involving the use of the colour test of Rosenheim and Drummond²¹ as modified by Carr.²² Even in the case of rats dying at an early stage, and before any great pathological change had occurred, liver extracts gave negative

results, indicating the rapid using up of the initial stores of vitamin A in these rats. The control animals which received vitamin A in their food remained free from infection and all gave evidence, by the same test, of abundant quantities of the vitamin in the liver.

As regards the infective lesions that developed, it will be noticed that xerophthalmia was not so common as might be expected, only 38 per cent of the animals developing this lesion. It is, indeed, worthy of note that advanced lesions, even in old animals, were occasionally found at necropsy, although the animals showed no clinical signs of xerophthalmia.

In the 93 A-deficient animals examined the most characteristic condition was the lack of adipose tissue and the general visceral atrophy, but almost as prominent was the evidence of infection in some sites, only two animals of the 93 seeming to escape this.

Abscess at the base of the tongue, arising in the accessory salivary glands, was found in 72 per cent of the animals. In animals surviving for longer periods this figure rose to 90 per cent. These abscesses varied much in size, some being small caseous foci in the centre of the gland, while others involved almost the whole tongue, infiltrating it almost to the tip. Perforation of a tongue abscess was not uncommon. In one case a sinus communicated with the skin of the anterior surface of the neck, and in another perforation into a large artery resulted in death from haemorrhage. Associated with the tongue abscesses, suppuration occasionally occurred in the submaxillary glands and in the lymphatic glands of the neck. In some cases a chain of suppurating lymphatic glands was seen in the neck, the glands being usually quite discrete. The thyroids were involved in the suppuration in one animal.

Infection of the lungs was noticeably rare, only 9 per cent showing any definite signs, which were chiefly of a septic broncho-pneumonia. These cases all occurred during the winter months, though the temperature of the rat room was kept constant.

Infection of the alimentary tract was quite common, though in most cases it appeared as a terminal event, there being no clinical evidence of its occurrence. An acute inflammation of the small or large intestine occurred in 21 per cent of the rats. Many of these cases arose during an epidemic of enteritis in the rat room when, as previously mentioned, the vitamin A deficient animals proved to be very susceptible to the infection. In quite a number of animals an acute enteritis involving the duodenum and jejunum appeared to be the immediate cause of death. The intestine was grossly injected and filled with a copious haemorrhagic exudate. Usually there were signs of recent haemorrhage into the pyloric portion of the stomach.

Lesions of the urinary tract often dominated the scene in the abdomen. The occurrence of calculi—usually in the bladder, rarely in the kidney—was fully confirmed, but infection occurred independently of their presence or absence. 44 per cent showed evidence of infection either in the kidney or bladder, but the incidence was considerably higher in those rats surviving longer periods. The infection took the form of a pyelonephritis or cystitis, and sometimes pus was found in the kidney substance. The infection was usually associated with such conditions as hydrourephrosis, extremely dilated ureters, and a distended bladder. Multiple small white necrotic foci in the cortex of the kidney were often found, but their exact origin has not yet been determined. Similar foci have also been observed in the spleen on two occasions.

The prostatic glands and seminal vesicles were frequent sites of suppuration, whilst occasionally the epididymis was acutely inflamed or suppurating. A purulent exudate was seen in the Fallopian tubes on one occasion.

Pus was found in the nasal sinuses or in the middle ear on eighteen occasions, an incidence of 20 per cent. In one isolated case a small but definite abscess was found projecting from the wall of the left ventricle of the heart.

The control animals received the basal diet ad lib, plus some source of vitamin D, with the addition of a source of vitamin A either in the form of dried cabbage or cod liver oil or butter. Fifty rats fed under these conditions over periods as long as, or longer than, those which

the deficient rats survived have been killed and examined. In no single case was evidence of gross infection found corresponding with that found in the vitamin A deficient rats. The only pathological findings were three cysts of the liver, of parasitic origin. Otherwise all the tissues appeared perfectly healthy.

On the basis of these facts we suggest that vitamin A plays a significant part in raising the bodily resistance to infection. Perhaps this effect is solely due to the favourable medium which obstruction by desquamated keratinized cells provides for bacterial growth. At any rate, this must be a factor. Possibly it is the combination of the keratinizing process and a diminished resistance which makes animals with vitamin A deficiency so prone to infection.

The question arises as to what extent the part played by vitamin A as an anti-infective agent is specific. Would, for instance, the absence of any essential dietetic factor result in the infective and progenic conditions met with in this experimental work? We can offer no definite evidence that this is not the case, but an extensive experience of nutritional work suggests that vitamin A is more directly related to resistance to infection than any other food factor of which we are aware. In a series of several hundreds of rats which have had adequate amounts of vitamin A and little or no vitamin D only two cases of gross infection have been found, both septic broncho-pneumonias associated with definite rickets. Experience with scurvy in man and animals does not lead to the belief that vitamin C is concerned with infection in the same sense as vitamin A. Although, therefore, the specificity of vitamin A and infection is not settled, the evidence obtained is in its favour. We are endeavouring to obtain additional evidence on this point by experiments in which infective material is injected into animals on A-deficient and control diets.

Another point of importance is whether lack of vitamin A has any relation to the common suppurative processes found in man. Is it possible to relate inflammatory processes of the nasal sinuses, middle-ear disease, pneumonia, ulcerative conditions of mouth and eyes, to this dietetic deficiency? This question also cannot be answered definitely. It is certainly possible that there is a close relationship, since it is generally agreed that a deficient intake of vitamin A is a common fault among civilized man. We rely almost entirely on milk, butter, egg-yolk, and green vegetables for our supply of this substance, and the consumption of these, especially among the poor, is notoriously low.

We feel that, until further knowledge is gained, the experimental results are sufficiently impressive to warrant the assumption that vitamin A plays an important part in conferring resistance to many types of infection. We think that the study of the etiology of some infective conditions cannot be complete without including the consideration of this dietetic factor. We suggest, for instance, that the problem of puerperal septicaemia, and even that of acute rheumatism, might be considered in relation to the vitamin A intake. The importance of vitamin D has attracted great attention recently, and it has even been suggested that preparations of vitamin D can be safely substituted for cod-liver oil in medical treatment. The work above described shows that this teaching is erroneous, and that, although vitamin D controls, probably absolutely, the calcification of bones and teeth, it has no direct power to promote resistance to infection in the same way as vitamin A. If a substitute for cod-liver oil is given it ought to be at least as powerful as this oil in its content of both vitamins A and D.

SUMMARY

In an extensive study of animals brought up on a diet deficient in vitamin A it is shown that practically all die with some infective or progenic lesions. In the control animals receiving vitamin A these lesions are absent. The presence of vitamin D does not prevent the development of these morbid conditions, and this vitamin seems to be unrelated to resistance to infection.

The lesions produced in animals by diets deficient in vitamin A are commonly found in man, and it is desirable that this fact should be borne in mind in the study and

treatment of these and other infective and pyogenic conditions

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LOW BACKACHE AND SCIATICA *

BY

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This paper represents an attempt to discuss the painful "low back" from the orthopaedic standpoint. It may occur with or without sciatica, and, for the sake of clearness, the writer proposes to discuss the pathogenesis of the sciatica in a separate section.

In cases of backache and sciatica a careful eliminative diagnosis leaves a large group which is essentially orthopaedic. It includes the industrial lame backs—a large and important element of industrial accident cases. In one large works back strains and injuries of this type are responsible for 20 per cent. of all accidents.

Cases of low backache and sciatica are full of interest and importance because of their frequency, of the lack of accurate diagnosis and classification, and of the difficulty in some cases of disproving the assertion of pain. We have to investigate, first, as to whether pain really exists, and second, as to the traumatic element in the lesion which is discovered. Let the writer begin by emphasizing the great importance of a routine method of examination in these cases. The physical examination of the painful back is a painstaking and meticulous performance, which cannot be learnt without study. Superficial examination will entirely fail to bring out the points on which the real scientific analysis of those cases depends. Next in importance is the necessary knowledge of anatomy and statics of the body as a whole and of the parts concerned, which can interpret the findings intelligently. The detail of the step-by-step procedure advisable in such cases has been well described by Osgood and Morrison.¹ Suffice it to say that, if completely carried out and interpreted in accordance with anatomical fact and functional use of the body, it will go far to improve upon the standard of knowledge and treatment which commonly exists to-day. The writer would submit that it has been due to the fundamental work of the Boston school of orthopaedic surgeons, and particularly to Goldthwait, that the whole subject has become clarified. This is a great and enduring achievement.

In this country we have been apt to regard this whole field as unknown—the happy hunting ground of the quack, by whatever name he may be called. Fortunately, indications are not lacking that greater interest is being taken in the subject of backache and sciatica. In this connexion the Lady Jones Lecture of 1927, delivered by Putti, upon the pathogenesis of sciatica, may be cited as an example, and a vast bibliography has grown up.

It seems to the writer that general discussion of the subject may well be centred round the following: (1) the main problems, (2) special points and methods of diagnosis, (3) a suitable clinical classification, (4) methods of treatment.

THE MAIN PROBLEMS

1 The first problem is in regard to the anatomical type of the individual concerned, for special consideration has to be paid to the slender, tall and lanky, or small and delicate type of patient. These individuals are especially unsuited to heavy work and, even under ordinary conditions of life, they are subject to functional breakdown in regard to the back. The spine is slender, hypermobile, and wand-like. There is a true, inherent weakness, and it most commonly betrays itself in general postural strain, or in symptoms of strain referred to the sacro-iliac joint.

2 The second problem concerns cases of backache, with or without sciatica, in individuals who use the body in poor posture and in positions of mechanical disadvantage. With incorrect bodily mechanics, all the antero-posterior curves of the spine are increased, and the joints are used at their extreme limit of motion. The normal balancing mechanism of the body is impaired and the load is borne by bony and ligamentous supports. The lumbo-sacral joints in particular are overloaded in heavy subjects with prominent sagging abdomens, and a chronic lumbo-sacral strain commonly results.

The other part of the "low back" which is exposed to static insult from this source is the sacro-iliac joint. The pelvis is being tilted forwards, the support of the joints becomes less efficient. The muscular support of the pelvis, which Goldthwait has shown is so important in the support of these true articulations, becomes impaired. The sacrum may be regarded as a see-saw swung on a transverse axis passing through the sacro-iliac joints. The shorter upper arm is weighted by the body, which tends to thrust it downward and forward. If the individual is bending and lifting a heavy load, and the load slips, a severe stretching of the sacro-iliac ligaments can, and does, take place. Pain is experienced over the joint, and the clinical features are quite definite. Leverage in the opposite direction through the hamstrings is also effective in straining the joint. Post-operative backache is due to a sacro-iliac strain from insufficient support of the lumbar region. The faulty statics may be due to a short leg, flat-foot, or an affection of the hip.

3 The next problem arises when x-rays reveal no intrinsic lesion of the lumbo-sacro-iliac region. As Osgood and Morrison point out, the need for accurate diagnosis in these cases is acute. Our first object should be to demonstrate the presence or absence of persisting strains. It should be stated that a negative x-ray photograph is not sufficient to warrant the assumption that there is nothing the matter with the patient. In point of fact, careful reading of good radiographs will frequently reveal a departure from the normal in many cases of extrinsic lesions. For example, ossification of the iliac attachment of the ilio-lumbar ligament is always due to lumbo-sacral strain of long duration. The more the subject is studied, the more is one impressed by the help which good stereoscopic and lateral x-ray photographs are in support of a routine and systematic examination.

4 Next is the discovery in the radiograph of an intrinsic lesion of the spine, such as osteo-arthritis, in cases of alleged injury. The symptoms are usually out of all proportion to the severity of the trauma. This furnishes the main class of case for medico-legal battles. Compression fractures of the spine sometimes follow comparatively minor violence, and represent the most commonly overlooked industrial lesion. It is remarkable how frequently a lesion of the spine is overlooked in the antero-posterior view radiograph, to be shown quite clearly in the lateral view.

5 The problem which next merits attention is the difficult and complex question of the relationship of anatomical variations of the fifth lumbar vertebra to backache and sciatica. One would refer particularly to semi sacralization, variation in the shape and direction of the articular facets, and to spina bifida occulta.

What is the connexion between these variations and backache and sciatica? Is the association casual or causal?

* Read in opening a discussion in the Section of Orthopaedics of the Annual Meeting of the British Medical Association, Cardiff, 1928.

These abnormalities have existed long before symptoms of pain in the back began. When any considerable departure from the normal exists, however, a careful history will often reveal that the patient has had periodic attacks of pain. These backs are apt to be intermittently symptomatic. As Osgood puts it, the abnormality is to be regarded as potentially contributory. These backs are more easily strained than the normal. It is unquestionable that the connection between the occurrence and persistence of symptoms and the presence of these abnormalities is an intimate one. O'Reilly's² large series of anatomic variations indicates that 50 per cent had back symptoms of varying severity. Poor posture, injury, and advancing age combine to make the abnormality manifest itself, and the chain is complete.

6 In cases of injury the most difficult problem is the mental one. Conn³ has pointed out that the traumatic back still enjoys an unenviable notoriety as a rock behind refuge for malingerers. The reputation is not always merited. Malingerers are not with, but they are not common. One factor worth remembering is that the workman is often genuinely deceived as to the true sequence of events which have led up to his disability. A second factor is that the man realizes that he has little to show for his symptoms and is apt, therefore, to exaggerate. He feels that the onus of proof rests with him.

DIAGNOSIS

The differentiation of the various types of backache is always difficult and can be made only after the elimination of definite intrinsic pathological lesions of the bones and joints—such as tuberculosis, syphilis, arthritis, osteomyelitis, neoplasm, spondylolisthesis, and fracture.

The chief points to be noted are the general build and attitude of the patient, the presence or absence of the normal lumbar curve, of list or lateral deviation of the spine, restricted and painful movements of the spine and hips in standing, sitting, and lying, spasm or wasting of the muscles, swelling and points of tenderness over the lumbosacroiliac regions, rectal examination, and the nerve function in the legs.

In addition to the ordinary x-ray photographs stereoscopic views should be taken which include the symphysis pubis. Lateral views of the spine should also always be taken.

CLINICAL CLASSIFICATION

The following may be accepted as a suitable clinical classification: (1) Acute traumatic strain, (2) General postural strain, (3) Lumbo-sacral strain, (4) Sacro iliac strain, (5) Combined pelvic joint strain.

1 Acute Traumatic Strain

This lesion represents a rupture of ligamentous and muscular fibres, with all the phenomena of acute injury. The connection between trauma and violent effort and the sudden development of symptoms is always definite. A lesion in the muscle gives rise to pain when the muscle is thrown into action, a lesion in fibrous tissue when the fibrous tissue is put upon the stretch, a lesion of bone or joint on all movements of the spine. There is acute tenderness on pressure, localized over the site of the lesion. From its location, and from analysis of the spinal movements which are most painful, a fair idea of the structures involved may be obtained. The treatment of a torn muscle must be to rest it until healing has taken place. Most of these cases in industrial back-accident cases are allowed to use the muscles too soon and with insufficient protection. If there is a superadded infective focus present in the body—whether in teeth, tonsils, or alimentary tract—there is reason to suppose that this may be a potent factor in keeping up the disability. When the disability has become chronic, it is due, in large part, to the perpetuation of the protective response of the muscles to prevent motion of the spine. Such fixation is crippling and manipulation under an anaesthetic is then advisable.

To secure the required rest the patient should be made recumbent on a firm mattress and should have the back splinted with adhesive strapping. The knees should be supported on a pillow. In severe cases, a plaster-of-Paris jacket should be employed or recumbency in a plaster shell.

The patient is then allowed up and given heat, massage, and graduated exercises. If handled properly the condition of acute traumatic strain is curable in a short period of time, and the multitude of such cases which are allowed to go about with chronic disability and incapacity for work represents in some measure, a reproach to us. Stress must again be laid upon the fundamental factor of poor bodily mechanics and posture as tending to perpetuate the disability, and the necessity for physical education to eliminate it.

While complete rest is advisable for a torn muscle or aponeurosis, a sprained joint should be made active as soon as possible, and correction of the poor general statics enforced.

2 General Postural Strain

In this case the condition is one of general muscular fatigue and ligamentous strain, and is not confined to any one joint. The complaint is of dull aching in the shoulders and low back, coming on when the patient is tired, and relieved by rest. The patients are of the slender asthenic type, and investigation may show that they are engaged in occupations which are unusually fatiguing or which favour the adoption of faulty attitudes. There is usually no referred pain in the leg. Examination shows poor posture. There is no limitation of motion in the spine or in the hips, and muscle spasm is absent. Treatment is by rest, support, and postural re-education.

3 Lumbo-sacral Strain

The pain, dull or acute, is localized in an indefinite way over the lower spine and hip, affecting chiefly one side, or in other cases being referred quite definitely to the lumbosacral angle. It is usually asymmetrical, and sciatica is a frequent symptom. This kind of backache is generally relieved by rest. One outstanding type is seen in the stout person with heavy, protruding abdomen. In order to accommodate the increased weight in front, the patient tilts the spine backwards, with the production of excessive lordosis. The body weight is taken upon the spinal arches, the impinging spinous processes (they are seen faceted in a radiogram), and upon the locked-home lumbosacral articulations. Examination shows bad posture. Spinal movements are usually fairly free but on lateral bending the participation of the lower lumbar vertebrae in the movement is often greater in one direction than the other. Forward bending is limited by spasm of the hamstring muscles, limiting the flexion of the pelvis on the hips. There is local tenderness on deep pressure in the lumbosacral region over the articulations, or further out at the attachment of the ilio-lumbar ligaments to the iliac crests. The hip motions are free, but flexion of the hip with the knee extended ("straight-leg raising") is limited on the affected side. Nerve examination may show disturbance of cutaneous sensibility and muscular atrophy in the lower limb of the same side.

The treatment is as under the previous section. The patient is made recumbent on a hard mattress with a pillow beneath the knees. He is rolled over on to the face three daily for three-quarters of an hour, and hot fomentations are applied. When the soreness has gone out of the back he is instructed in a long-down list of exercises, with a view to educating him in flattening the lumbar spine. He is allowed up in a plaster jacket or in a brace which spans the lumbar curve and helps his muscles in attaining the correct position for the spine, which they are taught to do by postural training. When he understands the elements of proper bodily mechanics, the brace is gradually discarded. In women a carefully fitted corset is worn over the brace.

4 Sacro iliac Strain

In contrast to lumbosacral strain, which usually affects the heavy type of person and is relieved by recumbency, sacro iliac strain is commonest in the slender, viscerotonic type which uses the body in poor posture. The back becomes lordotic, the ligaments gradually stretch out and, in exceptional cases, a minor displacement may take place, the upper part of the sacrum moving forward. Positive evidence of this may sometimes be discovered in the fact that the posterior superior iliac spines are on slightly different levels, also, in asymmetry at the symphysis pubis.

as seen in an x-ray photograph. The so-called subluxation of the sacro-iliac joint occurs, but it is rare. Sacro-iliac joint strain is, however, common.

In acute injuries of the healthy joint the posterior ligaments prevent forward dislocation of the upper part of the sacrum. When the body weight is bent forward and the lifting of a heavy weight is started, the back muscles contract, fixing the spine. The iliac part of the gluteus maximus and the hamstrings become taut to fix the pelvis, and the only muscle free to act is the sacral division of the gluteus maximus. This violently pulls the lower part of the sacrum forward, shearing the joint surfaces, and a true synovitis results (Lusskin*). There is present a flat back, scoliosis, tenderness over the joint, and hamstring spasm. Sometimes violent leverage is exerted upon the joint through the hamstring muscles.

The joint is supplied by the lumbo-sacral cord, the first and second sacral nerves, and the superior gluteal nerve. Referred pain is usually along the first and second sacral nerves—posterior aspect of thigh—to outer side of leg and ankle. Because of the nerve supply of the superior gluteal, pain is referred to the sacro-sciatic notch and extends antero-laterally towards the anterior iliac spine. The tender spots in traumatic or inflammatory conditions of the sacro-iliac joint are

1. The inferior sacro-iliac ligament, between the posterior and inferior iliac spines
2. Sacro sciatic notch
3. Sometimes the sciatic nerve trunk

Motions

Standing—In forward bending the lumbar spine is flexed. Then the pelvis is tilted forwards until the hamstrings are taut. At this point the patient has to flex the knee of the affected side. In lumbo-sacral conditions the lumbo-sacral region is kept rigid, and forward bending takes place at the hip-joints.

Sitting—In sitting the hamstrings are relaxed and consequently the patient can bend forward more easily. In lumbo-sacral conditions the movement is just as limited as in standing.

Lying—If both hips are flexed with the knees bent, in lumbo-sacral conditions, there is still pain and limitation of movement as soon as the pelvis begins to be flexed upon the lumbar spine. In sacro-iliac conditions no leverage is exerted and the movement is free. If, however, the limb on the affected side is raised with the knee extended, the hamstrings become taut and leverage is exerted on the sacro-iliac joint, pain is experienced over the joint. Similarly, if the same test is tried with the other limb, pain is frequently experienced over the sacro-iliac joint of the side opposite to that of the raised limb.

The description of the diagnostic points given largely follows that of Smith-Petersen,⁵ who has based his account of the clinical features upon fifty cases—thirty of strain and twenty of inflammatory conditions—confirmed by operation to produce ankylosis of the joint.

Treatment

The treatment of sacro-iliac strain is by rest and support, with heat and massage later, followed by education of the muscles to flatten the lumbar spine and to undo the abnormal forward tilting of the pelvis. Most of the mild cases are relieved by strapping, but more commonly a light brace and well-made corset are required for a time.

In the more resistant cases the joint must be manipulated under an anaesthetic. The assistant fixes the pelvis, the surgeon flexes the affected limb, with the knee extended to the right-angled position, until the hamstrings are felt to give. In still more resistant cases Smith-Petersen's operation to ankylose the joint may be required.

5 Combined Pelvic Joint Strain

Clinical features referable to both lumbo-sacral and sacro-iliac joints may be found together, this occurs sometimes in semi-sacralization of the fifth lumbar vertebra. In one specimen bony ankylosis had taken place in the accessory articulation, and in the sacro-iliac joint of the same side from arthritis. Presumably the patient must have had

severe symptoms for years—to obtain relief when ankylosis occurred. An enlarged fifth lumbar transverse process giving rise to local and referred pain usually responds to conservative treatment by prolonged immobilization and support. Removal by operation has often been practised with good effects in the resistant type of case. An alternative and a better plan is to ankylose the lumbo-sacral region by a fusion or bone-grafting operation.

A NOTE ON THE PATHOGENESIS OF IDIOPATHIC SCIATICA

A mass of reliable evidence is now available to prove that the cause of many cases of sciatica is to be traced to an anatomical abnormality or lesion in the lumbo-sacral region of the spine. The diagnostic features indicate a lesion of the joint by localized pain and tenderness on deep pressure, by asymmetrical immobility of the spine—sciatic scoliosis—and by pain referred along the sciatic nerve. Whilst the nerve itself may occasionally be tender, it is commonly not so in such cases. Goldthwait of Boston was the first to investigate the problem from the anatomical and mechanical aspects, with the result that painful semi-sacralization of the fifth lumbar vertebra is now a well-recognized entity. There is irritation of the sciatic nerve, combined with protective deviation of the spine from the vertical in a direction away from the enlarged transverse process. This deformity of the spine may simply be attitudinal and protective, as when no actual accessory articulation exists. When a very large unilateral sacralization exists it may cause a simple, fixed scoliosis without very obvious muscle-spasm. Deep seated tenderness, best elicited when the patient is kneeling, can be discovered to be present over the accessory articulation, and not over the lumbo-sacral articulations.

Discussing the mechanical factor present in referred sciatic pain in cases of unilateral enlargement of the fifth lumbar transverse process, Bauman⁶ regards the distinct forward bulge of the process as a definite factor in producing overstretching of the lumbo-sacral cord. He was impressed by this in the thirty-five cases operated upon for the relief of the sciatica by removal of the process. Almost every one of these cases was permanently successful. Many other similar cases are reported in the literature.

Putti⁷ regards many of the cases of sciatica as a neuralgia, caused by pathological conditions of the intervertebral foramina, and especially of the intervertebral articulations. The common cause is chronic arthritis.

He calls attention to that part of the nerve trunk which occupies the intervertebral foramen, the funicular portion of the nerve, lying between the spinal root and the plexus. The foramen is a fibro-osseous canal, bounded posteriorly by the articular facets. The foramen between the fifth lumbar vertebra and the sacrum is the smallest, and the size increases from below upwards in the lumbar region. Quite contrary to the size of the foramen is the size of the enclosed lumbar nerves. The fifth lumbar root is the largest, and the others diminish from below upwards. In point of fact, the fifth root completely fills up the canal and is in very close relationship to the intervertebral disc, so that displacement of the body of the fifth lumbar vertebra, as in spondylolisthesis, may easily compress this trunk. The blood vessels are especially prominent as a plexus in the foramen, so that congestion of the vessels, as in a chill or rheumatism, may affect the contained nerve.

The size of the foramen is alterable by movements of the spine. In poor posture associated with increased lumbar lordosis, the available room for the fifth and, to a lesser extent, the fourth lumbar nerve may be seriously diminished. If, in addition, there is a sudden hyper-extension injury, it is not difficult to understand that a synovitis of the joint may affect the nerve lying in front. And so with chronic arthritis of the lumbar joints. This condition can be discovered even in the early stages by good radiographs, it is not uncommon in cases of chronic lumbo-sacral strain associated with sciatica.

Abnormalities of the facets are not unusual. Instead of being crescentic, one or both of the lumbo-sacral facets may be flat, and may occupy the coronal plane. If this is associated with other abnormalities of the fifth lumbar vertebra, such as semi-sacralization, and with increased lumbar lordosis from poor posture, the room available

within the related foramen may be so seriously lessened as to set up sciatic pain.

In these cases the maximum tenderness is over the affected articulation, and protective sciatic scoliosis is usually present. Treatment must be by prolonged recumbency and immobilization of the spine, if necessary in a plaster shell, combined with hyperaemia. In the convalescent stage a supportive brace must be worn and postural re-education begun. In one resistant case Putti resected the diseased posterior articulations, with good effects.

CONCLUSIONS

Cases of low backache and sciatica form a distinct orthopaedic group. They are capable of definite scientific analysis and classification.

To study them intelligently requires an appreciation of certain main problems which are indicated. The factors of trauma, anatomical type, good and bad posture, of anatomical variations, and of pathological lesions of the spine are all concerned in what is really a combination problem.

To make our diagnosis more accurate a routine and systematic method of physical examination is required.

Skilled interpretation of good x-ray photographs, by those familiar with the clinical picture, is the most valuable accessory aid in support of the diagnosis made by the history and examination.

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PERFORATED DUODENAL ULCER SIMULATING ACUTE APPENDICITIS

BY

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Cases of perforated duodenal ulcer simulating appendicitis in normal people are, I believe, comparatively common. The symptoms presented in such cases are usually so urgent that there is no difficulty in making a diagnosis. Those who have seen the acute abdomen in the insane, however, will no doubt agree that there is a real difficulty in making up our minds that there is anything urgent and requiring immediate attention. Yet, if a waiting policy is adopted, the consequences are usually disastrous. The following case presents unusual features of interest.

The patient a man aged 36 was admitted to this institution on October 26th 1921, suffering from dementia praecox. He was dull and sullen never speaking voluntarily or taking any interest in his surroundings whatever. He was quite unemployable and was occasionally impulsive and destructive. He suffered from an intractable form of impetigo but was otherwise in quite good bodily health.

On May 13th last he vomited once just before being put to bed at 10 p.m. His temperature, pulse, and respirations were normal at the time and he did not complain of pain and looked quite well. He got up next morning at 7.30 apparently quite well had breakfast at 8 and vomited soon after. His pulse, temperature and respirations were normal. He was however put to bed for safety though he looked well and did not complain. At 1 p.m. five hours later his pulse rate had risen to 102 and his temperature to 101° F. He then looked ill. He lay absolutely still on his back with his right leg slightly drawn up. His tongue was dry and furred, respirations about 22, but his abdomen moved fairly well rhythmically. On examination there was some rigidity of the abdominal muscles on both sides but nothing marked. There was no superficial tenderness but the patient resented deep palpation of the right iliac fossa though he did not seem to mind deep palpation of the left side. The heart and lungs were normal the urine also was normal. He would not reply to questions as to his condition and gave little help. He however undoubtedly suffered from an acute abdomen a provisional diagnosis of acute appendicitis was made and the patient was hurried to the operating theatre.

Operation.—A right paramedian incision was made the right rectus being drawn inwards. The peritoneum was incised and was found to be acutely inflamed. A lot of dirty looking non purulent

fluid exuded. After careful separation of recent adhesions between coils of small intestine the appendix was isolated and, except for the general peritonitis present was found to be quite normal. It was removed. The original incision was next prolonged upwards for about two inches and the right side of the abdomen explored. A lot of the turbid fluid was tracking downwards and on exposing the duodenum (second part) a fairly large perforation was found with prolapsed mucous membrane showing. There was little induration round the perforation which admitted the tip of the middle finger easily. It seemed to be of the nature of an acute duodenal ulcer. A purse-string suture was inserted round the perforation and the ulcer buried. The right side of the abdomen was next irrigated with warm normal saline and drainage tubes were placed in the lower part of the wound to drain the pelvis and also tubes were inserted in the right lumbar region through an incision in the right flank.

The patient made an excellent recovery. Ten days later however he commenced vomiting during the night and right up till noon next day when the vomited matter became faecal. All food was stopped and the patient only allowed to drink the following:

R Sod bicarb	1 part
Mag carb pond	2 parts
Calc carb	2
Bismuth oxyearb	4
Water q.s. to a cream consistency	
Sig. 3i in 3iv water every two hours	

Vomiting ceased two hours after taking the first dose, and from that time onwards the patient made an uninterrupted recovery his abdominal wound healing up by granulation.

The points to remember in this case are

- 1 The perforation took place at least some eighteen hours before operation, probably soon before 10 o'clock the night previously, when he vomited for the first time.
- 2 There were no constitutional disturbances until after breakfast next morning at 8 o'clock, and then only very little after that.
- 3 The great difficulty in diagnosis owing to the patient's mental condition and lack of positive symptoms.
- 4 The threshold for pain in this case was very much lowered.
- 5 The importance of eliminating acute disease in the patient's other systems, such as respiratory, vascular, and urinary.
- 6 The usefulness of an alkaline bismuth mixture in relieving high intestinal obstruction, due to oedema of mucous membrane at the site of an ulcer.

I am greatly indebted to the medical director Professor J Shaw Bolton for his able guidance during the operation and for kind permission to publish details of this case.

Memoranda :

MEDICAL, SURGICAL, OBSTETRICAL.

A PLASTIC PROCEDURE IN THE MASTOID OPERATION

SEVERAL methods are in vogue for obtaining an epithelial flap or flaps in the radical and conservative mastoid operations which, although in practice they appear sound on theoretical grounds, are not infrequently disappointing. In both these operations I have employed the following simple procedure with gratifying results.

The posterior cartilaginous wall of the meatus is separated from the corresponding bony portion and the cartilage is transected by a flap knife or tonotome at the upper end of the junction between the external auditory meatus and the concha, and divided vertically along this line through a length corresponding to the vertical diameter of the meatus. From the upper end of this incision another is carried inwards at right angles through the whole width of the cartilaginous meatus a rectangular flap being thereby obtained with its base attached to the inferior wall of the cartilaginous meatus. The cartilage included in the flap is excised.

The flap is now held aside by tissue-forceps until the bone-work of the operation is completed. This done a small crescent is excised from the inner cut edge of the concha to produce a large meatal orifice. The flap is next turned down on the lower wall of the operation cavity and its outer edge sutured to the skin edge of the lower part of the inner semicircular conchal margin sufficient of this having been removed by the crescentic excision to make room for the edge of the flap without kinking it. The deeper part of the flap is maintained in position by wool or gauze packing until it has become united by granulation tissue to the inner wall of the operation cavity, when this occurs packing may be dispensed with. The discharge is gently mopped away and the walls of the cavity are treated twice daily with a stimulating lotion such as lotio rubra. Hydrogen peroxide should not be used since it tends to undermine the flap.

This simple procedure may be quickly performed, and it has the following advantages

- 1 Cutting the flap at an early stage permits of an excellent view of the "operative field" throughout the operation
- 2 The large external auditory meatus gives easy access to the operation cavity for purposes of examination and dressing
- 3 A useful area of cavity is immediately epithelialized, and granulation tissue is prevented from growing in excess over an area where this frequently occurs
- 4 The position of the flap directs the growth of new epithelium around the walls of the cavity
- 5 There is no tension on the flap and no difficulty in maintaining it in position owing to the excision of its cartilage
- 6 The method hastens healing considerably

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FOREIGN BODIES IN THE ALIMENTARY TRACT

The following case is of interest owing to the character and variety of the articles swallowed

A boy, aged 14 was admitted to Greenock Royal Infirmary in 1927 with a history of having swallowed something two hours previously. On inquiry the information was elicited that, while in a house of detention pending his removal to a reformatory the boy had broken two safety pins at their joints bent the pieces double, and swallowed them. In addition he had swallowed an ordinary safety pin (closed). These were followed by a large collar stud, two trousers buttons and several small pieces of coke.



Examination revealed him to be a healthy boy, well developed physically, though perhaps a little under the average intelligence for boys of his age. The pulse rate on admission was under 80, and the temperature 98° F., he seemed fairly comfortable, although he complained of some abdominal pain. Palpation revealed definite tenderness all over the epigastrium, most severe slightly to the right of the mid line. On x-ray examination all the articles were seen in

the stomach near the pylorus but it was found that the sharp pointed half of one of the tiepins had been swallowed without being bent double.

After the first few hours in hospital the pain subsided and the boy was watched most carefully, he was kept on a diet of soft foods and the abdomen was screened daily. On the tenth day the first article (a trousers button) was passed and the others followed at the rate of about one each day. Four days in succession the fluorescent screen showed the unbent half tiepin in the mid line at the level of the umbilicus, where it had apparently stuck but it was eventually passed on the seventeenth day without untoward symptoms developing. No purgative medicine was given until two days after the last article had been passed.

The x-ray reproduction shows the articles well down the gut, and the sharp half tiepin is seen very faintly at the top of it.

I am indebted to Dr W A Milne, honorary surgeon to the infirmary, under whose care the boy was admitted, for permission to use these notes.

CHARLES GILMOUR, M.B., Ch.B.
Late House-Surgeon, Greenock Royal Infirmary

TRAUMATIC RUPTURE OF THE SPLEEN

RECOVERY after splenectomy in instances of traumatic rupture of the spleen has been so frequently recorded in the journals that it becomes almost commonplace, and in describing the two cases which follow it is to their unusual clinical histories before operation that I would draw particular attention.

A labourer aged 36 was admitted to the Swansea General Hospital on April 28th. He gave a history of having been awakened during the night by acute abdominal pain accompanied by vomiting and a severe attack of shivering. His doctor was not

called until the following morning, and he immediately sent the patient to hospital having diagnosed a perforated duodenal ulcer. On examination the abdomen was found to be generally rigid although more particularly over the lower portion of the right rectus muscle than elsewhere. Signs of free fluid were readily elicited in both flanks, and the patient was obviously ill, although a temperature of 102° F., a pulse of 110, and respirations of 24 did not indicate a collapsed condition. A tentative diagnosis of appendix peritonitis was made, and I opened the abdomen by a right pararectal incision. A large quantity of free blood escaped on incising the peritoneum an occurrence which was decidedly bewildering. The incision was enlarged and the first discovery of pathological importance was that of numerous caseating tuberculous glands in the mesentery. Finally, after a diligent search, a large tear was discovered on the convex surface of the spleen, which was considerably enlarged and friable. In order to perform splenectomy it was necessary to sever the right rectus muscle, high up, and to turn back a flap of the abdominal wall. Following operation the patient developed pneumonia, and his wound gave way in its upper half, he recovered well, however, and healed rapidly after secondary suture. He was discharged on June 11th, and remains well. It was only during the week following operation that the probable cause of the lesion was discovered. On the evening before admission the patient, while intoxicated, had lurched and fallen against the stair rail, he had gone to bed and to sleep immediately, and had no recollection of his accident when he was awakened by the pain. It must be admitted that the severity of the injury sustained would be insufficient to rupture a healthy person's spleen, but in the case of an organ twice the normal size and rendered friable by the associated abdominal tuberculosis the history of trauma is a more acceptable explanation of the cause of the tear than would be that of a spontaneous splenic rupture.

A collier, aged 50, was admitted on June 18th. He gave a history of having been crushed between two trucks a few hours previously, and had obviously fractured three lower ribs on the right side. There was some generalized abdominal tenderness, but no rigidity. The temperature was 98° F. the pulse 80 and the respirations 32. Progress was so satisfactory during the four days immediately following admission that discharge from hospital was contemplated. At 2.30 a.m. however on June 23rd the patient suddenly collapsed during defaecation and a diagnosis of brisk internal haemorrhage was readily arrived at. On this occasion I made a left paramedian incision, and blood was found to be pouring from the hilum of the spleen in the neighbourhood of which there was an extensive tear. Splenectomy was performed, and on examining the organ subsequently its capsule was found to be almost entirely stripped off and very lax. Evidently in this instance the primary lesion was an intracapsular rupture, haemorrhage being arrested in all probability by the resistance which was offered by the distended capsule. On June 23rd the rise in blood pressure caused by straining at stool must have been sufficient to recommence the haemorrhage, with rupture of the capsule and occurrence of free intra-abdominal bleeding. After a critical illness lasting for a few days the patient recovered rapidly, his wound healed by first intention, and he was discharged on July 12th.

C J CELLAN JONES, M.D., F.R.C.S. Ed.,
Medical Superintendent Swansea General and Eye Hospital

VARICELLA FOLLOWED BY HERPES

A REPORT of a case of herpes zoster following varicella in the same individual may be worthy of publication, in view of the fact that, according to recent correspondence in the *British Medical Journal*, this sequence is apparently unique.

A well-grown and healthy boy, aged 12, contracted chicken pox during an epidemic in York on June 28th with the usual very slight fever and a few vesicles on the chest. Two days later the chicken pox rash had completed its appearance and was generalized in the form of a profuse discrete normal varicella. The temperature was then normal. On that day he complained of fairly severe pain in the region of the left knee and down the inner side of the left leg which was tender. The pain was sufficiently severe to make the possibility of osteomyelitis pass through my mind but there was no rise of temperature.

On the fourth day from the commencement of a typical herpes rash appeared in two patches one on the inner side of the thigh just above the knee and the other half way down the inner side of the leg. The herpetic rash was quite typical in its even and close distribution, and contrasted with the discrete and varied varicella rash, which by then was almost completely scabbed over.

I refrained from publishing the case (as I had originally intended) in view of the appearance of the contribution from Dr Grny Hill, published on August 4th (p 197), from which it was plain that cases of varicella and herpes in the same person were not uncommon.

However, in view of the letter from Dr W P Le Feuvre, appearing on September 22nd (p 549), in which it is categorically stated that no case of herpes zoster appearing in the same individual in relation to varicella, but subsequent to the latter, has so far been recorded, this case is apparently unique.

Incidentally, during the same epidemic (which was an unusually widespread one) the following two cases of relation between herpes and varicella in different individuals came under my notice

A boy attending the same school as the previous patient was sent home with shingles a week later his sister developed chicken pox

Of two boys both aged 5 who were playmates living next door to each other one developed chicken pox and a week later the other developed shingles in one patch below the left axilla at the level of the nipple

Thus to the 176 cases of relationship recorded in the *British Medical Journal* in the past fourteen or fifteen years I am able to add three occurring within a few weeks of each other in quite a small area

YORK. J. C. LYTH, M.B., B.S. Lond

TORSION OF GREAT OMENTUM

The following case seems of sufficient interest to be placed on record

The patient a 4-paras aged 40 was admitted to hospital with acute abdominal symptoms. Some six months previously she had had an attack of acute abdominal pain accompanied by vomiting and severe headache. The pain settled down somewhat and was most marked in the left side. She remained in bed for four to five weeks. After getting up she never felt well constipation was a marked feature. Two days before admission there was a recurrence of the same pain the attack was more severe than before and was accompanied by vomiting and diarrhoea.

On admission the temperature was 100.5° F. and the pulse 160 there was great tenderness and rigidity over the left rectus muscle, and the patient complained repeatedly during the examination. There was no disturbance of menstruation but the patient stated she had felt hotter during her menstrual periods. Examination of the right iliac fossa revealed nothing abnormal deep palpation being permitted without complaint the patient would not admit the pain ever settling down over McBurney's point.

The abdomen was opened by a left paramedian incision and a large mass was found in the left paracolic gutter surrounded by a few adhesions. When freed it was found to be the great omentum which had undergone torsion at the lower border of the transverse colon the mass was acutely inflamed and gangrenous was threatening. It was transfixed and ligatured at the lower border of the transverse colon where a distinct fibrous band could be seen encircling the constricted neck. The abdomen was closed and a drainage tube which had been inserted was removed three days later the patient made a good recovery. The weight of the portion removed was 15 oz.

I am indebted to Mr R. W. Thompson visiting surgeon Walsall General Hospital for permission to publish this case.

Walsall General Hospital.

W. STEWART, M.B., Ch.B.

Reports of Societies.

PERINEAL PROSTATECTOMY

A SPECIAL meeting of the Section of Urology was held at the Royal Society of Medicine on October 4th, when Dr O. S. LOWSLEY of New York opened a discussion on perineal prostatectomy. Lord Dawson of Penn., President of the Society who was in the chair and introduced Dr Lowsley, said that such a relationship as existed between medical practitioners of different nationalities and especially between those of either side of the Atlantic, should exist between nations as a whole. As a physician he saw only the bad results from such operations as prostatectomy, and for that reason he would be glad to have mitigated his unfavourable impressions associated with that operation.

Dr LOWSLEY said that the only difference between a good urological surgeon and a good general surgeon was that the former possessed certain instruments of precision not owned by the latter, he would therefore demonstrate some special instruments he had found useful, including a modification of Mr Kidd's cystoscope for fulgurating large bladder growths, a rongeur, a posterior urethroscope for heating up the prostate by means of diathermy in cases of prostatitis, and a catheterizing cystoscope for infants. Dr Lowsley then dealt with the embryology of the prostate gland, and traced the various changes occurring in it from infancy to old age. By means of lantern slides he showed how the tubules of the anterior lobe atrophied at an early date, and how the glands of the posterior lobe, which were active during the height of sexual life, became shrunken

as old age approached. It was an interesting fact that carcinoma, according to J. T. Geraghty and M. L. Boyd, invariably started in this lobe, although it was never involved in any adenomatous changes. Of special interest in connection with the pathology of prostatic enlargement were the submucous glands, particularly the subcervical group first described by Alberran. Turning from the pathology to the surgery of the prostate, Dr Lowsley emphasized the importance of preliminary drainage. He himself employed drainage in all cases, whatever the state of the kidneys or the amount of residual urine might be. He preferred suprapubic drainage to that afforded by a catheter. On general principles it was a bad thing to leave a foreign body like a catheter in a urethra that was already the seat of inflammation. With suprapubic drainage the subsidence of the oedema of the prostate was more rapid and more satisfactory. In his opinion the advance that had been made in prostatic surgery of most importance next to the recognition of the necessity for preliminary drainage had been the use of local or regional anaesthesia. General anaesthetics should be avoided because they elevated the blood pressure, and this increased the haemorrhage during the operation. Moreover, as soon as the patient recovered consciousness he suffered considerable pain. By the administration of sacral and paracervical anaesthesia both these disadvantages could be avoided. So far as Dr Lowsley could estimate, there was under sacral anaesthesia only about one-tenth of the amount of bleeding which occurred with general anaesthetics. The fact that the effect of the novocain lasted for a period of six or eight hours subsequent to injection eliminated shock and pain. The third advantage was that the patient could imbibe water immediately, and did not go through the process of dehydration suffered by those taking general anaesthetics. The technique of sacral and paracervical anaesthesia was then shown by means of a cinematograph film. Dr Lowsley proceeded to describe the operation of perineal prostatectomy, which in its main line followed that of Hugh Young. The modifications employed by the speaker were the use of a special tractor devised by Crowell and the opening of the prostate by means of an inverted 'V' incision, which avoided damaging the ejaculatory ducts. Unlike Young's tractor, that of Crowell could be passed through the whole urethra into the bladder, thus avoiding the risk of damaging the external sphincter. The index finger of the left hand was inserted into the rectum in order to guard against injury during the action of dissecting away the prostate from that structure. The speaker added that in enucleating the gland an effort should be made to retain intact the internal sphincter. Any roughness in enucleation was likely to split this sphincter and to tear into the plexus Santorini. Thoroughness in removing shreds of torn tissue must be observed in the case of perineal as of suprapubic prostatectomy. Dr Lowsley paid a tribute to the English school of urology for having emphasized the importance of this point. Half-destroyed tissues became necrosed and were a future menace to the free passage of urine and also a fertile source of sepsis. After enucleation the finger was introduced into the bladder in order to make certain that no obstructive nodules remained behind in the region of Alberran's gland. Haemorrhage could be dealt with by ligature and packing, and drainage was provided by means of a rubber catheter passed through the urethra. Finally the floor of the pelvis was closed by drawing the two sides of the levator ani muscles together with a catgut suture, and the skin was sutured in the usual manner. The various steps of the operation were illustrated by means of cinematograph films, and statistical tables were shown contrasting the results obtained from the use of general and of regional anaesthesia.

Mr FRANK KING, President of the Section, said that in Great Britain it was probably admitted that the operation of suprapubic prostatectomy was slightly more dangerous than that of perineal prostatectomy. However, the perineal route presented some difficulties, and it was, perhaps, better that surgeons in general should stick to the suprapubic route rather than run the risk of the complications which might follow an unsuccessful perineal operation.

CARDIAC STIMULANTS

At a meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine on October 8th, Professor J. A. GUNN delivered his presidential address, taking for his subject "Cardiac stimulants."

Professor Gunn said that in addition to discrepancies between the clinical and pharmacological evidence as regards the cardiac stimulants there was little agreement among clinicians themselves and still less between pharmacologists. In spite of the researches on the circulation in recent years there was scarcely any consensus of opinion as to the therapeutic value of the drugs of this group. In discussing the reasons for this confusion some of the factors concerning the mechanism of the circulation must be recalled. The circulation of the blood was essentially a distributory scheme designed to supply the various organs of the body with blood according to the separate and varying demands of each. The efficiency of the circulation, from the point of view of the organ, was determined by the rate of blood flow within it, this depending on the pressure of the blood and the calibre of the vessels. The general supply was dependent chiefly upon the output of the heart and the calibre and elasticity of the vessels. The collecting side was equally important, because, if the uniformity of the circulation was to be maintained, exactly as much blood must be returned to the heart as had been pumped out in a given time. It was necessary to realize the vital importance of the capillary circulation, it was for this that the whole circulatory scheme was designed, but, broadly speaking, physiological research had always proceeded in the other direction—that is to say, from the consideration first of the "wholesale distribution," to the "retail delivery" and the "returned empty" traffic as secondary. The first question with regard to cardiac stimulants was whether the physician and the pharmacologist had come into line with the advances in the knowledge of the circulation, the answer must be "Not yet." Confronted with any failure of the circulation, there was still too much tendency to throw the blame on the "wholesale delivery" and to speak of "cardiac failure" when in fact the heart had nothing to do with the failure of the circulation. A good deal of the present confusion was due to want of proper classification, in the absence of which no progress could be made. Cardiac failure, for example, might occur early in chloroform administration from ventricular fibrillation, or, late, from paralysis of the heart muscle combined with central vasomotor and respiratory paralysis. In the first kind of cardiac failure, adrenaline, if it could be brought to the heart, would do more harm than good, in the second kind of failure it might save life. The same cardiac stimulant might at one time be an advantage and at another time be detrimental. Much confusion which prevailed on this subject was due to the fact that there was not a sufficiently accurate classification either of cardiac failure or of cardiac stimulants, and this want of classification seriously handicapped further advance. Before such classification could be undertaken it was necessary to define with equal accuracy the term "cardiac stimulant." Professor Gunn then discussed in turn some of the drugs which had been or were regarded as cardiac stimulants, leaving on one side certain others—for example, digitalis—as to which opinions were more definite. Strychnine in some circumstances increased the excitability of the central nervous mechanism and specifically of the vasomotor and respiratory centres, it was generally agreed that it had no direct action on heart muscle. Clinically it had been largely used in conditions in which failure of the circulation with weakness of the heart was one of the features. The point of dispute was as to how it acted. The speaker did not believe that, in respect of any action on heart muscle, strychnine had ever saved or lengthened a life. It was a central vasomotor and respiratory stimulant. Three points with regard to its therapeutic value were not sufficiently recognized. So far as the circulation was concerned, it would seem useless to employ it unless the primary failure was vascular and not cardiac, therefore, precision in diagnosis was necessary to define those cases

in which its action was likely to be useful. In the second place, assuming that vascular and not primary cardiac paresis was diagnosed, there were other points which would modify the action of strychnine. In the reaction of the nervous system, for example, the effect of stimulation depended upon the excitability of the system at the time. If the vasomotor centre was depressed by toxins strychnine might have little or no action. Finally, there was the important question of dosage. In his own clinical experience he had seen effects from strychnine only when it was given in doses of one-tenth to one-eighth of a grain. With regard to alcohol, the antagonistic views obtaining were due to the fact that alcohol was administered in two different ways, and its action differed according to the method of administration. Concentrated alcohol in the form of whisky or brandy in small amounts had been given, for example, in cases of fainting occurring in more or less healthy people. The speaker agreed with the traditional and popular view that this brought about some improvement in the circulation. The effects appeared too soon after administration to allow them to be ascribed to any action following upon absorption, they were reflex. It should be remembered that even if brandy produced no marked reflex effect on the healthy conscious person it did not follow that it would not affect a patient semi-conscious or unconscious owing to some failure of circulation, although brandy might produce a reflex effect on the medullary centres in such a case, it did not follow that it would produce the same effect in a patient suffering from gradual circulatory failure occurring in the course of a long illness. After its absorption alcohol caused some redistribution of the circulation, of this there could be no doubt in view of the flushing which followed. Alcohol altered the distribution of the blood in the direction of increasing the blood flow through the skin at the expense of the internal organs, as to when, if ever, an action of this kind benefited the patient generally it was difficult to say. Camphor, again, had been widely used as a stimulant in cases of circulatory failure, and the most divergent results had been obtained. No decisive proof had been forthcoming of any direct action on the cardiac muscle. As in the case of alcohol, more had been claimed for camphor than simply the reflex effect on the medullary centres, and it was reputed to have some beneficial effect on the circulation after absorption. Both alcohol and camphor brought about some redistribution of the blood, and it was to this, not to any cardiac action, that the improvement in the circulation was due. In the case of adrenaline, however, agreement was fairly general, everyone knew the kind of action which was being employed. In normal blood pressure the effect of adrenaline was transient, in conditions of low blood pressure and feeble heart beat adrenaline might produce a lasting improvement in the circulation. The transient nature of its action in some cases, therefore, was no valid objection. Another point was that its action was independent of the condition of the central nervous system at the time. On the other hand, adrenaline was a two-edged weapon, and the tendency had been rather to restrict its use to foiled hopes. With increasing familiarity with its action and dosage, perhaps the clinical use of it in acute cardiac failure would increase, especially in the direction of employing repeated small intravenous injections rather than one single dose. The action of pituitrin on the circulation was relatively small. It did not discriminate between the splanchnic and other vessels in the way that adrenaline did, and therefore did not cause the same redistribution of blood. It had no action on the heart, and was of no value in circulatory failure primarily due to heart failure.

Dr. KINGSLEY BARTON said that he had always been a "non-alcohol doctor," but he had found that in acute conditions a stiff dose of brandy caused a collapsed patient to revive and recover in the most extraordinary way. Alcohol was given with the idea that it would stimulate the heart, but he doubted whether it had any effect on the heart at all, if it could get into the circulation to stimulate the central nervous system, all the effects of what might be called a cardiac stimulant were forthcoming, although there was still no direct action on the heart.

Dr G A SUTHERLAND declared himself convinced that there was no such thing as a cardiac stimulant, and he believed Professor Gunn to be of the same opinion as a result of his experience. The term "cardiac stimulant" had been in use for a good many years, but it was an absolute misnomer. The profession called for a cardiac stimulant that should be applicable to all cases, but what stimulant was going to do good in the case of a heart with a beat of 180 to 200 to the minute? It was not then a question of stimulating, but of procuring rest for the heart.

Dr JOHN PARKINSON referred to the need for subdividing ordinary circulatory failures according to their clinical character. Everyone was familiar with the ordinary cardiac failure accompanying auricular fibrillation, the cardiac failure without such fibrillation, failure with flutter, and failure with paroxysmal tachycardia. The whole subject would be simplified when it became known why and how patients were affected by sudden circulatory failure, but there was a very special difficulty in applying remedies in such conditions and assessing the worth of them, in view of nature's care of the heart. The heart could stop for quite a long period, and yet recommence, it could begin to beat at a very high rate, and again recover. In discussing the value of strychnine, alcohol, camphor, and other remedies, the fact must not be forgotten that nature was capable of doing all that was asked of these drugs.

Professor E B VERNER spoke of the necessity of defining accurately what was meant by the term "cardio-muscular stimulant," and referred to the work of the late Professor E H Starling as throwing a flood of light on the whole subject. The definition of the term "cardio-muscular stimulant" could be brought down to the terms of muscular efficiency—that is to say, the relation between the amount of energy actually expended in mechanical work and the total energy changes of the heart measured by oxygen consumption. He thought it fairly certain that adrenaline could be correctly described as a cardiac stimulant. A heart driven at a constant rate by faradic stimulation would contract under the influence of adrenaline.

Dr T IZED BENNETT said that startling effects from large doses of camphor given intramuscularly were by no means rare. The camphor had very likely a peripheral effect, though he could not believe that it was merely a peripheral irritant. At the Middlesex Hospital they were accustomed not infrequently to use camphor up to 20 or 30 grains in a single administration. With regard to strychnine and alcohol, his own experience had never caused him to deviate from the accepted teaching of the pharmacologists that the effects of these two drugs were rather in opposite directions—that is to say, almost all the effects of alcohol were in the nature of depressant effects, whereas those of strychnine were largely stimulating.

HEAD INJURIES

At a meeting of the Section of Neurology of the Royal Society of Medicine on October 11th, Mr DONALD ARMOUR delivered the presidential address, and took for his subject "Some considerations on head injuries."

Mr Armour said that John Bell, writing a century and a quarter ago, had expressed what would be his main thesis: "And we have this encouragement to consider the pathology in place of the anatomy of the skull as the rule of our prognostics, that while anatomy and the enumeration and classification of fractures has led to an undue propensity to operation, the study of the living powers, and the mutual dependence of these parts, leads to a reserved, modest, and rational practice, to a just confidence in the powers of nature, to a careful and solicitous attention to all the insidious symptoms of an injured brain." The speaker remarked that in the past and up to the present the subject of head injuries in the textbooks on surgery appeared in the section on "fractures" thus the mind of the medical practitioner had been imbued early with an exaggerated importance of the "enumeration and classification" of fractures of the skull, to the detriment of a proper appreciation of the much more important part of the subject—namely, the functional or

organic damage that the skull contents might have suffered. This was constantly revealed by the early insistence upon an x-ray picture of the skull being taken, following a head injury, as if the presence or not of a fracture of the skull were the important factor in the case, and as if the result of the x-ray picture would be sufficient to determine by what means and methods the associated cerebral injury should be treated. Moreover, its very use constituted at times a pitfall in forming a prognosis of a head injury, because of the false importance attached to the presence or absence of a fracture of the skull, its absence always presuming a better prognosis than its presence. For the same reason there was, he thought, a widespread lack of appreciation of the importance of so-called minor head injuries—"minor," perhaps, in the estimation of the patient and his doctor at the time, but so often "major" in their later manifestations and sequels. A general increase in intracranial pressure was the commonest result of severe head injury, this was brought about, in the first instance, by reactionary oedema or haemorrhage, or both. This increased pressure might be aggravated later or maintained by interference with the paths of absorption of the cerebro-spinal fluid, the mechanical result of the swelling or displacement of the brain itself. Such swelling or displacement interfered first by blocking the cerebral subarachnoid spaces, and, consequently, cerebro-spinal fluid collected in the basal cisterns and in the ventricles. The enlargement of the basal cisterns forced the mid-brain up, occluding the narrow spaces of the incisura tentorii. The swollen brain with its distended ventricles, pushed up against the resistant tissue, interfered still more with absorption, and so a vicious circle was established. Such was the result at any rate of a severe injury. Could the same factors in lesser degree explain the symptoms associated with or following upon a so-called minor injury? There could be no doubt that the symptoms usually following concussion—the commonest of which was headache of varying degree—were the expression of an altered pressure of the cerebro-spinal fluid. The increase of tension following upon slight injuries and maintained over a considerable period might be due to such factors—acting alone or in combination—as the increase in the amount of the cerebro-spinal fluid secreted, interference with its circulation and absorption, and variation in the volume of the cranial contents—nervous, ventricular, and vascular. With regard to the presence or absence of blood in the cerebro-spinal fluid following head injuries, the importance of this was often stressed beyond its true clinical significance. Its presence was only of significance as a corroborative sign of intracranial injury, associated with bleeding from an intradural vessel. Its absence, however, did not exclude intracranial haemorrhage, even if it was subdural or subarachnoidal. From the point of view of treatment, neither the presence nor the absence of blood in the cerebro-spinal fluid had any importance whatever. The pressure of the fluid as an indication of the degree of intracranial tension was the all-important matter.

After an interesting discussion of the eyes in head injuries, and the value of the examination of the discs in cases of local compression, Mr Armour went on to plead for the more frequent use of lumbar puncture as a therapeutic measure in both acute and chronic head injuries. While in no way a substitute for a decompression operation in cases of high intracranial tension, and being even dangerous in some cases owing to the risk of medullary compression at the foramen magnum, yet in milder cases of increased tension the slow withdrawal of fluid, repeated if necessary, was of very great value. It frequently allowed an operation to be postponed until all conditions were suitable. But the pressure of the fluid, not the quantity withdrawn, was the determining factor as to the future conduct of the case. Again, in cases obviously not requiring the major operation of decompression, but in which severe headache, extreme restlessness, irritability, and fatigue were present, repeated lumbar puncture was of the greatest value in mitigating or curing these distressing symptoms. Therein lay the value of the so-called "spontaneous decompression" in fractures of the skull with leakage of cerebro-spinal fluid—a value, unfortunately, too often offset by the ever-present danger of infection.

ALCOHOL AND DRUG ADDICTION IN RELATION TO MENTAL DISORDER

In opening a discussion of this subject at a meeting of the Society for the Study of Inebriety, in the rooms of the Medical Society of London on October 9th, Dr HUBERT J. NORMAN said the relationship was not always clear, hence there was still likely to be theorizing as to the part played by alcohol and drugs in producing mental disorder. Even so, there was a good deal which was non-contentious. Was their influence invariably deleterious? The effect upon the nervous system was only one aspect of the subject, other parts of the economy were also involved. The differential symptoms were not dealt with, but rather the common results. There was a general resemblance in the fundamental characters of the symptoms produced by these substances acting on the cerebral cortex. The differences depended more upon the quantity taken and duration of habit. The chief reason for their absorption was in order to produce euphoria and to overcome the feeling of inadequacy. The effect was to interfere with the inhibitions for which the cortex was responsible, this resulted in changes of conduct by the liberation of impulses—for example, irritability, maniacal fury, "berserk" rage, etc. These were due to the action of other areas of cells from which the inhibitions had been removed. Intellectual deterioration varying in degree followed confusion, delirium, disorientation. Association of ideas was at first stimulated, but later slowed. Imagination was increased, but the intellectual content decreased. There was impairment of the "moral sense." Illusions and hallucinations of the senses occurred and delusions were formulated, memory was also impaired—the addict suffering from amnesia and paramnesia, together with aboulia or loss of will-power, indifference, and apathy, there were periods of lucidity, but more often lack of insight.

The more common symptom-complexes were those associated with alcohol: the polyneuritic psychosis, delirium tremens, dipsomania, alcoholic paranoia, and hallucinosis. Some of these were related to the ordinary mind, possibly, non-toxic psychoses. At times the taking of alcohol was only incidental, as in association with manic-depressive insanity, general paralysis of the insane, epilepsy, and dementia praecox. Long continuance of habit, linked as it was with neuropathic defect, tended to bring the individual to the common termination of all chronic mental disorders—namely, mental impairment. The minor degrees of this might be overlooked. The nervous system had great potentiality for recovery, even after long periods of excess, it was, however, sometimes difficult to subject the patient to treatment—he had a perfect right to dope himself stupid. If, of course, cell disintegration had taken place, the patient remained to that extent mentally crippled.

Dr NORMAN quoted some examples of prominent persons who had exhibited deterioration with the taking of drink or drugs, among others he mentioned James Thomson, Poe, Richard Poison, Verlaine, Francis Thompson, Oscar Wilde, and Swinburne. The importance of the influence of excess on those who occupied positions of power was great. This had been frequently exemplified in history—for example, in the case of Judge Jeffreys.

Mental disorder in association with drugs and drink might demonstrate very clearly the difficulty in deciding between sanity and insanity, responsibility and irresponsibility, certifiability and non-certifiability. It was difficult, too, to suggest a solution of the problem of prevention. As so many of the individuals were neuropathic they were fated to become victims to some form of mental disorder. If they were prohibited from getting one substance they would obtain another.

DEGREES OF DRUNKENNESS

A MEETING of the Clinical Society of Bath was held on October 5th at the Royal United Hospital, Bath, when the chair was taken by Mr A. DE V. BLATTWART, and Dr E. SCOTT WHITE read a paper entitled "Drunk and driving a motor car."

Dr E. SCOTT WHITE suggested that a lesser degree of intoxication than usual had to be proved in order to find a

man guilty of "drunkenness" under the Criminal Justice Act. He suggested as an acid test of this state that the examiner would be unwilling to trust himself to be driven by the person accused. He gave details of some suggestions as to tests which might be applied in helping the examiner to come to a conclusion. He called particular attention to the recent work of Professor Mellanby, showing how his investigations with reference to the concentration of alcohol in the urine could be used in diagnosing various degrees of inebriety.

Clinical Cases

Dr VINCENT COATES showed a case of myositis ossificans of several years' duration in a young male adult. There were deposits in many muscles, especially the glutei and psoas, and the case was complicated by a general arthritis and spondylitis. This, together with comparative smallness of the giant toes, seemed to bring the case into the rare category of "myositis ossificans para-arthritis," described by the Polish observer Imow. Dr Coates also showed a case of scleroderma in a man whose condition was greatly improved after vapour baths, thyroid extract, and sodium salicylate, and a patient with enlarged glands in the neck and a swelling behind the tonsil, considered to be due to tuberculosis, and not sarcoma, in view of its chronicity. His next case was one of enlarged liver and spleen in a young child with a strongly positive Wassermann reaction which had yielded but slowly to intravenous arsenic, injections of mercury, and iodides given by the month. A levulose test showed that there was considerable hepatic damage. He also exhibited a case of profuse rheumatic subcutaneous nodules and chorea in a girl aged 9.

Mr DUNCAN showed a case of osteomyelitis of the femur recently operated upon in the Royal United Hospital. In his opinion recovery was very largely due to the fact that it had been diagnosed so early by the medical practitioner who sent the patient to hospital.

Mr LEVIS showed a bad case of comminuted fracture of the upper half of the left femur, which had been treated in a remote part of the Scottish Highlands without the aid of X-rays. The first radiogram, taken five months later, showed an exceedingly good functional result with less than half an inch of shortening. He also presented a case of ulnar nerve paralysis following injury.

Dr DELICATI showed a case of early disseminated sclerosis.

Mr A. L. FULLER exhibited a crochet hook which had been inserted into the vagina and was ultimately recovered from the peritoneal cavity on abdominal section. He also brought a specimen removed from an infant 18 hours old, showing intestinal obstruction due to interruption of the lumen of the small intestine and non-development of the lower portion of the small intestine and colon.

HEATING AND VENTILATION OF SCHOOLS

IN A paper on "Methods of heating and ventilating schools and their influence on health," read before the Institution of Heating and Ventilating Engineers in London on October 9th, Dr H. M. VERNON, investigator for the Industrial Fatigue Research Board, said that the requisites of a good system were that it should keep the children sufficiently warm to enable them to reap the full benefit of the instruction being imparted to them. The air should not be so cold that their hands were numbed and their feet chilled, nor should it be so warm that they tended to become indolent and sleepy. If possible the temperature of the air at foot level should be equal to that at head level, if not above it, cool heads and warm feet were better than warm heads and cool feet, which most systems of heating tended to induce. There should be a fair degree of air movement, as moving air was more invigorating than stagnant air, and it was important that the air should not smell stuffy and unpleasant. It was desirable that these requisites should be obtained with the minimum of expense, and that the heating and ventilating arrangements should be of such a character that they were easily controlled and did not readily get out of order. Hence natural systems of ventilation were preferable to mechanical systems, provided they did their work properly, not only on most days of the year, but on all days, whether the outside air was very cold or very hot, and whether it was dead calm or blowing a gale.

Reviews.

DISEASES OF THE SCALP

DR SABOURAUD has now published his fourth volume of the *Maladies du Cuir Chevelu*. To the uninitiated it would seem an enormous—almost an impossible—undertaking to fill four volumes with an account of the diseases of the scalp alone. Sabouraud, however, states that the complete treatise which he has projected will extend to six, and his admirers will hope that he may be permitted to complete his allotted task. The fact is that the diseases of the scalp form for the author merely a text on which to hang his long and ingenious researches on all the infective diseases, fungoid or bacterial, which afflict the human cutis. Every student of dermatology is aware of the way in which he has cleared up the problems of ringworm and impetigo. The present volume¹ he has devoted to the pustular infections, and there is a certain amount of repetition of work which has already been recognized as established—for example, the streptococcal origin of impetigo contagiosa and the method (for which we are indebted to Griffon) of cultivating the streptococcus from the primary vesicles of the disease are all demonstrated over again. Thus, however, is necessary in order to complete the proper account of the disease from every aspect, as is fitting in a monumental treatise, moreover, we find here by far the best clinical description of impetigo in all its forms and variations that we have ever seen.

The tendency in general of Sabouraud's work is to show that many dermatoses hitherto unsuspected are due to bacterial infection, whether streptococcal or staphylococcal. Among others, that troublesome condition in which the scalp is universally inflamed and covered with greasy crusts more or less adherent to an erythematous and weeping base, the erythema extending beyond the margin of the hair, Sabouraud shows is probably a chronic streptococcal infection. In this volume the various staphylococcal dermatoses are also discussed in great detail, including the relations and distinctions between scrofula and acne necrotica. A puzzling point, noted but not explained, is the great tendency of scrofula to become chronic although the seat of the infection is extremely superficial. Another important subject dealt with in these pages is eczema. Sabouraud contrasts the polymorphic clinical appearances with the histological unity of the various forms. He is, however, as might be expected, chiefly concerned with the secondary microbic complications of that condition, a subject which, as he remarks, is difficult owing to the lack of specificity of the microbes living on the cutaneous surface and to the ease with which contamination takes place. Among other dermatoses discussed is the well-known pityriasis rosea, which he classes as one of the eczematides. But it is very difficult to do justice to the author's arguments within the compass of a short notice. Every dermatologist should read this book for himself. He will find it fascinating.

PSYCHOPATHOLOGY

A VOLUME entitled *Hypnosis*² is a translation from the German of a monograph by Professor PAUL SCHILDER and Dr OTTO KAUDERS of the Psychiatric Clinic, Vienna. We do not hear so much about hypnosis as a therapeutic weapon as formerly, but there can be but little doubt that it is useful in the treatment of a number of morbid conditions. The authors state that it has considerable value in the treatment even of organic disease, since apart from the question of whether psychotherapy can or cannot affect the fundamental trouble, it will be in a position to attain important results by influencing the individual attitude. The limitations and possibilities of hypnotic treatment are considered in organic illnesses, neurotic disturbances, drug addiction, sexual perversions, disturbances

of potency, and the psychoses. Apart from the question of therapeutics, the phenomena of hypnosis are themselves deserving of investigation. The authors here deal with their subject from both the biological and psychological standpoints, pointing out that in the last analysis the results of each of these methods of approach to the same problem should harmonize with one another. In successive chapters the following subjects are discussed: the effects of hypnosis, sleep and hypnosis, the state of consciousness of the hypnotized, the suggestive relation, the psycho-analytic theory of hypnosis, hypnosis as a social phenomenon, and the physiological theory of hypnosis. The psychopathologist will find this volume useful and informing. It provides a clear account of the most recent work on the subject with which it is concerned, and admirably combines biological conceptions with the recent conceptions of psycho-analysis.

At first sight it might appear somewhat unsuitable to include Dr LELY JELLIFFE's monograph on *Postencephalitic Respiratory Disorders*³ under the heading of "psychopathology." Disorders of behaviour are often observed as a sequel to acute lethargic encephalitis in children, but the remarkable respiratory disturbances occurring as post-encephalitic symptoms are generally regarded as conditioned by disease of the respiratory mechanism rather than by psychological factors. Dr Jelliffe does not deny that these respiratory syndromes are related to neurological lesions, he gives, indeed, an excellent summary of the various hypotheses which have been advanced to explain the respiratory disorders. He suggests, however, that these morbid reactions have also psychological determinants, and endeavours to interpret them along psycho-analytic lines as libidinous regressions to primary organ eroticism. In support of this thesis he gives case histories of two patients who derived apparent benefit from treatment by psycho-analysis. Thus for the author these respiratory symptoms present a problem which is at least as much the concern of the psychopathologist as of the organic neurologist. Dr Jelliffe writes obscurely, and it is doubtful if his formulations will carry conviction. At the same time the neurological sequelae of lethargic encephalitis do often appear to be influenced by psychological factors, and we should not be disposed to deny that psychogenesis plays a part in the causation of the respiratory symptoms or that psychotherapy may be helpful in their treatment. The book contains a valuable summary of the literature.

The thesis developed by Dr TRIGANT BURROW in his book on *The Social Basis of Consciousness*⁴ is somewhat difficult to grasp, but we believe it is not without significance. The basis of his essay, the writer explains, is precisely the recognition of the impossible breach between the condition of consciousness produced through a knowledge about feeling and the condition of consciousness that is the feeling itself between the state of mind that is commentative and the state of mind that is functioning. The former is objective, the latter subjective. The failure of our psychological methods to recognize this intrinsic distinction is, so Dr Burrow considers, the failure of our entire approach to the problems of mental and social disharmony. He feels, furthermore, that it is this unwitting substitution of the theory of human feelings for the unannotated experience of the experiences themselves as recorded in our interactive functioning as human beings that explains the impossibility of our present "method" of psycho-analysis. The author is of the opinion that to-day, under the impetus of psycho-analysis in its theoretical or vicarious form, we are carrying theory to the point of absurdity. He gives as an example the psycho-analytic theory of the nursery. Anxious young mothers are running about looking for texts which will serve them as guides in the love of their children. They

¹ *Pyodermites et Eczémas Maladies du Cuir Chevelu*. IV. Les Maladies suppuratives et exsudatives. Par le Dr R. Sabouraud. Paris, Masson et Cie. 1928. (Sup. roy. 8vo pp. 284. 149 figures. 60 fr. sans majuscules.)

² *Hypnosis*. By Professor Paul Schilder, M.D., Ph.D., and Dr. Otto Kauders. Translated by Simon Rothenberg. Nervous and Mental Disease Monograph Series No. 46. New York and Washington: Nervous and Mental Disease Publishing Company. (Med. 8vo pp. 118. 2.50 dollars.)

³ *Postencephalitic Respiratory Disorders*. By Smith Ely Jelliffe, M.D., Ph.D. Nervous and Mental Disease Monograph Series No. 45. New York and Washington: Nervous and Mental Disease Publishing Company. (Med. 8vo pp. ii + 125. 2.50 dollars.)

⁴ *The Social Basis of Consciousness*. By Trigant Burrow, M.D., Ph.D. The International Library of Psychology, Philosophy, and Scientific Method. London: Kegan Paul, Trench, Trubner and Co. Ltd. (Demy 8vo pp. xlii + 256. 12s. 6d. net.)

are diligently searching upon every hand for the latest approved theory of maternal love. And in response to the demand the popular literature is supplying them with full details. But there are no librettos of the nursery. Benedek's to motherhood are not to be had. The motherhood that is true is a subjective relationship, and it is only subjectively that it can be felt and understood. The case is cited of a patient whose mother, actuated by the theory of motherhood in its highest "scientific" interpretation, undertook to enlighten her upon the significance of sex. The mother having gathered courage for the performance of her maternal duty, delivered her message with a punctiliousness which from the point of view of technique was irreproachable. She spoke out of the strictest regard for the theory of motherhood. But unfortunately her theory left out of account an item that needs to be reckoned with—namely, the native simplicity of the consciousness of childhood. The woman spoke out of the theory of truth, but her child listened with the organic susceptibility of truth itself. The mother had not accepted within herself the actual significance of life, and so, in accordance with the formality of a theory, was viciously imposing its acceptance upon her child. But childish perception pierces the veil of pedagogic finesse. The rigid demeanour of her instructor readily disclosed the discrepancy between the verbal recital and the utter lack of conscious acceptance within herself. For the child, now a middle-aged woman, the moment was unforgettable. She had witnessed in her mother an outrage to organic truth, and the shock of that experience caused a psychic disunity between mother and child from which there resulted an introversion of personality that covered half a lifetime. And so, the author observes, while the theory of the nursery is from the point of view of theory wholly irreproachable, it is from the point of view of the nursery wholly absurd. This quotation will serve to indicate the kind of idea which it is the aim of the author to elaborate. The book is not easy reading, but it is full of psychological insight and in the opinion of the reviewer well repays careful study. Dr Burrow is clearly both enthusiastic and sincere

THE BLOOD PLASMA

In *The Blood Plasma in Health and Disease*,* one of the Monographs of Medical and Surgical Science, appearing under Professor R. J. S. McDowall's editorship, Dr J. W. Pickering, lecturer on haematology in King's College, University of London, has done good service by giving a full account of the present state of knowledge about this constituent of the blood, which has certainly attracted less general attention than the histological characters and embryological origin of the contained cells.

Though attractive on account of its potentialities, investigation of the blood plasma is, from its constantly changing character and constituents, beset with difficulties. William Harvey believed that the blood is a living tissue. In 1886 Woodbridge reiterated this hypothesis to the extent of saying that the blood plasma is a living fluid, this might be considered compatible with the view that the various proteins which can be obtained from it are artefacts. In suggesting general conclusions, Dr Pickering has wisely adopted the broad principle of doing so only when the physico-chemical and the biological phenomena point in the same direction, for example, he holds that normal plasma is not a mixture of different colloids, but a co-ordinated complex in which the less stable fractions (prothrombin and fibrinogen) are united to the more stable fractions (serum globulin and albumin), and so protected from the disruptive action of calcium ions, which is essential for the inception of blood clotting. It cannot yet be said to be established that the plasma is a living substance, or that thrombosis is allied to necrosis.

The immense subject of the coagulation of the blood is systematically and thoroughly gone into, the condition of the blood in anaphylactic and anaphylactoid states, in which there is plenty of pro-thrombin and an almost complete absence of thrombin, is dealt with, and in the chapter

on the blood of abnormal bleeders the characters of haemophilin and purpura haemorrhagica are fully considered. In an appendix there is a useful synopsis of the newer haemostatic agents. In conclusion, this well-documented monograph provides a valuable source of reference on a subject of much difficulty from a scientific aspect, and gives a considerable amount of practical information in regard to treatment.

VILLOUS TUMOUR OF THE RECTUM.

That the villous tumour of the rectum is a definite entity, with features that distinguish it from adenoma on the one hand and cancer on the other, is an opinion which is supported by both its clinical history and pathological anatomy. Dr ANDRÉ LAMBLING's book* gives a good description of the architecture of the villous tumour, its symptom-complex and proper treatment. The histories of his thirty-seven cases prove that the patient suffering from a villous tumour of the rectum is not likely to have his malady correctly diagnosed until he has become impatient with the palliative treatment offered for supposed colitis or haemorrhoids. This is all the more regrettable, since the surgical treatment is relatively simple and can offer a good prospect of permanent cure.

But while welcoming the general educational value of this book, we cannot pass without criticism the author's classification of the villous tumour into a benign variety and one which from the first is malignant. The more cautious, and also more likely, opinion—that every malignant villous tumour was at one time in a benign stage, and that any benign villous tumour may ultimately become malignant—is unshaken by any of the author's arguments. We do not feel that the slight histological differences he describes between the two types have any great importance and validity, and we must also point out that the pathologist is venturing into very disputed territory when he professes to diagnose malignancy in the absence of the one unequivocal sign—namely, intrusion of atypical epithelium into regions where it should not be.

ST BARTHOLOMEW'S HOSPITAL REPORTS

THE sixty-first volume of *St Bartholomew's Hospital Reports* opens with one of the historical articles which Sir D'Arcy Power writes so pleasantly and with authority, in this instance he deals with Harvey's physiciancy (1609-43) at the hospital. At that time the hospital was a series of detached buildings clustered round a central hall, and one of the houses was available for the physicians, a privilege which Harvey waived, and he therefore received no increased salary. Of the seventeen other articles the first seven deal with the respiratory system, Professor F. R. Fraser writes, out of the fullness of his recent Goulstonian Lectures, on dyspnoea, Drs F. G. Chaudler and J. V. Sparks set out with skiagrams the diagnosis of bronchiectasis with special reference to the value of lipiodol injections, and mention a special trocar and cannula, suggested by the senior of the two contributors, for the injection of lipiodol through the crico-thyroid membrane—a procedure remarkably free from serious discomfort. In his well-illustrated account of collapse therapy in unilateral basal bronchiectasis Mr J. E. H. Roberts urges early operation before the disease has become bilateral, as at this stage operation is reasonably safe and the prospects of considerable improvement or even cure are good. Artificial pneumothorax is considered in two articles by Drs F. H. Young and by R. Hilton, and Dr C. L. Hewer writes on anaesthesia in thoracic operations. Mr McMahon pleads for the early use of exercises after operation for emphysema. There are three articles dealing with the nervous system, Mr Just records two cases of cystic serous meningitis of the posterior fossa of otitic origin, Dr E. A. Carmichael of the Medical Professorial Unit gives a good account of the cerebro-spinal fluid in diseases of the ear and nose, and from the Surgical Professorial Unit Mr J. P. Ross records cases of intracranial injury

* *The Blood Plasma in Health and Disease*. By J. W. Pickering. D.Sc. London Monographs of Medical and Surgical Science. London: William Heinemann (Medical Books) Ltd. 1928. (Demy 8vo pp xi + 247. 12s. 6d. net.)

* *Les Tumeurs Villieuses du Rectum*. Par André Lambling. Paris: Masson & Co. 1928. (64 x 10 pp 118. 15 figures. 18 fr sans majoration.)
* *St Bartholomew's Hospital Reports* vol. lxi. London: J. Murray. 1928. (Demy 8vo pp xxv + 260. 39 illustrations. 21s.)

interesting on account of diagnostic features or treatment Mr J B Hume presents the report of the committee on the lead treatment of cancer, this investigation was carried out on twenty patients, but no evidence pointing to the value of the treatment was forthcoming, and the conclusions are highly unfavourable to this method of treatment Mr J P Hosford analyses 50 cases of acute osteomyelitis, 29, or 58 per cent, of these being due to *Staphylococcus aureus* infection Mr A E Roche contributes a valuable essay on torsion of the spermatic cord, of which he has had a rather unusual experience Mr R T Pynno writes on the therapeutic thrombosis of varicose veins from an experience of 75 cases treated by sclerosing injections of quinine and urethane The interest of the volume is kept up by the records of cases of rat-bite fever, heart-block, and femoral aneurysm

NOTES ON BOOKS

DR. O W BETHEA has taken the latest and most generally accepted information on the diagnosis and treatment of about one hundred of the most common medical diseases, and produced a volume entitled *Clinical Medicine*.⁸ He seeks especially to give such information as will be of use to the general practitioner working neither in the homes of the wealthy nor in the fully equipped hospital. From this point of view of practicality much of the book is very useful, although the detailed information about what gramophone records are most suitable for hysterical patients (p 575) seems a little absurd. The method of choosing certain diseases is open to criticism, for it results in such anomalies as hyperthyroidism being mentioned and cretinism omitted, the treatment of leprosy being discussed while syphilis is barely mentioned. The author states that unproven theory has been omitted almost entirely, and this explains why much of what is written on etiology is unsatisfactory. The section on acute endocarditis appears very muddled in this respect. Of bronchiectasis he says (p 94) 'This is a condition peculiar to middle life and old age. The condition is secondary to other diseases, such as tuberculosis and chronic bronchitis, and then gives an inaccurate picture of the etiology of this disorder. As a collection of clinical lectures (which, as the author admits, is what is here presented) the book has some value, but the general impression left is that the author has been too ambitious.

Dr JUDSON HERRICK, in the fourth edition of his well known and invaluable *Introduction to Neurology*,⁹ has rewritten the chapters on the cerebellum and on the sympathetic nervous system. The author does not approve of the terms parasympathetic, splanchnic, or autonomic, and does not use them. His visceral nervous system includes all nervous, whether central or peripheral, primarily serving the visceral functions. The sympathetic system is used as a topographic name for the peripheral ganglionated trunks and plexuses. The section dealing with the cerebellum is well done, especially considering the brevity of the chapter and the confusion of cerebellar nomenclature which exists.

Dr PHILIP LEWIN of Chicago has written *A Text book of Orthopaedic Surgery for Nurses*.¹⁰ There is, of course, nothing in it that may not be found in the standard works on orthopaedics, but the subject is briefly and simply dealt with, and no doubt the book will be welcomed by those for whom it is intended, and the nurses who master it may hope to feel themselves in a position to appreciate and perhaps to criticize the diagnosis and treatment of the surgeons with whom they work.

Physical education seems, at all events in America, to be developing into a science, and it is not surprising therefore, to find that the Teachers College of Columbia University, New York, already has a professorial chair in the subject, and that the professor, Dr I F WILLIAMS, has felt called upon to publish a book, *The Principles of Physical Education*,¹¹ on the scientific facts underlying physical education, together with its developmental, preventive, and educational aspects. Unfortunately Dr Williams is a ponderous writer, with a confirmed

habit of repeating himself on every other page. He cannot get away for a moment from his main thesis—that the function of physical education is primarily education, and that it is not a method for securing health. He is contemptuous of Swedish exercises, calisthenics, and other formal exercises imported into America by immigrants. Such exercises were suitable, perhaps, for effete, militarized communities in Europe, they are not compatible with the ideals of a free democratic society. He wants a program for developing educational activities of a natural kind out of doors, rather than therapeutic corrective exercises in the classrooms of the school. He dislikes the assumption that the child, on entering school, does not know how to breathe properly, and needs oxygen and breathing exercises. There is probably some truth, if not good English, in his statement that the majority of children enter on their teens with round backs, and in most of them it has disappeared in the next half dozen years. For the development of

certain motor habits that reflect neuron organizations in the nervous system, Dr Williams advocates games, beginning with those that are related to the individual's instinctive organization, such as running, jumping, throwing, hanging by the arms, and so on. Later on education will proceed to swimming, football, baseball, camping, fishing and hiking. In this country the need for a professor of physical education has hardly arisen as yet, but it appears that the authorities of our primary schools agree with the author that for physical development games are preferable to formal hygienic exercises.

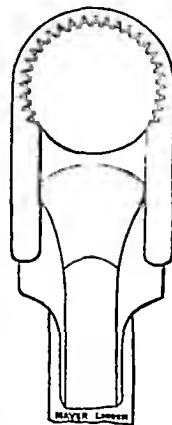
The fourth edition of the *Chemical Encyclopaedia*¹² by C T KINGZETT, is some 200 pages larger than the previous one, which appeared in 1924. The book is an epitomized digest of chemistry and its industrial applications. The bibliographical side has received special attention, and an immense amount of condensed information is made available. There is little doubt that the popularity of this edition will exceed even that of its predecessors.

¹² *Chemical Encyclopaedia* By C T Kingzett F.I.C., F.C.S. Fourth edition. London: Baillière Tindall and Cox 1928 (Med. 8vo pp vii + 638 35s net.)

PREPARATIONS AND APPLIANCES

A 'NON-SKID' GUILLOTINE HEAD

MR O POPPER F.R.C.S., first assistant Royal Ear Hospital, University College Hospital, writes. It is a remarkable fact that perfect enucleation of tonsils by the guillotine fails so often even if immaculate technique is not infallible. One sees failures ranging from the small piece of capsule which has been 'buttonholed' to an almost complete tonsil remaining as rests in one or both tonsillar fossae. Complete rotation or inversion of the tonsil through the guillotine ring is the secret of perfect enucleation. When this has been effected and the new position of the tonsil is sustained by counter pressure the rest of the operation becomes automatic. During this inversion the end of the guillotine head becomes the fulcrum around which the tonsil is rotated and the instrument is held rigid. Here there is a great tendency for the lateral and posterior portion of the tonsil to slip back or 'skid' out of the ring, especially where the tonsil is flat, buried or fibrous—the so-called 'difficult' case. Particularly is this liability great when the blade is being driven home and finger pressure above the tonsil is slightly eased to avoid the blade. Furthermore, where the guillotine head is thin and frail it invariably becomes bent or otherwise injured very early in its career. In consequence the blade does not go home completely and part of the tonsil or capsule slips back through the gap. A more robust type of end is therefore indicated where the surgeon does not care to carry a large selection of guillotines or to be obliged to supervise his instrument most carefully especially when it is being thrown into the sterilizer. To counteract the tendency of the tonsil to skid or slip back I have found the guillotine head illustrated most effective. The inner ring margin at the upper surface is sharp and serrated in its distal half, the projections being miniature chisels which are undercut, note that this edge bounds the opening of the ring and is therefore not quite at the end of the head. The guillotine head is placed behind the tonsil in the usual way. As the tonsil is pressed over this edge it is securely anchored and cannot slip back. There are many types of excellent guillotines and the selection is a matter of individual taste with regard to such characteristics as weight, handle and grip. I would recommend the incorporation of the 'non-skid' head so as further to increase its efficiency. The advantages are briefly: (1) There is no skidding; it anchors the tonsil during the most important part of the operation. (2) It does not interfere with the usual technique of the operation. (3) It occupies no extra space and can be incorporated in the instrument usually employed. (4) It makes enucleation easy in the difficult cases. (5) The head is robust.



⁸ *Clinical Medicine*. By Oscar W Bethea MD, Ph.G F.R.C.S. F.A.C.P. Philadelphia and London: W B Saunders Company 1928 (6 x 9 1/2 pp 703 6 figures 35s net.)

⁹ *An Introduction to Neurology*. By C Judson Herrick. Fourth edition thoroughly revised. Philadelphia and London: W B Saunders Company 1927 (Post 8vo pp 406, 140 figures. 12s 6d net.)

¹⁰ *A Text book of Orthopaedic Surgery for Nurses*. By Philip Lewin MD F.R.C.S. Philadelphia and London: W B Saunders Company 1928 (Demy 8vo pp 355 161 figures. 15s net.)

¹¹ *The Principles of Physical Education*. By Jesse Felting Williams A.B. MD Philadelphia and London: W B Saunders Company 1927 (Post 8vo pp xxv + 481 25 figures. 14s net.)

LUNACY AND MENTAL DEFICIENCY

THE BOARD OF CONTROL'S REPORT FOR 1927

IN the fourteenth annual report of the Board of Control,¹ of which the mental deficiency section was noticed in our last issue (p. 670), regret is expressed that it has not yet been found practicable to give effect to the recommendations of the Royal Commission on Lunacy and Mental Disorder and to introduce legislation to facilitate early treatment of mental disorders. It is a pity that, so far, lack of parliamentary time has prevented a matter of such urgency from receiving due consideration. At present the great majority of victims of mental disorder cannot obtain institutional treatment until they have been certified insane. This means in effect, that they cannot receive the advantages offered by the modern development of psychological medicine at the stage of their malady when they can best derive benefit from them. The Board expresses the view that adequate treatment of the early mental case demands a relaxation of the legal necessity for certification as a pre-requisite of treatment, and a reconsideration of the extent to which, in such cases, the intervention of a judicial authority is essential.

The Problem of Accommodation

The problem of accommodation is becoming each year more acute. The number of notified and insane persons under care in England and Wales on January 1st, 1928, was 138,293, an advance of 1,667 over the number in the preceding year. The average annual increase for the past five years has been 2,403. These figures must not be taken to imply an increase in the general incidence of mental disorder; they represent merely the net balance of admissions into institutions over the deaths and discharges. But in January, 1928, the total vacant accommodation in all the county and borough mental hospitals was only 1,570—a sufficient indication of the present critical situation. The reopening of the Fwell Colony in 1927, and numerous further small additions and rearrangements, provide for a further total of 1,326 patients, and it is estimated that at the end of the present year the number will have been increased by another 1,250. Such small additions, however, do very little towards easing the general situation, and energetic measures are necessary if serious overcrowding is to be prevented. So far only two authorities, Middlesex and Swansea and Merthyr Tydfil, are proposing to make good the deficiency by erecting new institutions. The erection of detached nurses' homes, now in progress, is welcomed not only as a measure relieving the strain on existing accommodation, but as one which, by attracting a better type of probationer, will enable the Board to raise the status of the mental nurse and the standard of mental nursing.

Movement of Patients

The statistical survey under this head excludes patients in Poor Law institutions and those receiving outdoor relief, detailed information about these classes not being available. The daily average number of certified patients increased from 115,166 in 1926 to 117,327 in 1927, the ratio of admissions per 10,000 of the adult population (aged 16 and upwards) was 7.66, a progressive decline being shown in the table of ratios from 1921 to 1927. The recovery rate, calculated upon the direct admissions, was 31.43 per cent, though, if to the number of recoveries are added those patients classified as discharged and not now insane, and those discharged after escape, the absolute discharges from reception orders during the year were 48.3 per cent of the direct admissions. The death rate was 7.49 per cent of the daily average number resident, the first rise in this rate since 1922.

¹ Lunacy and Mental Deficiency, Fourteenth Annual Report of the Board of Control for the year 1927. Parts I and II. London: H.M. Stationery Office or through any bookseller, 1928. Part I 1s. 9d. net. Part II 9s. net.

Infections and Allied Diseases

During the year there were 127 cases of enteric fever, with 30 deaths. It is gratifying to note that prophylactic inoculation against the enteric group of diseases is being used increasingly among both patients and staff. In the cases of a few carriers excision of the gall bladder has been effected, and their excreta have thereby been freed from the typhoid bacillus. An important relation between dysentery and the group of cases classified as severe diarrhoea is indicated in the report. It has been shown that the latter cases occur concurrently with outbreaks of dysentery, and that perfection of laboratory technique and the speedy plating out of specimens often result in the transference of these cases to the dysentery group. In 1927 there were 515 cases of dysentery, with 76 deaths. Reduction of the incidence rate of pulmonary tuberculosis has suffered a slight check, there being only 44 fewer cases this year, as against 185 the year previous. This may perhaps be accounted for by the far greater outbreak of influenza and acute pulmonary conditions in 1927 than in 1926, actually 5,503 cases as against 1,022.

Royal Bethlem Hospital

The revised scheme and plans for a new Bethlem Hospital have been approved by the Board. These plans embody the most modern principles of construction, and the hospital will consist of a number of detached buildings to allow of suitable classification and housing of patients. Provision is made for pathological, bacteriological, psychological, dental, electrical, and x-ray departments, as well as for an operating room. There will be accommodation for 300 patients.

Increased Suicide Rate

The granting of parole, which continues to be a great feature in good mental hospital administration, has been associated with an increased suicide rate, this being 69 as against the next highest record of 55. But such deaths among patients enjoying this liberty should not, in the Board's view, weigh against the great benefit gained by the 9,000 patients allowed parole within the hospital grounds and by the 3,200 who, in addition, can go unaccompanied for walks beyond the hospital limits.

Mechanical Restraint

The commemoration of the Pinel centenary has been made the occasion for an historical survey of the evolution of mechanical restraint in mental hospitals. Tribute is paid, not only to Philippe Pinel, but to the layman, Mr. William Inke, who inspired the foundation of the Retreat—the first institute in this country for the treatment of mental disorders without unnecessary restraint. The Board points out that the amount of physical restraint is so negligible that, although regular returns of such use are requisitioned, it finds in practice that all reference to the matter is frequently omitted from its entries.

Treatment of Post-encephalitis

The first part of the report concludes with a statement of the great need for an industrial home or colony for some few hundred juvenile post-encephalitic patients who might there secure tactful handling, clinical and laboratory investigations, occupations of interest, and remedial physical exercises with orthopaedic treatment. The hope is expressed that systematic observations of treatment of all types of mental disorder may be kept so that greater precision in prescribing such treatment may ultimately be attained.

Research and Statistics

The second part of the report opens with a brief summary of the scientific research work that has been carried out in mental hospitals during 1927. This is followed by seven appendices devoted to a series of statistical tables giving the annual returns of insane persons in institutions, the annual returns of voluntary boarders, and the entries by commissioners at the various types of mental hospitals and licensed houses. It contains also complete lists of institutions for the insane and for mental defectives.

British Medical Journal.

SATURDAY, OCTOBER 20TH, 1928

THE HARVEIAN ORATION

THE task of the Harveian Orator becomes, almost necessarily, more and more difficult in each succeeding year. The latest of a long series of students and essayists, he is set a text which has been expounded again and again, and to this well worn topic he must strive to bring, if haply he may, some new light or some new suggestion. On the present occasion this inevitable stress must have been heightened by the fact that the Royal College of Physicians of London, to which the Oration is addressed, heard during the recent tercentenary celebrations many informed and eloquent tributes paid to the memory of the very man in whose honour the Harveian Orator is himself called into existence. To be summoned to provide a contribution capable of arresting the attention of an audience that has already listened to much discourse is a large demand presented in decidedly trying circumstances. Not unexpectedly Sir Humphry Rolleston has met the occasion in a worthy fashion. His Oration possesses an individual and distinctive quality which will certainly secure for it a recognized position among the many tributes paid to the character and work of the great physician whose memory it is alike the duty and the pride of the Harveian Orator to honour. In a brief phrase the Oration may be said to define our existing knowledge of the physiology and pathology of the cardiovascular apparatus, and to trace the steps by which this knowledge has been attained.

On many previous occasions the Harveian Orator of the day has not unnaturally found a text in the character or work or methods of William Harvey himself, or in the personal, academic or philosophical relations associated with Harvey's name and time, and the series now at the 272nd number includes many stimulating and fascinating studies of this order. Sir Humphry Rolleston has utilized his opportunity in a somewhat different fashion. His starting point, indeed is Harvey, but his theme is the story of the workers who touched more or less by the inspiration of the Master have added their individual contributions to the body of physiological and medical doctrine that has its foundations in Harvey's great discovery. To recall these contributions and their authors is to witness to the praise of him who made so much possible and indeed inevitable. One purpose of the Oration as desired by Harvey himself is to commemorate all the Benefactors of the College and as happily argued by the present Orator can any benefaction be more welcome than new and true knowledge? The list of those now commemorated is both a long and a varied one, and its compilation has evidently meant much care and time and devoted industry. Doubtless there are others who have no memorial but broadly we have here a carefully summarized presentation, extending over some three centuries of the thought and study and experience of physicians and physiologists who, provided with certain great fundamental truths by the work of Harvey, have made each for himself some more or less important addition to the growing body of knowledge. If the beginning was a great and new departure it was also an inspiration for the

future, and in this respect, as Sir Humphry Rolleston shows, it has not been wanting in fruitful success.

A reader of the Oration as it appears in our opening pages this week can scarcely fail to be impressed by the intricacies and complexities of what at first sight might well appear to be a comparatively simple and straightforward physiological problem. The heart and blood vessels have often been presented as a mechanism governed by well defined physical laws, and roughly and leaving aside the nature of cardiac force, the picture is not an untrue one. But how conspicuously has investigation shown that this apparent simplicity hides a thousand complexities of detail and how gradual has been the recognition and interpretation of the problems which such details involve! To-day's textbooks of physiology read strangely to those who were medical students but a few short years ago, and this statement applies even to such large issues as the fashion of cardiac action and the part played by the capillaries in the working of the circulatory mechanism. Undifferentiated muscular masses stirred to activity by nerve currents, much in the manner of the skeletal muscles, have disappeared in favour of specialized groups charged with individual functions and competent for automatic action, while the capillaries, formerly regarded as mere passive channels, are now seen to be vessels attuned to vary actively in calibre in accordance with local needs and further, such activity is found to be essential to the efficiency—and, indeed, to the very existence—of the circulatory process. More and more penetrating becomes the analysis and who will say that even now the final word has been spoken on every aspect of such a central problem as the physiology of the circulatory mechanism? To each generation completeness may seem to have been attained but every to-morrow brings its new and disturbing challenge.

If what has just been said is true on the plane of physiology, it is true with emphasis when pathological disturbances of the circulation have to be considered. Here the problems are more intricate and more complex and the methods necessary for their exact study are but of yesterday. Simple, direct clinical study, as Sir Humphry Rolleston notes, while observing and recording many facts, has largely failed, though cultivated diligently by highly competent minds, to find the scientific meanings of the facts and not infrequently has been associated with speculative views that time has contradicted. It is in the nature of things that experiments, made in circumstances where conditions can be commanded and controls established, will give confident answers to precise questions in a fashion that cannot be expected from the processes of disease as these present themselves to the student of clinical medicine. Thus the experimenter may seem to secure what the physician has failed to accomplish. The latter however, is not without his consolations. After all the purpose of the physician is not at all events primarily the establishment of scientific generalizations but the care of the individual patient and when he accomplishes this appealing task he more than justifies his existence, though this is not to say that he has not often cultivated and reached wider ambitions. Indeed, Sir Humphry Rolleston in his comprehensive recital, tells us of many such ambitions and many such triumphs and these not unworthy at least in spirit, to be quoted in the series of which Harvey himself was the true begueter.

For my knowledge which will contribute to his efficiency—whether provided by the experimental or

the doctrinal physiologist—the physician is, of course, duly grateful, and he may reflect, not without satisfaction, that he has on not a few occasions discovered problems for his more exact colleagues to solve, and has even thrown helpful light on these problems. The Harveian Oration for 1928 illustrates these propositions, and emphasizes both the inseparable union between physiology and medicine, and also their mutual helpfulness. Each in its own way contributes something to the common aim—the discovery of truth and the prevention and cure of disease.

BACKACHE.

THE importance of the symptom long known as backache, and more recently in the United States called low back pain, has won recognition very slowly. That it has done so at all is chiefly due to the Boston group of orthopaedic surgeons, and especially to Goldthwait, who for years has upheld the view that, although very many cases of chronic pain in the lumbo sacral region are due to faulty posture, many others are the result of serious anatomical derangement of the bones and joints of the spine and pelvis. Of late years this view of the pathology of back pain has gained ground in the United States, and more slowly and cautiously in this country, but it cannot yet be asserted that the majority of British surgeons accept the frequency of such an injury as subluxation of the sacro iliac joint as a proven fact.

This attitude of caution and scepticism has much justification, for it is extremely difficult to demonstrate the existence of displacement of bones in such cases, and even more difficult for the surgeon or pathologist to satisfy himself that there is abnormal mobility in the sacro iliac joint. In the more accessible joints, such as the knee or the ankle, the reality of the offending lesion is as a rule easily ascertained, especially with the aid of x rays, for the articulation is not thickly covered with soft parts, and offers itself to radiations directed from any or every point of the periphery. In the lumbo sacral region the prospect is very different, for the parts are deeply seated, cannot be explored by x rays except on a few aspects, and the bones are peculiarly liable to developmental variations which may mislead all but the most experienced. Moreover, it has seemed to many readers of accounts of the diagnosis and relief of some supposed cases of sacro iliac strain or subluxation that the means employed to effect a cure were singularly disproportionate to the gravity of the supposed lesion. But in other cases, in which the gravity of the symptoms and the certainty or great probability of joint or bone injury justified operative intervention, an arthrodesis with or without a fixative bone graft effected a cure.

In opening the discussion, at the Annual Meeting of the British Medical Association at Cardiff, on low backache and sciatica, Mr W. A. Cochrane of Edinburgh (whose paper appears at page 696 this week) did not discuss such operations, but found plenty of material for debate in the diagnosis and bloodless treatment of the numerous cases, chiefly of injury, which too often become chronic and involve much suffering and prolonged disability. In this connexion he made the interesting statement that in one large works back strains and injuries of this type are responsible for 20 per cent of all accidents. Backache of traumatic origin may be the result of tearing of muscle or of muscular attachment, of ligament with or without joint injury, or of fracture of bone, or, in a severe injury of all these combined. Mr Cochrane did well to emphasize the frequency of often unsuspected crush fractures of

vertebrae, and to insist on the need of skilful use of x rays for their detection. It is not to be forgotten, too, that sciatica, which he included in his subject, as well as lumbago, may attack its victim with lightning like suddenness, thus earning the German name of *Hexenschuss*, or 'witches' shot'. It is conceivable that if such an attack were to occur during a considerable effort made by the patient its effects might be wrongly attributed to injury.

Attention has been lately concentrated so much upon backache resulting from sudden injury that there may be a danger of neglecting the consideration of those forms which follow slowly cumulative strain. Faulty posture is responsible for some of these cases, as Goldthwait has so clearly shown, and such posture is more often the result of defective muscle tone than the cause of it. With improvement of the general physical condition and training of muscle groups postural tone can be restored and backache cured. Another form, which Mr P. Jenner Verrall described and discussed at Cardiff, is the backache of pregnant women, which too often persists after pregnancy is at an end. The sacro iliac and also the lumbo sacral joints are subject to severe strains in even a normal pregnancy, and it is well known that the mobility of all the pelvic articulations is thereby increased. If from insufficient recumbency after labour, or want of recuperative power, the joints are not restored to their ordinary stability, much chronic trouble will persist. The proper treatment of these and other forms of low backache was well insisted upon by him and by others who took part in the discussion.

In an illuminating essay in the *Robert Jones Birthday Volume* Dr R. B. Osgood of Boston has recalled attention to the importance of chronic constipation as a cause of so called sacro iliac arthritis. The work which he has done on backache and allied troubles is well known, and his reputation gives weight to his statements. He gives details of four cases, which are the more striking because none of the patients was over 36 years of age, and one of them was a university athlete. All these were cured by relieving the intestinal overloading, which may, as Dr Osgood points out, exist in spite of daily apparently normal evacuations, and can only be detected by barium meals and frequent radiological inspections.

Less than a month before the discussion at Cardiff the seventy seventh annual session of the American Medical Association was held at Minneapolis, when Dr John T. O'Ferrall of New Orleans read a paper on low back pain,¹ in which he stated his opinion that too much attention had lately been paid to the effects, or supposed effects, of bone abnormalities, and not enough to injuries of the soft parts. In particular, he holds that the lumbo sacral joint is more often affected by injury than the sacro iliac, and that this consists in a strain of the ligaments of this joint. He agrees, however, with Dr Osgood in laying stress on the important part played by constipation in many cases of backache. It was well that this important subject should have been discussed at the annual meetings of both associations, and it is to be hoped that the publication of Mr Cochrane's paper will attract the attention of all British surgeons to the importance of the problem of the causation and cure of backache, and of the need for very careful and thorough investigation. When all has been done that can be done, we think it is likely to be found that there are many causes and many cures for these symptoms, but that the most important means of treatment is Hiltonian rest in the earliest stage.

¹ *Journ Amer Med Assoc* August 25th, 1928 p 532.

THE DISINFECTANT VALUE OF MERCUROCHROME.

The rapid and efficient disinfection of the skin preparatory to operations is of such great importance in surgery that it is very desirable to possess accurate information concerning the relative efficacy of the procedures at present employed. Tincture of iodine had been in general use for this purpose for many years, but mercurochrome has been recommended recently as a more convenient and efficient disinfectant. The relative merits of these preparations have been studied recently by American workers, but unfortunately their conclusions are contradictory. Simmons,¹ working in the Army Medical School, inbred bacterial cultures into the skin of rabbits, and one hour later painted on to a series of similar areas aqueous and alcoholic solutions of mercurochrome and tincture of iodine. After an interval of from five to twenty minutes cultures were made from the surface of the skin, and also from scrapings from the deeper layers of the skin. Reddish and Drake,² working in Baltimore, performed almost identical experiments with the same solutions, except that they used weaker suspensions and that they washed then skin scrapings from plating them out. Curiously enough, these two sets of closely similar experiments gave diametrically opposite results. Simmons reports that 2 per cent mercurochrome in aqueous solution was not effective in disinfection of the unbroken skin, and that the 2 per cent aqueous alcohol acetone solution was only slightly better; moreover, he found that 3.5 per cent alcoholic solution of iodine was more actively bactericidal on unbroken skin than any of the mercurochrome solutions tested, and that tincture of iodine (U.S.P.) was far superior to any of those solutions for use on the unbroken skin. Reddish and Drake found that tincture of iodine and 2 per cent mercurochrome were equally effective, and concluded that mercurochrome in aqueous alcohol acetone solution was far more desirable than tincture of iodine for preoperative skin disinfection. In the same number of the *Journal of the American Medical Association*, Captain Rodriguez³ of the United States Army Dental Corps reported on mercurochrome and iodine in the disinfection of the mucous membrane of the mouth and concluded that mercurochrome was too feeble an antiseptic to be used safely as a surface disinfectant of the oral mucous membranes, but that 1.75 per cent iodine in glycerin was an effective germicide. A gallant attempt is made, in an editorial in the issue of the *Journal of the American Medical Association* in which this work appeared to find some explanation for this remarkable discrepancy in experimental results. The dispute is of a type that not uncommonly arises when the merits of an old-established drug are compared with those of a new substance. The results, however, appear completely irreconcilable, and it is to be hoped that other workers will repeat the experiments, for the relative merit of tincture of iodine and mercurochrome as skin disinfectants is of considerable practical importance.

THE LEAGUE OF NATIONS AND OPIUM

THE Geneva Opium Convention of 1925 came into force on September 25th, 1928, it is now incumbent on the Council of the League of Nations to appoint a Central Board within three months, to undertake the prescribed duties in regard to international commerce in the substances covered by the Convention, and to arrange for the organization and working of the board and its staff. Provision had been made for the United States Government to appoint one member of the new Central Board, but, in accord with the attitude taken up at the Geneva conferences in 1924-25, from which the United States delegates eventually with-

dren, the Council's invitation to participate in the selection of the board has been declined. The reason assigned for this refusal is the inadequacy of the Geneva Convention in regard to limiting the production of raw opium and coking leaves to the medicinal and scientific needs of the world. The United States Government holds that until there can be devised some substitute for the Hague Convention more satisfactory than the Geneva Convention, the eradication of the abuse of narcotic drugs would be more likely to be achieved by strict observance of the provisions of the Hague Convention. The United States will, however, in addition to observing its obligations under the Hague Convention, endeavour to furnish information as the permanent Central Board may request. Meanwhile, at the recent meetings of the Council and Assembly of the League, considerable discussion was aroused by the proposal of the British Government mentioned in the *Journal of September 29th* (p. 578) to set up a fresh commission of inquiry to examine the conditions of opium smoking and the illicit traffic in opium in the Far East. Objection was taken by representatives of several countries to the expense with which such an inquiry would burden the League, and at first the proposal had a very cool reception. When the French representative urged that the investigation should include China, the Chinese delegate demurred unless, indeed, the inquiry should cover the commerce in derivatives of opium exported to China from European countries. This inquiry is deemed essential in view of the decision to hold a further conference on opium smoking in the Far East in 1929. It will be remembered that the Hague Convention of 1912 bound the contracting Powers to bring about the gradual and effective "suppression" of the commerce in opium "prepared" for smoking wherever the Geneva Convention made such suppression dependent on the prior elimination of smuggling. There can be no doubt that the trade in prepared opium, both licit and illicit, continues to flourish in the Far East. The Federated Malay States, the Straits Settlements, Borneo, and British North Borneo derive no inconsiderable percentage of their revenues from opium smoking. Further inquiry may be necessary, but action in accord with treaty engagements would seem to be urgently required.

CHANGES IN THE INCIDENCE OF DISEASE.

It is a commonplace that the incidence and the nature of diseases are slowly but continuously changing. To some extent the process appears to be evolutionary in the disease or the disease-producing organisms, sometimes, it seems, a new disease appears, as witness encephalitis lethargica (if, indeed, that is a "new" disease), but more frequently the cause of the change lies in the conditions under which we live. The progress of sanitation and the increasing activities of the public health services, the better education of the medical profession, and—what is more apparent—of the general public to appreciate the importance of the earlier signs of disease and the increased efficiency of our prophylactic precautions and therapeutic methods have combined together to effect great alterations in the statistics of national health, and in many cases have changed the complexion, and in some cases almost eliminated the incidence, of diseases which, only a few decades ago, might well be termed national scourges. In his presidential address to the Section of Ophthalmology of the Royal Society of Medicine Mr. Cyril H. Walker dwelt on this general trend of diseases as it has been apparent in diseases of the eye in his own locality of Bristol. He refuted the idea that the varieties of eye troubles found in an ophthalmic clinic are more or less constant, and that common diseases will always remain so, and showed that the incidence of some ophthalmic diseases

¹ J. S. Simmons. *Journ. Amer. Med. Assoc.* September 8th 1928 p. 704.
² G. F. Reddish and W. E. Drake. *Ibid.* p. 712.
³ F. E. Rodriguez. *Ibid.* p. 708.

is undoubtedly changing, and changing even more rapidly now than in the past. Leprosy, the scourge of the Middle Ages, has disappeared from England completely, largely through efficient measures of segregation of those afflicted with it. The most obvious change in comparatively recent times, of course, is the modern absence of blindness from small-pox. About 1840 half the inmates of the Bristol Blind Asylum owed their blindness to this disease, but it is now more than thirty years since any admission into the asylum could be traced to this source. The cause of this change is evident, it is due to the prophylactic influence of vaccination. A similar cause—the adoption of the prophylactic Ciedé treatment of the instillation of nitrate of silver into the eyes of newborn babies by nurses and midwives generally—has wrought a comparable though not as complete a revolution in the incidence of ophthalmia neonatorum, a disease until recently one of the most prolific causes of blindness. Since compulsory notification of this disease has been introduced its incidence has fallen steadily all over England. Mr Walker remarked that in his district there were 119 notifications in 1922 and only 39 in 1927, while the percentage of pupils who were in the Bristol School for the Blind on account of this disease was only about one-quarter of what it was fifty years ago, and many of these had so little visual defect that they would undoubtedly at that time have been educated in an ordinary school. A direct consequence of this was that gross corneal opacities and leucomata were less frequent. More efficient early treatment had made syphilitic nitis a rare disease, and similarly had lessened the incidence of interstitial keratitis. Mr Walker, indeed, made bold to prophesy that the latter, common to-day, would in ten years' time also become rare. So, too, with the ocular complications of diphtheria—the conjunctivitis, the ocular palsies, and so on—are almost unknown to-day. More efficient treatment and education as to its contagiousness have undoubtedly lessened the ravages, although by no means eliminated the incidence, of trachoma. Mr Treacher Collins in 1925 recorded that, while in 1874 42 per cent of the children in the Poor Law schools of London were found to be trachomatous, in 1924 the number of cases was 8. Such is the satisfactory result of the introduction of prophylactic measures, the early diagnosis and efficient treatment of early cases, the team-work of the profession, and the constant vigilance of medical officers of health and local authorities. Social conditions, the evils of slumdom and overcrowding, and the factor of a deficient or irrational dietary have a profound influence on the manifestations of disease. Dirt and neglect are the parents of conjunctivitis and blepharitis, sunlessness and improper feeding, of phlyctenular disease. As social conditions change, so also do these diseases. The squalor which was rife thirty years ago is not so evident to-day, the improved conditions of the poor since the war, and the shepherding action of the educational authorities, with their periodical inspections and the elimination of dental and tonsillar and adenoid infection, have undoubtedly lowered the incidence of these among the younger population.

THYROID DISEASE IN NEW ZEALAND

THE apparent, if not actual, increase of thyroid disease has stimulated investigation in various parts of the world, and the *Proceedings of the University of Otago Medical School*,¹ edited by Professor D. W. Carmalt-Jones, formerly on the staff of the Westminster Hospital, contains five reprints of articles, previously published elsewhere, on various aspects of the subject as visible in New Zealand. The first article, by Professor Carmalt-Jones, is a paper read before the

Royal Society of Medicine as recently as May last. This in effect gives a summary of the conclusions of the inquiry, which are set out in detail by Dr Hercus and his co-workers and by Dr A. M. Drennan, the professors of bacteriology and pathology respectively in the University of Otago, Dunedin. Simple and toxic goitre are frequent in New Zealand, and trout and lambs are also affected. The etiology of simple goitre is discussed with reference both to the results obtained in New Zealand and those which Dr Marine in North America and Colonel McCarrison in India have reported. From nearly 500 analyses of the soil for the iodine content, and of surveys with the same object of foods, and from the examination of school children, it appears that the incidence of endemic goitre in New Zealand varies inversely as the amount of iodine in the soil, and that the important factor is the iodine content of the food. Though infections are admitted to favour goitre, the influence of the water supply is found to be very small. According to Professor Carmalt-Jones, there are good grounds for the view that exophthalmos is an accidental event in toxic goitre, generally occurring in the hyperplastic and also in the graver cases, but no more essential to any one form of thyroid disease than is ophthalmoplegia in the diagnosis of tabes, he therefore includes under the term "toxic goitre" cases of Graves's disease and all cases with tachycardia, tremor, and increased basal metabolic rate. The prophylactic treatment by iodine and the danger of thus producing toxic goitre are carefully considered, and good results are reported from the daily administration of very minute quantities of potassium iodide in table salt, as had previously been done in Switzerland and North America. In February, 1924, at the annual congress of the New Zealand Branch of the British Medical Association, a resolution was passed urging the Government to introduce in endemic areas the use of "iodized salt," containing 1 part of potassium iodide in 250,000 parts of salt.

CO-OPERATIVE MEDICAL SERVICES

THE current issue of the *Co-operative Review* contains an article entitled "A co-operative medical service," by Mr N. J. Morton, to which attention may be directed as an example of proposals made from time to time, seriously enough and with the best intentions, to establish medical services in extension of, or intimately associated with, the national health insurance system, without apparently, the slightest knowledge of, or regard for, the opinions of the medical profession, and with very little appreciation of practical realities or established facts. Mr Morton has had some experience as a member of the West Riding Insurance Committee, but he has allowed his zeal as he secretary of an industrial co-operative society to outrun that experience. Among the proposals he makes as part of his co-operative scheme to provide a medical service similar to that established by the National Health Insurance Acts for "the wives and children of the workers at comparatively little extra cost," are some which are of at least questionable legality, some which would almost certainly involve the removal from the insurance medical list or from the *Medical Register* of the name of the participating practitioner, and others which would merely result in establishing once more the conditions of that old "club practice" from which the profession almost entirely rid itself on the enactment of the national health insurance scheme. A few of Mr Morton's proposals may be mentioned, and little further comment seems necessary: (1) A doctor for members of the society would be engaged "in the same way as we engage a manager, a secretary, or a chemist. There is a lot of prejudice in the case of doctors. It is time we were done with such prejudice.

The doctor would be under the committee of management of a society, and if he did not do the right thing

¹ *Proceedings of the University of Otago Medical School*, No. 5, 1928. Goitre Number. Edited by D. W. Carmalt-Jones, MD, FRCP, Dunedin N.Z. University of Otago.

he would be treated in the same way as other employees who do not give satisfaction" (2) "There would be no reason whatever why all members who are insured persons should not choose our 'co-operative' doctor, whose name would be on the panel in the ordinary way" "But in order to have as many as possible of our members who are already insured persons in the scheme, and so that the whole family may have the same doctor, I would make a rebate of 6s per person per year to each family whose insured members nominated our doctor as panel doctor, up to the number of two in each household"—that is, insured persons would be canvassed in favour of a particular doctor, with a monetary consideration as one inducement (3) "The doctor would receive for his entire services a really salary, and any income derived under the National Health Insurance Act as a panel doctor would be refunded to the society, so that in all probability we should augment our income by 9s 6d per head for all the members who had nominated our doctor as their panel doctor" This is reiterated and extended thus "Any earnings as an ordinary medical practitioner, or as a panel doctor, would come into the society's funds" The business astuteness of this bargain (assuming a practitioner willing to enter into it) need not be questioned The statistical statements and financial judgements of the scheme will not bear detailed scrutiny Thus there is an error in the statement of the number of insured persons a practitioner is allowed to accept, and the calculation of the number of items of attendance required is unreliable (4) For attendance on 6,000 individuals, "supposing we had to pay £750 for a really capable man, and £450 for his assistant," this "would still leave £535 per annum for administration expenses and extra services", but then the salary need not be fixed "on the basis of what a doctor who had built up an extensive practice might be making Hundreds of capable doctors have not an extensive practice I am informed that in the medical papers advertisements appear regularly for doctors at a salary of about £400 to £500 a year" Our profession may not be opposed to an extension of the benefits of national health insurance to the dependants of certain insured persons under proper auspices and conditions, but such a scheme as that outlined is a mere travesty of anything that could even begin to be considered by the law, the administration, or the medical profession

INDUSTRIAL HEALTH EDUCATION

SIR HUMPHRY ROLLESTON has accepted the position of honorary president of the Industrial Health Education Society, a body which had its origin in Scotland, but which has now for some time been established in London The society promotes its objects largely by the provision of health talks and the promotion of free discussion among industrial workers, the only questions which may not be raised at its meetings being those that relate to disputes between employers and employed A considerable amount of work has been carried out in the mining areas, and the Central Miners' Welfare Committee has made a grant of £500 for the extension of the society's operations into districts not yet covered A grant of the same amount has been made by the South Wales Welfare Committee, and others—in several cases repeating earlier assistance—in miners' welfare committees in Lancashire, Durham, and Northumberland Special attention has been given to bakers' dermatitis, and to health conditions in the boot and shoe industry, in the cotton industry, and in other trades The society has also published several leaflets on certain diseases, and is now extending the scope of its propaganda to include exhibitions of health films A notable feature of its meetings has been the lively interest displayed by workers in health matters, the invitation to

raise questions in this field has invariably provoked a ready response, and the discussions have brought out much valuable information regarding occupational diseases and their causes The work of the society has been actively supported by many general practitioners, a number of whom have lectured on its behalf, in addition to medical officers directly associated with industrial welfare work and medical officers of health The honorary secretary is Dr G Clark Trotter, and the secretary Mr J Mackenzie, 84, Kingsway, W C 2

A PHYSICAL TRAINING CENTRE

In its report and statement of accounts published this year the Royal Kensington Division of the British Red Cross Society gives a record of the progress made since October, 1919 The principal achievement of the division is the formation and maintenance of the physical training centre for civilians in succession to that started in 1919 for ex-service men under the auspices of the Ministry of Pensions The division has been entirely responsible for this centre, has worked for it, and raised the funds for its upkeep in the borough of Kensington alone The centre, which is in charge of two physicians, a fully trained sister, an almoner, and six full time and nine part-time massenrs, all fully qualified, places at the disposal of those who cannot afford the ordinary fees for private treatment the advantages of all kinds of physiotherapy, including massage, medical gymnastics, electrotherapy, and radiotherapy No patient is seen without an introduction from a medical practitioner, and doctors are requested not to send patients who can afford higher fees than the maximum charge of the clinic—that is, consultations 10s 6d, treatment 5s One great advantage of the centre is that it carries on its work during the evenings, thus enabling patients to take treatment without risk of loss of employment It also arranges, where necessary or advisable, for admission of patients to convalescent homes, for treatment and advice outside the scope of the clinic, for the provision of surgical appliances at reduced cost, and for x-ray examinations, either free or at nominal cost, at St Thomas's Hospital Some surgical instruments are made on the premises Additional work of the division is the training and examination of girl guides and members of girls' clubs, detailing of workers for first-aid duty at public exhibitions, hop-pickers' camps, etc., the formation of a depot lending medical requisites, and the establishment of a hostel for girls working in London A study of the tables of total patients treated and of the average cost of treatment during the period 1922-27 shows a continuous increase in the number of patients and decrease in the cost of treatment

THE Bradshaw Lecture before the Royal College of Surgeons of England will be delivered in the theatre of the College, Lincoln's Inn Fields, W C, by Mr C H Fagge, M S, F R C S, on Thursday, November 8th, at 5 p m The subject of the lecture will be "Axial rotation, purposeful and pathological"

SIR BERKELEY MOYNIHAN, Bt, P R C S, will deliver the Lloyd Roberts Lecture at the Manchester Royal Infirmary on Tuesday, October 23rd, at 4 15 p m, the subject he has chosen is "Some problems in gastric surgery"

VOTING papers in connexion with the election of two Direct Representatives upon the General Medical Council are being issued to day to all practitioners having registered addresses in England and Wales The joint election address of Dr J W Bone and Dr E K Le Fleming appeared in last week's Supplement, and a further list of their supporters is published this week

THE CAMPAIGN AGAINST TUBERCULOSIS

CONGRESS IN LONDON

THE fourteenth annual conference of the National Association for the Prevention of Tuberculosis took place, under the chairmanship of the Hon Sir ARTHUR STANLEY, on October 15th and 16th in the Great Hall of the British Medical Association House, Tavistock Square. The date of this event is usually midsummer, but this year it was put off until the autumn in order to coincide with the visit to London of between thirty and forty medical men representing the Canadian Tuberculosis Association, who have been undertaking a "scholarship tour" in Italy, France, and England. It cannot be said that, even with Canadian assistance, the discussions were well sustained, and the session arranged for the afternoon of the second day was abandoned.

Primitive Peoples and Tuberculosis

Dr R G FERGUSON, director of medical services of the Saskatchewan Antituberculosis League, gave an interesting lantern lecture on tuberculosis among the Indians of the great Canadian plains. He said that sporadic cases of tuberculosis among the plains Indians had been observed during the last seventy years, but not until 1884 did tuberculosis become so common as to assume the proportions of an epidemic. After the acute phase, which lasted less than two decades, the epidemic gradually subsided and the number of deaths slowly decreased, though even now, after forty-four years, the tuberculosis death rate among these Indians was about 800 per 100,000, or nearly twenty times that of the surrounding white population. There had been no loss of infectiveness following the epidemic, as shown by the fact that over 90 per cent of the school children reacted positively to tuberculin, nor had there been any apparent loss of virulence. He gave the results of a study of 147 families on the Qu'Appelle and File Hills reserves which had been traced through three generations. Only one family was found which had succumbed to tuberculosis alone, but five families had succumbed to tuberculosis alone except in the case of aged grandparents, and only three families had passed through the three generations without recorded deaths from this cause. Infusion of white blood by crossing was shown to have conferred increased resistance, resulting in decreased mortality, though not decreased morbidity.

Dr J J VASSIL, formerly director of health of French Equatorial Africa, sent a communication, which was read by his compatriot General JORDAN, on the conditions in French dependencies. He said that in the French colonies investigations during recent years, directed by Calmette, showed that in the oldest of such colonies there was to-day a tuberculosis mortality equal to that of France, colonies relatively new showed a steady growth of tuberculosis, while countries of the most recent French occupation still had regions and races almost immune. It was evident that when the primitive races, which had long been protected through isolation, came into contact with civilized races, infection occurred which assumed a severe and rapidly progressive form. It was not a question of greater or less susceptibility of race, no race escaped when submitted to contagion.

Professor LYLE CUMMINS, of the Welsh National School of Medicine, dealt with the position in Africa, where he had had two opportunities, separated by a long period of years, of studying the disease among the natives. During his earlier experience—about 1902—he went into the equatorial part of Africa and found primitive Africans who were, as far as he could ascertain, free from tuberculosis. Recently he had participated in an investigation among native miners of South Africa. A large number of South African natives now lived in territories where tuberculosis was endemic, and if the endemicity was of recent date there was great want of resistance to the disease. The spread of industry had altered the situation. The males left their native territories to go into industry on short contracts, there they worked with white miners, and infection spread among them. If they escaped infection their brief experience in the mining industry was beneficial to them, and they returned to their native settlements fit and

bettered in other ways, but some of them did develop tuberculosis, and others pneumonia and meningitis. Those who developed tuberculosis during the early months of their industrial experience got the disease in an exceedingly acute form. Professor Cummins reminded his audience of the imperial responsibility in respect of Africa, especially with regard to natives entering upon the physiological stress of industry. As for increasing the resistance to tuberculosis by means of inoculations, it could be said that, for natives from endemic areas, with a high percentage of positive tuberculin reactions, the applicability of BCG vaccine appeared to be restricted, where native labour was drawn from more primitive sources the opportunity of giving BCG vaccine a fair trial should not be missed.

Dr STEPHEN J MAHER (Now Havon, U.S.A.) produced evidence to show that in no form or another tuberculosis had always been a disease of the Indians of North America. Even in the wild these Indians had suffered from tuberculosis, and the doctrine that this was a curse which the white race had passed along to other races was false. He quoted from the collections of the Massachusetts Historical Society, among other sources, to show that before the English came among the Indians one of the two common diseases was consumption, the other being yellow fever. Dr A S LAMB, of the Provincial Department of Health, Victoria, B.C., described an investigation in British Columbia. Among the coast Indians active pulmonary tuberculosis affected a little over 5 per cent of the population, and other forms of tuberculosis, together with cases showing healed or non-active lesions, brought the proportion up to 10 per cent, probably ten times as great as the proportion among the whites. In the Indian reserves in the interior, where the climate was quite different from that of the coast, the proportion was practically the same as on the coast, though the relative proportion of non-pulmonary cases here was greater.

Anti-Tuberculosis Measures

The subject for discussion on the second day was "The principles underlying a scheme of anti-tuberculosis measures in any country." In the opening speech Sir ROBERT PHILIP, of the University of Edinburgh, said that the principles underlying an effective anti-tuberculosis campaign were simple and straightforward, yet their practical significance was far from being sufficiently apprehended. Many meritorious efforts against tuberculosis had suffered because of failure to give one or other principle its proper place, or from imperfect correlation of the several principles. These principles were (1) the morphological unity of tuberculosis in all its varying expression, (2) the essentially infective character of tuberculosis, necessitating that it be dealt with on the broad lines applied effectively to other infections, (3) the universality of infection (from this arose the recognition of the need for the tuberculosis dispensary, the tuberculosis officer, and the *caro communitate*), (4) the contraction of infection in childhood, implying the need for the scientific direction of preventive methods towards the infant, (5) the continuity of tuberculosis infection during life, and (6) the effect of environment on the course of the infective process, a study of which had led to the evolution of sanatorium methods of treatment. Had the lesson of the sanatorium been sufficiently applied in the preventive sphere? "If the tuberculosis officer and the family doctor," said Sir Robert Philip, "were constant in insistence on the re-creation of the home, and especially the nursery, on sanatorium lines, the danger of exposure to tuberculous infection and the consequences of such infection in childhood would be reduced to a minimum. When will education authorities face the facts and, instead of erecting special schools here and there for pronounced sufferers, boldly take the bull by the horns, and run all schools on those physiological lines which have proved themselves capable of placing developing life on a higher plane of existence?"

Dr J H HOLMROOK, a sanatorium officer of Hamilton, Canada, gave an account of the achievements in his area during the last twenty years, especially the establishment of a sanatorium which now served the whole province, and of a pre-ventorium for children. The result of the intensive work in Hamilton, carried out with the most hearty support of the community and the municipal authorities,

was that the death rate was now 49.5, which was lower than that of any other city on the American continent with 100,000 or more population.

Dr G. LISSANT COX, chief tuberculosis officer, Lancashire County Council, said that, reduced to the simplest terms, the principles which should govern anti tuberculosis measures were first, the application of preventive public health or social measures against this infective disease, secondly, the accurate diagnosis and treatment of the individual patient. The dispensary should be regarded as an organization, not a building, and the tuberculosis officer as its most important part. The Astor report recommended that the tuberculosis officer was to be in all cases a whole-time appointment, but at present there were nearly as many part-time tuberculosis workers (177) as whole-time (190), and few of these received the recommended salary, that equivalent to £500 pre-war. As to the tuberculosis dispensary area, here again, except in large county boroughs, like Birmingham, Sheffield, and Bradford, and a few counties, all with a high standard of anti tuberculosis work, the recommendation of the Astor report, that the dispensary area should contain not less than 250,000 population, had not been carried out. Notification in practice was not as perfect as it should be, and the speaker suggested that a Framingham experiment (that is, a systematic house-to-house search for tuberculosis, as made in one town in America) was called for in England, also periodic health examinations of the whole population, for until these were made a great number of very early cases would always go undiscovered. With regard to the institutional unit, the tuberculosis officer should be also in charge of a small hospital or of beds, and the medical superintendent of the larger institutions should be in charge of a small dispensary area. In this way there was no divorce between the dispensary and the institutional side of tuberculosis work. Sanatoriums should be kept small—not above 150 beds—and there should be a minimum for pulmonary tuberculosis of one adult sanatorium bed to 5,000 of the population, and one adult hospital bed to 6,000 of the population. Beds for children were additional—one to 24,000 for pulmonary cases, and one to 10,000 for non-pulmonary. "Let not the tuberculosis service be faint-hearted," said Dr Cox in conclusion. "Do not get side-tracked and run after every newly advertised panacea. Look at the splendid results in Sheffield and in Birmingham, where tuberculosis schemes exist under men of real ability. It is thro that the death rate has diminished by one-half and one-third in the last ten years. If you will give the tuberculosis service the means, this terrible scourge can be, and will be, conquered."

The remaining brief discussion was devoted chiefly to the recounting of administrative experiences, mostly having to do with housing in the localities of the speakers. The work in this direction at Middlesbrough and other places was described. As Sir ARTHUR STANLEY said at the close, every discussion of this kind in his experience had come back to the question of proper housing provision and the elimination of overcrowding. Sir JOHN ROBERTSON (M.O.H., Birmingham) warmly praised Sir Robert Philip's contribution, which he thought should be printed, perhaps in a rather more popular form, for the widest possible distribution. A Shore-ditch borough councillor said that the value of the new housing schemes was largely nullified by the increased cost to the wage-earner of getting to and from his work, and he begged that representations might be made to the Minister of Health with a view to some arrangement which could ease the burden. Dr J. H. ELLIOTT, President of the Canadian Tuberculosis Association, commented upon the absence of all reference to milk to stamp out this form of malady. He also emphasized the importance of medical inspection in schools with a view to the detection of early tuberculosis. Sir ROBERT PHILIP, closing the discussion, said that the whole purpose of his own contribution had been to point to scientific and therefore practical means of controlling and eradicating the disease. The work must proceed along biological lines, otherwise attempts at prevention would be a waste of time. He was of opinion that there should be no attempt at this stage to press for universal examination in this country, which he thought would be premature.

DINNER TO CANADIAN AND AMERICAN GUESTS

On October 16th the Joint Tuberculosis Council arranged for a dinner to be held at Verrev's Restaurant, at which over a hundred representative British tuberculosis workers acted as hosts to about forty of their colleagues from Canada and the United States. Sir HENRY GAUVAIN, who presided, was supported by Sir George Newman, Sir Robert Philip, Sir St. Clair Thomson, Professor Kenwood, and Sir Oscar Warburg, L.C.C. The chairman announced that, in response to a loyal message to the King, he had received a reply as follows: "The King has received with much pleasure the message of greeting which you have addressed to His Majesty on behalf of all present at your dinner to night, and thanks them for their loyal assurance. The King is glad to hear of the welcome accorded by the members of the medical profession to their colleagues across the Atlantic who are visiting this country for the purpose of attending the Congress of the National Association for the Prevention of Tuberculosis. His Majesty wishes you all God speed in your efforts to combat this scourge to the health and wellbeing of the community."

Proposing the toast of "The Guests," Sir HENRY GAUVAIN voiced the warm welcome which British medical practitioners engaged in the campaign against tuberculosis were glad to extend to their colleagues from the other side of the Atlantic, and commented on the great privilege which was theirs in entertaining representatives of a Dominion which had played such a valued part in the late war. He referred to the great service rendered by the Sun Life Insurance Company of Canada in making it possible for Canadian delegates to visit Europe, and expressed the hope that this meritorious act might receive the very favourable attention of British insurance offices. The toast was supported by Sir Robert Philip in a warm personal tribute, by Sir Oscar Warburg, who recalled the many joint ventures of Canada and Great Britain, by Dr Lissant Cox, chief tuberculosis officer for Lancashire, and by Dr C. O. Hawthorne, who voiced the greetings of the British Medical Association, and made mention of its coming visit to Canada two years hence. Dr Marcus Paterson, Dr Kelynnack, Professor Lyle Cummins, and Dr Jane Walker also spoke in support of this toast. Dr R. E. Wodehouse of Ottawa, secretary of the Canadian Tuberculosis Association, replied to the toast and emphasized the importance of the general practitioner in dealing with tuberculosis, especially when the battle had to be fought out in the home. He mentioned that the Sun Life Insurance Company had been in the habit of contributing annually and generously to the Canadian Medical Association, the donations rendered it possible to provide one- or two-day courses for practitioners in remote country areas. Dr Stuart Pritchard, who also responded, said that the time had come for the English speaking peoples to co-operate more closely. The toast of "The Hosts" was proposed by Dr W. J. DONNIE of Weston, Ontario, in a clever, witty speech. He remarked that tuberculosis recognized no international boundaries, and he hoped that very many of the hosts of that evening would be able to visit Canada in the future, when they would receive a very warm welcome. Replying to the toast, Sir GEORGE NEWMAN congratulated the Canadians on continuing to be pioneer adventurers of the British Empire. He believed that in no part of the world was the prospect of defeating tuberculosis better than in Canada, where an increasing population would find ample space for expansion for many years to come. Dr Ernest Ward, honorary secretary of the Joint Tuberculosis Council, also replied to the toast. Dr J. H. ELLIOTT of Toronto, in proposing the toast of increased prosperity to the Sun Life Insurance Company of Canada, made mention of the long history of this institution, and gave illustrations of its great value as a national organization, especially with regard to the prevention of tuberculosis and the improvement in the mortality figures. Mr T. B. MACAULAY, president of the company, in his reply, expounded the high ideals with regard to the promotion of health which inspired the various steps taken. He gave details of difficulties which had been overcome, and expressed confident hope with regard to increased activities in the future.

INTERNATIONAL SOCIETY OF MEDICAL HYDROLOGY

ANNUAL MEETING IN ENGLAND

THE International Society of Medical Hydrology held its annual congress in England from October 9th to 17th. The first three days were spent in London in a series of discussions and other events, after which the members visited Harrogate, Buxton, Droitwich, and Bath. At least nine European countries and the United States were represented, and French and German were heard in the discussions more frequently than English. A noteworthy visitor was Professor Umberto Gabbi of Parma University, who was president of the gathering when it met last year in Italy, and who came by air direct from a congress at Turin, leaving again by air two days later to attend a congress in Rome. The president this year was Lord Dawson of Penn., and the vice-presidents were Dr. W. Edgecombe, Dr. C. W. Buckley, and Dr. Rupert Watkinson, of Harrogate, Buxton, and Bath respectively. The genius of the meeting was Dr. Portescue Fox, chairman of council, who combined with a talent for self-effacement a remarkable skill in handling an international occasion.

The proceedings began with a conversation at the Royal Society of Medicine on the evening of October 9th, by invitation of the Section of Balneology and Climatology. The guests were received by Lord Dawson, president of the Society, and Dr. G. L. Kerr Pringle, president of the Section, and a number of interesting exhibits were on view, lent by the Wellcome Historical Medical Museum. Lord Dawson, after extending a welcome to the visitors, spoke of the great industrial wastage caused by subacute or chronic rheumatism. Invalidity due to this cause in 1927 led to a loss in Great Britain of 5½ million working weeks. One of the subjects before the present conference, he said, was the extension of remedial measures to all classes of the community—making what had been the privilege of the few the right of the many—a task which needed an extended organization and the participation of the State. But valuable as spas might be, Lord Dawson continued, they would not alone suffice for the treatment of a disease so widespread among the workers. Treatment must be brought to these people in their cities, within reach of their homes and workplaces. City clinics were being established in various countries, one of them in London. Such clinics could not offer advantages comparable to those obtained in spas, with their environment and atmosphere, but if the spa was to fulfil its complete function its ambit must be widened. The new outlook which aimed at the preservation of health, and therefore the correction of physiological digressions before these became co-ordinated into ill health, had its effect on the spa. With the value now attached to fitness by the younger generation, there was not likely to be in the future the same proportion of the obese, the plethoric, the bronchitic, the gouty, and the rheumatic. These conditions would not be allowed to arise. Health values were truer than formerly. To be fat, inert, and gouty was no longer regarded as inevitable, still less as acceptable, and might come to be regarded as "bad form." This led one to hope that the spas, in addition to treating those suffering from various disabilities, might be able to make provision for a still larger number of people who, though guilty of various divergences from physiological correctitude, were still able-bodied and could enjoy their holidays while undergoing a pleasant discipline. By the co-operation of the spa municipalities and the medical profession appropriate provision might be made for these "threshold" cases.

The first official meeting was held at the University of London, when Sir HOLBERT WARING, representing the Vice-Chancellor, extended a welcome to the visitors, and mentioned that when London had its properly established post-graduate school of medicine, which he hoped would not be long delayed, one of the departments would be medical hydrology. Dr. ALISON GLOVER brought greetings from the Minister of Health, who, he said, recognizing that the expansion of the provision for physical methods of treatment was a matter of urgent national importance, was eager to learn all that he could of the methods pursued in

this country and abroad. In no branch of medicine was the international spirit more necessary than in hydrology, and such a society combated that national bias which early found expression in the preference of Naaman for Abana and Pharpar, rivers of Damascus.

Spas and Insured Persons

The first discussion was on the health resort and national health insurance. Dr. C. W. BUCKLEY (Buxton), in opening, said that the organization of spas to meet the needs of wage-earners and their dependants might proceed on several different lines. There might be State organization and control of several small spas whose resources were at present inadequately developed, so that they were made available principally for those who required assistance to enable them to undertake treatment, this would entail subsidies from the State. Again, spa hospitals might be utilized and further developed, especially for the more serious cases, this need not destroy their voluntary character, but their funds could be assisted by payments from approved societies. Finally, there might be in all spas certain clinics organized by the medical profession or the municipality, or serving as a department of the spa hospital, to provide medical attendance, baths, and physical treatment, and research facilities. Whatever plan was adopted it was essential to have a central bureau to organize and co-ordinate the whole scheme, and this must obviously be the function of the State. He added that it was essential that the medical profession in the spas should so organize itself as to guide and influence any schemes of this nature, and the newly formed Spa Practitioners' Group of the British Medical Association was an ideal means to this end.

An interesting account of German spas in the service of social welfare was given by Dr. MAX HIRSCH (Charlottenburg). State-controlled social insurance in Germany, he said, dated from the early eighties, by 1914 one-third of the German people were socially insured, and the proportion now was one half. Spa treatment could not be demanded as a right by those in insurance, but it might be given, and its advantages were early recognized by those in administration because it shortened the period of illness and saved sick pay. The practice of sending insured patients to spas was constantly increasing. It was the custom for the sickness insurance offices to enter into agreements with particular watering places for accommodation and treatment for their members at reduced cost, in a few cases watering places had been purchased by these offices. The control of insured persons at spas was quite practicable, even when they were lodged in private houses. The average time of a bath cure for a patient in invalidity insurance—that is, a patient convalescent after sickness or suffering from debility—was thirty-one days. Patients were thoroughly examined by a doctor before being sent to a spa, and the choice of spa was made as a result of that examination. The results with insured patients were better than those with non insured, because the former took their cure more seriously, without unduly engaging in diversions.

The experience of one German State spa, Bad Elster, in Saxony, was related by its Kim-Direktor Dr. Etienne, who said that a large number of homes for different classes of patients had been established there, including one home, with 160 beds, by one of the large trade unions. Every visitor paid a "cure tax" entitling him to the use of the waters and to certain social amenities. An assisted or "public" patient generally had a reduction of 20 per cent on his "cure tax," as well as on the price of his baths, and the spa physicians also reduced their fees to such patients. Dr. Etienne gave some figures for German spas showing the annual number of visitors (presumably in 1927) and the number sent and paid for by public organizations.

	Total Visitors	Public Visitors
Badenweiler	12,249	1,032
Bad Elster	14,501	3,541
Harzburg	17,130	860
Landeck	11,039	4,046
Oeynhausen	20,252	3,601
Nauborn	31,284	11,758
Salzungen	25,570	3,485
Wiesbaden	46,060	5,597

In addition, at each spa there were some hundreds—at Nauheim and Oeynhausen some thousands—of single cases in which reductions were granted. The criticism was made by certain spa administrations that the presence of "social" patients affected the atmosphere of the resort, and made the visits of wealthy patients less frequent. But many of these poorer visitors belonged to the cultured classes, having been brought down by economic misfortune, and even those of rougher manners responded to the refinements of the spa. One point of view put forward by an American visitor to Bad Hister was, "One's own cure is made sweeter by the sight of many of these unfortunates creeping back to health and strength."

An account of recent legislation affecting French spas was given by Dr DURAND FARDOL. In the decrees and regulations issued in France from time to time regarding mineral springs, increasing emphasis had been laid on the principle that the public interest or the interest of the patients using the waters must have precedence over the rights of the owner. An Act of 1910 authorized the levy of special taxes in recognized resorts, the revenue so derived being intended to provide the spas with the financial resources for their development and equipment. Professor GAUAT, speaking of the position in Italy, said that the spas in that country, which numbered 700, belonged to the State, to municipal bodies, societies, and private persons. Each spa had a "cure committee," on which there had to be at least one medical man, and at the Ministry of Finance there was a central organization which supervised these local committees. Facilities were granted by the Government to poor persons who were recommended for treatment, and by arrangement with trade unions workmen were able to secure such treatment. Every user of the baths had to pay a "cure tax."

Dr GUNNAR KÄHLMEIER said that in Sweden there was no State health insurance against sickness, but 13 per cent of the population belonged to private clubs which gave sick pay, though they did not defray expenses incurred at hospitals or spas. Treatment at spas could, however, be obtained at a reduced payment—or in some cases without cost—by those who, becoming incapacitated by disease, were entitled to any form of State pension. The spas of Czechoslovakia were described by Dr L. SCHMIDT of Pistony as health and treatment resorts for the whole population. His country had decided to erect a balneological institute to encourage the improvement of hygienic and public health conditions at spas, and scientific and experimental research in connexion therewith. Finally, Dr VICOI told of what was being done in Rumania, where there were 25 principal health resorts and 56 smaller ones. The control of all watering places was exercised by the Ministry of Health, and each of the resorts had a medical council. The principal insurance corporation in Rumania, in connexion with which three and a half million medical and surgical consultations took place in 1927, had important installations in three spas, and made arrangements last year whereby more than 3,000 patients were sent to these resorts.

After Dr JOHN MURRAY (Llandrindod Wells) had spoken of the great burden imposed upon British industry by rheumatic invalidity, and the need for impressing on the public, local authorities, and the Government the important place which spas ought to occupy in the treatment of chronic disease, the discussion was closed by Dr KERR PRINGLE (Harrogate), who urged that the State should safeguard British spas as national properties. Some of the spas were suffering from the growth of manufacturing districts in their vicinity, the development of locomotion brought to them people who used them only as sleeping quarters or places of excursion, and had no real interest in them as spas. The State, having declared all mineral springs national property, could lease them to local authorities at a low rental, and allow the authorities, in return for good management, to impose a "cure tax." The State should also put a ring fence around the spas, thus creating a health centre where there would be no noxious trades, and no pollution of atmosphere, where noise would be reduced to the minimum, and town planning conditions enforced.

The Humoral Factor in Disease

The second medical discussion was on the subject of "neo-hippocratism," or "the humoral factor in disease." This took place at Burlington House under the presidency of Lord DANSON. In an opening paper Dr M. B. RAY (London) traced the doctrine of the four cardinal humours (blood, phlegm, and yellow and black bile) from Hippocrates and Galen down to the middle of the seventeenth century, when the final blow was given to its general credence by the tardy recognition of the work of Harvey. Sydenham revived the Hippocratic doctrine of observation and experience as the main essentials in the practice of medicine. The seventeenth and eighteenth centuries were marked, said Dr RAY, by a continual striving after the formulation of "medical systems," and from this there followed a period when clinical medicine was based principally on pathological findings, which exhibited only the static aspect of disease. The brilliant work of Virchow and Cohnheim, who revolutionized current ideas regarding inflammation, and the later researches on the internal secretions and in biochemistry had shown that many so-called organic diseases, manifesting local anatomical pathological changes, were only secondary results of metabolic disturbances or blood disorders. To differentiate the new ideas on etiology from the old, the speaker suggested the designation "neo-humoralism," which implied the concept of disease as primarily due to changes in body fluids, in respect to their excess, deficiency, retention of products of metabolism, and so on.

Dr PAUL FÉREYROLLES (La Bourboule, France) spoke of the value of waters in ameliorating, transforming, and dissipating humoral disorders. If the mode of action of waters were better known the origins of these morbid states would be better known also. The blood, like a medicinal water, was a complex solution of electrolytes, and it was reasonable to suppose that changes took place when the blood was deficient in certain elements. He argued for the notion of a *lipoidal disequilibrium* as a factor in diathesis, which might be corrected by waters.

Dr A. P. CAWADIAS (London) described the present period in medicine as that of "neo-hippocratism." The principles of the organic localization of disease which had attracted medical science during the last hundred years were being abandoned, and a much wider and more comprehensive conception derived from the doctrine of the ancient Greek physicians was making its appearance. The body was a unit, and could not be considered as a collection of smaller units, organs, cells, or molecules, all these were correlated, and formed on integrating whole. It was the whole organism which became diseased, there were no diseases of organs, of cells, or of tissues. Disease was a disharmony of life, a defect of adaptation. The neo-hippocratic theory had completely changed the conception of diagnosis, which now became a triple operation, consisting of disease diagnosis, functional "personality" diagnosis (the answer to the question to what extent the individual was injured by his complaint), and "diagnosis of the etiological constellation." With the introduction into medicine of this new conception, the role of specialties in practice was being modified. Specialization in technique was useful, but in diagnosis impossible. The surgical specialties would remain, but the more recent splitting of internal medicine would be abolished, as it was being abolished in most Continental schools. In treatment also the new theory had opened wider horizons. Dr Cawadias declared that a new period was opening for medical science. A new medical peak was being approached, and once more, as in Sydenham's days, by a return towards Greek sources. The neo-hippocratic theory was one of those great synthetic conceptions so important for the progress of human thought, and although no Hippocrates had yet appeared to give that theory its precise formulation, much had been already accomplished, even with the vague and fragmentary notions we possessed. Professor E. H. KETTLER (St Bortholomew's) said that the more one studied microbial diseases the more one was impressed by the fact that each particular type or group of organisms appeared to have an affinity for different types of tissues. The clear-cut localization of microbial

lesions was most remarkable. It should be possible to adopt a much more rational method of treatment of infectious diseases than the profession had been in the habit of employing. For the last thirty years or more infectious diseases had been largely attributed to the circulation of the blood, but the blood could not give a true indication of what was actually taking place in the body. To have regard to the blood alone was like making an attack with the blunderbuss instead of the rapier. Many blood changes in disease were purely secondary, not really vital changes. The diagnosis of enteric fever, for example, rested upon the demonstration of specific agglutinins in the circulating blood, but those agglutinins had very little relation to the actual process of infection, and their persistence was variable in different individuals. The question of infection or non-infection depended on the tissues entirely, not on the circulating plasma. The essential part of any infection was the direct combination between the tissues of the body and the infective organism, and inasmuch as each group of organisms affected a particular group or type of tissues it should be possible, by modifying the condition of the specific tissues involved, to modify considerably the progress of the infection in the patient. He did not think there was evidence that any specific treatment would alter this condition of the cells permanently, or even sufficiently to make infection impossible, but the best results were to be hoped for by such regime and treatment as would influence the body tissues.

The discussion of so large a theme was hampered by lack of time, and succeeding speakers were compelled to compress their remarks very closely. Dr. SARGENTO (Portugal) related how by studying the action of the Vidago waters in his country in certain affections he had found abundant confirmation of the importance of the humoral factor in disease. He held that the doctrine which saw the origin of certain diseases in the body fluids must be regarded as a necessary conception, especially in experimental and physico-chemical medicine. Dr. E. P. POULTON (London) described some recent biochemical investigations carried out with Dr. Obermer in cases of chronic rheumatic disease; he exhibited in diurnal curves the urinary picture in such cases, and pointed out its significance in various respects. He suggested that differences in biochemical make-up appeared sometimes to be congenital and sometimes acquired—for example, the allergic state—and that the effects of heredity and environment (including disease) could not at present be distinguished. Dr. MAX HINSON (Charlottenburg) said that although medical opinion and practice were now swinging back from the consideration of the disease itself to the Hippocratic method of making the sick person the focus of attention, the study given to diseases had not been without its fruit, and the return to Hippocratic theory and practice was made with much better understanding in consequence.

International Standards

At another session during the London part of the meeting an international standard of measurement in the analysis of waters was considered. Last year when the Society held its congress in Rome a committee was appointed to consider this subject and make recommendations. The proposals, which were endorsed by the council, were now presented by Dr. Judd Lewis and agreed to unanimously. It had previously been agreed that the analysis of a water should always be expressed in terms of ions, whether its interpretation in other terms was given or not, that the quantities of ions, also "salines" when stated, should be given to one decimal place only, also that the specific gravity should be determined by comparison with distilled water at the same temperature. It was now agreed to add to the proposed tables of analysis an extra column in which the ions or salines were given in terms of their "multi-normality"—that is, the number of times the molecular weight of the ion in milligrams is contained in a litre of water. It was further agreed, in order to avoid the use of cumbersome decimals, and to bring the analytical data into line with the customary dose of waters as nearly as possible, to adopt as an international standard measurement the expression of analytical data for the constituents of waters in terms of

parts per 100,000. The tables which the council of the Society will print in futuro will show for each ion or saline constituent of the water its concentration in parts per 100,000, its concentration in terms customary in the country where the water originates, and the same in terms of "multi-normality." It was also agreed to form in each country a national committee to give effect to the International Society's proposal.

Other events of the meeting in London were receptions at the Royal College of Physicians and at the Wellcome Historical Museum. At Harrogate the members were the guests at dinner on successive evenings of the mayor and corporation and of the Harrogate Medical Society. Here a discussion took place on the treatment of children by waters and baths, and demonstrations of rheumatic cases were given at the Royal Bath Hospital. At Buxton hospitality was similarly extended by the municipality and the local profession. A general discussion took place here on rheumatism as a national problem. Droitwich Spa was visited on the way to Bath, and here again the members were welcomed municipally and by their medical colleagues, and were entertained to luncheon by the Corbett trustees in the Salters' Hall. We hope to publish a more detailed account in the next issue.

HEALTH OF THE ROYAL AIR FORCE

REPORT FOR 1927

THE medical aspects of problems associated with the efficiency of industrial workers are now recognized as being of national importance, and in this connexion the researches into flying efficiency carried out by the Medical Department of the Royal Air Force have considerable interest. One of the problems recently investigated is that of fatigue caused by flying, and an account of this appears in the Report on the Health of the Royal Air Force for 1927.

"Fatigue" was estimated by physiological tests for respiratory and circulatory efficiency, and general nervous stability, and by a system of marking an "efficiency index" was obtained. The results showed that individuals who had been specially selected, by passing the medical examination for flying passenger-carrying aeroplanes, could fly for long periods without showing fatigue. When a pilot had flown over 100 hours in any one month there was, generally speaking, no appreciable amount of fatigue noted, although certain signs of the onset of stress were observed. In one instance, however, the marks obtained in the efficiency index fell to a very appreciable degree. The figures show that re-examination of aeroplane pilots is of value in enabling conditions predisposing to flying fatigue to be discovered and rectified early.

Medical fitness and accidents were also investigated. The method adopted was to study all accidents due to fault on the part of the pilot, and to calculate the physical efficiency index and also the index of visual judgement. The report gives a summary of the results which indicates that lack of physical efficiency (including visual efficiency) cannot be regarded as a factor in the causation of accidents.

In view of the observations made by Muscio² on industrial workers, where a definite increase in accidents occurred with the onset of fatigue, the method of the Royal Air Force in selecting individuals capable of enduring fatigue, and of applying routine tests to discover the early signs of stress, may be of interest.

It is claimed that the record of Imperial Airways during the three years 1925 to 1927 (approximately 2,400,000 miles flown and 54,000 passengers carried without a serious accident) must be attributed, in part at least, to the careful medical selection and periodic re-examination of the pilots of aircraft carrying civilian passengers.

Those who are concerned about the distressing effects of street noises on sensitive persons will be interested to learn that attempts have been made by the Medical

¹ Report on the Health of the Royal Air Force for the year 1927
² J.M. Stationery Office, Kingsway, 34, n.e.
 - Lectures on Industrial Psychology

Department of the Royal Air Force to provide protection for pilots against the deafening noises of aeroplane engines. A simple and effective ear defender has been devised which cuts off the painful and fatiguing vibrations, while enabling the pilot to hear the wireless telephone and other sounds perfectly.

A synopsis of the Royal Air Force medical officers' course of instruction is given in the report. Such subjects as applied pathology, hygiene, tropical medicine, and hospital routine are taught by scientific experts of the highest repute. Inspection of the syllabus given suggests that the training and experience obtained in the Air Force should result in an excellent type of medical officer.

The health of the Royal Air Force at home and abroad has been good, and the figures for sickness, deaths, and invaliding incidence during 1927 compare favourably with those of the previous year. Sickness figures are shown for the fleet air arm this year for the first time. Life appears to be healthy in the Royal Air Force, and although the majority of the men are serving in Iraq, India, Egypt, Palestine, Aden, and Malta, only ten cases of illness due to the effect of heat are recorded. Accidents caused by athletics and motor cycling while off duty are among the chief causes of injury. Flying accidents only amount to 6.4 per cent of all injuries. This figure is the lowest since 1923, and, taking into consideration the number of hours flown per accident, the casualty risk is the lowest ever recorded.

In conclusion, it may be pointed out that the annual reports of the health of the Royal Air Force are a mine of information for those interested in the physiological standards of normal healthy adults. The report contains thirty-one tables of statistics of various sorts, and in Table 24 are given the average results of pulse rates, blood pressure, etc., of 1,827 serving officers of the flying branch and 22 airman pilots. It is worthy of special mention that, although some 20,000 records have been obtained since these physiological tests were first standardized during the war (the pilots selected being chosen by the executive branch of the service) there has been no appreciable variation in the pulse rates and blood pressures of officers who were fit for flying duties.

OLYMPIA MOTOR SHOW.

MORE POINTS FOR MEDICAL MEN

[FROM OUR MOTORING CORRESPONDENT.]

THE 1928 Olympia Show, which closes to-day (October 20th), has continued to draw the general public. At times, indeed, the huge building has been uncomfortably overcrowded, rendering close inspection of any of the more popular cars practically impossible. There has been some talk of changing the exhibition from an annual to a biennial event owing to the heavy financial load it thrusts on exhibitors. Certainly, if it is to continue yearly, and exhibitors are to secure a reasonable return for their outlay, this question of overcrowding is one that will have to be considered seriously by the Society of Motor Manufacturers and Traders, responsible for the organization of the exhibition. Lieut Colonel J. T. C. Moore-Brabazon, M.P., broadcasting his impressions of the show from 2LO, touched on one of its weak spots when he said that much of the overcrowding was due to the large number of motor agents and their representatives who hang about all day round the popular car stands in the hope of picking up a stray order or two. Many will agree that this competition for orders is defeating its own ends. Visitors to the show, finding themselves unable to get near the chassis or car they wish to examine, but importuned instead by too enterprising agents, are inclined to go away in disgust. The Olympia Show should be what its title calls it—an exhibition rather than a mart, and some action to prevent overcrowding, particularly by touting agents, is to be desired.

A Technical Survey

An interesting summary of the tendencies in motor car design and construction as shown by the 1929 models has been prepared by the Autocar, which largely bears out

the views expressed in the *British Medical Journal* of October 6th. Thus it shows that of the British and foreign cars at present on the market in this country the majority of makes are fitted with six-cylinder engines, these now forming 49.6 per cent of the total as against 34.6 per cent for the four-cylinder type, the balance being divided between cars with two, eight, and twelve cylinders. Ignition is still mainly by magneto, but is closely followed by the coil and distributor variety. Cone clutches are now found only on 5.4 per cent of cars, as against over 71 per cent with the disc form, gearboxes providing four speeds are used to the extent of nearly 59 per cent of cases, those with three speeds only forming about 41 per cent of the total. American influence is seen in the change speed lever position, this being central in 67 per cent of cars, lateral in only 33 per cent. The spiral form is the predominant type of bevel gears employed for driving the back axle, being found in 89 per cent of cars, worm-drive is found in 9 per cent, and straight bevels and miscellaneous gears in the remainder. Finally, it is interesting to learn that wire wheels are now used on 47 per cent, or nearly one-half, of the different makes of cars, disc wheels, once so popular, on less than 13 per cent.

Leaving Cars Unattended A Missing Detail

British car manufacturers might with advantage copy certain of their American competitors in providing some form of lock for the steering gear or change-speed control to prevent the stealing of unattended cars. Many doctors drive themselves, and therefore have often to leave their cars unattended. The doors of most covered cars are now fitted with locks which are good so far as they go, but what is required is some simple yet effective device that will prevent open cars from being tampered with and driven off by thieves. Many doctors would welcome such a safety device, even at the cost of sacrificing some of the accessory conveniences now included in the specification of the generality of cars.

More Six-cylinder Cars

There are so many interesting cars at the show that it is impossible in the space available to mention them all. One may, however, refer briefly to some of the better known. Thus, A.C. Cars, Ltd., are now concentrating attention on vehicles with six-cylinder engines of respectively 16/40 h.p. and 16/56-h.p., the last-mentioned being built in both short and long chassis forms. The cars exhibited include one with a striking "sunshine" saloon body. Bean Cars, Ltd., are offering 14/35-h.p. and 14/70-h.p. four-cylinder cars, identical in chassis design except that the higher-powered vehicle is fitted with what may be regarded as a "sports" engine. All the Bean cars are now provided with unsplinterable glass windows, and Dewandre servo-operated brakes. The cars made by Bentley Motors, Ltd., are admittedly among the higher priced ones, but from the constructional point of view they occupy a very high position in the motor industry. Brocklebank and Richards, Ltd., are displaying the Brocklebank 14.9 h.p. six-cylinder chassis containing many details of interest, an attractive complete car being a four-door saloon covered with black fabric and upholstered in green leather.

American and Canadian Examples

Among the better known American and Canadian cars are the Buicks, the lowest-powered model of which, the 25/75-h.p., has undergone considerable change in design, detail, and coachwork. The engine has a larger bore, improved cam shaft, and valve mechanism, and quieter starting gears. Many improvements in the bodywork add both to comfort and appearance, and all the bright external parts are now chromium plated. The La Salle and Cadillac cars are still fitted with V-type eight-cylinder engines, but several noteworthy modifications have been made. The most interesting development is the new "synero-mesh" silent change-speed gear, to which reference was made in a preceding article. Roller bearings are used on all the brake cross shafts in place of bronze bushes. The wind-screens and windows of both cars are now of safety glass. Another well known American production now very popular

in this country is the Chrysler. The present range includes a new model known as the "65," the six-cylinder engine of which is rated at 23.5-h.p. Among the complete Chrysler cars on view one that is attracting attention is a business coupe listed at £392. For the coming season it has not been found necessary to make any change, either in the design or price of the Essex six-cylinder car, the model known as the 4/5 seated coach remaining at £250.

Clyno, Crossley, and Daimler

The Clyno Company are concentrating on the 9-h.p. and 12/35-h.p. four-cylinder models introduced last year. Improvements in detail only are evident, and both chassis are being supplied with other standard or *de luxe* equipment. There are four models of the 9-h.p. cars, ranging in price from £112 10s. for the four-seater with improved fabric bodywork, to £160 for a two-door *de luxe* saloon. With the 12/35-h.p. chassis there are three models of standard and four *de luxe* cars. In the former prices range from £157 10s. to £200 for the four-door saloon, while in the latter there is a four-door Olympia saloon at £275. Of the three types of six-cylinder cars now built by Crossley Motors, Ltd., the one most likely to appeal to medical men is the 15.7-h.p. model, which, as a saloon, is priced at £550 or £575, according to the finish. The details of the chassis have undergone little or no alteration since last year, the 1928 cars having given every satisfaction in users' hands. The Daimler Company, Ltd., the pioneers of cars fitted with sleeve-valve engines, have hitherto made highly priced *de luxe* cars. For 1929, however, they have introduced a 16/65-h.p. six-cylinder car with fabric saloon body at only £595.

An Italian Representative

An Italian car with many admirers and users in this country is the Fiat, the range of which includes 9-h.p., 12-h.p., 26.8-h.p., and 17/50-h.p. models, the first two having four-cylinder and the others six-cylinder engines. The 9-h.p. and the 12-h.p. models are adequate to the requirements of most medical practitioners. In the smaller type a fixed-head coupe at £235 attracts attention. For those requiring more power and a roomier vehicle the 12-h.p. four-door saloon is worthy of inspection. This model has a side-controlled four-speed gearbox and a wheel base of just over 9 ft.

Fast Car Specialists

Lea and Francis, Ltd., who have built up a reputation for speedy cars with highly efficient four- and six-cylinder engines, are showing, among other models, an attractive 12/40-h.p. fabric saloon at £440 and a coupe at £400. The Rhode Motor Company, Ltd., are concentrating on a single type of 11-h.p. Rhode Hawk chassis. This has a wheel base of 10 ft. 4 in., enabling a roomy saloon body to be fitted. Two other manufacturers specializing in speedy vehicles are Lagonda, Ltd., who are building 12.7-h.p. four-cylinder and 17.7-h.p. and 19.2-h.p. chassis, fitted with both open and closed bodies, and the M.G. Car Company, whose productions range from an 8-h.p. four-cylinder "sports" two-seater to a 17.9-h.p. six-cylinder four-seater "salonette."

A Novel "Sunshine" Saloon

The cars built by Singer and Co., Ltd., are among the most popular in this country. The firm are continuing the 8-h.p. Junior and 12-h.p. Senior four-cylinder models with certain improvements in the details, easily operated "sunshine" saloons being now available on both chassis. The 16-h.p. six-cylinder Singer has been considerably improved, and in view of the increasing popularity of light "sixes" and the relatively low price of the Singer, it merits the attention of doctors. Leyland Motors Ltd. continue steadily to improve the outward appearance of their novel but reliable 10-h.p. Trojan car. It is the only vehicle in the exhibition with a two-stroke engine and, in addition to open cars, is now being supplied with saloon bodies of either the permanently covered or the "sunshine" type.

Rovers and Sunbeams

Improvements in the outward appearance and internal furnishing are also the chief alterations in the cars of the Rover Company, Ltd. Only two types of chassis are being made—the 10/25-h.p. four-cylinder and the 16-h.p. six-

cylinder. The "Nippy-Ten" range includes a Weymann saloon with leather or cloth upholstery at £250, the prices of the "six" ranging from £395 to £460. The Sunbeam Motor Company, Ltd., is another firm which has not found it necessary to change the mechanical details of its cars. Four sizes of six-cylinder cars are being made in addition to a 35-h.p. "straight eight," the smallest "six" being of 16.9-h.p. New designs in bodywork are, however, apparent, and one or more of these will doubtless appeal to doctors. Sunbeams are not, of course, cheap cars, but have an excellent reputation for reliability and efficiency.

Stars and Swifts

The Star Engineering Company, Ltd., is concentrating on two sizes of six-cylinder chassis—20/60-h.p. and 18/50-h.p. The Star Company is one of the oldest in the industry, but is keeping well abreast with modern ideas of design and construction. Its cars are maintaining their long-held reputation for reliability and durability. For 1929 Swift of Coventry, Ltd., are mainly devoting attention to the 10-h.p. Swift vehicles, an important alteration in which is the adoption of a four-speed gearbox in place of the three-speed one formerly employed. The range of bodies includes a neat two-three-seater coupe and an improved "sunshine" saloon.

Clement Talbot, Ltd., are confining attention to a single Talbot six-cylinder model of 14/45-h.p., which has proved so satisfactory that little or no change has been made in the details since last year. The cars of the Triumph Cycle Company, Ltd., are notable more for quality than for low price. Their two models, of respectively 15-h.p. and 7-h.p., possess many features of merit. Wolseley Motors, Ltd., of which Mr. Morris, of Morris cars, is now the head, have some excellent cars at considerably reduced prices for the 1929 season. The Wolseley Company have a long-established reputation for reliability, and the 12/32-h.p. four-cylinder and 16/45-h.p. six-cylinder models are well worthy of consideration. Among the French cars popular in this country are those of Renault, Ltd. For 1929 the prices of some of the models have been reduced, the 9/15-h.p. and 14/45-h.p. saloons, both four-cylinder, being now respectively £182 and £269, while the 12.5-h.p. six-cylinder saloon has been reduced to £258.

Notable Motor Bodywork

The Annex to the Main Mall is, as usual, occupied by a display of motor bodies. This forms an exhibition of its own, and contains many pleasing examples of the coach-building craft. Most medical practitioners have perforce to be content with the standard form of bodywork supplied by the car manufacturers. Most of the latter are prepared, however, to supply chassis to motor users who prefer to have the bodywork built to their own requirements. Needless to say, this is generally a little more costly, but, to those who can afford the outlay, is compensated by the greater satisfaction.

It would occupy too much space to deal with each of the exhibits in the bodywork section, many of which, indeed, are too large and elaborate for doctors' use. The writer's attention was, however, attracted by a very smart fabric coupé body fitted to an Austin 16-h.p. six-cylinder chassis on the stand of Mann, Egerton and Co., Ltd. The two main seats are of the sliding bucket type, while behind them are two occasional tip-up seats. The car can thus be used as either a two or four-seater, while its range of usefulness is increased by a luggage boot at the rear and a "sunshine" roof, which enables it to be run either as an entirely closed or partially open car. Gordon England, Ltd., whose methods of body construction are special to themselves, also display some attractive bodies which will appeal to users of even popular-priced cars. Thus, on the stand are a special saloon body for the Austin "seven" and a very attractive design of five-seater two-door coupé on a Morris 17.9-h.p. "six" chassis.

A Look Round the Galleries

So many and various accessories are now manufactured for the convenience of motorists that a walk round the galleries at Olympia is a revelation of the progress of motoring. Space will not allow reference to more than a few of the many useful articles on view.

A winter driving convenience now widely used is a muff for the radiator. This is designed to prevent rapid cooling of the water in cars that have to be left standing for some time, and thus to prevent difficulties in re-starting the engine. These muffs are now available for most makes of cars, and a big range of them is shown amidst a wide selection of other accessories on the stand of Gamages, Ltd. When using radiator muffs one must get into the habit of dropping the flap when leaving the car and of raising it on re-starting, otherwise, when driving with a flap accidentally left down, there is a risk of overheating the engine and of boiling the water away. Some useful rugs for winter use are also to be seen on the Gamage stand. Dunhills, Ltd., is another firm displaying a variety of useful accessories, including radiator muffs, safety garage-heating lamps, and a spotlight with a special anti-fog disc, handy when fog or mist are encountered during night driving. The regular running of motor engines depends very largely on the sparking plugs used, the choice of these being another matter in which one may be penny wise and pound foolish. Reliable plugs are now made by quite a number of firms, among the better known being the Lodge, K.L.G., and Champiou. All of these firms have a range of patterns designed to give satisfactory firing in different makes of engine. In addition to one or two new models specially intended for use in high-compression engines (in which considerable temperatures are generated) Lodge Plugs, Ltd., have recently improved the brass terminal so that the Lodge weatherproof terminal can be used on any model of the firm's plugs.

Wind-screen wipers are another modern convenience of all weather driving. Any one of the many varieties can readily be fitted to a car if it is not already so equipped. Among the devices are the Vokes and the Klaxon, it being claimed for the latter that its action is unaccompanied by the usual clicking noise. Doctors who look after the oiling and adjustment of their own cars will be interested in the improved forms of pressure grease guns shown by the Tecalemit Company, Benton and Stone, Ltd., and other firms. The last-mentioned firm has brought out a new form of gun known as the Eacots "Autolub," suitable for oil or grease. By means of this it is claimed that the task of oiling and greasing a car can be comfortably and efficiently performed by one hand. Among the interesting exhibits of Jenks Bros., Ltd., is the Stevenson fixed-to-the-car jacking system, an arrangement which reduces the delay when punctures are encountered and tyres have to be changed. The device also facilitates the recommended practice of occasionally changing over front and back tyres, as by the Stevenson jack the two wheels on each side of the car can be simultaneously raised from the ground.

Another Anti-dazzle Device

In the first article of this series (October 6th) the view was expressed that the real solution of the headlight dazzle problem had yet to be found. While this is true, examination of the many devices shown in the galleries indicates that excellent progress towards a solution is being made. Lucas's new "dip and switch" device has already been mentioned, and on the stand of H. Jenks, Ltd., there is a working model of another practical arrangement known as the "Correcta," and made by Correcta Light, Ltd. This is certainly an ingenious contrivance at present, however, it is only standardized for Morris and Rolls-Royce cars.

The Improvement in Tyre Life

Since the war there has been a remarkable change for the better in pneumatic tyre manufacture. Nowadays one rarely meets with a car hung up on the road owing to puncture or other tyre trouble, and although this may to some extent be due to the improved roads there is no doubt that tyres themselves are also very much better and more capable of giving a long period of satisfactory service with a minimum of attention. It is pleasant to observe, however, that tyre manufacturers are not content with their achievement up to date, in addition to lowering the cost, they are continuing to strive for something better. Thus, by way of example, it may be mentioned that the Dunlop Rubber Company, Ltd., have lately

introduced a specially strong new tyre, named the Dunlop "Fort," designed to meet unduly arduous conditions.

Regular Testing of Tyre Pressure

One realizes at the show how general has become the use of balloon and low-pressure pneumatic tyres. These, while possessing undoubted advantages over the high-pressure variety, have the drawback that the margin between correct and insufficient inflation is very small. To obtain good results from them car-owners must therefore pay more regard to the details of inflation, motor owners are recommended to test their tyres once a week. Besides the well-known Schrader, there are now several air-pressure testing devices on the market, and one or other of these should find a place in every doctor's tool-kit. All these devices suffer, however, from the drawback that their use entails the removal, and subsequent replacement, of the large and small caps of the four tyre valves. During the past summer the writer has found the "Pressometer" tyre tester, marketed by T. B. Andre and Co., Ltd., a very convenient little device. It is claimed that by merely pressing this on the outside of the tyre a correct reading of the internal pressure is given on the indicator. Although one is not entirely convinced of this, there can be no question but that it is a useful and simply applied comparative gauge. The writer pumps up his tyres to the recommended pressure, obtaining this by means of the more orthodox pressure gauge. As soon as each tyre is pumped up, and the valve caps are replaced, he uses the "Pressometer" and makes a note of the position of the indicating finger. It is then easy to practise the weekly test, pressing with the "Pressometer" on each of the tyres in turn. If the finger reaches the same mark as before he is satisfied that everything is in order, if not, he knows at once that the tyre needs a few strokes of the pump.

MEDICAL SICKNESS, ANNUITY AND LIFE ASSURANCE SOCIETY

The annual general meeting of the Medical Sickness, Annuity and Life Assurance Society was held at the First Avenue Hotel, High Holborn, W.C., on October 8th, under the chairmanship of Dr. F. J. Allan.

The Chairman's Address

In presenting the directors' report the chairman said that the Society continued to make steady progress. In the last year the number of applications had trebled. The bonus declared last year had greatly stimulated interest, and the amount of new business surpassed all previous records. The schemes for practice purchase and house purchase which had been inaugurated had proved very helpful. The number of applications to partake in the practice purchase scheme had increased to such an extent that the directors considered it advisable to limit the amount of capital to be devoted to it until further experience had been gained. The scheme had been quite satisfactory, inasmuch as the interests of the Society and also of the purchaser were considered. In some cases investigation had shown that the practice proposed for purchase was not exactly suitable. Grateful letters had been received from young men thanking the Society for the assistance afforded them in giving them a fair start in their careers. There was also an increasing number of applications for the house purchase scheme. As the terms offered were generous, particular care had to be exercised regarding the value and condition of the property, the Society acted only after receiving the report and advice of its surveyors.

The first half of the past year with its depressing climatic conditions had produced claims on the sickness fund considerably above the average, but this had been counterbalanced by the healthier conditions of the second half. Thus, the amount paid out in sickness claims for the twelve months, in spite of the increased membership, was rather less than in the previous year—namely, £31,179, as against £31,225. In sickness insurance many more problems arose than with life assurance. It had been found that quite good lives from a life assurance point of view might be liable to a greater amount of illness than the average. Though the illnesses were of a minor nature, they entailed claims on the funds, and were very difficult to estimate. It was proposed to issue to members a questionnaire regarding certain minor diseases, and it was hoped that the answers would be helpful in conducting the work of the Society. The number of claims for neurasthenia had increased.

Acting on the advice of the actuary the directors had transferred to a separate fund the sum which, with interest and

dividends accruing, was calculated to meet bonus payments as they arose. The new life insurance business, which amounted to nearly £200,000, showed a gratifying increase, especially when it was remembered that this branch only started on its present basis eight years ago. The total premiums were £30,844, against £25,286 the previous year. Regarding the investments, the directors had written down some of the stocks, it was hoped that it would not be necessary to do so again. Notwithstanding this, the value of the Society's investments was nearly £24,000 in excess of that shown in the books. The continued increase in membership naturally meant an increase in management expenses, but this was not an undue amount, as was shown by the fact that during the year the expense ratio dropped from 14.19 per cent to 13.88 per cent, and, excluding valuation expenses, to 13.35 per cent. Though a complete valuation of the Society's business was made every five years the actuary examined closely the experience of the Society every year and reported thereon, so that the directors might know exactly how the Society stood. The actuary had just completed his examination and valuation and concluded his report thereon by the following statement: "This is a most satisfactory state of affairs and warrants the declaration on the part of the directors of a guarantee of the maintenance of the interim bonus at the full rate of bonus declared at the last valuation. Acting on this assurance the directors recommended the payment of an interim bonus."

Several questions about items of expenses having been answered the report was adopted. A prolonged discussion took place regarding the appointment of two directors, and it was ultimately decided to take a poll of the members. Messrs Harber, Sturges, and Fraser were reappointed auditors for one year. The meeting adopted the recommendation of the directors for the payment of an interim bonus on all with-profit policies for permanent sickness and accident insurance and life assurances becoming claims during the year July 1st, 1928—June 30th, 1929. A vote of thanks to the staff for their valuable services was adopted on the motion of the CHAIRMAN and a hearty vote of thanks to the chairman for presiding was proposed by Dr JOHN MATTHEWS and seconded by Sir WILLIAM WILCOX.

Scotland.

Tribute to Sir Donald MacAlister

IN recognition of his twenty-one years' service as Principal and Vice-Chancellor of the University of Glasgow Sir Donald MacAlister was, on October 12th, the guest of honour at a banquet, over which Lord Maclay presided, in the Central Hotel, Glasgow. There were present members of the Government, representatives of the city and its varied interests, and of the learned professions, including many medical men of note. The toast of the evening was proposed by Sir John M. Macleod, who said that Sir Donald MacAlister's brilliant career was on full record, so that anyone who ran could read it, provided he had good breath and some time at his command. He would find in it an arresting statement. It would be seen that in his day Sir Donald had been accorded every honourable academic title it was possible for a man to enjoy, not only from the great British centres of learning, but from those of the Dominions and from ancient and famous seats of culture in Europe and America. Continuing, Sir John referred to the growth of the University since 1907, when Sir Donald MacAlister was appointed, saying that at that time there were 2,504 students, and last year there were 5,294. To meet this heavy increase there had been appointed 18 additional professors, 90 lecturers, and 31 assistants. These figures gave some idea of the additional work now being done at the University under the Principal's moving and guiding inspiration. All he had touched on could only have been achieved by the driving force of Sir Donald's personality, his enthusiasm, and, above all, his poetic temperament, all of which, he was proud to believe, was derived largely from the fact that his blood was strong because his heart was Highland. Sir Donald MacAlister replied in a racy speech, in which he dwelt upon the close relationship existing between the city and the University in Glasgow, and upon the way in which the citizens had given their support to the work of the institution of which he is Principal. The citizens of Glasgow, he said, deemed nothing that was human, including humane studies in the widest sense, to be outwith their concern or beyond the scope of their fostering care, the Lord Provost and magistrates took part in the

work of the University. Count Glasgow magnates and merchants, and lawyers and doctors, and teachers, gave of their time and thought to its day-to-day administration. The Lord Provost, Sir David Mason, replying to the toast of "The City of Glasgow," proposed by the Earl of Elgin, referred to "the consistently noble manner in which their guest had supported the Corporation in every movement for the material welfare of the community", while Sir Alfred Ewing, Principal and Vice-Chancellor of Edinburgh University, spoke of Sir Donald as the doyen of the vice-chancellors of the universities of Great Britain and the keeper of the professional conscience of the doctors of this island. But his great work, Sir Alfred Ewing said, had been his guidance and administration of Glasgow University, it had indeed been a great work, great in every step and great in its results. Dr Walter Elliot, Under Secretary of State for Scotland, said that he bore to Sir Donald the good wishes and congratulations of the Secretary of State for Scotland, and recalled that the last similar gathering in the life of Glasgow had been some thirty years ago, when a banquet was held to do honour to Lord Kelvin. The proceedings closed with the toast of "Lady MacAlister," who was the only lady present.

Royal Medical Society of Edinburgh

The 1928 session of the Royal Medical Society of Edinburgh was opened on October 12th by an inaugural address from Sir John Robertson, M.D., of Birmingham. Dr W. Mitchell Innes, senior president of the society presided. The lecturer took as his subject the borderline between preventive and curative medicine, and remarked that these two branches of medicine had in the past been kept much too far apart. There was still too little consideration given by doctors to the prevention of disease, while those who were engaged solely in preventive work laboured under the disadvantage of not being in intimate contact with the sick. It might be said, comparing the present day with fifty years ago, that from 30 to 50 per cent of deaths were now avoided every year. This saving meant that the average expectation of life which every person had at birth had been extended by fifteen years. Many causes had combined to produce this result, but of these the two most important had been the daily teaching of the ordinary doctor in the consulting room and in the homes of the people, and the vastly improved intelligence of the people, which had enabled them to appreciate the information gained during sickness. The value of such measures as the provision of good water supply, drainage, scavenging, and so on must not be overlooked, but all these things had been rendered possible only by the greater knowledge among the people. The clinician, who was in constant attendance on the sick and could inquire into the cause of illness, was almost the only person who was able to suggest means of preventing a large variety of illnesses. His observations and experience were not yet collected and used sufficiently for the general good, and some organization was necessary to sift the value of these clinical experiences. The methods now used in reducing infant mortality formed a good instance of what could be accomplished by simple instruction, and the mortality had been halved in twenty-five years by telling mothers how they ought to rear and feed babies. Was it possible, for example, the lecturer asked, to prevent the condition known as flat-foot, which, though simple, caused an immense amount of unemployment and discomfort? No less than 27 per cent of recruits in one of our large police forces had been due to foot troubles. The profession, he felt sure, could undertake no inquiry as to how these might be prevented. Much was being done by factory surgeons, school medical service, and health authorities, but none of these quite got down to the conditions under which disease originated. There were two organizations, however, which might be useful for the type of inquiry necessary. These were the national health insurance scheme, which had the object not only of treating sick persons, but the prevention of disease, although the latter question so far had been neglected, and the Medical Research Council. All such inquiry and organization of the profession must occupy considerable time and must be carefully tested, but in the absence of such an attempt he was sure that they were losing time in getting a greatly

improved state of the health and physique of the people. A vote of thanks was accorded to the lecturer on the motion of Sir Robert Philp.

Aberdeen Chair of Physiology

Professor J J R MacLeod, who has succeeded Professor MacWilliam in the chair of physiology at Aberdeen University, delivered his inaugural lecture on October 10th. Professor Low, dean of the medical faculty, who presided, referred to Professor MacLeod's early connexion with Marischal College, where he had graduated thirty years ago. He also recalled the part Professor MacLeod had played in the discovery of insulin, and the establishment of its efficacy in diabetes, for which, along with Dr Banting, he had been awarded the Nobel Prize for medicine in 1923. Professor MacLeod said that it had always been his ambition that he might return to Aberdeen to hold this chair and to enjoy the great opportunities for physiological research which the University of Aberdeen offered, and which had been greatly enhanced by its close connexion with the Rowett Institute and the proposed new hospitals. He considered that the medical curriculum of to-day was overburdened with detail, and that the relationship of one subject to another was not sufficiently adjusted. He thought also that more might be done to emphasize the importance of combining scientific reasoning with clinical experience, and that there was a great advantage in having men with a scientific training on the clinical staffs of hospitals, both in regard to the treatment of the patients and the instruction of medical students.

Post-graduate Courses in Glasgow

The arrangements made by the Glasgow Post-Graduate Medical Association for the coming winter months are on similar lines to those of recent years. A series of demonstrations will again be given on Wednesday afternoons, from November 7th to May 29th, for practitioners who desire to keep in touch with recent advances in medicine, surgery, obstetrics, and various special departments, the fee for the course is three guineas. Special courses in ophthalmology at the Glasgow Eye Infirmary—particulars of which may be obtained from the medical superintendent of that institution—include a slit-lamp course for ophthalmic surgeons in November and December, and a diploma course extending from January to May. Eight demonstrations on chronic diseases and end results will be given by the visiting staff at Stobhill Hospital on Monday and Friday afternoons in November, the fee being one guinea. Professor Leonard Findlay, Dr James Hendry, and Dr J N Cruickshank will co-operate in a course on "The mother and the newborn infant," clinical meetings and demonstrations being held at various institutions on Tuesday and Friday afternoons from November 20th to December 14th, the fee is two guineas. A series of demonstrations by the staff of the Ear, Nose, and Throat Hospital will begin on April 16th, continuing on Tuesdays and Thursdays for about a month. A limited number of clinical assistantships are available during the winter months in institutions connected with the association. Further details may be obtained from the secretary, Dr James Carslaw, 9, Woodside Terrace, Glasgow, C3.

England and Wales.

University College Hospital Medical School

THE annual "Past and Present" dinner of University College Hospital was held at the Hotel Cecil on October 12th, under the chairmanship of Surgeon Vice-Admiral Gaskell, C.B., Medical-Director, R.N. More than usual interest attached to this dinner because it marked the centenary of the Medical School and of the Medical Faculty of University College, which had been celebrated during the day by a series of special demonstrations arranged for the benefit of old students. The chairman, in proposing the toast of prosperity to University College Hospital Medical School, spoke of his pride as a former student in being asked to preside on this great occasion in the history of his old school. A characteristic he

shared with all U.C.H. men was their love of Alma Mater and then delight in her continued success. The dean, Dr A. M. H. Gray, in his reply, gave a brief account of the doings of the Hospital and School during the past year. Noteworthy events had been the completion of the new hospital buildings, the acceptance by H.R.H. Prince George of the Presidency of the Hospital, and the award of a Royal Medal of the Royal Society to Sir Thomas Lewis. The ontry of new students was larger this term than in any recent year, and there had been inaugurated that day an old students' club. In conclusion, Dr Gray referred with sorrow to the deaths of Sir Dawson Williams and Dr Walter Rigden, who had both presided over dinners in past years. The health of the chairman was proposed by Sir John Rose Bradford, President of the Royal College of Physicians, who said that they often dined out together and sat near each other on public occasions, but the best reason for entrusting him with this toast was that Admiral Gaskell and he were very old friends. University College Hospital was proud of Admiral Gaskell's fine services to the country in many parts of the world, and of the distinguished position he held to-day. The chairman, in brief acknowledgement, offered the thanks of all present to Dr F. M. R. Walshe and Mr T. K. Martin, the honorary secretaries of this most successful dinner. Dr Herbert Spencer has been elected president of the old students' club, and Dr Glyn Hughes secretary, all communications relative to the club should be addressed to the latter at the Medical School, University Street, W.C.1.

Health and Education

The new clinics at Bury, in Lancashire, which are to be used for the work of the Health and Education Committees of the borough, and also as a maternity and child welfare centre, were formally opened on October 10th by Dr H. B. Brackenbury, Chairman of Council of the British Medical Association and Vice President of the Association of Education Committees for England and Wales. The mayor Alderman S. H. Wilkinson, who presided, said that, with the exception of the dental clinic, the services which were being inaugurated were not new, but they were being transferred to better premises. Dr Brackenbury, in his address, discussed the real meaning of health and the relations to one another of health administration and educational administration. Health, he said, was not merely freedom from disease, they aimed now not merely to cure the ills that came upon them, but more and more to prevent these ills. But health was even more than that, he hoped and believed it was coming to mean the full development of all the powers of body and mind and even of personality. That being so, it must be clear to them that health and education were not two separate departments, but merely aspects of the same thing. Therefore, in pursuing their object of perfect health, the administrator—to whom he gave no mean place—the teacher, and the doctor were all parts of the same machinery, and were not working independently. The institution they had met to open was part—but only part—of the machinery which was being used to promote the perfect health of the community, and the combination of its varied activities under one roof would promote the convenience and comfort of everybody, and be economical as well. Dr Brackenbury discussed the functions of the clinics, emphasizing the importance of ante natal attention, either at the centre or elsewhere, as a means of reducing maternal mortality and illness, and pointing out that it was not to be expected that everyone would use the clinic. He believed that if people could make provision for themselves it was the best way, rather than to call on public funds. They must, to carry out the idea of unification of services effectively, interest the teachers and doctors in the institution. The reports of the health examination of the children at school, the treatment and advice they received, must be brought to the notice of the teachers, he hoped they were not so foolish in Bury as to have classes so large that the teacher could not be interested in each individual of whom he had the oversight. He hoped also that they were using the school as another part of the health machinery by insisting that every child should have proper, efficient, practical instruction in matters of personal hygiene. Further, Dr Brackenbury

said, they had to interest the doctors in the institution because it was only part of the work of the town. Doctors did their work in their own way or in other departments of public health, all were working along with the institution to produce the results which were the aim of all. He thought they should utilize the doctors of the town in the work of the institution as far as possible. Although there were limitations, the greater part of the work of a clinic of the kind could, in his opinion, best be done by the doctors of the locality itself. This had the advantage of an intimate connexion between the home where the doctor went and the work done within the institution. There was no method of producing the results desired except by unity and co-operation, they should put the institution in its right place in connexion with other people working towards the same end in the schools and homes. The best thing he could wish them was that it would become more and more unnecessary, they should not look upon it as a thing to be proud of for its size. Dr. I. W. Johnson, chairman of the Health Committee, in proposing a vote of thanks to Dr. Brackenbury and the mayor, said that the union of clinics had been brought about by the Health and Education Committees. The former body, guided by its medical officer, tried to work in conjunction with the medical men of the town on every possible occasion. They gave no treatment at the welfare centre except in cases referred thereto by their own doctors.

National Association of Insurance Committees

The sixteenth annual meeting of the National Association of Insurance Committees (which, with a membership of 125, includes all the Insurance Committees in England except four) will be held in the Hearts of Oak Building, Euston Road, London, on October 25th, 26th, and 27th. On the second day of the proceedings the meeting will be addressed by Mr. Michael Heseltine, while at the closing session on Saturday morning Professor H. R. Kenwood, chairman of the Central Council for Health Education, will speak on the work of that body, and Professor W. W. Jameson will give an address on health education. Among the representatives appointed to attend the meeting are a considerable number of medical practitioners. The annual report of the council to be considered by the meeting, refers to many aspects of insurance administration, and in particular to the discussion between the representatives of the association and the Ministry of Health during the formulation and passage of the Insurance Act of this year. In connexion with the question of prescribing by insurance practitioners, mention is made of the action taken by the Insurance Acts Committee of the British Medical Association in consequence of the revision of the arrangement between the pharmacists and the Ministry of Health last year. The investigation of prescribing is the subject of motions put forward by the Insurance Committees of East Sussex and Lancashire, the former body suggesting that the Association of Insurance Committees should urge upon the Ministry of Health that regional medical officers, in any interviews they may have with doctors in reference to prescribing, should confine themselves strictly to inquiries with regard to prescriptions issued by the practitioner, and should not lay down standards of prescribing, and further, that the Ministry, before taking any official action of a disciplinary nature, should refer the matter to the Panel Committee for its consideration. The Cheshire motion proposes the amendment of Article 37 of the Medical Benefit Consolidated Regulations, 1924, to provide for Insurance Committees being associated in the investigation of the prescribing of insurance practitioners from the point at which, under Clause I of that article, a *prima facie* case is referred to the Minister. In its report the council expresses regret that the recent amending Insurance Act makes no provision for adequate funds to enable Insurance Committees to carry out effectively the systematic education of insured persons on questions of personal health. A recommendation of the council is to the effect that the association should renew its demand for an adequate nursing service to be available to all persons entitled to medical benefit.

Ireland.

Royal Victoria Hospital, Belfast Opening of the Winter Session

THE address at the opening of the winter session at the Royal Victoria Hospital, Belfast, was delivered by His Honour Judge Thompson, Recorder of Belfast, on October 11th, in the King Edward Memorial Hall of the hospital. Professor Fullerton presided, and on behalf of the visiting staff welcomed the students. The Recorder said that his being there was an innovation, and he thought he could foresee a clergyman, an accountant, or a stockbroker coming to address them in future years. A lawyer's orbit, like a doctor's, touched nearly every aspect of human life, and often the doctor's and the lawyer's orbits intersected. This had given rise to medical jurisprudence, on which he wished to speak. By medical jurisprudence he meant the intersection which occurred when the lawyer's knowledge and interest came into contact with the doctor's—when the aid of medical science was called in in the detection of crime or in the assessment of damages for personal injuries. There had been in the past some great medical jurists, though some of them were rather in the nature of swearing gladiators, and were in everything but name, advocates, they should set before themselves the ideal that they, as witnesses, were there to assist the court, not merely to assist client or patient. They should not let themselves be persuaded to take cases "on spec", their evidence should not depend on whether their clients won or lost. If they got into that position they had surrendered their proper position before the court. The qualifications of the good medical witness were his medical and his general qualifications, and from the point of view of the court the latter were often the more important. They should know how people lived—how they carried on their trade. They should visit, inspect, and examine the machinery in case of an accident and make up their minds whether it could have been caused in the way the patient stated, they must know the meaning of the technical terms used by the patients. How the injury was caused was of vital importance. The extern or outpatient department of a hospital was an excellent school from that point of view, for there every day they met people who sustained injuries in every kind of work. The court wanted results, not diagnoses or symptoms alone, because it had to decide to what extent the injury existed. They should not be too technical—a mark of the young doctor—but they should be thorough and take a note of everything, no matter how trivial, and pay especial attention to dates. When they had made up their minds, they should stick to the opinion they had formed, they should always be in time, and, if at all possible, sit throughout the hearing of the case. Professor R. J. Johnstone proposed a hearty vote of thanks to the Recorder for his wise and witty advice. This was seconded by Dr. J. S. Morrow, who said that His Honour had a great understanding of medical men as well as a great sympathy with them.

Belfast Samaritan Hospital Extension

On October 12th, during her recent visit to Ireland, Princess Mary opened an extension at the Belfast Samaritan Hospital. At the opening ceremony Miss F. L. Henderson, president of the hospital, said that it was the only hospital in Ireland exclusively for the treatment of women, in the old building splendid work had been carried on for over fifty years. About fifteen years ago it became evident that something should be done to enlarge and renovate the building, but the war intervened and it was only within the past few years that they had been able to contemplate the absolutely necessary extension. She expressed the opinion that the operating unit was the most perfectly equipped any surgeon could desire, while the large public wards, as well as the private wards, were fitted with every modern convenience and comfort for the patients. Miss Henderson concluded by referring to the services to the hospital of Viscount and Viscountess Craigavon and Mrs. W. R. Mackenzie, the honorary secretary. Sir John

Campbell, M P, senior surgeon, traced the history of the hospital from its foundation in 1872 by the late Dr W K McKordie in a house, and the erection of the present building by Mr Edward Benn two years later, when provision was made for paying patients. The work of the institution, he said, had steadily increased, patients had been received from the whole of Ulster, and from places further afield. Princess Mary declared the hospital open, congratulating those concerned on the success of their efforts, she expressed the hope that the people of Northern Ireland would continue to subscribe liberally to the funds, and thereby keep the Samaritan Hospital in as efficient a state as modern medical science demanded. A vote of thanks to Princess Mary was proposed by Viscountess Craigavon.

Epidemiology in Ireland

Sir John W Moore's address on "Epidemiology in Ireland Past and Present," which was given at a sectional meeting of the congress of the Royal Institute of Public Health in Dublin in August, and has been published in the October number of the *Irish Journal of Medical Science*, gives an erudite survey of this aspect of medicine from the earliest times. He recalls that the earliest recorded pestilence in Ireland has been referred by the Irish annalists, the Four Masters, to the year of the world 2820, tumult marking the burial place of the victims of the epidemic which occurred then can still be seen near Dublin. From these remote times Sir John Moore passes to the beginning, towards the close of the seventeenth century, of the scientific study of disease and mortality with which the versatile Sir William Petty was associated. After reviewing the subsequent history of epidemiology in Ireland the writer brings his survey down to the present time with the record of his personal experiences and studies, and those of his contemporaries, during the past sixty years, in the earliest part of which voluntary effort proved an important factor in awakening the public consciousness to the need for sanitation and effective public health organization. Among the agencies which were engaged upon this work was a sanitary commission appointed by the *Freeman's Journal*—the leader of so many important movements in the past in Ireland—in 1873, on which Sir John Moore served as a member. He recalls that Dublin University instituted a diploma in State medicine in 1870. Four candidates were successful at the first examination, held in June, 1871, in which year Sir John Moore himself gained the diploma.

Correspondence.

THE "MEDICAL REGISTER"

SIR,—Voting papers in connexion with the election of Direct Representatives will be issued to-morrow (Saturday, October 20th) to all practitioners having registered addresses in England and Wales. Any such practitioner who does not receive a voting paper in course of post, whether he wishes to vote in the election or not, should immediately communicate with this office, in order to ascertain that his address is correctly entered in the Register—I am, etc,

44 Hallam Street Portland
Place W.I. Oct. 19th.

NORMAN C KING,
Registrar General Medical Council

FUNCTION AND POSTURE

SIR,—Your issue of September 22nd contained the report of an address by Dr W Colin Mackenzie of Australia, the importance of which can hardly be exaggerated. It also contained a leading article on his address in which his main conclusions are assented to, and, indeed, endorsed, this leader, both intrinsically and also as giving the opinion of the principal medical journal of our day, is of hardly less importance.

The gist of Dr Mackenzie's address is to emphasize the importance of the way in which the human organism functions as affecting the health of the organism, to deplore the neglect of the study of function in our present-day practice of medicine, to assert, with a considerable amount of evidence, that progress in the evolutionary

scale is associated with the "erect posture," and that the "erect posture" is still unstable, implying that the functioning of the neuro-muscular elements maintaining it is imperfect.

The address, as also your leader on it, was of all the greater interest to me inasmuch as you published on December 25th, 1926, a cognate address delivered by myself to one of the Association's important Branches, when I had the honour to be its president, on "Instinct and functioning in health and disease." In it I myself made no original contribution to the subject, but I endeavoured to attract the attention of the profession to the work of F Mathias Alexander, who has, by quite independent methods, arrived, with other things, at the conclusions reached by Dr Mackenzie, but has also done much more, inasmuch as he has evolved a technique by which he can teach his pupils a right—or rather a better—functioning. In some ways his work is the most important of our time, with a wide bearing, not only on the science and art of medicine, but also on education, philosophy, psychology, and, indeed, sociology—in which opinion I know that Professor Dewey, the famous American philosopher, agrees.

It would seem from Alexander's work that "Homo Erectus" has not yet fully learnt the "erect posture," and that he can do so only by conscious, as distinct from instinctive, effort, and to teach this conscious control is Alexander's aim. My own observations on his work lead me to believe that right functioning is the most important factor in the prevention of disease, and an improvement in functioning—in which I would include as the most important a knowledge how to walk, stand, sit, run, breathe—not only tends to prevent disease, but often to eliminate (that is, cure) disease already established. That cure is then a real one, for it follows from the removal of the cause of the disease, not, as when a surgeon takes away an inflamed appendix or a cataract, from the removal of a result of disease.

There is a danger of this important work being lost. Alexander is not now a young man in years, only a part of his teaching can ever, from its very nature, be obtained from books. As I pointed out in my own article—"words cannot be used to convey any meaning as to a sensory appreciation." If it be not lost, but incorporated into the education of the young, it is likely to do much for progress in the evolution of humanity. If it be lost, that loss may be permanent, or until another genius like Alexander is born to resuscitate it. In the history of the evolution of humanity such are rare areas. Thus medical generation will then have the reproach cast, and rightly cast, on it, that it failed to recognize the prophet in his own country and in his own time—I am, etc,

York Oct 13th

PETER MACDONALD, M D

THE POPULATION PROBLEM IN TERMS OF ENERGY

SIR,—In the interesting discussion at the Cardiff Meeting on "The falling birth rate," the opening papers of which were published in the *British Medical Journal* on September 15th, the problem of population, though considered from many angles, was not analysed in terms of energy. This I consider the most fundamental aspect, for it can hardly be denied that life, whatever else be grafted on to it, is a manifestation of the law that energy tends to degrade.

Further, it can be observed that whenever a source of energy becomes available a population of creatures eventually appears which exploits that energy till it is degraded more or less completely. Even the energy of sulphuretted hydrogen water of volcanic springs has its appropriate bacillus to live and grow upon it.

In the older simpler human communities the energy available was that which could be caught by hunting or fishing, or trapped from the sunshine and converted into food agriculturally. Then, in this country, came a great change. The immense fossilized stores of solar energy in the form of coal were not digestible by any creature till man created various Frankenstein monsters in the shape of engines which could digest this "food" and turn its energy into useful work.

Rapidly the industrial era developed by exploiting fossil energy, and far larger families could be reared and find work than was possible on an agricultural basis. More recently other countries learnt to do the same thing—often more cheaply—and a rapid decline in our rate of reproduction has become necessary. Some politicians seem scarcely to recognize that we must sell the proceeds of this energy abroad, or starve, or reduce the population. They speak of the "right to work" in terms of energy: there is no such right. It is rather the privilege of exploiting some source of energy which may be available for them or perhaps a limited number of their children.

Wild creatures seem to recognize this truth. In the great swannery at Abbotsbury in Dorset I read that the cock swans line up and kill nearly all the cygnets on their way to the water. Presumably they realize that the energy supply of their lake is already fully exploited. Even bacteria seem (to me) to have a remedy for over-population, for after cultivation for ten days on broth they develop an antiviral which inhibits further growth. This substance is now being utilized clinically.

Let us next consider money in terms of energy. To my mind it is analogous to light or other radiant energy, for there is practically no energy in light till it hits matter and sets its molecules in altered motion. Similarly, there is no energy in gold till it has passed from someone who possessed some source of energy to another who will convert it again into work. Gold is peculiarly useless except to dentists. So that money and light seem to be energy in transit. Let us apply this to the dole of the unfortunate recipients not receiving money which has, as it were, no foundation in energy—no existence in goods and services. This drains the strength of the working community and hampers its competition with energy exploiters in other countries. At present this may be endurable, but soon it will become insupportable. For, bearing in mind the rule that a source of energy will acquire a population to exploit it, we shall find that the dole will produce families, and the whole community will in time be swamped if it flouts the laws of energy in this way.

Certain extremists are now trying to catch votes by promising increased doles with extras for every child. Such leaders must consider their actions in terms of energy. It sounds horribly merciless, but far less than the consequent ruin and starvation. It seems obvious that this island is already over-populated and that the voluntary control of the birth rate is intended to minimize this evil; it should be made more available to the poor.

To sum up, I submit that the problems of population and birth control can best be studied fundamentally in terms of energy.—I am, etc.,

Hull Oct 1st.

F C EVE

THE DEFINITION OF DRUNKENNESS

SIR,—I have just returned from the quarter sessions at Clchester. I was engaged as police surgeon to give evidence against a man charged with being "drunk in charge of a motor cycle." I had seen him previously at the police station, when I certified him "not to be drunk in the ordinary sense, but not fit to be in charge of a motor cycle." A second doctor, called in at my suggestion as the man was not satisfied, agreed with my statement entirely.

The chairman of the quarter sessions, a well-known K.C., in addressing the grand jury emphasized the fact that there is only the distinction in law of being (1) drunk, or (2) not drunk, the condition cannot be qualified by "not fit to ride a motor cycle." In law doubtless he is right. The grand jury accepted his view, and failed to return a true bill.

What is my position? I live on what is probably one of the most congested motor traffic roads in England. When called by the police I have now to decide only whether the man is "police-court drunk," and if not satisfied I have to authorize the police to let the culprit go. In this case the man had in his possession a pint of port, and freedom meant drinking it and riding off on his cycle.

Unless and until there is a drastic change in the law I shall have only to decide whether the man is drunk or not drunk, and, whatever my opinion may be as to his

fitness to drive, I shall be compelled to allow him to go if he passes the "drunk" tests, and thereby I shall help to increase the number of accidents, which are already growing daily.—I am, etc.,

Crawley Oct 11th

SIDNEY MATTHEWS, J.P.

MEDICINE AND FLYING IN AUSTRALIA

SIR,—In the *British Medical Journal* of July 7th (p. 25) it is mentioned that Sir Samuel Hoare, when presenting the prizes at the London Hospital on June 29th, pleaded that the medical service of the Royal Air Force should be considered not only as an integral part of the "new arm," but as an important branch of the medical profession.

I am writing now to inform members of the British Medical Association that an aerial medical service is in actual existence in the north of Australia, the northern parts of Queensland and of New South Wales, and the Northern Territory. The Presbyterian Church of Australia initiated this service some three years ago, a long time was spent in preparation. In the meantime the necessary subscriptions had been obtained for the first year's full service, and then a request was received by the Victorian Branch of the B.M.A. that a medical man should be appointed to the board of the Australian Inland Flying Mission.

The first aerial medical officer was selected on February 22nd, 1928, there were twenty applicants. The term of service was for one year, the salary was £1,000 per annum plus expenses, and no private practice was allowed. Each district under the scheme is joined up by wireless or by ordinary telegraph service to the centre at Cloncurry, Queensland. The board of the Australian Inland Mission has made financial arrangements with the Queensland and Northern Territory Aerial Service, and at Cloncurry the aerial medical officer has an aeroplane always ready (a De Havilland 50), large enough to hold himself, the pilot, a stretcher, a nurse, and the patient. The average distance of the calls will be under 400 miles.

Dr K. St. Vincent Welch is now on active duty in that region, we hope very shortly that a report of his first year's work will be published, and will make a worthy record of service in this new land. To many of us this work is of a kindred nature to that undertaken at Labrador by Sir Wilfred Grenfell and in Kashmir by the Neve brothers.

Please note that the flying medical officer in no way interferes or competes with other medical practitioners, who are sparsely situated, sometimes 100 to 150 miles from each other. When summoned to a sick patient the flying doctor takes the aeroplane and pilot, stretcher, and nurse, and if possible brings the patient to the nearest hospital, leaving him or her in charge of the local doctor, rendering such assistance as is in his power, and even staying to give an anaesthetic or assist the doctor in any work necessary.

Medical committees have been formed in Adelaide, Melbourne, Sydney and Brisbane to consult with and advise the Australian Inland Mission, so that the whole scheme is now organized.

This work has been explained to Dr. Haden Gnest, who was recently in Australia and took back maps with him to London, Dr. Beveridge hopes to introduce something like this scheme into Uganda.—I am, etc.

Melbourne Australia

J. W. DUNBAR HOOPER, M.D.

ANAESTHESIA FOR TONSILLECTOMY AND REMOVAL OF ADENOIDS

SIR,—In the correspondence that has taken place on this subject during the past few months, most of the writers seem to have assumed that, where tonsils and adenoids were enlarged or diseased, their removal was all that was necessary to bring about a cure and to restore the child to its normal health.

The "lust for speed" appears to have spread to operators, some of whom seem to boast that they hold the "record" for the number of cases they can get through in an hour. But little mention is made of "results." They do not state how many of these children are restored to normal health and how many are not. This, I think you

will agree, is an important point, and I should like, as a general practitioner who follows up many of these cases, to offer a few observations.

It has not infrequently been my experience that children who have had their tonsils and adenoids removed by experts have not been cured, and, in fact, have been little better for the operation. Such children suffer from chronic nasal infection with persistent discharge, liability to severe "colds," attacks of bronchitis, and general ill health, which seriously interferes with their development and education. This, I think, is generally due to sinus infection, which has to be dealt with before the trouble clears up. In fact, I believe that quite a large proportion of children with enlarged tonsils and adenoids do suffer from sinusitis, and in order to make the operation for their removal a success the nasal sinuses should be explored and, if necessary, washed out. This can quite easily be done if ether is administered, but obviously it cannot be if such a transient anaesthetic agent as ethyl chloride is used.

On this point I should be glad to have the comments of some of your previous correspondents—I am, etc.,

W R SOMERSET, M B, Ch B

Wolverhampton Oct 7th.

TUBERCULOSIS SERVICE

SIR,—May I suggest that those taking up an appointment at a sanatorium, under a county or other administrative body, should adopt the following precautions:

1. To be medically examined by someone whose opinion will carry some weight.
2. To have a good skiagram taken of the chest.
3. To obtain a clear understanding as to the course of action the committee concerned will take should he or she develop tuberculosis.
4. To take out or better still insist that the committee take out for him or her a medical sickness insurance policy.

There are public bodies who will not admit any liability, nor will they make any provision for treatment, should a member of their staff develop tuberculosis whilst in their service, except to grant a variable period of sick leave.

Thus, unless these precautions are taken, anyone holding an appointment at a sanatorium who is unfortunate enough to develop tuberculosis will have his or her appointment terminated, either immediately or following a short period of sick leave. Moreover, no provision will be made for his or her treatment—I am, etc.,

Devon Oct. 10th.

ALAN J McFILLAN

TUBERCULOSIS IN CHINA

SIR,—In the report of Dr Hoyte's address at the Medical Missionary Breakfast at the Annual Meeting at Cardiff (Supplement, August 4th, p 86) mention is made of the ravages caused by tuberculosis in China, "an interesting point in view of the fact that milk is very little drunk."

Now in making a précis of the address certain relevant points may have been lost, but the above statement is too inaccurate in its implications to be allowed to pass without criticism and a statement of the facts as known to us in the East.

No one disputes that tuberculosis is a scourge among the Chinese, or that these people, for several reasons, chiefly economic, do not drink much milk. But, even if they did drink milk, the tuberculosis morbidity rate would be much the same, for tuberculous cattle are few, thus there were 23 condemnations out of 40,000 slaughtered cattle (Shanghai Municipal Report of last year).

As we find tuberculosis, it is an infection with the human type of germ, and it is spread in the usual way by coughing and spitting unrestrainedly, indiscriminately, inside dwellings, and in public places. No other method of propagation of this disease need be considered or discussed as regards the Chinese.

The "interesting point" in fact is this: that education and isolation of the sick would be more likely to eradicate quickly the disease in the Orient than in carefully administered Britain! And this for the reason that children here are not being supplied with tuberculous milk from fourth-

rate and filthy dairies untouched by a legislation that shudders at the idea of anything "in discouragement of trade."

I hear of the new slogan with you at home, "Drink more milk," and I read in your issue of August 4th (p 216) of that dairy in Hertfordshire! And having read thus I feel grieved that it should be suggested at a meeting of medical men that China is so very far behind in this year of grace I apologize in advance to Dr Hoyte if I have read more into the report of his speech than he intended, but (as he is no doubt aware) Dr Cobbett ascribes 30 per cent of the cases of bone and joint tuberculosis in young children in England to the bovine type of infection, is not this to an even greater degree an "interesting point in view of" (1) the number of health officials maintained, and (2) the profits of the milk trade?—I am, etc.,

A H SKINNER,

Admiralty and Customs Surgeon

Hankow, China Sept 7th.

SODIUM NITRITE IN SEA-SICKNESS

SIR,—Without entering into the complex etiology of sea sickness, but working solely on the preliminary report of Drs J Frank Percy and Daniel B Hayden on the treatment of sea-sickness by sodium nitrite (*Journal of the American Medical Association*, April 14th, 1928), the following results were obtained in a series of 100 consecutive cases treated at random with sodium nitrite:

Positive—complete relief	29
Positive-negative—partial relief	5
Negative—no relief	43
'No record'	23
	100

The salt was given in 5-grain tablets, at two-hourly intervals, for six doses. If no relief was obtained other remedies were applied. We were able to give it in 12 cases prophylactically, before even any sensation of *mal de mer* had been experienced at all, with 5 positive and 7 negative results.

In 8 cases presenting every symptom of sea-sickness short of actual emesis, its administration promptly produced vomiting. Whether this was because or in spite of the drug we were unable to decide, although the patients quite naturally attributed the sequel to it and refused to take any more. Two patients showed signs of collapse with profuse sweating and pallor within twenty minutes or so of taking the first dose. Subsequent examination of the pulse revealed a state of hypotension. Hence, as indeed in all cases of sea-sickness, a rough estimate of the blood pressure should be made prior to giving sodium nitrite. In the other cases vomiting had occurred before the drug was administered.

Cases shown as "no record" are included in this term to avoid vitiating statistics, since, presumably, they may include both positive and negative results which the patients were not sufficiently interested to report officially and which we were not in a position to follow up without unduly obtruding ourselves.

From this limited number of cases we are of opinion that sodium nitrite is by no means a specific for sea-sickness. In fact, its results do not compare with those obtained by the hypodermic injection of strychnine and atropine. A more extensive test of its value as a prophylactic—before the onset of any symptoms—would seem desirable. Its employment, however, as a routine in preference to other known remedies, when vomiting has set in, does not seem justified in our experience. It undoubtedly succeeds in some cases, but, like all other measures tested to date—"patent" or otherwise—it is far from being a specific.

That 100 cases is a small number upon which to base an opinion is frankly admitted, but, except from a prophylactic standpoint as yet to be accurately determined, the success obtained so far does not appear to warrant anything further than the inclusion of sodium nitrite in the long list of drugs already in use for this distressing condition with varying success.

At the present moment a proprietary preparation, made in Philadelphia, is being extensively advertised to North Atlantic travellers. It purports to be based on the same preliminary report regarding sodium nitrite upon which the foregoing test was made. The advertisement, however, contains a very definite saving clause to the effect that "it was later found necessary to add other ingredients." The nature of these additions is not stated, although it would be interesting to know what they are, more especially so, in view of the short time which had elapsed—three months, April to July, 1928—since the publication of this preliminary report and the appearance of the tablets on the market. Furthermore, the inclusion of other ingredients in the tablets at once nullifies the claim made for the efficacy of sodium nitrite in the preliminary report.—We are, etc.,

A VAYASOUR ELDER, M R C S, L R C P
DONALD STARR, M B, Ch B V I C

SS Cedric Sept 29th

DEMENTIA PRAECOX IN PARSEES

SIR,—I notice in your issue of October 6th (p. 634) that a correspondent, who does not appear to have any personal knowledge of Indian conditions, has isolated one small generalizing paragraph from my article on the heredity of dementia praecox, published on September 29th (p. 566) in support of what is apparently his thesis that dementia praecox is due to "Western education" pure and simple!

Nowhere have I stated, nor is it true, that Parsee education is of a specially intensive kind. On the contrary, I have dwelt on the genius of the race for commerce, which does not demand any such type of education, and on the peculiar prevalence of the disorder among Parsees generally. I have not used the word "Europeanized," nor have I stated that any one Indian community is on a "lower" stage of civilization than another. I attempted to show in my article that the peculiar incidence of schizophrenia among Parsees was not traceable to any fault, education or environment. That "mental stress" may be an "exciting cause" of the disorder in predisposed individuals, wherever they may live, is, I think, admitted by all authorities.

Dr Brock's "common factor" for Indian communities does not therefore exist, and however much I may agree with him about the dangers of "cramping," his advice to Parsees to avoid Western civilization is not supported by anything I have written. The dangers of "inbreeding" are, however, to my mind, obvious—I am, etc.,

W S JACOB SHAW, M D,
Lieut-Colonel I M S (ret.)

Parkstone Oct 7th

SECURITY OF TENURE IN PUBLIC POSTS

SIR,—I have read with great interest the letter in your issue of September 29th (p. 587) by Dr H C McManus on security of tenure in public posts. I consider his remarks worthy of the most serious attention, and very opportune.

As the servant for some years of a local authority—namely, an asylum visiting committee—I should like to make a few remarks not only on the question of security of tenure, but also on the conditions of service of an assistant medical officer in an asylum. We hear a great deal these days about the desirable opening which the asylum service provides for newly qualified medical men and women, but we hear very little of its undesirable features. My remarks are based on my own experience and on that of others with whom I have come in contact. They apply in most respects to all asylums, but more especially to the smaller institutions.

In the first place, as Dr McManus has stated, there is no security of tenure whatever. The committee can dispense with the service of any medical officer at any time it wishes and without giving any reason. Dr McManus speaks of the position of a housemaid, but I consider the position of a housemaid in an asylum as much more secure

than that of an assistant medical officer. She is generally a member of a very powerful union, which takes care of her interests.

Then with regard to salary. The commencing salary of an assistant medical officer is £300 or £350 with board and lodgings. In a great many asylums the increments are entirely at the pleasure of the committee. Nothing is promised at the outset, and all increases must be asked for by the person interested, to be granted or refused at the committee's pleasure. It must be borne in mind that the assistant medical officer never comes in personal contact with the committee. Whatever report the medical superintendent may make is all that the members of the committee know about him. In fact, many medical superintendents take pains to prevent as far as possible any personal contact between the committee and the junior officers. In addition, a junior medical officer is always resident, and receives board and lodgings as part of his salary. The value of such emoluments varies enormously. In most of the smaller asylums it seems to be nobody's business to see that this part of the contract is carried out in a proper manner. In an experience of several years I am unable to recollect a single instance where an inquiry was made either by the medical superintendent or by the visiting committee as to the comfort of the assistant medical officer's lodgings or the quality of his food.

Furthermore, in the majority of cases the junior assistant medical officer, if he decides to remain in the service must take what amounts to a vow of celibacy. No married quarters are provided, and, if they were provided, the salary is totally inadequate for a married man. Next, with regard to hours of duty, the assistant medical officer is on duty twenty-four hours a day for seven days a week, with the exception of about two afternoons a week. If he requires a morning off he has to obtain the special permission of the medical superintendent, and the circumstances must be exceptional. If he is lucky he may obtain one or two week-ends in the year. I should like to add that no arrangements for post-graduate study are ever made, nor is any opportunity given to learn the administrative side of an asylum officer's duty. The work is mostly drudgery of a very uninteresting nature, and in the case of a man without influence the chances of promotion are almost nil.

Such are the realities of the asylum service as I have found them. I admit that in larger institutions the conditions are often better. Even in the smaller institutions in a few cases an enlightened administration has done much to alleviate the evils of a system which in other circumstances are well-nigh intolerable. But even in the most favourable circumstances I consider the position of an assistant medical officer in an asylum as poorly paid, unsecure, lacking in independence, and incomparably inferior to that of a general practitioner.

I suggest that the question of public posts in general, and that of asylum medical officers in particular, should be taken up with the local authorities by the British Medical Association. And here let me acknowledge with gratitude what has already been done by the Association. I shudder to think what would be the hapless plight of our profession if no such association existed. However, much remains to be done in the case of asylum medical officers. I make the following suggestions:

- 1 Security of tenure during satisfactory service with the setting up of some form of independent tribunal to decide questions involving professional conduct and discharge of duties.
- 2 Adequate remuneration with fixed scale of increment.
- 3 The provision of proper living accommodation with the opportunity to marry if desired.
- 4 Arrangements for post graduate study.
- 5 Reasonable amount of time off duty. Let me add in this connection that an attendant in an asylum gets two whole days off each week and three weeks holiday in the year. In many institutions the nurses work an eight-hour day with one whole day off in the week.
- 6 An adequate pension with compulsory retiring age of 55.

Until these points are settled in a satisfactory manner I strongly advise all young medical men to keep out of the asylum service.—I am, etc.,

October 1st

A M O

Obituary

HUGH FENTON, M A, M D,

Consulting Surgeon to the Chelsea Hospital for Women

We regret to record the death of Mr. Hugh Fenton, consulting surgeon to the Chelsea Hospital for Women which occurred on October 5th at his home in Herefordshire.

William Hugh Fenton was born at Shardlow in Derbyshire in 1854, his father being also a member of the medical profession and was educated at Derby School, from which he went to Merton College Oxford, and later to the London Hospital Medical School. He obtained honours in natural science in 1876 and a surgical scholarship in 1879, and qualified in 1880 with the diploma M R C S. Three years later he obtained the L R C P and graduated M D Briss.

In the first years after qualifying he took up diseases of the throat as a specialty, and actually became one of the physicians to the London Throat Hospital and surgeon to the Throat Hospital, Golden Square. His association with gynaecology began in 1883, when he was appointed anaesthetist to the Chelsea Hospital for Women and became private assistant to Dr. Palfrey, who was one of the fashionable gynaecologists of the time. This association of diseases of the throat and gynaecology will appear strange to the present generation, but in the days when both of these specialties were in their infancy it was by no means uncommon. When Palfrey died Fenton took over his house in Brook Street and settled down as a practising gynaecologist there, for in 1885 he had been elected assistant physician to the Chelsea Hospital for Women, gynaecology at that time being regarded as a province of medicine. Soon after his marriage in 1887 he removed to 27, George Street, Hanover Square, and in 1893 he became one of the full physicians to the hospital. A year or two later the institution was reconstituted, but certain members of the old honorary staff were reappointed, and among them was Fenton, who was placed on the senior staff, having as his colleagues the late Dr. William Duncan and Sir John (then Mr.) Bland Sutton.

From then onwards, till his retirement on account of age in 1914 he devoted his best energies to the welfare and advancement of the hospital. His professional work there will always be remembered by those who served with him for the conscientious way in which it was carried out, with the result that, without ostentation and in the most humble-minded spirit, he accomplished a record of surgical achievement of which any man might be proud. His skill as a diagnostician will perhaps remain most clearly in the minds of those who worked with him, he was certainly by far the most brilliant exponent of the art of vaginal examination that the writer has ever met. To posterity he will be known by two surgical instruments, the value of which has stood the test of time—Fenton's double-ended cervical dilators and Fenton's "bulldog" volsellum. But he was more than an able gynaecologist, he was a great practitioner, possessing beyond technical skill, that wider outlook—born of kindly understanding and ready sympathy—which raises one calling from a science to an art, and few medical men have been so beloved by their patients as he was. His services to the Chelsea Hospital for Women were very great, and the more so because they were given without stint at a time when the hospital most needed them. As a colleague he will be held in affectionate remembrance by all of us who had the good fortune to be associated with him. Entirely free from that petty jealousy which too often mars the character of able men, he held the work of his colleagues in generous appreciation. He was always kindly and helpful to every member of the staff from the lowest to the highest and was exceedingly generous to those under him.

In addition to the appointments mentioned above he served during the war as senior surgeon to the Hammer-smith War Hospital, and as surgeon to the County of London War Hospital at Epsom. He was also physician to the Society of Lady Journalists. In the British Gynaecological Society he had filled the offices of vice-president and honorary secretary.

Hugh Fenton was a keen sportsman and spent all his holidays fishing and shooting. The latter sport he had to give up by reason of advancing years, but the former

engaged him right up to the last year. The writer looks back with regret on many holidays spent with him in this delightful pastime, and rendered the more enjoyable by his cheery good nature and equable pleasantness. He married, in 1887, Alice Anne, eldest daughter of the late William Foster of Hornby Castle. His wife, who survives him, shared equally in the good work he did for the Chelsea Hospital for Women, and all his many friends will join in tendering to her their deepest sympathy.

V B

Dr. JOHN MALCOLM MACPHERSON, who died from pneumonia at Gorseinon, Glamorganshire, on October 4th, after a few days' illness, at the age of 39, had been engaged in practice in the Swansea district since the war. He received his medical education at the University of Glasgow, graduating M B, Ch B in 1912, in 1920 he obtained the D P H Wales. After qualifying he was for a time clinical clerk at the Woodilee Asylum, Glasgow, and in 1916 he removed to South Wales, where he ultimately settled down in practice at Gorseinon, near Swansea, holding also a number of part-time appointments, including those of medical officer of health for the Swansea Rural District and medical officer to the Swansea Union. He built up an extensive connexion and was a popular figure among his colleagues and with the general public. He was a member of the British Medical Association in the Swansea Division, whose members were well represented at the funeral on October 8th. We are indebted to Dr. W. A. MacLennan for the following appreciation. My memory of the late Dr. John Malcolm Macpherson goes back for nineteen years, to our student days at Glasgow University. The acquaintanceship formed there ripened into a warm friendship when, after the war, we found ourselves in adjacent practices. His death has caused universal regret. He was held in affectionate esteem by his professional brethren, and was loved by all classes. His was a most attractive personality, and his many noble qualities of heart and mind endeared him to a large circle of loyal friends. Of a generous nature he gave himself unstintingly in all he did. He had a keen and kindly insight into human nature, and this, coupled with his professional ability, helped him to maintain a large and successful practice. He was cut off with tragic suddenness in the flower of his manhood, and to us who were privileged to be his friends his untimely death has caused an irreparable loss.

Professor EDOUARD CHARLES ALBERT ROBIN, who died at Dijon on September 25th, was born there in 1847. After occupying the post of demonstrator in chemistry at the Faculty of Science of that city he went to Paris to study medicine, he qualified there in 1877, and won the silver medal for his inaugural thesis. He then became director of chemical research in the clinical laboratory of the Charité Hospital. In 1886 he was awarded the biennial Lœtze prize of 10,000 francs by the Faculty of Medicine for his "*Leçons de clinique et de thérapeutique médicales*," and in the next year was elected a member of the Académie de Médecine. Professor Robin was the first occupant of the chair of clinical therapeutics, founded about twenty years ago; he was also a Grand Officer of the Legion of Honour, president of honour of the international congresses of hydrology, climatology, and geology, president of the Société de Thérapeutique, and editor of the *Bulletin général de Thérapeutique* (1901) and of a *Traité de thérapeutique appliquée* (1895-97). He took an active part in the campaign against tuberculosis, and was the author of a book on the treatment of the disease which was translated into English in 1913. His principal work, however, was his monograph on diseases of the stomach, which reached a second edition in 1904.

The following well-known foreign medical men have recently died. Dr. OSKAR MENZ, professor of children's diseases at the Carohne Institute of Stockholm, whose name is associated with epidemic poliomyelitis, Professor JANOWSKI of Kiev, Dr. GUILLAUME ROSSIER, professor of obstetrics and gynaecology at Lausanne, Dr. W. MISTREZAT of the Institut Pasteur, Paris, and Professor C. A. LEE REED, a gynaecologist of Cincinnati, aged 74.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a congregation held on October 12th the following medical degrees were confirmed

MD—H G Hill
MB B Chm.—A W C Mellor T M Proctor G M Addison G H
Barendt C G E Plimstead D H Belfrage E T James T St. M.
Norris P G Bentlif L A P Singer E W Lindock H Smith
M.B.—G G Holmes
B Chm.—Hon W S MacLay M R Sinclair

The following candidates have been approved at the examination indicated

D P H (Part II)—B J Ajwani M S Batra *O P Brockington
Bertha M Batters R O Dracup Margaret A. Glaes N Gupta
*S. Inderson I L G Iredale G A Mossib Jean H Morton
*R A W. Procter J Mle S Stephen J N Vasudeva, Dorothy
Watkinson P O Wickiemeslohe, *K O Yeo

* With distinction.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A QUARTERLY Council meeting was held on October 11th when the president, Sir Berkeley Moynihan, was in the chair. The diploma of Fellowship was granted to Robert Milnes Walker, and diplomas of Membership were granted to H T Flint H Joomyc and Marguerite C Rosser, who have now complied with the regulations. It was decided to purchase an opidiascope by Zeiss for the lecture theatre.

Mr H D Fleming was nominated as the thirty-sixth Jenks Scholar.

The draft copy of the annual report of the Council to be presented to the Fellows and Members at the annual meeting on Thursday, November 15th, was approved and adopted.

CALENDAR FOR 1928-29

The College Calendar for the current year besides much other information arranged on familiar lines includes a report of the proceedings of Council during the past twelve months. Full details are given of the scheme for holding in Canada the primary examination in anatomy and physiology for the Fellowship which has been arranged with the Canadian Medical Association and the Council is now in communication with the College of Surgeons of Australasia about the feasibility of a like arrangement for Australia.

The subject of the Jacksonian Prize essays for the year 1929 is 'The pathology, diagnosis, and surgical treatment of diseases of the salivary glands. The prize for 1927 has not been awarded.

In the period under review 76 diplomas of Fellowship were issued (including 2 to women), 676 diplomas of Membership (including 118 to women), and 100 licences in dental surgery (including 5 to women). The following diplomas were granted jointly with the Royal College of Physicians Public Health, 79 (including 24 women), Tropical Medicine and Hygiene, 77 (12 women), Ophthalmic Medicine and Surgery 39 (2 women), Psychological Medicine, 15 (2 women), Laryngology and Otology, 29 (1 woman).

The financial report shows that the total receipts in respect of current revenue during the year ending June 24th 1928 amounted to £27,939. The total expenditure of the College was £23,953. Receipts were £654 less than in the previous year, and expenses £708 more.

The Conservator's report opens with a full and appreciative account of the Strangways Collection and its history. This important group of preparations illustrative of rheumatoid changes in bone cartilage, and capsule was offered by the trustees of the collection—Sir Humphry Rolleston Professor H. R. Dean and Mr Malcolm Donaldson—to the Council of the College and was accepted in July. It has since been brought from Cambridge to the Museum, and after re-examination selected specimens will ultimately be incorporated as part of the Pathological Collection. Dr Strangways's name being attached to the description of each specimen and the valuable collection of microscopic preparations will be preserved as a special unit in the "Strangways Cabinet." The revision of this collection and the preparation of a descriptive catalogue have been undertaken by Mr R. Lawford Knaggs. Among gifts of outstanding value to the Museum Sir Arthur Keith mentions the presentation by Dr William Hunter to the College of his entire collection of specimens illustrating diseases of the blood-forming organs obtained from clinical cases which formed the basis of his classical inquiries into the causation and nature of pernicious anaemia. For this gift Dr Hunter has been accorded a special vote of thanks by the Council. The Odontological Department of the College has received from Sir James Berry a series of casts and models illustrating the methods he used and the results he obtained on cases of cleft palate treated by operation.

CONJOINT BOARD IN SCOTLAND

The following candidates have been approved at the examinations indicated

FINAL EXAMINATION—Medicine Y A R Ezziat W Stevenson
M G Lucas B Cunningham L H Abernethy Surgery Anna G
McGregor Y A R Ezziat, M A Yoniss V Sivaprasadam B A D
Robert D Brink A B O'Brien Midwifery Anna G McGregor
Y A R Ezziat M A Yoniss G Das P L Smith L O Abernethy
R Cunningham V Sivaprasadam Medical Jurisprudence and Public
Health D A Black T A M Ashforth H P Lawson I G Bryson
Jean G Clark M A Yoniss I M A Ismail E O Hagedorn
C. Vellamy M D Evelyn D M O Flaherty M P Moss A R Hunt,
M. U. Rajat.

Out of 85 candidates entered the following passed and were admitted L R C P Edin, L R C S Edin, L R I L and S Glasg

L Myers J T F Pearse Hanna Barsom J R Martin O K. Row
R N Calvert, S B B Asheville G A Nelson M I. Mullen,
T Ramasamy H A Mohamed I A P Fennell F R B H Kennedy
A K M. Alia, C Joseph K. Kanakasabapathy W P Novillo
G Kahn D S. McMillen J H Brusk C H Howe N W Laine,
T R Jansen H Craig L Malik Mansoor E L Fraser A H F
Arnott Hope D Lazarus J B Cole H. Genaratna.

The following candidates, having passed the requisite examinations, have been admitted Diplomates in Public Health

R L Mackay R Norton J Sharpe Constance P Hunter A Law
A D Mack

Medico-Legal.

EXPLOITATION OF SHAM FRACTURES

A motor engineer George Winter Williamson who pleaded guilty at the Mansion House, London, on October 11th, to two charges of fraud on an insurance company, was stated by Mr Percival Clarke, who prosecuted to have a congenital condition of the left clavicle which enabled him to simulate a fracture with ease, and so to have made twenty accident claims since 1922 obtaining £2,300 on nineteen of them. It was alleged that he had been living for years past on the proceeds of imaginary accidents. Williamson was charged with having by false pretences obtained from the Royal Insurance Company on June 15th a policy of insurance against accidents and on July 25th a cheque for £162, with intent to defraud. Mr Clarke said that the defendant in applying for the policy made a number of statements which were not true. He stated that he had no physical defect or infirmity, that he had good eyesight—though he had only one eye—that he had had no fractures or dislocations of bones and had never proposed for or made a claim in respect of any accident policy before. The policy in question had only been issued a few days when he made a claim in respect of a fractured clavicle a similar but unsuccessful fraud was simultaneously attempted on another insurance office. Mr J Albert Davis defending said that the accused's physical condition was not congenital but was really such as to render him especially liable to displacement of the shoulder blade and collar bone. Williamson was sentenced to six months imprisonment in the second division on each charge to run consecutively—twelve months in all.

The Services.

VOLUNTARY AID DETACHMENTS

The latest War Office returns of the progress made in the organization of voluntary aid detachments show that 90 men and 801 women's detachments comprising a total membership of 22,843 have received recognition under the scheme inaugurated in 1923. This is an increase of 40 detachments and 1,044 members on the previous half yearly returns. In all 3,834 members have taken the mobile obligation to serve in the event of a national emergency abroad or at home. Of the country areas London has a membership of 1,369 East Lancashire 1,170, and Norfolk 1,030 while Yorkshire (North Riding) Hampshire Yorkshire (West Riding) Somerset, Devonshire Surrey Cheshire Lincolnshire, West Lancashire Essex and Kent have each over 500 members. Scotland has a total membership of 3,418, the number of detachments being 123 and there are 49 Welsh detachments with a total membership of 1,310.

Medical News.

THE autumn dinner of the University of London Medical Graduates' Society, to which we referred in the *Journal* of September 29th (p. 584), will be held on Wednesday, October 31st, at 7.15 p.m., at the Langham Hotel Langham Place, W.1, with Sir St. Clair Thomson in the chair. Particulars may be obtained from the honorary secretaries of the society, 11, Chancery Street, W.1.

THE annual dinner of the Prince of Wales's Hospital Reunion Association will be held at the Trocadero Restaurant, Piccadilly Circus, on Thursday, November 8th, at 7.45 for 8 p.m., with Dr Charles Hadfield in the chair. Dinner tickets (12s 6d, exclusive of wine) may be obtained from Dr J. Browning Alexander, 42, Harley Street, W.1, or Dr S. O. Rashbrook, 7, Wellesley Road, Chiswick, W.4.

THE Birmingham and District Edinburgh University Club will hold its twenty-fourth annual dinner at the Queen's Hotel, Birmingham, on Thursday, November 8th, at 7.30 p.m., the Principal of the University of Edinburgh, Sir James Alfred Ewing K.C.B., LL.D., will be the guest of the evening, and Dr B. C. R. Aldren will preside. The club is open to all male graduates of the University, and it is hoped that any gentlemen who have not received notice of the dinner will communicate with the honorary secretary, Dr Ernest Bulmer, 87, Cornwall Street, Birmingham.

As already announced in our columns Dr Markusz Hajok, professor of oto-rhino-laryngology in the University of Vienna, will deliver the Semon Lecture on laryngo-rhinology and general medicine in the Barnes Hall, at 1, Wimpole Street, W, on Thursday, November 1st, at 5 p.m. The obit will be taken by Mr H. Bell Tawso, president of the Laryngological Section of the Royal Society of Medicine.

A CHADWICK Public Lecture on public health buildings and recent improvements in town developments in Sweden will be given by Mr Torben Grut, at the Royal Institute of British Architects, 9, Conduit Street, W 1, on Thursday, October 25th, at 5 p.m. Sir William J. Collins, K.C.V.O., M.D., chairman of the Chadwick Trustees, will preside. Admission is free.

THE annual special service for members of the medical profession and nurses in Sheffield and district will be held at the Cathedral, on Sunday, October 21st, at 3 p.m., when the Bishop of Sheffield will preach the sermon.

THE Fellowship of Medicine and Post Graduate Medical Association announces that the second lecture in the new series will be delivered by Mr E. G. Slesinger on Monday, October 22nd, at 5 o'clock, at the Medical Society of London, 11, Chandos Street, Cavendish Square, W 1, the subject being "Fractures at the wrist." On Tuesday, October 23rd, at 4 p.m., Dr C. G. Gledhill will give an x-ray demonstration at the Royal Northern Hospital, and at 2.30 p.m. on Friday, October 26th, there will be a clinical demonstration at the Cancer Hospital by Mr P. P. Cole. On Wednesday, October 24th, Dr Donald Hunter will give a lecture-demonstration on "Portals of entry in tuberculosis morbid anatomy and some clinical aspects" at the Wellcome Museum of Medical Science, 33, Gordon Street, W.C., at 4 p.m. All of these lectures and demonstrations are open to the medical profession, without fee. From October 23rd to November 10th the staff of the Hampstead General Hospital will give a special evening course, while from November 5th to December 1st a course in venereal diseases will be given at the London Lock Hospital. From November 12th until December 1st there will be a special course in ophthalmology at the Royal Westminster Ophthalmic Hospital's new building. A week's course in proctology begins at St. Mark's Hospital on November 12th, and from November 19th to December 15th there will be a late afternoon course at the West End Hospital for Nervous Diseases. From November 19th to December 1st there will be a special course at St. Peter's Hospital. Copies of all syllabuses and further information may be obtained from the Secretary of the Fellowship, 1, Wimpole Street, London, W. 1.

A NEW course of post-graduate instruction in genito-urinary disease will commence at St. Paul's Hospital on Wednesday, October 24th, at 4.30 p.m., when Mr R. H. Jocelyn Swan will lecture on tuberculosis of the urinary organs. The lectures, which will be continued in succeeding weeks, terminate on December 6th, when Dr David Thomson will speak on common infection of the genito-urinary tract. No fee is charged for attendance. Medical practitioners and students are invited to attend any branch of the work in which they are interested. Tea is served at 4 p.m. Further information may be obtained from the secretary, St. Paul's Hospital, Endell Street, W.C. 2.

THE annual dinner of the Surgical Instrument Manufacturers' Association was held at the Holborn Restaurant on October 12th, under the chairmanship of Mr Patrick C. Maw, the new president. Mr A. W. Down, in testifying to the health of the association, said that it had now accomplished eleven years of useful work, and its membership included not only the heads of all the leading firms in the trade, but many other members of the craft, especially those expert in salesmanship and demonstration. Mr Maw, in reply, mentioned some of the activities of the association, and referred in grateful terms to the six years of devoted service by his predecessor in the chair, Mr E. W. Mayer. In response to the toast of "The Guests," Mr H. S. Souttar, F.R.C.S., said that the instrument maker was the right hand man of the surgeon, and the skill which the maker acquired in learning surgical needs was almost uncanny. In spite of the complexity of the instruments now produced, however, it was extraordinary how few of them were new. A little while ago a friend of his who had just invented a pair of gynaecological forceps, of which he was inordinately proud, was exploring the ruins of Herculaneum, and in the museum there found an exact anticipation, two thousand years old, of his own invention. Medical students, said the speaker, knew very little about instruments. He had had to examine students in surgery, and the most paralyzing part of the examination was when he showed the student an instrument and asked him what it was. It was pathetic to hand a student N. Macewen's osteotome and to be told that it was a chisel, the student evidently never having heard the name of Macewen. In hospitals such skilled assistance was at hand that the operation went through without the student

—sometimes without the surgeon—realizing how much was being done for him, though the surgeon learned this quickly enough when he went into the nursing home and had to find his own instruments and thread his own needles. Mr Souttar concluded by saying that he had an immense admiration for the British instrument maker. He had travelled a good deal on the Continent, and always made it a practice to see what other people were doing. Some times he picked up an instrument as a keepsake, but very usually that remained its only function. Generally one could get the same type of instrument in this country as abroad, and probably a much better one. Mr L. Ferris Scott added a few words of appreciation of the hospitality shown to the guests, and spoke of the admirable way in which the instrument-makers supported the annual exhibitions of the British Medical Association.

THE half yearly meeting of the British Spas Federation, at which were present representatives from Bath, Buxton, Cheltenham, Droitwich, Harrogate, Leamington, Llandrindod Wells, Strathpeffer, Trefriw Wells, Woodhall Spa, and New Zealand, was held in London on October 3rd. Lengthy discussions took place regarding foreign competition, and various methods were suggested for overcoming the present practice of many British people of going to foreign spas, although at British spas the facilities for treatment, the methods of giving treatment by a medically trained and fully qualified staff, and the amenities of the spas were at least equal to those prevailing at foreign spas. The federation proposes shortly to publish in book form the results of the research work which has been carried on intensively at British spas during the last few years by various medical committees and chemists.

MR SAMUEL P. COOPER of Moseley, Birmingham, who died in June last, has bequeathed £1,000 each to the General Hospital, Birmingham, the Queen's Hospital, Birmingham, and the Birmingham and Midland Free Hospital for Sick Children, and to Dr Barnardo's Homes, £500 each to the Birmingham and Midland Eye Hospital and the Birmingham and Midland Homoeopathic Hospital, and also to the Children's Hospital at Cold Ash, Newbury, if his niece is matron there. After other bequests the residue of the property is to be divided between the General Hospital, the Queen's Hospital, the Birmingham and Midland Free Hospital for Children, and Dr Barnardo's Homes. Under the will of the late Mrs Emily Crossley the Ancoats Hospital receives £2,000.

MR HENRY KIMPTON announces for early publication a second edition of Kellogg Speed's *Text book of Fractures and Dislocations*, in one volume of 952 pages, with 987 engravings.

THE October issue of *Leprosy Notes*, which is the quarterly publication of the British Empire Leprosy Relief Association, contains numerous articles of special interest. Dr A. B. Macdonald describes the founding of a leper colony in Nigeria, Dr J. O. Shircore supplies a short note on leprosy work in Tanganyika, Dr F. O. Birkenstock gives a general account of a Central African treatment centre, and Dr N. Macvicar reports on a visit to the Government Leprosy Institution at Enjanyana in the Transkei. The Rev G. M. and Mrs Kerr record the progress made since 1916 at the Dichpall Leprosy Hospital in Hyderabad, and a note on the campaign in Bengal is contributed by Dr E. Muir. Sir Leonard Rogers writes on the progress of modern prophylaxis, and Dr R. G. Cochrane reviews the present-day methods of the treatment of leprosy. Other articles deal with work in the Gold Coast Colony and the part played by nursing in leprosy. This useful publication can be obtained from the secretary at the office of the Leprosy Relief Association, 24, Cavendish Square, W. 1.

COLONEL ASTLEY V. CLARKE, M.D., J.P., has been appointed deputy lieutenant for the county of Leicester.

DR J. BEE of Bromley and Dr W. C. Milles of Cubitt Town have been appointed justices of the peace for the county of London.

A BELGIAN league against rheumatism has recently been founded under the presidency of Professor H. Verhoogen. Its object is the social and scientific study of rheumatism and its treatment in institutions in Belgium and abroad sanctioned by the league.

A CHAIR for industrial hygiene has been founded at the Naples Faculty of Medicine with Professor Nicolo Castellino as its first occupant.

A CONFERENCE of the German Association for Combating Rheumatism will be held in Berlin, from November 4th to 7th. Demonstrations will be given in different Berlin clinics. Further information may be obtained from Dr D. Hirsch, the general secretary of the conference, Traunhoferstrasse 16, Charlottenburg, Germany.

A POST GRADUATE course in diseases of children will be held in Vienna from November 26th to December 8th. Details may be obtained from Dr A. Kronfeld, Porzellangasse 22, Vienna IX.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The Editor, British Medical Journal, British Medical Association House, Tavistock Square, W C 1**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the **British Medical Journal** alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the **British Medical Journal** must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W C 1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS as well as orders for copies of the **Journal**, should be addressed to the Financial Secretary and Business Manager.

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QUERIES AND ANSWERS

TREATMENT OF CHRONIC URTICARIA

"INQUIRE" asks Could any reader suggest treatment for a man aged 28 who has urticaria, from which he is never entirely free, and at times suffers from acute attacks. No particular sensitizing agent has been found.

SALICIN ADMINISTRATION IN PREGNANCY

"H. C." asks whether the large doses of salicin advocated in influenza by Mr. Turner and others can be quite safely used at any stage of pregnancy without risk of miscarriage or injury to the foetus.

HYPERTRICHOSIS

"C. S." writes One of my patients, a girl of 19, is much concerned because of a thick growth of hair on her arms and legs, and has consulted me about the possibility of removing this unsightly fur. I should be glad of advice.

*. A dermatologist, to whom we have referred the question, replies This is essentially a case for a depilatory. It can be made by the medical man himself by drying freshly precipitated barium sulphide, but in all probability it will be found more satisfactory to use one of the many proprietary preparations on the market. This is the legitimate field for their employment.

WANTED—A HOME

"T. R. C. S." writes I am anxious to get in touch with a doctor on the south coast of England who would be prepared to take into his home a girl of 10½ for the winter months. She has had serious osteomyelitis of the ilium, with infection of the hip joint. She is herself the daughter of a doctor abroad. She will be able to get about to some extent but will want a good deal of special care. Some provision for education either in the home or within reach is desirable, preferably with other children. But the most essential point is a good sunny, healthy site and plenty of open air facilities.

CORNS

DR P. CLENNELL FENWICK (Christchurch, New Zealand) who is in charge of the radium and deep therapy department of North Canterbury Hospital, writes With reference to the query of "H. A. A." on July 14th (p. 85), I suggest that he should try the effect of soft x rays on corns. We have treated a number of cases in this department with pleasing success. Our dosage is kilovolts, 150, filter, 1 mm. of aluminium, distance 50 cm. time to give a Babouard pastille dose 4½ minutes. The foot is shielded with thin lead, with a hole out to expose the corn. We avoid raying any part except the actual corn, since we find the tissues of the foot react very quickly to x rays. We give one dose, repeated in ten days, and a third dose ten days after the second. We find that the patient loses the pain very quickly after the first dose, that after the second application the hard area is softened, and after the third dose there is distinct softening and lessening of the whole area. I think this treatment is well worth a trial, since, in my own case I found relief from a very painful corn on the foot (caused by ill-fitting military boots), which had resisted all forms of treatment for some years.

INCOME TAX

Replacement of Car

"J. D. L." bought a car A in 1921 for £700 and car B in 1922 for £150 using both in his practice. In 1927 car C was bought for £400 and car B (value, say, £10) ceased to be used.

*. The Inspector of taxes regards C as replacing B, "J. D. L.'s" view is that C has replaced A and A has replaced B. Replacement consists of the purchase of one asset in place of another, normally the one discarded is sold, and it is not arguable that in such circumstances any other is involved. In this case the fact that car B is still retained (though not used) complicates the matter somewhat, but the same principle applies, and we are of opinion that the inspector's view is correct. The question is not one of replacement in the sense of one car being used instead of another, but of replacement as an asset of the practice.

LETTERS, NOTES, ETC.

AN OVERDOSE OF MEDNAL

"LOWLAND DOCTOR" sends the following note on the effects of an overdose of mednal. A tabetic patient (he writes) a woman aged 48 who suffers severely from gastric crises and lightning pains in the legs, has been undergoing treatment with bismuth preparations for the past year. She suffers also from menopausal symptoms associated with a systolic blood pressure of 165 mm. Hg. The pupils are always irregularly dilated. For the past year or so she had been accustomed to take one half to three-quarters of a 7.5-grain tablet of mednal when the pain was very severe. On September 23rd she went to bed in the afternoon complaining of severe pain. Next morning I was called in to find her comatose with stertorous breathing. Paralysis was complete and there had been retention of urine for twenty-four hours. Her previous high blood pressure and irregular pupils made diagnosis difficult. Since the relations had no tally of the tablets taken I treated her at first as a case of cerebral haemorrhage. As time passed I felt more confident that she was suffering from an overdose of mednal, at length after vigorous stimulation and shaking, she opened her eyes—forty-eight hours from the time of taking the tablets. It was the fourth day before she was able to form a word or recognize her relations, although her hearing seemed acute. By the sixth day she was able to tell me, in a hesitating manner, that she had taken nine tablets as the pain was so bad. Now at this end of eleven days she is mentally alert but physically very weak. The retention of urine lasted five days.

MEDICAL GOLF

THE autumn meeting of the Medical Golfing Society was held at Princes Golf Club, Sandwich, on October 13th and 14th, by kind permission. The course was in excellent condition. Special thanks are due to Captain Baird the secretary of the club. The results of the competitions were as follows:

Singles v. Bogey (for Dr. Bathurst prize)—1st T. A. Torrance 2 up
2nd N. C. Carver (after a tie at 2 up each)
Foursums v. Bogey (for Mr. Max Page's prize)—1st A. C. Carver
and G. Hebert (after a tie with T. A. Torrance and Mr. Kenneth Goodby at 2 down each)
The Gannu Ryall Cup—1st J. D. Gray 75 (92-16) 2nd A. Galletly 77 (82-5) 3rd J. W. Yorke Davies 78 (96-18)

MONTONE HOME OF REST

WE are asked to direct attention once more to the fact that professional men of limited means who require a change are received into the Home of Rest at Montone at a charge of 30s a week for board and lodging. Special consideration may be given to the cases of those who cannot pay this amount. The stay of each person is limited to three months. The homes are open from November 1st to May 1st. It is a philanthropic undertaking, designed to help professional men who break down temporarily, and is therefore useful to medical practitioners of small means, or their professional patients similarly situated. Further information may be obtained from the lady superintendent, or the honorary physicians Dr. D. W. Sawways and Dr. Stanley Rendall, at Montone, Alpes Maritimes, France.

A CHOCOLATE BICENTENARY

THE bicentenary number of *Fry's Works Magazine*, issued to celebrate the 200th anniversary of the entrance into business in this sphere of Joseph Fry, the founder of the well known firm of Messrs. J. S. Fry and Sons chocolate and cocoa manufacturers, contains an interesting account of the development of this huge concern richly illustrated with photographs and sketches. As mentioned in the *Journal* of July 28th (p. 182) Joseph Fry was a medical practitioner in addition to his association with the manufacture of chocolate, he was a partner in a oilon works and a soap-making business, the owner of a chemical works, and the originator of a type foundry. Lord Riddell writes in the *Magazine* on "The chocolate age", Mr. Ernest Bevin, in an article on "The growth of trade unionism," pays a tribute to the working conditions and the satisfactory relations prevailing between employers and employed in the firm's establishments, and Mr. Charles Wells contributes an account of "Bristol in 1728."

VACANCIES

NOTIFICATIONS of offices vacant in universities, medical colleges and of vacant resident and other appointments at hospitals will be found at pages 44, 45, 48, 49 and 50 of our advertisement columns, and advertisements as to partnerships, assistantships and locum tenencies at pages 46 and 47.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 171.

Remarks

ON

THE TEACHING OF HYGIENE.*

BY

W. W. JAMESON, M.A., M.D., M.R.C.P., D.P.H.,
Barrister-at-Law, Professor-designate of Public Health, London
School of Hygiene and Tropical Medicine

ALL practitioners of medicine must of necessity be doctors or teachers as well as healers of the sick, and I can think of no subject more likely to arouse general interest than that chosen by the officers of the Public Health Section for discussion to-day. It was originally intended that three speakers should open the discussion—one dealing with the training of health workers, another with the teaching of hygiene to school children, and a third with public education in health. Unforeseen circumstances have unfortunately made it necessary for me to introduce to your notice all three aspects of the question. I shall endeavour to deal mainly with principles and leave the discussion of details to subsequent speakers.

THE TRAINING OF HEALTH WORKERS

Of recent developments in connexion with post-graduate public health teaching I propose to say nothing, and I shall rather confine my remarks to the teaching of preventive medicine to medical students and to the training of certain members of the subordinate health services.

Medical Students

Let me say first of all that there is no more important person in the ranks of health workers than the general practitioner of medicine. He can do much to make or to mar any effort put forward by the more specialized public health service, and if the greatest measure of success is to attend our work the general practitioner must understand our aims and must fit into each of our schemes. To enable him to do this he must be given a correct sense of proportion when a medical student. You will recollect that in the revised medical curriculum of the General Medical Council it is laid down that the subjects of hygiene and public health should be included in every course of professional study and examination, and that courses of instruction in these subjects should be taken concurrently with the later stages of clinical instruction. The Council further resolved that throughout the whole period of study the attention of the student should be directed by his teachers to the importance of the preventive aspects of medicine. I am never quite clear in my mind as to where hygiene ends and public health begins, and, so far as medical students are concerned, I would rather refer to the whole subject as preventive medicine. Such a title makes a more definite appeal to the average medical student, and every effort to capture his interest is worth making. Great differences exist between the courses of instruction in preventive medicine given in the various medical schools, both in regard to the number of lectures (and, may I add, the payments made to the lecturers) and in regard to the subjects discussed. In certain schools, mainly in London, ten or a dozen lectures seem all that can be included in the curriculum, whereas in the provincial universities twenty, thirty, or even more lectures may be given. This is probably due to the fact that the provincial medical officer of health has usually a much greater influence on the policy of his local medical school than is possible in the case of his metropolitan confrere. Then it is the practice in certain schools to devote a considerable amount of time to lectures on general sanitation and to demonstrations on water purification, sewage disposal, sanitary appliances, and the like, in other schools but little attention is paid to this aspect of the question. Variety in the method of presentation of a subject is always to be commended, but preventive

medicine is so vast and so important a study that some discrimination must be exercised in the selection of the material to be presented to the medical student, more particularly in view of the already crowded state of the medical curriculum. It may or may not be the case that the various teachers act on the advice of the General Medical Council and endeavour to keep before the notice of the student the importance of the preventive aspects of medicine, in any event it is at least convenient that one lecturer should touch upon the various subjects of the curriculum and lay stress in each case on methods of prevention. Preventive medicine ranges over many fields and can have no recognized limits as have certain of the other subjects taught in our medical schools. To my way of thinking a lecturer in preventive medicine achieves his object if he succeeds in arousing the interest of his class and in giving them a definite preventive point of view. He cannot turn medical students into medical officers of health by forcing them to attend a short course of lectures, but he can see to it that every young man or woman starting in practice is aware not only of the principles of prevention, but also of his own function as a practitioner of prevention. The student must be shown the place of the practitioner in relation to the various schemes organized and maintained by local authorities all over the country, and he must be taught the important influence of environment upon health. If these matters are not placed clearly before him he will leave his medical school after acquiring knowledge in the dissecting room, the laboratory, the hospital ward, and the out-patient department, and he will think in terms of these, to his own and to the nation's future detriment.

A course of lectures on preventive medicine should be given in the final year of the medical curriculum and should deal among other matters with the triumphs and failures of prevention with an outline of public health administration in this country with the chief sources of statistical information and with the importance of correct certification and notification, with all the various organized schemes of prevention in existence and with the special measures available in connexion with the principal groups of diseases with the importance of pure air, pure water and pure food (this includes a good deal of personal hygiene), and with the evil effects of bad housing and insanitary conditions generally. Throughout the whole course the part the student himself will have to play and the ways in which difficulties may be avoided or overcome must be kept constantly before his notice. In my judgement lectures dealing with details of constructional work and with complicated processes of ventilation, water purification, sewage disposal, and similar problems only confuse the student and make him feel he is being forced to listen to something which is really the business of experts and which will have only an indirect bearing on his future practice and I am not inclined to disagree with him. A course of lectures on the lines of Sir George Newman's *Outline of the Practice of Preventive Medicine* seems to me particularly well suited to medical students and I always recommend that little book to them for their careful perusal.

It might be well if lecturers on preventive medicine could agree on a definite syllabus of instruction for use in our medical schools, and it would also be helpful if the printed requirements relating to hygiene of some of the examining bodies were to undergo revision in the near future.

Sanitary Inspectors

To meet the wishes of the Minister of Health the bodies whose certificates were recognized by the Sanitary Officers Order, 1922, have been combined under the title of the Royal Sanitary Institute and Sanitary Inspectors' Examination Joint Board. The object of the Board, which commenced examining in 1926, is to provide a uniform system for the examination and certification of persons seeking appointment as sanitary inspectors in England and Wales. Before a candidate is accepted by the Board he must have passed one of a list of approved examinations, of which the matriculation examination of London University and the preliminary examination of the National Association of Local Government Officers are examples, or must produce evidence of having acquired such general and technical knowledge as may be approved by the Board. It was felt necessary, when the Board began its work to raise the standard of general education for entrants to the inspectorate, and many interested persons feared that the insistence placed on general education might tend to produce candidates whose main training had been

* A paper read in opening a discussion in the Section of Public Health at the Annual Meeting of the British Medical Association Cardiff 1922.

obtained in the clerical division of a public health department and to keep out candidates who had served their apprenticeship in one or other of the building trades. Nothing in my opinion would be more fatal to the standing of inspectors than such a state of affairs. The ability to draft a good report may be necessary, but the capacity to meet a builder on his own ground and to discuss technicalities with him in such a way as to make it evident that the inspector has himself been a craftsman is of still greater importance, and I am glad that the Board has interpreted this preliminary examination qualification in a broad-minded way.

The actual training demanded of candidates includes attendance at a six months' part-time course of lectures and demonstrations based on a comprehensive syllabus of subjects. The course must be held at one of the approved institutions, of which there are three in London, ten in the provinces and one in Scotland. In addition candidates must have undergone practical training in the duties of a sanitary inspector as a rule, for a period of one year, some reduction in time being made in the case of men who have had at least three years' practical experience in one or other of the building crafts. The standards of training and examination are high and the Board has become a body in which the public health service has complete confidence. A most necessary qualification for most sanitary inspectors is the certificate of "Inspector of meat and other foods" granted by the Royal Sanitary Institute. Candidates, who must as a general rule hold the certificate of sanitary inspector, must produce evidence of having attended for at least two months an approved course of lectures and demonstrations (there are two such courses in London and eight in the provinces) including training in meat inspection at a cattle market and slaughtering establishment recognized by the Institute. The examination is of high standard and every candidate has to display a very considerable amount of practical knowledge before he can obtain the certificate.

Health Visitors

During recent years the training of health visitors has been the subject of much discussion, and the conditions of entry to the service are now more or less standardized. All women appointed as health visitors for the first time after April 1st, 1928, must hold the Health Visitors' Certificate issued by the Royal Sanitary Institute with the approval of the Minister of Health.

The examination qualifying for this certificate is open (1) to nurses who have completed a three years' course of training either at a recognized general hospital or a recognized children's hospital, who have obtained the certificate of the Central Midwives Board and who have attended an approved whole-time course in public health work lasting for at least six months and (2) to women not being trained nurses who have undergone an approved course of training in public health work for two years, together with six months' training in hospital and who have obtained the certificate of the Central Midwives Board. It will be noticed that all new entrants to the service, whether trained nurses or not, must take a whole-time course of instruction. There are eleven institutions—five in London and six in the provinces—where such courses are obtainable and in all cases arrangements are made for practical training at maternity and child welfare centres and similar places to accompany the more theoretical lectures. The examination for the certificate which consists of three written papers and an oral examination is of a searching character.

It may be of interest to contrast a similar course given in the Institute of Public Health of the University of Western Ontario. There the certificate of Public Health Nurse is granted, after examination, only to candidates who have taken a course consisting of lectures, demonstrations, clinics, laboratory work, and field work occupying one academic year of about nine hundred hours—thirty hours a week, from September to May inclusive. About one-half of the total number of hours is devoted to practical field work under instructors professionally engaged in public health work in the town of London, Ontario. Students may apparently spread the work over two or three years, and need not then attend full-time. The course is open only to trained nurses showing a satisfactory standard of general education.

Much argument has raged round the question as to whether or not only trained nurses should be accepted as candidates for the health visitors' examination. The bulk of opinion is in favour of such training, but the Minister of Health, in deference to the wishes of certain of the teaching institutions, has retained the two years' whole-time course for persons without nursing training. May I say that some of the best health visitors I have encountered possessed no extended nursing training, but they

were, of course, doing only maternity and child welfare work. It is probably just as well to retain both types of entrant to the service.

Some anxiety has been felt lest these new conditions should result in a dearth of health visitors. In my opinion the conditions are not a bit too exacting for persons entering the responsible office of health visitor, but it is certain that few women will be prepared to expend the money necessary to obtain whole-time courses of training so long as the salaries of health visitors remain at their present ridiculously low level. A service must be made attractive if a good type of entrant is to be got, and I can see no adequate reason why a local authority should not pay their health visitors as good salaries as are paid to the women teachers on the staffs of their public elementary schools. In a recent circular the Minister of Health has indicated to local authorities two ways in which intending health visitors may be helped to obtain their training. The first suggestion is that, in areas where an ordinary full-time course of training lasting six months has been provided, candidates, who undertake to serve as health visitors in these areas for at least six months after obtaining the health visitor's certificate, may receive from the local authority during their training an advance of salary, to be repaid in the course of the first six months' period of service as health visitor. The other suggestion deals with the employment of probationer health visitors. In this case the course of training must extend over not less than three academic terms, and may be arranged, for example, jointly by a local authority and a university. Probationers must be trained nurses holding the certificate of the Central Midwives Board. Such a scheme is, I understand, in force in the county of Durham, and is meeting with a considerable amount of success. It is interesting to note that a similar procedure has been suggested in the case of New South Wales. There the proposal was to appoint women as cadet nurses during their course of training, such cadets to sign a bond agreeing to serve as health visitors for two or three years after completing their course.

Midwives

Most of us are aware that pupil midwives, other than trained nurses, have to undergo training for a period of one year before they are allowed to sit for the certificate of the Central Midwives Board. In the case of trained nurses the period of special training lasts for six months.

Pupils must be certified as having examined and received instruction in the supervision of not less than twenty pregnant women, and it is suggested that attendance at ante-natal clinics affords excellent opportunities for instruction of this nature. It is now necessary that ten labours should be witnessed, that the first five cases personally delivered must be attended in an institution approved by the Central Midwives Board and that of the remaining fifteen at least five must be attended in the patients' own homes. The object of this is to ensure that the pupil first learns the methods of surgical cleanliness under the easiest and best possible conditions, and afterwards extends her education by attending and nursing outdoor cases so that she may also learn how to apply hospital methods to the more difficult circumstances of the patients' homes and how to improvise and make the best of what she finds there. Such experience will indicate to her her relations with and duties to the local health authority and the need for co-operation with private medical practitioners and voluntary and other agencies for the assistance of mothers and babies. The number of lectures a pupil has now to attend is thirty and the minimal period over which they are spread is four months.

It must be remembered that in spite of the recent efforts of the Central Midwives Board our training courses are still much shorter, and perhaps less thorough, than those in operation in other European countries, notably Holland and Denmark.

Dame Janet Campbell's comments on the training of midwives contained in her last report, *The Protection of Motherhood*, 1927, are interesting, and might well be discussed by this section. She points out that no discrimination is made between the pupil who intends to practise midwifery and one who merely desires the additional qualification of the certificate of the Central Midwives Board. Thus a nurse who has no intention of practising may enter one of the best-equipped training schools while the woman who intends to practise, and therefore needs the widest experience possible, may be driven to a small

institution where the facilities are limited and the teaching is often not of the highest quality. It is of interest that only 22.7 per cent of midwives on the roll in March, 1927, were in practice in 1926. Again, the amount of maternal for teaching purposes is becoming steadily less, and is likely to diminish still further in the future. These considerations have led Dame Janet Campbell to suggest

1 That there should be two classes of midwifery certificates—(a) for the practising midwife whose training cannot be too good or too thorough and (b) for the 'obstetric nurse' who desires some knowledge of midwifery for work in hospital in the public health service and in private nursing but who does not intend to practise as a midwife. (This class of certificate would be obtainable only by a trained nurse.)

2 That midwifery schools should be classified and that only those schools which can offer a full and complete training should be allowed to accept pupils for training as practising midwives.

The possibility of increasing the period of training to eighteen months or two years and of including within the period practice under supervision after the examination has been taken but before the certificate has been granted is also suggested.

All these ideas appear likely to give rise to considerable discussion.

Fever Nursing Certificate

Those of us who have charge of modern, well equipped isolation hospitals know that a very fair degree of nursing skill can be obtained by women trained in such institutions. Much of the work is of an acute nature, most of the patients are young children and the experience gained in the handling of infectious persons is a very valuable one. I regard some isolation hospital training as highly important in the case of the nursing staff of a public health department. You will recollect that the preliminary examination of the General Nursing Council is the same for all nurses, whether from general hospitals or from isolation hospitals.

In a complete training school for fever nurses this examination may be taken at the end of the first twelve months and the final examination at the end of two years. Many isolation hospitals are not regarded as having sufficient material to afford a complete training and these with the consent of the General Nursing Council may become affiliated to complete training schools provided that the whole period of training is not less than two years and six months of which not less than one year must be spent at the latter institution. The preliminary examination must be passed before the nurse enters the complete training school from an affiliated school. This arrangement is I suppose the best that can be made but it operates a little harshly on the smaller hospital for as soon as a probationer there begins to be really useful she is transferred to the larger institution. The erection of small isolation hospitals though a measure to be deprecated is not altogether avoidable especially in rural areas and the staffing of such places always presents a good deal of difficulty. The rules of the General Nursing Council provide for a four years course of training for those nurses who having spent two years at a complete training school for fever nurses, and having passed the final examination proceed to a general training school. This means that training in a general hospital in such cases may be reduced by one year but only in very few instances has such an arrangement been made.

It seems rather ridiculous that a woman who has passed the preliminary examination common to all nurses in training, as well as her final examination for fever nursing, should be compelled to enter a general hospital on the same basis as a woman who has had no previous hospital training whatever.

I fear I have occupied too much of the time allotted to me in discussing the training of health workers, but my excuse is twofold. First, this was the subject I was asked to deal with in the first instance, the other heads of discussion having since been thrust upon me and in the second place no educational scheme can be successful without a nucleus of well-trained and intelligent officials. Health education must of necessity be guided by members of the medical profession and by the staffs of public health departments.

HEALTH EDUCATION IN SCHOOLS

It is not necessary for me to remind an audience such as this that the training of a child in the formation of health habits must begin with its earliest days. I might almost say hours. The lack of any such training is seen only

too often in the infant departments of our elementary schools. That an improvement is gradually being effected is due largely to the efforts of our maternity and child welfare workers. When a child first goes to school at the age of five it is more easily influenced by the school environment than at any other period of its school life. For a moment the school becomes predominant and in many cases home becomes almost a factor of secondary importance. As the years pass the child is apt to be influenced more by what it sees and hears at home and in the streets hence it is of the greatest importance that its health education should be commenced in its first school years and that the practice of hygiene should be made so far as possible a matter of habit. If the child is to be well taught the teacher must understand her subject and be able to present it to the class in an attractive manner. The proper person to give instruction in hygiene to school children is the class teacher, and not a special teacher. We want to prevent the child from getting the idea that hygiene is anything but an everyday routine, and to let the child think for one moment that its own teacher is unable to handle the subject would be fatal. I mention this because I have been told more than once that the most suitable person to teach children hygiene is the school medical officer. Now the inculcation of good habits and the teaching of hygiene are not the simplest of matters, and I venture to suggest that insufficient attention is paid to this subject in many of our training colleges. In these institutions lectures on hygiene should be given by specially qualified men and women, and no effort should be spared to make students appreciate the importance of the subject and the great results that may be achieved by its intelligent and unremitting practice in all schools.

All of us must welcome the prominence given to this aspect of health education by Sir George Newman during the past year or two, and we must regard as most timely the appearance of the Board of Education's *Handbook of Suggestions on Health Education* intended for the consideration of teachers and others concerned in the work of public elementary schools. In his introduction to the handbook, Sir George Newman lays stress on a number of highly important points. He emphasizes the fact that hygiene is so essential that it can never be merely a "subject" of instruction, but must enter into the total life and experience of the child. Indeed, the Board considers that the physical health and condition of the child are the basis upon which all mental education must necessarily be founded, and it regards the importance of hygiene and physical training, like that of moral training, as being so great that no one would propose their omission from the curriculum of any elementary school. Sir George Newman points out that there are three principal ways in which health may be both acquired and taught in youth: (a) by habit-training, (b) by learning the truths of biology, chemistry, and physics, and (c) by understanding the principles and practice of good living itself. In a young child under 10 or 11 years of age hygiene should be taught as a rule by habit-training. Daily health exercises should be carried out by such children, and five or ten minutes a day may very well be spent in this fashion. The methods adopted will vary with individual teachers, but such matters as the importance of cleanliness and of fresh air and the care of the teeth must be so drilled into the children that their practical application will become entirely a habit.

It should be remembered that the health of a nation is in a large degree dependent upon the habits of the people and what they need in order to live well is not abstruse knowledge but to practise the knowledge they possess already. Most people know a good deal about the value of cleanliness, fresh air and ample food but they do not always practise what they know. They have not in youth contracted the habit of doing so.

In the case of children over 11 years of age instruction may be given under the heading of "hygiene" or it may be included in the general science course or form part of nature study. The older girls will naturally get a good deal of instruction in hygiene in their domestic subjects course. In any event a definite amount of ground should be covered in each term and the work should be carefully planned out beforehand. That it can be done successfully

is seen by what has been carried out in my own borough since 1904. In that year a syllabus of instruction in hygiene was issued by the Education Committee—it was drawn up, may I say, by the present Chairman of Council of the British Medical Association—and since then, with few exceptions, has been followed conscientiously in all our elementary schools. The syllabus has required but little alteration in recent years to bring it completely up to date. The question of permitting teachers to give instruction on matters relating to sex came up for consideration in connexion with the revision of the syllabus last year, and it was felt that to authorize all teachers to give instruction of this nature would be a mistake. The difficulty was got over by issuing a printed letter, addressed to head teachers and accompanying the syllabus, authorizing them to deal with this aspect of hygiene as they thought necessary or desirable.

The kind of health education in schools most likely to be of permanent benefit is that undertaken by the teaching staff, aided on all possible occasions by the school medical service. The visits of the school medical officers and of the school nurses should be regarded as illustrating the lessons on hygiene and should be made as much a part of the school curriculum as possible. Assistance can often be given by the school medical service in the selection of suitable posters and pictures and in the compilation of booklets and pamphlets for distribution amongst the scholars. Special efforts such as are made during health weeks and in competitions of various sorts have their uses, but it is the daily routine that counts most in the long run.

PUBLIC EDUCATION IN HEALTH

Attempts to instruct the public in matters affecting health are not of recent origin. They date at all events from the days when the Mosaic code, that wonderful syllabus of hygiene, was taught to the children of Israel. It was not, however, so far as I know, till the beginning of last century that active societies began to be formed in this country for the express purpose of educating the public. A "Health of Towns Association" was one of the first in the field, and in 1846 a "Health of London Association" was formed with the object of "instructing the people as to the evils which result from the present defective sewerage, drainage, ventilation, street cleansing, and supply of water, from interment in towns, and from other sources of injury to the public health, and of showing the beneficial influence which the removal of these evils would certainly exert on their physical and moral condition." Efforts in those days were directed mainly towards an enlightened public opinion among the middle classes, whereas modern propagandists make their appeal to all and sundry, regardless of class. After 1870 societies, institutes, and associations began to multiply to a very considerable extent while the past twenty years have been the most prolific period of all. At the present time there are over fifty bodies engaged directly in this class of work.

As would be expected in this country, the foundations of a scheme of public education in health were laid by voluntary effort, and we owe a great debt of gratitude to the pioneers. The date of official entry into the field may be taken as 1911, when the National Health Insurance Act gave Insurance Committees power to arrange for the giving of lectures and the publication of information on questions relating to health. Later, local authorities were enabled to undertake educational work of a special nature under the Tuberculosis Regulations of 1912, the Venereal Diseases Regulations of 1916, and the Maternity and Child Welfare Regulations of 1918, and were given much wider powers (at any rate outside London) by the Public Health Act of 1925. It is thus obvious that an enormous amount of effort, both voluntary and official, is capable of being aroused.

In my way of thinking the most valuable kind of health education is that being undertaken day in day out in a well-conducted sanitary area where the staff is competent and reasonably sufficient. The visits paid and the advice given by intelligent and courteous sanitary inspectors,

health visitors, and school nurses, combined with well-administered schemes of maternity and child welfare work, school medical inspection and treatment, anti-tuberculosis work, and the like, are the finest means of teaching the public we possess. The medical officer of health who neglects perfecting these services and aims rather at more showy special measures is building upon sand. We must of course, make different appeals in different types of area, but a striving after the sensational is likely to do more harm than good. No one has a greater opportunity for the dissemination of health knowledge amongst the public than the general practitioner. Were he to regard himself as primarily a teacher much could be accomplished, and there is need for the public to be educated up to this ideal of medical practice. I am glad to see that the Industrial Health Education Society, one of the most recent, and certainly one of the most active, of our voluntary societies, has induced general practitioners all over the country to give lectures to groups of workpeople drawn from the various trades. The results have been most successful, and the annual report for 1927 states that

"the rapid growth of the society bears witness to the fact that the workers are very interested in matters of health and are desirous of knowing how to prevent or at least to mitigate the sicknesses and diseases incidental to their occupation. In fact the workers are realizing that health is an inheritance and that though they can spend the interest in work and play they must not break into the principal."

Now this business of health education—for it has almost become a business—is sorely in need of some organization, or at any rate of some co-ordination. This has been felt by no one more than the medical officer of health, and it is with a view to getting some sort of order out of the chaos that exists that the Central Council for Health Education has been formed. This council, which is composed of representatives of local authorities of all sorts and of medical officers of health, is intended to act as a sort of clearing-house and co-ordinating centre for all kinds of health propaganda. The council knows where the best material for any class of work connected with health education may be obtained, and upon what terms. It is compiling lists of approved lecturers, films, lantern slides, posters, pamphlets, and all the other paraphernalia of a health campaign. This information will be at the disposal of any medical officer of health who cares to ask for it, and the results will be a great saving of time and effort to the staffs of public health departments. Further more, the council will recommend only what it has seen and approved. The official journal, *Public Health*, is published monthly under the auspices of the central council, and already its influence is felt throughout the country. The council has no intention of undertaking the production of propaganda material on its own account, and has no desire to enter into competition with existing societies, its aim is rather to assist these societies in their work and to suggest means whereby their activities may be made still more useful to the public. It is interesting to note that an agreement has been reached with the Central Medical Council as to the publication of health articles in the daily press. It is now accepted that such articles should be submitted to the Chief Medical Officer of the Ministry of Health for his approval, and that approval will be forthcoming provided they are (a) for the public benefit, and (b) free from the taint of personal professional advertisement. Articles of this nature may be signed by the author, and may then be distributed through one of the press associations.

Insufficient use has been made of broadcasting as a means of health education, and I would commend to you for your consideration the suggestion made by the editor of *Public Health* in the May issue of that journal. It is pointed out that the present method of broadcasting once a month a health talk lasting fifteen minutes is quite unlikely to make an appeal to those most in need of such education. One ends are likely to be better served by more frequent "four-minute broadcasts" on matters of special health interest at the particular moment. The suggestion appears to be full of promise.

May I say in conclusion that if our efforts are to be successful they must be continuous. It is no good having

ono health week a year if wo do little or nothing during the remaining fifty-one weeks. It is the constant driving home of the simple truths wo all know that will do most good in the long run. Above all we must avoid, as Sir Thomas Horder has so well pointed out, the creation in the public mind of any idea that health is an extremely difficult thing to secure or that there are any such things as the "secrets of good health." "Health is a broad and well paved road, Nature is both an excellent road maker and an excellent road monitor. Not only does it require very little skill, and but a modicum of good fortune to keep to it, the wayfaring man must be a fool indeed if he errs therein."

THE THERAPEUTIC VALUE OF THE HEAVY METALS IN PULMONARY TUBERCULOSIS *

BY

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THE heavy metals have a place amongst the many drugs that have been used in the treatment of pulmonary tuberculosis. Mercury and copper were both believed to cause fibrosis, and to lead to the healing of tubercle, but in practice it was found that they were of no value. A few years ago copper was much advocated, especially in Germany and Japan, in the treatment of tuberculosis, and very encouraging results were described at first. The intravenous injection of copper is frequently followed by a short febrile reaction, or even a rigor, which occasionally leads to improvement in the general condition of the patient. The same result is seen in shock produced by other means, such as serum, tuberculin, protein, colloidal gold, reaction to sun rays, etc. Chart 1 shows reactions following the subcutaneous injection of anti-tuberculosis serum in a febrile case of pulmonary tuberculosis.

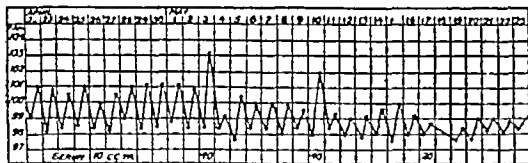


CHART 1.

It will be seen that no reaction followed the injection of 10 c.c. of the serum, but the administration of 40 c.c. caused sharp reactions followed by a lowering of the temperature, later the patient had anaphylaxis and nearly died when 20 c.c. had been given, after this the temperature became settled, and she rapidly improved, being able to leave hospital and go to a sanatorium. A shock reaction may, of course, start an acute spread of the tuberculosis, which rapidly proves fatal, but improvement is so often seen to follow the initial shock that one is bound to doubt whether the treatment—be it gold or copper, serum or tuberculin—is acting by virtue of any specific action on tuberculosis. May it not be that the shock stimulates some defensive process in the body and thus leads to improvement? If this is the case it would seem immaterial which method is used to produce the shock, and up to a point I think this is so.

The metal which is most used at present in the treatment of pulmonary tuberculosis is gold, and the best preparation is a double thiosulphate of gold and sodium called "sanocrysin," which was made by Moellgaard. Chart 2 shows a febrile reaction after sanocrysin. The temperature later settled down to normal. In many cases, however, there is no apparent reaction, and yet the patient shows signs of improvement. While, therefore, some of the effects of sanocrysin (such as can be produced

by various other substances) are no doubt due to the shock, there appears to be some other factor besides this. The most notable change resulting from sanocrysin treatment is the diminution in the quantity of sputum and the disappearance of tubercle bacilli from the sputum, the chief indication, therefore, for using sanocrysin is when the sputum continues and contains tubercle bacilli. In the majority of cases I have chosen patients with chronic pulmonary tuberculosis where the disease is slowly progressing and tubercle bacilli are constantly present in the sputum. This type of case is very common in every sanatorium, and may be regarded as that which ultimately does badly, so that some additional method of treatment is much needed.

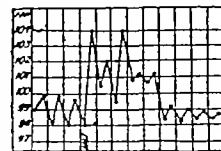


CHART 2.

Another type of case in which I have found sanocrysin of use is when collapse has been induced in one lung by artificial pneumothorax, and the disease begins to spread on the other side. In these cases it is sometimes possible to check this development and thus to secure the maintenance of the pneumothorax. In cases of acute pulmonary tuberculosis I have not found sanocrysin of great value, but if it is combined with pneumothorax I think the patient obtains the best chance. My practice is to induce collapse in the worst lung and to give sanocrysin in the hope of checking the spread of the disease in the other lung.

When sanocrysin was first introduced in 1923 there were many complications and cases of metal poisoning, but now it is usual to give smaller doses, and a serious complication is very rare. It is given by intravenous injection, and I start with a dose of 0.1 gram. If there is no reaction three days later I give 0.25 gram, and then at weekly intervals 0.5 gram, 0.75 gram, and 1 gram. I repeat this last dose three or four times at weekly intervals. If there is a reaction after one dose I wait until it has completely subsided, and then repeat the same dose if the reaction was a small one, or give a smaller dose in the case of a large reaction. In children, small women, or delicate, thin patients I do not give as large a dose as 1 gram, but stop when 0.5 or 0.75 is reached. It is very unusual to get a reaction under a dose of 0.75 gram, although in exceptional cases I have seen a reaction even after 0.1 gram. To avoid serious complications the injections should never be given at shorter intervals than one week (except after the initial small dose of 0.1 gram), and should not exceed 1 gram at a time. The complications that occurred in my series were:

1 Albuminuria was present in about half the cases, but was transient and mild. I did not have to stop the treatment on account of it in any case.

2 A metallic taste in the mouth was experienced occasionally, but only two in my first series of 60 patients had stomatitis.

3 Vomiting occurred directly after the injection in 20 per cent of the cases, but passed off quickly, causing no ill effect.

4 A few patients complained of rheumatic pains in the joints, and I had to stop treatment in one instance owing to the severity of these symptoms.

5 A slight febrile reaction directly after the injection occurred in one third of the patients but this settled down in a few hours. A temperature rising to 101° F or more—sometimes associated with a rigor—was not uncommon and occurred in 13 of my first 60 cases, but settled down within forty-eight hours in every instance. A long febrile reaction lasting a week or more was noted in only 4 cases in this series.

6 An erythematous rash occurred in 11 of my first 60 cases, and in 3 of these it was severe. In the severe cases the rash went on to a desquamative dermatitis, and was by far the most serious complication noted in any of the series. At the same time, all these cases with severe skin reaction did very well as regards their pulmonary condition.

7 Sometimes a little sanocrysin is spilt round the vein and causes a swollen and painful arm. A 10 per cent solution of sodium thiosulphate injected into the swelling will give great relief in these cases. For stomatitis or for

* Read in the Section of Tuberculosis at the Annual Meeting of the British Medical Association, Cardiff, 1928.

the dermatitis following the sanocrysin treatment a daily intravenous injection for three or four days of 5 cc. of this 10 per cent solution will often give relief

In the early days of the treatment serum was given before sanocrysin in order to ward off the complications. I have never found this of any value, and think its use has now been abandoned by most physicians.

RESULTS OF TREATMENT

It must be remembered that in all my cases the patients were having rest in bed, with pneumothorax or some other form of treatment. It is not possible, therefore, to give statistics which would be of any value in coming to a conclusion as to the direct results of sanocrysin. Moreover, the treatment has not been employed for a sufficient length of time to enable one to judge anything beyond its immediate results. It is possible, however, to form some idea of these by noting what changes take place when sanocrysin is given while the rest of the treatment remains unchanged. Chart 3 shows a chronic fibro-caseous case with pyrexia.

On March 7th daily injections of ethyl benzyl-cinnaminate were given for a fortnight, and after five days' interval a second course was given. It will be seen that the treatment had no apparent effect on the temperature, the condition of the patient and the quantity of sputum remained unchanged. On April 12th sanocrysin was started the chart shows that in a few days the temperature began to settle. The sputum became less, and after a reaction on May 15th, following 1 gram of sanocrysin, it dried up altogether. It is useless to draw conclusions from one case, but in this patient the improvement followed so dramatically when sanocrysin was given that it is at least suggestive.

In 28 cases where patients had chronic fibro-caseous tuberculosis and were slowly losing ground in spite of hospital or sanatorium treatment, I added sanocrysin to the treatment, and in 15 of these cases tubercle bacilli disappeared from the sputum in six weeks or less.

In this chronic type of pulmonary tuberculosis patients have periods of comparative good health alternating with others when the disease progresses, in other words, they have a series of relapses. Sanocrysin does not seem to prevent these relapses, but it does seem, in many cases, to check a relapse and bring about a period of arrest. Many of my patients relapsed, and in some the relapse was controlled by a second course of sanocrysin. I have not seen any benefit in chronic fibroid afebrile cases, but a course of sanocrysin may cut short an acute exacerbation arising in them.

Cases of very active bilateral disease sometimes do very well if treated by pneumothorax and sinocervism. I had 6 such cases in my first series, and 5 of them improved, 4 losing the tubercle bacilli. In acute condition sinocervism alone does not yield very striking results. Although sinocervism is not a specific against tuberculosis, and is most certainly not a cure, it may be regarded as a useful addition to other methods of treatment.

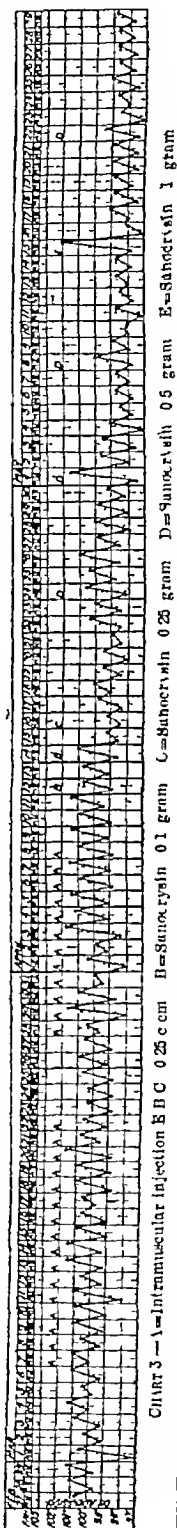


Chart 3	1	Intramuscular Injection	E D C	0.25 c cm	D=Salicylyln	0.1 gram	C=Salicylyln	0.25 gram	D=Salicylyln	0.5 gram	E=Salicylyln	1 gram
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DIABETES MELLITUS AND HEREDITY.

B1

P J CAMMIDGE, M D

The possibility of heredity playing a part in the etiology of diabetes appears to have been originally suggested by Rondolet, a physician of Montpellier in the sixteenth century,¹ but nearly two hundred years elapsed before the idea was definitely formulated by Johann Peter Frank, who has also the distinction of having differentiated diabetes mellitus from diabetes insipidus. Most subsequent writers on diabetes mellitus accepted Frank's view, and many published statistics showing the proportion of their cases in which a family history of the disease had been traced. Frenchs, for example, stated that such a history had been met with in 98 per cent; Seegen gave a higher figure, 14 per cent; and Naunyn found a still higher proportion, 17 per cent—to quote only a few. Writing on this subject, Naunyn² declared that the more carefully the family history was inquired into the more often was evidence of heredity discovered and this would seem to be the experience of more recent authors, for, with the exception of John,³ who found only 97 per cent of his cases gave a family history of the disease, they have generally quoted figures in the neighbourhood of 25 per cent, while Hoegslag⁴ has reported as high a proportion as 43 per cent. Statistics and general experience alike, therefore, agree in indicating that diabetes mellitus, or a condition predisposing to its development, tends to run in families and is hereditary, but as modern work on genetics has demonstrated that purely statistical methods and general impressions cannot be relied upon when an attempt is being made to establish the inheritability of a character, other evidence must be obtained before a reliable conclusion can be reached.

One present exact knowledge of heredity in plants and animals has been gained almost exclusively by experimental selective breeding and analysis, but this method is obviously not applicable to man. The alternative usually adopted is to collect all the available data regarding the family histories of a number of individuals exhibiting the character under investigation, arrange them in the form of pedigrees, and compare the results with standard cases resulting from experimental work. In this way it has been found possible to demonstrate Mendelian inheritance in a number of deformities and diseases affecting man such as brachydactyly, tylosis, night-blindness, haemophilia, etc. Most of these conditions are rare and present striking features by which they can be readily recognized, so that the collection of the necessary information is not difficult once a family suffering from the abnormality has been encountered but with diabetes it is not so easy, for, in spite of the disease being comparatively common, it is unusual to meet with patients who are sufficiently acquainted with the intimate history of their family to make it possible to construct even a tolerably accurate pedigree of its incidence among their immediate relatives, and still less among distant connexions. On going through my records I find that 224 out of a consecutive series of 800 cases (28 per cent) gave an ancestral or family history of diabetes. In the majority the known facts are too incomplete for any reliable deductions to be drawn, but some patients have given pedigrees resembling so closely in essential particulars those obtained in experimental breeding that it seems worth while taking representative examples and considering how far they support the view that diabetes mellitus, or a condition predisposing to its development is transmitted as a Mendelian character.

Before doing so it will be helpful if I describe briefly the results of some of the breeding experiments with animals Mr Howard and I commenced several years ago with the object of throwing fresh light on the still obscure etiology of diabetes. Working with mice² we found that if those having a naturally high fasting blood sugar (116-120 mg per cent) were mated together they always produced offspring with similar high blood sugars, but that when mice with high blood sugars were crossed with others

having normal blood sugars (about 85 mg per cent) all the progeny possessed normal blood sugars. These findings indicate that a high blood sugar is recessive to a normal blood sugar in the Mendelian sense. Confirmatory evidence was obtained by mating the progeny of these crossings with each other. It was then found that if the mice with high blood sugars were mated with the seeming normal mice they did not produce all normal animals, as might have been expected from the previous experiment, but equal numbers of normal and high blood sugar animals (Fig 1, A), while when the animals with normal blood

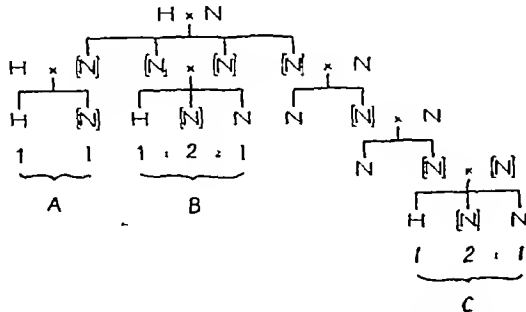


FIG 1.—Experimental breeding of mice. H=High blood sugar N=Normal blood sugar (N)=Heterozygous normal (hybrid carrier)

sugars were crossed with each other the offspring proved to have high and normal blood sugars in the proportion of one to three (Fig 1, B). Both these results are in agreement with Mendelian expectation in the particular circumstances of the experiments, and demonstrated that the mice with normal blood sugars resulting from the mating of the original mice having high blood sugars with normal mice were what is known as heterozygous normals or hybrid carriers. Animals of this description, although apparently normal, transmit the abnormality to their offspring, with consequences which vary according to the way their mate, as the experimenters quoted show.

A third variation which from a practical point of view is of extreme importance, must also be considered. It was found that if one hybrid carrier was mated with normal animals from another stock, all the progeny had normal blood sugars. These again, when crossed with normal partners, only produced normal offspring, and so on for several generations, when, however, two related animals resulting from such crossings were mated with each other, or with mice from another stock having a similar ancestral blood sugar history, mice with high blood sugars appeared among their progeny in the proportion of one to three (Fig 1, C). By further selective breeding it was then proved that two out of the three apparent normals were in reality hybrid carriers, and that only one was actually normal and incapable of transmitting the abnormality to its descendants. It is consequently certain that in mice—and subsequent experiments have indicated in other animals also—a natural high fasting blood sugar is recessive to a normal blood sugar in the same way as albinism is recessive to colour. In addition to the fact that this is the first experimental proof of the transmission of a chemical abnormality in accordance with Mendel's theory, these results are of interest as demonstrating how such an abnormality can be dormant in apparently normal animals maybe for many generations, to appear again in their descendants under appropriate conditions of mating.

Since the abnormality of carbohydrate metabolism giving rise to a high fasting blood sugar in animals is undoubtedly a recessive character it is not unlikely that similar defects in the chemistry of the body in human beings may be transmitted in the same way, and that some forms at least of hyperglycaemia and glycosuria, or the conditions predisposing to their development, may consequently run in families like a high fasting blood sugar in mice. The relationships in a pedigree indicating that such is the case are briefly as follows:

1 If both parents are affected all the offspring will be similarly affected

2. If one parent is affected and the other is not, all the offspring will appear to be normal, but all will be hybrid carriers (heterozygous normals) and transmit the disability to their descendants

3 If one parent is affected and the other is a hybrid carrier, half the children, on the average, will be affected and half will be hybrid carriers

4 When two hybrid carriers mate, one quarter of the offspring, on the average will be affected and three quarters will be apparent normals, although two out of the three will be hybrid carriers and only the third will be actually normal

5 Since a hybrid carrier is merely a bearer of the affection and does not suffer from it, an affected individual need not have an affected parent, or even an affected grandparent or great grandparent, although evidence of the presence of the affection in the family can usually be found among collaterals

Owing to the single births, limited families, and monogamous habits of the human species, clear-cut evidence of heredity comparable in every respect with that furnished by the experimental breeding of animals cannot be expected, but careful investigation should reveal hereditary relationships in human pedigrees corresponding sufficiently closely in essential particulars to the experimental findings to make it evident that they are governed by the same principles if diabetes, or some forms of it, are transmitted as a recessive character

Clinical methods for estimating the sugar content of the blood are of such recent origin that it is rarely possible to trace back hyperglycaemia for more than a generation, so that reliance has to be placed upon the occurrence of glycosuria and the symptoms of diabetes in working out human pedigrees. On comparing such pedigrees with our mouse results it is evident that there is a close correspondence in many instances, although, as we shall see later, not in all

Take for example the case of a woman suffering from diabetes who stated that two of her brothers were similarly affected, but another brother and two sisters had been repeatedly examined for sugar with negative results (Fig 2). In this family the affected and unaffected were equal in number a condition arising in mice as we have seen, when an affected individual mated with a hybrid carrier (Fig 1 A). Further inquiry revealed that the woman's father was a diabetic and, although her mother was normal her mother's sister suffered from the disease consequently the mother was almost certainly a hybrid carrier

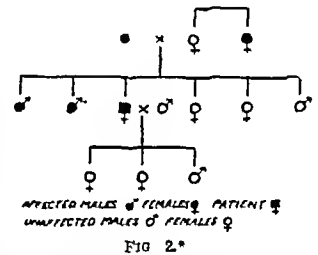


FIG 2*

That the disease, or a condition predisposing to it, behaved as a recessive character in this instance is also indicated from the fact that all the three children resulting from the marriage of the patient with a normal husband were found to be normal. Similar family histories are not very uncommon among diabetics, although it is unusual for the figures to correspond so exactly to Mendelian expectation

The experimental breeding of mice with high blood sugars showed that, when two hybrid carriers were mated, affected and unaffected offspring appeared, on the average, in the proportion of one to three (Fig 1, B)

This proportion was found in a family of which another patient (Fig 3) was a member, his sister and two brothers all being normal. The patient's father who was an only son was apparently normal as was also his paternal grandmother but his paternal grandfather was a diabetic consequently his father was probably a hybrid carrier. On the maternal side the mother herself the grandmother and the grandfather were all apparently normal yet as a sister of the mother had died of diabetes there seems little doubt that the mother as well as the father of the patient was a hybrid carrier

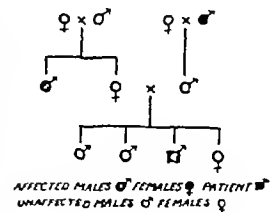


FIG 3

In both the preceding examples it was not necessary to go far back in the family history of the patient to discover

The explanation of the signs used in this figure applies also to the later figures

evidence of the transmission of the disease as a Mendelian recessive character. An interesting pedigree showing how in human beings, as well as in animals, the affection may be hidden for several generations in hybrid carriers (Fig 1, C) was given to me by a biologist interested in genetics who brought his only child, a daughter, suffering from diabetes (Fig 4). The father was free from sugar

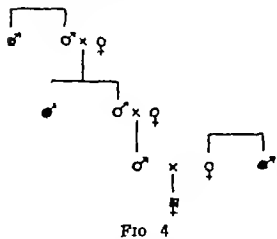


FIG 4

himself, and no case of diabetes or glycosuria had been known among his direct ancestors for at least two generations previously, but, as his father's brother and his grandfather's brother had both died of diabetes, it seemed certain that he, his father, and his grandfather were all hybrid carriers. The mother of the patient was free from sugar, but she had a sister undergoing treatment for diabetes, consequently it may be inferred that the mother was likewise a hybrid carrier. Since there were no other children of the marriage, it is not certain that the Mendelian expectation of one affected to three apparent normals would have been fulfilled, but it is probable that it would, as both parents were apparently hybrid carriers.

The following is one of the most remarkable cases I have met with, from the point of view of heredity.

The patient was a girl of 6, who died of diabetic coma after an illness lasting altogether under three weeks (Fig 5). Two older sisters had died of the same disease, one when she was a year old and the other at the age of 18 months. The only surviving member of the family was a boy of 10, who had never shown any signs of diabetes and whose urine was found to be free from sugar although it was said he passed traces of reducing material in his urine at intervals when suffering from 'bilious attacks,' to which he was liable.

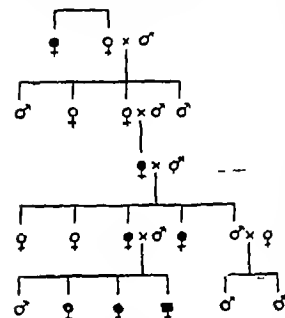


FIG 5

glycosuria could be discovered. The patient's mother, a woman aged 40 was known to have been passing sugar for about twenty years. One of her sisters had died of diabetes mellitus and two of diabetes insipidus, one at the age of 16 and the other at 20. A brother appeared to be normal, and had two normal children by a normal wife. The maternal grandmother of the patient, who was alive at the age of 70, had suffered from glycosuria for over twenty years but her husband was said to be normal. In the preceding generation there was no known history of glycosuria, and the great-great-grandmother of the patient was also said to have been normal, although her sister had died of diabetes. It would therefore seem that the disease was transmitted for at least two generations by hybrid carriers and then became manifest in the grandmother, probably owing to her mother having married a hybrid carrier like herself. Two of her daughters, including the mother of the patient developed the disease, most likely as a consequence of her union with a hybrid carrier and both showed it at an earlier age than their mother. In the next generation a rapidly fatal form of diabetes developed at a very early age in three out of four of the children most probably as the result of the mating of a diabetic with a hybrid carrier.

The weak point of this pedigree, as of so many others, is that the known history relates almost entirely to one side of the family and the other can only be inferred, but if the assumptions which have been made are admitted it would seem to be a fairly typical example of the transmission of diabetes mellitus as a recessive character. The earlier age of onset and increased severity of the disease with each succeeding generation is noteworthy, although the apparent tendency to hepatic disturbances on the father's side was possibly a contributory factor in the production of the final tragic results.

If the whole available pedigree of the case we have been considering is taken into account it suggests that the

diabetic tendency was transmitted as a Mendelian recessive character, but if only the last three generations are considered it might well be that it behaved as a dominant, for with a dominant character (1) all the affected individuals have an affected parent, (2) in families where both affected and unaffected occur their numbers are, on the average, equal, (3) none of the unaffected, although springing from affected parents, have affected descendants. Apparent dominance of this description is not uncommonly encountered in work on human heredity, and may be a source of error if the pedigree is short, there are, however, many cases in which the characters of a true Mendelian dominant are so plainly present that there can be no doubt some forms of glycosuria are transmitted in this way.

Take for example two boys, one aged 6 and the other 7 who were brought to me suffering from glycosuria (Fig 6). Their mother was normal but their father had been passing sugar from the age of 27, and his brother from the age of 30. The mother of these two brothers, who was still alive aged 70, was said to have developed glycosuria when she was about 50. Now this woman had been married twice, on both occasions to apparently healthy husbands, and from one of these unions the family referred to had originated by the other husband she had one son and two daughters all of whom had developed glycosuria about the age of 30.

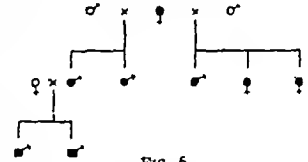


FIG 6

Since it is unlikely that both husbands were hybrid carriers, and as, moreover, all the descendants of both marriages suffered from glycosuria, it is evident the disease must have been transmitted as a dominant character in this instance.

I will quote another example of the same type of transmission.

A girl, aged 14, was brought to me suffering from nocturnal enuresis and was found to be passing sugar in her urine (Fig 7). Glycosuria had been discovered in her mother and a maternal aunt at the ages of 45 and 40 respectively and her mother's brother was also said to be diabetic. The mother and the aunt had both married apparently normal husbands, but both had diabetic children—the patient in the one instance and a girl of 18 in the other. The maternal grandmother of these girls was alive and well at the age of 80 and when her urine was examined it was found to be free from sugar, her husband however, had died of diabetes at the age of 72.

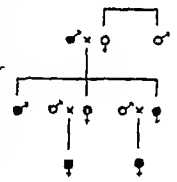


FIG 7

Other examples could be cited, but space forbids, and sufficient has been said to show that defects of carbohydrate metabolism giving rise to glycosuria may be transmitted either as a recessive character, like hyperglycaemia in mice, or as a dominant character, like brachydaetilia or night-blindness in human beings. In my experience the former type occurs most commonly before the age of 40, while the latter is more frequently met with in elderly people, but as there is a tendency for both to develop earlier in successive generations, the age of the patient alone cannot be relied upon as an indication of the way the defect has been inherited. The dominant variety is almost invariably mild, and may persist for many years, even in young people, without causing serious symptoms or materially affecting the general health. The recessive form, on the other hand, is generally grave from the onset, is more difficult to control by diet, and is inclined to progress, corresponding, in fact, to the "true diabetes" of Naunyn and others. The recessive type tends to be self-exterminative, whereas the dominant variety, owing to its generally later appearance and comparative mildness, interferes little, if at all, with reproduction and length of life. Dominance is consequently the prevailing form of inheritance found when a series of cases of glycosuria of all descriptions is examined, and, as direct transmission from parent to child is more obvious than inheritance through hybrid carriers it bulks even more prominently in the results of researches on heredity carried out on purely statistical lines. This, no doubt, is the

explanation of the common belief that heredity is a favourable sign in diabetes, which, although true of the more common and obvious dominant variety, is not correct when the condition is inherited as a recessive character.

At present it is not clear whether the inherited factor is itself the determining cause of diabetes, or whether it merely predisposes to the development of the disease by subsequent illness or injury. The occurrence of severe cases without demonstrable cause in early youth and infancy is in favour of the former hypothesis, but the undoubted connexion of diabetes with infections and other recognized causes in some instances indicates that, in later life at least, an exciting agent is often necessary. It is possible that the diabetes of young people may arise from inherited defects of the recessive type, which prevent the development of the organism in a particular direction keeping pace with the increasing demands of the growing body, and as the inherited factor probably differs in intensity, so the period of life at which the symptoms of diabetes appear also varies. In this way we can account for the severe form met with in infants, the tendency for the disease to develop about the age of puberty, when, as was pointed out by Priscilla White,¹ it is frequently related to excessive height, and the influence of infections, toxæmias, injury, pregnancy, etc., when growth has ceased. The mild and relatively innocuous form transmitted as a dominant character is an entirely different condition, and, as it is comparatively rarely met with before an age when the vigour of the body is naturally beginning to decline, it would seem to depend upon the development of an inherited tendency to abnormally early failure of some function concerned in carbohydrate metabolism accelerated, as a rule, by acquired faults of assimilation and nutrition. The notoriously benign type of diabetes so common in certain races, particularly Hindus, Japanese, and Jews, is very likely of this variety, and probably depends upon an inherited dominant strain developed by a lifelong adherence to an improperly balanced diet.

Although there can be no doubt that heredity plays a part in the production of the defects of carbohydrate metabolism, giving rise to glycosuria and diabetes in many instances, there is not as yet sufficient evidence to justify the conclusion that an inherited factor is a necessary basis for their development in all cases. Should further research prove that such a basis exists, it would do much to simplify our ideas of the etiology of diabetic conditions by providing a common bond between the various forms, the differences in symptomatology, severity, and age incidence which occur being then accounted for by the character of the inherited factor and the nature of the exciting cause. Prognosis, too, would be more certain, for it would be largely determined by evidence pointing to the hereditary tendency being of the dominant or recessive type while the fact that the glycosuria associated with the former is mild and easily controlled, whereas the recessive form is generally progressive and more severe, would be of assistance in formulating an appropriate line of treatment. Even in the present state of our knowledge inquiry into the family history of a patient suffering from glycosuria will often supply information which is useful in treatment, and, by the reassuring prognosis it may suggest, go far to dispel the fear of "diabetes" the discovery of sugar in the urine arouses in so many people.

The main value of the evidence regarding the occurrence of an hereditary factor in defects of carbohydrate metabolism is, however, its bearing on the question of marriage. The marriage of diabetics is clearly inadvisable, and intermarriage between families where there is even a remote history of the disease is to be discouraged, but as our advice on such matters, although often asked, is rarely taken, the children and grandchildren, even to the third and fourth generation, should be watched and guarded as far as possible from exciting causes likely to develop a latent and inherited defect.

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INJURIES OF THE EAR ARISING FROM FRACTURES OF THE SKULL*

BY

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In view of the increasing frequency of motor and street accidents, a discussion on fractures of the base of the skull from the aurist's point of view should be useful.

Patients suffering from this injury are usually sent for an aural examination some weeks after the accident, when deafness exists, or when the question of compensation arises. Inspection of the ears immediately after the accident would be more valuable and would enable the aurist to give a more accurate estimation of the damage. The additional information so obtained might be helpful in the treatment and prognosis.

The majority of the fractures of the base of the skull involve the middle fossa, and this proportion is to be expected when the base of the skull is viewed from below and it is seen that a line of weakness extends through both Glaserian fissures and the Eustachian tubes to the foramina laceria media, with the sphenoidal sinus as a connecting link. The two halves of the skull are more or less cemented together by the union of the basi-occipital and basi-sphenoid, and the fracture of the middle fossa usually follows this weak line wholly or in part. The thin roof of the canal of the tensor tympani and Eustachian tube, and that of the tympanum and mastoid antrum, lie in this line and are almost invariably involved in this fracture. The extent of the injury varies considerably with the violence and site of application of the blow received. Comminution of the thin bone of the tegmen sometimes happens, and spicules of bone are subsequently found in the auditory meatus. It is the middle ear which is practically always damaged in patients who survive and the capsule of the internal ear or labyrinth is rarely fractured. Only a few fatal cases of great violence show fractures of the internal ear, and J. S. Fraser,¹ in 1916, recorded, with microscopical sections four instances in which the fractures involved the labyrinth capsule in two and the middle ear only in the remaining two. The two middle-ear cases survived for a variable period and then died of meningitis, but the labyrinth cases were quickly fatal.

The external auditory meatus is often involved in the fracture when the line is through the Glaserian fissure and the fracture appears to split the meatus longitudinally, dividing it into an upper and a lower half, or, more commonly, a crack in the roof of the meatus is caused. In exceptional cases, where great force has occurred, the fracture has extended across the upper or anterior surface of the petrous bone into the internal auditory meatus. A smashing blow on the mastoid process has been known to fracture off the mastoid from the wedge of the petrous bone with injury to the lateral sinus. Fractures of the posterior fossa commence in the thin bone of the cerebellar fossa, and radiate into the lateral sinus groove of the same side. They then pass, either along the groove for the inferior petrosal sinus, or across the petrous pyramid near the inner edge of the lateral sinus, through the cancellous bone surrounding the mastoid antrum and semicircular canals, and behind and external to the internal auditory meatus. The various lines of fractures of the base of the skull can be seen in the museums of the Royal College of Surgeons and the medical schools, the tendency is for the fractures to take those lines indicated previously.

A moderate blow on the temporal fossa may produce a radiating fracture which cracks the roof of the middle ear, and blood effuses into the tympanum without rupture of the drum. No blood escapes into the auditory meatus but the typical bluish drum can be seen on examination. Four such cases have been observed, and the only indication was deafness. This lesion would not have been detected without an aural examination, and moreover

Read in the Section of Laryngology and Otology at the Annual Meeting of the British Medical Association, Cardiff 1928.

in such a case blood can occasionally be seen in the orifice of the Eustachian tube if the nasopharynx is examined with a mirror. These patients completely recovered their hearing in three weeks, when the blood in the middle ear had disappeared and the drum was normal. More commonly the upper half of the drum is ruptured and blood freely escapes into the auditory meatus and down the Eustachian tube to the nose and pharynx. If it is accompanied by the leaking of cerebro-spinal fluid, the fracture is a severe and dangerous one, opening up the subarachnoid space, and all such cases in my experience have been fatal. It is also significant that in the few recorded cases where the internal ear has been fractured the escape of cerebro-spinal fluid has been present. A detailed and thorough investigation of the injuries to the middle and internal ear arising from fractures of the skull has been made by J. S. Fraser, and he gave at the Otolological Section of the Royal Society of Medicine in 1916 a full description of the lesions found in a series of cases.

When haemorrhage from the ear is profuse and prolonged it is an indication that the middle meningeal artery or lateral sinus has been ruptured and urgent operative treatment is called for. The auditory meatus is sometimes a vent for this extracranial haemorrhage, and should never be firmly plugged. Fortunately the lateral sinus is not often ruptured, and the pressure of the brain and the increased intracranial tension are sufficient to arrest venous bleeding. Haemorrhage from both ears is always an unfavourable sign, and the mortality is 66 per cent, whereas in cases of haemorrhage from one ear the mortality is 39 per cent. The average mortality of all cases of fracture of the base of the skull is about 40 per cent.

In those cases where a middle-ear suppuration has existed before the injury, the probability of a meningial infection is very great and the prognosis is correspondingly unfavourable. In some cases the injury to the ear is followed by a local suppuration which materially adds to the damage, and spicules of bone from a comminuted fracture of the roof of the middle ear and meatus may be found. Mastoid suppuration has also been known to follow a fracture, and such a complication is liable to lead to a meningial infection.¹ Fraser reports a case of otitis media and meningitis which followed twelve months after the fracture of the skull. The injury undoubtedly facilitated the spread of the infection to the meninges. Some of these cases of local suppuration when seen late cannot be distinguished from the ordinary chronic middle-ear suppuration occurring without injury, hence the necessity for examining these patients as soon after the accident as convenient. The history of the absence of deafness and ear disease previous to the injury must be verified when the question of compensation arises.

A peripheral paralysis of the facial nerve has been recorded in about 46 per cent of fractures of the middle fossa of the skull. It arises in the more severe type of injury, and in a few cases the eighth nerve is involved as well, but in the small number of cases of facial paralysis seen by me the eighth nerve escaped injury. The facial nerve is involved by the fracture as it passes through the facial canal, particularly near the geniculate ganglion. The onset of the paralysis is almost immediate, but if it is delayed this is probably due to haemorrhage into the facial canal, when recovery of the paralysis is more rapid. All the patients seen with paralysis recovered even after long intervals.

The degree of deafness arising from fractures of the skull shows considerable variation. In a number of cases no deafness was reported, and twenty-five cases seen by me on account of deafness were all of the middle-ear type. The four patients in whom effusion of blood into the middle ear was the only detected lesion all showed marked middle-ear deafness when first seen, they completely recovered their hearing with the disappearance of the blood at the end of three weeks, and it was then impossible to detect any lesion. Another case seen twelve months after a severe fracture of the skull, in which the sixth, seventh, and part of the third cranial nerves were paralysed, revealed only a slight degree of middle ear deafness. The patients in whom fracture was followed by local suppura-

tion and inflammation suffered most loss of hearing, the deafness also became permanent. Any improvement in hearing usually occurs within about eight weeks from the date of the injury, and any deafness remaining after that period is permanent. I have not seen a case of genuine internal-ear deafness arising from concussion alone or from a head injury with such signs of fracture described previously. It is probable that the subjects of injury to the internal ear all die.

The treatment of these injuries to the ear is not always one of masterly inactivity, and a careful watch should be maintained for the onset of suppuration. Absolute rest in bed for a long period is essential, and the less that is done to the ear the better. The head is raised and a number of pillows are allowed. The auditory meatus is gently cleaned with spirit, a piece of sterile wool is lightly placed in the orifice and changed frequently. If there is any discharge of cerebro-spinal fluid the skin should be dried and smeared with an antiseptic ointment such as the dilute yellow oxide of mercury. Packing of the meatus with gauze, and, of course, syringing and drops, are to be firmly deprecated. If suppuration arises the whole aspect of the case is changed and vigorous methods should be adopted to establish free drainage. The drum should be incised if necessary, and there should be no hesitation in performing a simple mastoid operation at the slightest indication. The mastoid operation must be conducted gently, preferably by a motor burr or drill to avoid the jarring of the mallet and chisel.

The early recognition and treatment of suppuration is essential to the prevention of the dangerous meningial or intracranial infection.

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UNCOMMON ILL EFFECTS OF SALVARSAN TREATMENT*

BY

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FATALITIES from salvarsan therapy do not stand in the front of the minds of the present generation of venereal specialists as they did amongst those who first used this drug with trepidation, and hope, in 1911. For when the arsenobenzols were originally introduced their use became associated with a formidable list of ill effects.

Experience has not demonstrated any certain method by which the type of patient unsuitable for salvarsan therapy can be picked out and treated in other ways,¹ neither old age, aneurysm, phthisis, chronic Bright's disease, high blood pressure, nor severe valvular disease of the heart can, in themselves, be considered as contraindications to its use. Ill effects may follow the administration of small doses², they may occur at the beginning, at the middle, or at the completion of a full course of salvarsan treatment. No hand of manufacture seems to be exempt, though at times a run of toxic effects from the use of any one make compels the physician for expediency to omit this temporarily from his armamentarium. It would be wrong to say that these remedies are safe remedies, though I would be the last to express anything but gratitude for their invention and the highest appreciation of the way in which this country has been saved from an epidemic of syphilis by the energetic establishment of venereal clinics after the war by the Ministry of Health. The rarity of congenital syphilis must be most gratifying to the officials of the Ministry of Health, when they reflect upon this matter.

Dr F. T. Burke has recently published a treatment of venereal disease (1927), in which four and a half pages are given on untoward effects of salvarsan therapy. The ill effects there referred to are

headache, shivering, vomiting, dyspnoea, palpitation, fainting, and so on. During the actual injection there may be nausea,

* A paper read in the Section of Dermatology at the Annual Meeting of the British Medical Association, Cardiff, 1928.

and vomiting a feeling of fullness in the throat a huskiness in the voice, the face may become flushed and the conjunctivae injected. At times there are severe cramps in the limbs and abdomen diarrhoea and cardiac distress and in many of such cases there is undoubtedly a psychological factor at work.

After these immediate reactions Dr Burke records an intermediate type of general or local urticaria or an oedema of the face and hands. Haemorrhagic encephalitis is included in this group, which may be rapidly fatal. He states that it seems to occur most frequently among alcoholics. I have seen but one case, and it occurred in an abstemious primipara.

Under the title "delayed reactions" he refers to "exfoliative dermatitis most prone to occur in neurotic patients." Jaundice is the other and last-mentioned untoward effect. This record might, I think, be fairly considered as a minimizing report when contrasted with the following two accounts. The list collated and published by the Salvarsan Committee of the Medical Research Council in 1922 recorded cases of urticaria, discrete erythema, papular erythema, exfoliative dermatitis, pemphigoid eruption, Raynaud's syndrome with gangrene, and purpura as toxic effects following the employment of arsenobenzol preparations. Mouradian⁴ published an appalling list of "accidents." These included cases of intestinal paralysis, serious uterine haemorrhage, cholera-fora diarrhoea, cephalalgia with migraine, epileptiform convulsions with sensorimotor troubles, febrile icterus, epistaxis, and haematuria followed by anuria.

The cases recorded below are outside this list and are of interest because of their gravity and apparent rarity. I feel certain that many cases are lost sight of through the dissociation of clinics from general hospitals or because such ill effects are delayed and the practitioner in attendance is not in touch with the salvarsan administrator.

CASE I—Post salvarsan Melanoderma

A dark well built man of 50 was infected with syphilis when 17, and was treated then with caustic to the sore and six months' mercurials. In 1923 his Wassermann reaction was positive and he received eleven doses of neosalvarsan between the end of December 1923 and the middle of January 1924 from a competent private doctor. After the eleventh injection his skin became so uncomfortable that he changed his doctor. He was sent into the London Hospital on July 1st 1924, with general erythroderma and free generalized exfoliation. A differential blood count showed stained blood leucocytes 14,300 per cmm, polynuclear neutrophils 80.5 per cent, polynuclear eosinophils 2 per cent, small lymphocytes 5 per cent, large lymphocytes 5 per cent, large hyaline cells 8.5 per cent.

By September 18th the exfoliation and redness had disappeared, the patient's skin was smooth but deeply pigmented as dark as an Indian's most uniform in the large flexures, but elsewhere on the trunk and limbs were numerous small circular areas of sharply defined white skin.⁵ A photograph of this startling condition was published in the *British Journal of Dermatology* 1925 (p. 87).

This condition has been vaguely recorded by two French writers, Goular⁶ and Bouteillier,⁷ Goular says that arsenobenzol erythroderma leaves some kind of melanoderma, and Bouteillier contrasts the great frequency of exfoliative erythroderma with the rarity of melanoderma and keratoderma. (See Case II.)

CASE II—Post salvarsan Maculo-melanoderma with Follicular Hyperkeratosis

An unmarried French polisher aged 26 came to the London Hospital in June 1927 with a primary syphilitic sore of six weeks duration together with inguinal adenitis and a faint macular eruption on the thorax. The Wassermann reaction was positive. He was treated with seven weekly injections of neosalvarsan one of 0.6 and six of 0.9 gram. Two weeks after the last injection both legs were red and swollen. He stayed at home until December 19th, giving a history that he had become red, had skinned all over and had lost a good deal of his hair. There was now a startling dappled appearance of the skin of his trunk, neck and upper limbs due to a macular non-infiltrated deposit of brownish black small ovals of pigment. There was no generalized adenitis, no relapse of the primary sore, but over the trunk thighs and arms both in front and behind was a most profuse development of projecting small uncoloured horny spines protruding from uninflamed pile-sebacous orifices. He was admitted to the London Hospital on January 2nd 1928 since then a very few spines have become reddened many have developed blackened tips and can be expressed like hardened comedones. In addition he has developed a moist eczematous plaque on his right wrist, and a small infiltrated pink slightly itching eruption of the right anterior axillary fold.

There are now no condylomata, no buccal lesions or pigmentation. The patient feels thoroughly well and has a negative Wassermann reaction. There is no arsenic in the urine and no albumin, the total and differential blood counts show no abnormality.

I showed this case at the Royal Society of Medicine on January 19th, 1928, and an excellent photograph will be found in the *London Hospital Gazette* of March, 1928.

CASE III—Multiple Subcutaneous Abscesses Associated with Arsenical Exfoliative Dermatitis

A woman, aged 32 attended my clinic at the London Hospital in February, 1927 with a primary sore and several secondary skin lesions. The Wassermann reaction was positive. She was given an intravenous injection of 0.6 gram of neosalvarsan on February 27th and this was repeated on March 6th 13th and 27th.

On April 4th the patient developed an irritating generalized morbilliform rash and was given sodium thiosulphate intravenously. She was admitted into hospital. The whole skin gradually became uniformly more thickened moist and weeping in the flexures cracked and scaling elsewhere. There was an abnormal enlargement of glands. There was profuse diarrhoea with occasional blood in the stools the temperature ranging between 99° and 102° F. The output of urine at times fell below 20 oz per diem and showed albumin. The patient lay supine in bed in a typhoid state.

During this time a great number of subcutaneous abscesses developed resembling the cold abscesses of tuberculous infections in that there was an absence of any surrounding inflammatory reaction. Over forty of these abscesses were opened one to two eggcupfuls of thick blood-stained pus being evacuated from each. Cultures from this pus showed the presence of *Staphylococcus aureus*. This phase extended over three weeks.

Towards the end of May the patient's condition began steadily to improve the thickening of the skin diminished the fissuring and exfoliation abated and no new abscesses were formed. There was no shedding of hair or nails. On June 12th she was able to walk unaided, there was only slight scaling of the limbs and round the orbits, and the patient's general condition was sufficiently good to allow of her discharge from the ward, she having rapidly and steadily gained weight. Her appetite remained good throughout the illness in spite of the fact that on more than one occasion recovery seemed a remote possibility.⁸

CASE IV—Cutaneous and Subcutaneous Necroses Perforation of the Nasal Septum with Arsenical Exfoliative Dermatitis

A man aged 42, a caretaker had a primary penile sore and generalized rash in 1903, and was treated when in the navy

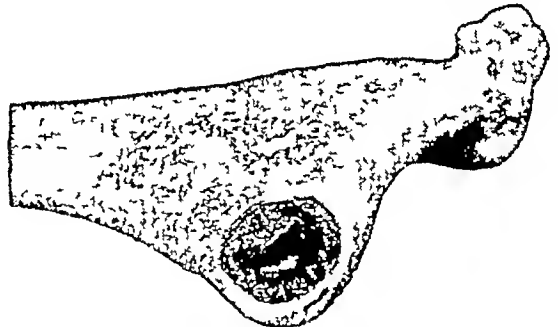


FIG. 1.—Case IV. Salvarsan necrosis of skin and bone.

with thirteen mercurial injections. His Wassermann reaction was negative in 1920.

On August 16th 1927, he attended the syphilis clinic of the London Hospital with a well-defined ulcer on the right leg. The Wassermann reaction was weakly positive. He had four injections of neosalvarsan, 0.9 gram at weekly intervals. Six days after the last injection the eyes became puffy and he developed a universal lividity of the skin. He was admitted into the ward on October 3rd and treated at once with intravenous sodium thiosulphate. He showed a generalized erythema puffy face swollen limbs and temperature rising daily from 98° to 104° F in a fortnight. There was no enlargement of the spleen, no bradycardia. The urine showed a trace of albumin, no sugar deposit—few leucocytes epithelial cells and amorphous urates. No tubercle bacilli were found. Cultures showed the presence of *B. proteus*.

Blood examination on October 13th showed stained blood leucocytes 30,000 per cmm, polynuclear neutrophils 48 per cent, polynuclear eosinophils 41.5 per cent, small lymphocytes 7 per cent, large lymphocytes 1 per cent, large hyaline cells 2.5 per cent.

On November 7th the patient developed an acute abscess of the neck. A probe was introduced and passed between the skin and structure of the neck for three inches on the right side. In addition there were gangrenous sloughs on his back and right

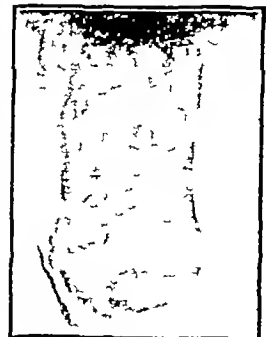


FIG. 2.—Case IV. Salvarsan necrosis of bone of the

beels. The nasal septum perforated. The previous day the heels and back were in perfect order. A radiogram taken on December 22nd showed necrosis of the bone of the os calcis. At this time both legs were markedly pigmented. The patient was discharged well on January 3rd, 1928.

CASE V—Pulmonary Embolism

This man was first seen on January 21st 1927 with a primary syphilitic sore. He was treated at the London Hospital with seven weekly injections of novarsenobillon; the last six doses were 0.9 gram. Early in March he had some irritation of the neck which he treated with iodine, and on March 6th he was admitted with exfoliative dermatitis. He became extremely ill with high fever, delirium and albuminuria; he recovered from this, but his nasal septum perforated. On April 7th he complained of small boils on the left axillae and right groin. I examined him at 2 p.m. on April 12th when he seemed fairly well, able to sit up in bed unassisted, tongue moist, pulse 80 regular and exfoliation confined to the scalp, palms, and feet. At 10 o'clock that night he complained of distress in his chest; he became unconscious, cyanotic and died within five minutes. No *post mortem* examination was permitted, but the symptoms were sufficiently definite of pulmonary embolism from a clot dislodged from the iliac veins.

I have recorded uncommon but important ill effects following the administration of salvarsan remedies for syphilis. The knowledge of these possibilities makes it important that no practitioner should undertake the intravenous salvarsan therapy of syphilis without having facilities for immediate transference of his patients from an ambulatory clinic to a ward. The knowledge of these possibilities must be brought before the attention of the public if public support is to be sought for the compulsory treatment of venereal disease. Otherwise there will arise a feeling of resentment among the uninstructed should a severe accident or a fatality follow the compulsory administration of these most important but toxic remedies.

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THYROTOXICOSIS AND INDICANURIA *

BY

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This paper embodies the results of an investigation undertaken to discover what relationship existed between the intestinal dissociation of aromatic amino acids and thyroid hyperactivity. It is known that when tryptophane is decomposed in the intestine indole is eliminated in the urine as indican (potassium indoxyl sulphate), and as it is a simple matter to test for this substance it was thought that some light might be thrown on the question if the degree of indicanuria were estimated in a series of individuals suffering from thyrotoxicosis and compared with similar observations upon a series of non-thyrotoxic individuals.

It is possible, of course, that urinary indican may not be a true index of tryptophane decomposition, as the greater part of the indole may be eliminated in the faeces, but it seems reasonable to suppose that the urinary concentration of this substance will follow roughly the intestinal content. The degree of indicanuria, therefore, was measured in a large number of individuals. The technique adopted was a colorimetric one, the indican being estimated as indigoblue.

To 2 c.c.m. of urine an equal amount of hydrochloric acid was added, then 0.5 c.c.m. of hydrogen peroxide, the whole was shaken, and finally 1 c.c.m. of chloroform was added. The colour

was estimated after standing for four minutes. It was assumed that the acid converted the indican to indoxyl and sulphuric acid, and the peroxide promoted the oxidation of indoxyl to indigotin, the chief constituent of indigo blue.

The individuals whose urine was examined comprised three groups. Daily observations were made and graphs prepared, with the degree of indicanuria as the ordinate and the day of the week as the abscissa. The groups were comprised as follows:

Group I consisted of seven normal healthy persons.

Group II consisted of fifty-seven patients suffering from various conditions, but without evidence of thyrotoxicosis, the series including two cases of non-toxic goitre.

Group III consisted of patients with exophthalmic and other varieties of thyrotoxicosis. Twelve cases were investigated, one, a case of exophthalmic goitre, at some length, to see whether there was any effect on the urinary indican output during the slight attacks of post-operative thyroidism following ligation of the thyroid vessels.

The results were as follows:

Group I—Five of the seven persons investigated gave varying concentrations (Fig. 1 shows an indican curve from this group), while two

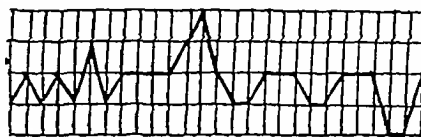


FIG. 1.—Healthy youth aged 18

males, aged respectively 23 and 16, gave completely negative readings for over a month.

Group II—

Thirty-eight women and nineteen men were investigated. 971 observations were made—580 on women, 391 on men. It is interesting to

note that of the observations on women 41 per cent were negative and only 5 per cent reached the highest degree of concentration, while of those on men only 23 per cent were negative and 18 per cent reached the maximum concentration (Figs. 2 and 3). In this group were two men and five women with urine completely free from indican.

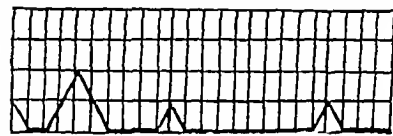


FIG. 2.—Married woman aged 28 with a tuberculous abscess in the abdominal wall

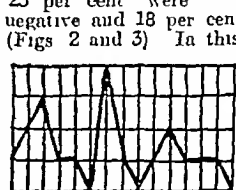


FIG. 3.—Boy aged 17 with large endemic goitre.

Group III—Several of the most toxic cases in this group had high concentrations of indican. The curves generally resembled those of healthy subjects, and in the case investigated to see whether the post-operative reaction following ligations had any effect on the urinary indican it was found that there was no constant effect, a slight rise occurring after two ligations, no change after one, and a slight fall after another. Furthermore, careful observations during the clinical course of cases of exophthalmic goitre failed to reveal any constant change in the urinary indican that could be correlated with an increase or decrease in the degree of intoxication (Figs. 4 and 5).



FIG. 4.—Man, aged 30, with acute exophthalmic goitre.



FIG. 5.—Married woman aged 53, with severe exophthalmic goitre. The arrows mark points at which ligations were performed.

Since collecting the cases into groups, many more, particularly toxic and non-toxic goitre cases, have been investigated with similar results.

The findings may be summarized as follows:

(a) In healthy persons there may be little or no urinary indican without any evidence of thyrotoxicosis, and from

An investigation of the hypothesis which ascribes thyrotoxicity to an increased absorption of unchanged aromatic amino-acids from the intestine.

day to day the variations in the amount of indican are considerable

(b) In patients without thyrotoxicosis there may be no indican present in the urine, or on similar diet there may be much indican

(c) Goitre cases without thyrotoxicosis show no difference in the form of indican curve from that in toxic cases

(d) Toxic cases show concentrations which do not vary inversely as the degree of intoxication. Some well marked exophthalmic cases have much indican, some non-toxic cases little or no indican

The foregoing results do not lend support to the view that thyrotoxicosis is dependent upon increased tryptophane absorption from the intestine, as advanced in 1923 by Dr D J Harries.¹ It was at one time thought that thyroxine was derived from tryptophane, Professors Kendall and Osterberg regarding it as trihydro-ti-iodo-oxindole propionic acid.² Dr C R Harrington,³ however, has since shown that it is derived from tyrosine, from which he has synthesized it as a diphenyl ether

Further experiments were therefore undertaken to discover whether the absorption of unchanged tyrosine would result in thyrotoxicosis. Owing to the relative insolubility of tyrosine only small amounts could be injected intravenously, and, moreover, those experiments were limited to three volunteers. It is admitted that more experiments are desirable, but in the three performed there was no increase in the pulse rate following the injection, and no apparent effect on metabolism, as would be expected if thyroid activity depended upon the amount of unchanged aromatic amino acids reaching the thyroid

COMMENTARY AND CONCLUSIONS

It would appear, in the first place, that urinary indican varies in amount from day to day both in normal people and in those suffering from various diseases, sometimes being absent in health, at other times highly concentrated, tending more often to reach high concentrations in men, and to be absent from the urine of women; secondly, in exophthalmic and other varieties of toxic goitre there is no constancy in the concentration of urinary indican, which may be absent or present in varying degree, and thirdly, the variations are independent of the degree of thyroid activity

The urinary indican appears, therefore, to be of no value in determining whether a case of thyrotoxicosis is progressing or decreasing, and so enabling the surgeon to decide when to operate

Owing to the general similarity in structure of the molecules of thyroxine and adrenaline with that of tyrosine, and the fact that tyrosine is one of the essential amino-acids, it is reasonable to suppose that the hormones of the thyroid and suprarenal glands are ultimately derived from the tyrosine part of the ingested protein, but there is no evidence to show that the activity of these glands depends upon the amount of tyrosine available at any one moment from the alimentary tract, and without doubt the problem of the pathogenesis of thyrotoxicosis is more complex than merely a question of supply and demand, in which the supply is probably at all times very much greater than the demands made upon it

SUMMARY

1 Using a standard technique, colorimetric estimations of the concentration of urinary indican as indigotina were carried out for (a) healthy subjects, (b) non-thyrotoxic cases, and (c) cases of thyrotoxicosis

2 Graphs (indicauria curves) were made. There were no outstanding differences in the curves from each of these groups

3 The urine of women is more often free from indican than is that of men. Higher concentrations of indican occur more frequently in men

4 The concentration of urinary indican bears no constant relationship to the degree of thyrotoxicosis

5 The hypothesis which ascribes thyrotoxicosis to an increased absorption of unchanged aromatic amino-acids from the intestine is not confirmed

6 The statement that in all cases of well-established exophthalmic goitre there is no indican in the urine is not borne out. Several well-established cases gave high readings

7 Three volunteers were injected intravenously with small quantities of tyrosine. There was no effect on their pulse rates

8 The active principles of both thyroid and suprarenal are probably derived from tyrosine, but there is no evidence to show that the amount of these principles depends at any one moment on the quantity of tyrosine available from the alimentary tract

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This research was carried out in the wards and laboratories of the Surgical Unit of the Welsh National School of Medicine under the direction of Professor A W Sheen

PAINLESS LABOURS

THEIR OCCURRENCE, THEIR INTERPRETATION, AND THEIR ADOPTION AS A STANDARD

BY

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PAINLESS labours are exceptional in occurrence and are commonly regarded as being very rare, puzzling, and incomprehensible. A series was published in the *British Medical Journal* in 1906, and additional instances have been reported in previous issues of this year

Reference to case reports and to the literature makes clear that such labours are commonly associated with uneventful recoveries and vigorous infants, with laceration rare and slight, the labours are often primiparous, and successive labours are usually painless also. The desirability of comfortable pregnancies, easy labours, and uneventful recoveries is undeniable, and it is surely worth while trying to explain their occurrence

Before proceeding to a comparison of the painless with the usual form of labour it is necessary to mention certain features of average labour, all of which may be demonstrated in an analysis of a small series of cases. For instance, there is a great variation in the length of the first and second stages in different women, and also in the amount of suffering accompanying them; there is a definite rise in the forceps rate with the increasing duration of the first stage, and a short first stage tends to be followed by a short second stage, while a long first stage may be succeeded by a short, medium, or tedious second stage. The second stage is not uncommonly more endurable than the first stage, while its duration varies from two or three minutes to as many or more hours. The febrile puerperium is often related to an albuminuric or puerperal pneumonia, as is also the prematurity and stillbirth rates

The common symptoms of average labour are pain during the uterine contraction, sense of effort, sense of advance, sense of impending defaecation bearing down, vomiting, cramps, and not uncommonly fatigue; these common symptoms vary from patient to patient, not all are present in every one, while the intensity of the pain may be trivial, moderate, extreme or intolerable

The first three of the cases recorded here demonstrate that the painless labour resembles the average labour in every respect except in the absence of the pain during the uterine contraction. The signs are just the same—"show" flow of waters, dilatation of os vagina and perineum, the "crowning" the delivery of infant and placenta, and the varying duration of the individual stages of labour. The characteristic symptoms are also the same—sense of pressure, sense of something to be expelled, sense of advance, sense of impending defaecation, strange feelings and bearing down. In many painless or nearly painless labours the mother is the only one aware of the imminence of delivery, pain is so common that neither doctor nor nurse may pay sufficient heed to the mother's sensations, indicative as they are

Is the absence of pain sufficient to brand such a labour as abnormal? It may be unusual but it is not

pathological. Ought we not to argue from it that pain is not a necessity to successful childbirth, and to seek rather the cause of the pain than of its absence? In this way it might become possible to bring the pangs of labour under a real control through ability to deal with their causes, rather than merely by the palliation of anaesthetics. There is certainly nothing in the so-called definition of normal labour to contradict the suggestion that the natural painless labour is a normal labour. If it is a normal labour, should it not be adopted as the standard of normal labour?

Some deny the possibility of painless labour in a healthy woman, and attribute the absence of pain to hysteria, myelitis, tabes, or other disease of the nervous system, others admit the existence of painless labours in healthy women, but regard them as inexplicable. One author places both with one pain under the heading of pathological labour, another states that some pain is nearly always present, even though it may be slight. Nearly all authorities show a great reluctance to abandon the idea that pain is a necessity to healthy labour.

After reviewing all the available case reports and references of painless labour, and after actually witnessing one such delivery, and then comparing them with the ordinary case, I find that all labours may be arranged in a gradation, passing from the painless and nearly painless labour to the severe, the complicated, and the obstructed labour. The symptoms and signs are the same, though they vary in intensity from case to case—the same variation is true of all clinical conditions.

Painless labours fall into two main groups: (1) The pathological painless labour, where the woman is ill—for example, tabetic, myelitic, toxicæmic, etc. (2) The normal painless labour, occurring in the healthy woman: (a) the labour resembling defaecation—the type labour, (b) the sleeping labour (Dr Percy Allan describes these two in his article), (c) the painless labour requiring forceps delivery. An example of this is given in my case reports (Case 8), and several are in the literature. I have heard of others, but without details.

What interpretation may be placed on pain in labour, both as regards its presence and its absence?

All will agree that pain is a symptom, most will accept Mackenzie's statement that it is a viscerosensory reflex occurring during labour. No one will deny that it is dependent on the uterine contraction—it comes on with the contraction, increases with it, and dies away with it, indeed, No contraction, no pain! though not No pain, no contraction. It is a reflex indication of the uterine contraction, anything that interferes with the reflex arc, such as diseases of the nervous system, will interfere with the sensation of pain. Body poisons, as in toxicæmia, may have the same effect, thus we can explain pathological painless labours. In some women there is no viscerosensory reflex (pain), but there is a visceromotor reflex (vaginismus). Vaginismus also occurs not uncommonly in the average labour. In all varieties of labour this reflex may detain the head and hinder rotation, and necessitates forceps. This is the explanation of the painless labour requiring forceps, at least where impatience of the accoucheur can be excluded (see Case 8).

There are pains other than labour pains due to muscular contraction, but they occur only when the muscular action is abnormal or inefficient. In angina pectoris and the various colics the pain is a distinct indication of inefficiency, in them, also, visceromotor reflexes as well as viscerosensory reflexes may occur. The uterus is a hollow muscular organ designed first to retain and then to expel its contents, just as are the heart, the bowel, the bladder, and other hollow viscera. The physiology of all these must be very similar. The uterine contraction is not always painful. It is frequent during pregnancy and after labour, and probably also during menstruation. It is generally painless, but when painful gives rise to "false pains," after-pains, and dysmenorrhœas. The patient with false pains is very likely to have a tedious labour, especially a tedious first stage, and after-pains—that is, to have some inertia.

Since the uterine contraction is painless in some conditions, and in rare painless labours, is it not possible

that pain in labour is a borderline symptom of uterine inertia, and an indication of some defect in the contracting muscle—that labour is a crisis which discovers any fault in the uterine health? Dysmenorrhœas are commonly due to errors in the general health, so probably are dystocias. Since symptoms precede signs in most clinical conditions, the symptom of inefficiency (pain) may be present long before there is any sign (delay), as, indeed, we see every day. Child-bearing is so complicated a process that faults may occur singly or in combinations, and these errors may concern the mother, the infant, or the process of labour.

Painless labour, with spontaneous delivery in a healthy woman (see Cases 6 and 7), being the best and easiest labour known, should be taken as the standard or normal labour. Its adoption would give us an absolute, concrete and physiological standard of labour—namely, that a normal labour is one in which the uterine contractions act thoroughly efficiently, leading in a short time to the spontaneous delivery of a healthy infant, and causing little or no pain or suffering to the mother.

We imply by this definition that the normal uterine contraction is efficient and painless, and it becomes possible to study uterine action by the reflexes produced and the work done, this work is shown by the amount of dilatation of the os, and by the advance of the presenting part, the reflexes produced may be viscerosensory (pain), visceromotor (bearing down and vaginismus), and organic (vomiting and dyspnoea). The chief reason for the lack of progress in midwifery has been the absence of a definite standard of uterine efficiency, the painless efficient labour supplies this.

CASE REPORTS

My Case

CASE 1—A primipara aged 20 engaged me at the sixth month. She had quickened at four and a half months, there had been no sickness, and she felt very well. She had had measles twice but no other illness. The menses began at the age of 15, they were regular every four weeks, lasting four days and there was never any pain therewith. She has some false teeth, no crowns or pivots, and she has never had any fillings. She was remarkably well during pregnancy and took a mixed diet with a great deal of fruit, vegetables, and milk. Labour was a fortnight later than expected. Labour started at 11.10 p.m. with pains in the back occurring every twenty minutes, perhaps oftener, there was no distress. At 10.30 a.m. the patient was having 'pains' every ten minutes, the os was fully dilated and the membranes were intact. I ruptured the membranes which were visible, during a 'pain', the head being well down in the pelvic cavity. The patient complained only of a sense of pressure, not of pain, but she had had actual pain up to 10 a.m. felt first low in front, and then later in the back. This pain was evidently very slight. She vomited three times during the night. I stayed with her till the child was born, each pain did obvious work and was accompanied by a slight bearing down. The advance was slower than I anticipated from my first examination. At 1.32 p.m. a vigorous female child weighing 9 lb was born with very little caput. The mother complained of some pain with the last two contractions, due I think to perineal laceration, when questioned later she denied that she had felt any pain when the infant was born, but said it was an 'awful' feeling when the head crowned, immediately after which the perineal tear began. Some blood came out during the last three or four pains. Later she told me that there was actual pain in the first stage and also with some had had a weakness in the back, perhaps an ache. In the second stage there was only a feeling as if the bowel was about to act without real pain. She did not feel the tear and she did not like the feeling of distension of the vulva by the head when it was fixed, but it was not real pain. Her temperature rose to 99.6° F the first night. Her puerperium was otherwise quite uneventful, and she nursed her baby successfully. Involution was good.

Dr Winifred Kennon's Case (Melbourne)

CASE 2—A primipara aged 24, commenced her labour about 4 a.m. with some slight discomfort and sensation of abdominal uneasiness. Sixteen hours later there had been a 'show', but she was in no distress. The presentation was left occipito-anterior, the os was slightly dilated and the membranes were intact. At 11 p.m. she was bearing down slightly and the membranes were beginning to appear. She had no pain, and only felt she had something to push out. The membranes were ruptured artificially and at 12.30 a.m. the child was born. Dr Kennon reports: The patient could not understand when I told her to push when she got a pain because she did not have any pain, but if I told her when she got the bearing-down feeling to push she understood and delivered herself in that way. There was a small tear necessitating one suture. Involution was normal, but she could not feed her baby very well. Her diet during pregnancy was practically an ordinary mixed diet with the meat reduced in amount, she was particularly fond of fruit. Her upper teeth are artificial and she had no fillings.

Dr Yeatman's Case (South Australia)

CASE 3—A primipara aged 26 nine months pregnant alone in the house after breakfast felt some discomfort and thought the bowels were going to act but, recollecting her condition got into bed just in time for a healthy full term infant to be born. When seen, two hours later, the child attached to a perfect placenta was in the bed, the perineum was not torn. The patient did well until the third day when a rigor occurred and the temperature rose to 103° F. The uterus was explored and douches but nothing was found. The next day she was very ill and further examination revealed a badly decayed and foul-smelling molar tooth which was extracted at once. The puerperal sepsis gradually cleared up and she was convalescent in about a fortnight. In this case no vaginal examination could possibly have been made and no local treatment was given after extracting the tooth. She persisted in the statement that there was no pain at all, merely a sensation as if passing a large motion.

Dr Jovee's Cases (West Australia)

CASE 4—In this case Dr Jovee was sitting reading and the patient said in a perfectly natural voice that something was coming and birth followed immediately. She admitted a slight pain or two.

CASE 5—This patient a primipara while the head was crossing the perineum brushed a fly off her arm and said she felt no pain whatever only a sense of stretching and pressure. She weighed 7 st and had lived a natural life. The perverted starches were avoided and grains were ground daily by means of a small mill plenty of fruit and vegetables were used also tea made of blackberry leaves.

Dr Giommi's Cases (New South Wales)

Dr Giommi has seen seven cases in twenty-six years of Australian practice all were strong healthy hard working women. He considers the painless cases normal in every respect. He also has records of cases in Naples.

CASE 6—A woman aged 36 had given birth to four infants at Dr Giommi's private hospital the first two before either doctor or nurse could be informed for the birth of the other two a special watch was kept. The mother was healthy robust and hard working. She never had a pain although the womb could be felt contracting strongly. The waters broke with a gush and a few minutes later the child was born. Ten minutes afterwards the placenta was expelled without any trouble pain or inconvenience. Involution was more rapid than in the best of the average cases. She would only admit a certain discomfort at the passage of the head at the soft parts at the very last.

CASE 7—Aged 27 was lying in a tent. The womb was seen to be contracting well though there was no sign of pain and the foetal head appeared at the vulva painlessly. The placenta followed in ten minutes without pain and the womb became well contracted. She got up the next day and did her work as usual. Questioned as regards her feelings her answer was as in the previous case.

Dr Giommi's other cases were of a similar nature.

Dr Allison's Cases (New South Wales)

CASE 8—This patient was a frail anaemic woman of somewhat slow cerebration. The history of her first labour was that at 6 o'clock one morning she arrived at hospital saying that the waters had burst. The head was found to be well on the perineum. She had had no pain or discomfort but a feeling of stiffness low in the abdomen. There was no change at 3 p.m. so the patient was anaesthetized and forceps delivery was performed. The puerperium was uneventful. In her second confinement the onset was exactly the same including stiffness low in the abdomen the waters had burst and the head was on the perineum. She remained thus and comfortable for four hours with the head visible, and despite pituitary extract in two 1/2 ccm doses given hypodermically at an hour's interval she made no further progress. Forceps were therefore applied and the puerperium, as before, was uneventful. In her third confinement Dr Allison saw her at 10 a.m. She had taken castor oil one hour before and said she could just feel a little stiffness coming on. The head was well into the cavity of the pelvis the cervix being undilated and situated far back. At 2 p.m. she decided to walk a distance of one hundred yards to the loo pit. When half way there the child was born. She said later that she had had absolutely no pain nor even discomfort as she merely felt the touch of the baby on her thighs demonstrating its presence. This patient's pelvic measurements were normal and there was never any difficulty with the third stage of labour which lasted twenty minutes or thereabouts.

CASE 9—Dr Allison attended this patient at her second labour she said that Caesarean section had been pondered at her first confinement. External pelvimetry showed a flat pelvis and the sacral promontory could be easily felt by vaginal examination. This was at the fifth month of pregnancy. At the eighth month the foetal head was well into the pelvis the lower segment being stretched and the cervix bunched up posteriorly. The anterior shoulder appeared to be to the left near the iliac spine. The head was undoubtedly lying in a transverse diameter. The patient entered hospital four days before parturition and on the day of her confinement she complained of feeling heavy low in the abdomen. The membranes burst suddenly and unexpectedly and the nurse found the head appearing at the vulva after this the patient had two pains which were severe enough to cause her to cry out and a child was born weighing 7 lb. It was stated that this case under the commonest conditions would have required early induction or Caesarean section judging from

pelvimetry, but constant supervision showed the head past the brim with apparently nothing to prevent normal full time labour.

Dr Agnes Bennett's Cases (New Zealand)

CASE 10—A primipara who was a rather small framed woman suddenly woke with feeling 'water coming away she jumped up and threw herself on her knees just as the child emerged. This patient feared that this would happen a second time but it did not do so. The second labour was an average painful one but she preferred it to the former, from the shock of which it took her a long time to recover.

CASE 11—This patient awoke in the night to find the birth occurring. While her husband was telephoning for the doctor the child was born in the bed.

CASE 12—A delicate anaemic primipara was in hospital for mite natal treatment one evening she felt an urgent call to stool and the child was found in the pan alive and uninjured.

CASE 13—An unmarried girl was found in bed very pale weak and collapsed with a dead child the placenta and severe haemorrhage. She said that she had had no pain and did not know that the child was born.

CASE 14—A patient with threatened eclampsia was being treated with nicks and saline aperients when a child was suddenly born in complete membranes. Mother and child both did well.

References to painless labours and reports of such cases, have appeared in the literature from time to time. In the *British Medical Journal* in 1806 instances of painless birth were reported by Renshaw, Trevor Roper Irving, Young, Allan, Spurney, Scott Dickson, and Macphail in 1928 cases were recorded by Burn, Masser, Patton, Hobbs and Russell. In a discussion in the *American Journal of Surgery, Gynecology and Obstetrics* in 1911 cases of painless labour were reported, and again in the same journal in 1922. In the *Clinical Journal* for 1917 Percy Allan reports and classifies two cases, and refers to cases published in the *Medical Record* in 1892. References on scanty reports will be found in the following textbooks.

Burns's *Principles of Midwifery* 1844 Chailly's *Midwifery* 1844 Robert Lees's *Lectures on Theory and Practice of Midwifery* 1844 Coffin's *Treatise on Midwifery* 1866 Barnes's *Lectures on Obstetric Operations*, 1875 Playfair 1878 gives a case. Leishman's *A System of Midwifery* 1876 Smellie's *Treatise on Theory and Practice of Midwifery* vol. II 1877 Spiegelberg's *Treatise on Midwifery* vol. II, 1888 Charpentier's *A Practical Treatise on Obstetrics* 1887 Galahin's *Manual of Midwifery* 1886 Cazeaux and Tarnier (translation) 1885 Parvizi's *Science and Art of Obstetrics* 1895 Garrigues, 1902 Williams's *Obstetrics* 1903 Munro Kerr's *Operative Midwifery* 1911 and his *Combined Text-book* 1923 Munro Kerr and Hendry's *Notes on Midwifery* 1920 Do Lee's *Principles and Practice of Midwifery* 1920 Depaul's *Lectures on Obstetrics* (in French) date not noted.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL

FOREIGN BODY IN THE BLADDER

THE case recorded on September 15th (p. 490) recalls a very similar occurrence which I met with many years ago.

A man nearly 80 years old who had led a catheter life owing to prostatic enlargement for eighteen years broke the end off his catheter in exactly the same way as described by Dr Ferguson and for the same reason—that is spasm at the neck of the bladder and urethra. I tried first to remove the broken piece which was about an inch and a half in length by passing a long fine sinns forceps down the urethra, but failed. I then told him that it would be necessary to administer chloroform and cut down on the impacted fragment but he refused to take an anaesthetic. It occurred to me that perhaps I could move it along from behind so placing him on his left side I introduced the left forefinger into the rectum and pushed firmly in the direction of the urethra the patient at the same time squeezing the penis in the same direction. To the great relief of both of us this manoeuvre was successful and the broken piece of catheter emerged from the meatus.

I suggest that anyone meeting with another case of this description might think it worth while to try this procedure before resorting to operative measures. The notes of this case were read and the specimen shown at a meeting of the Plymouth Medical Society.

Yelverton S. Devon.

H. W. WEBBER, M.D. Lond.

GUNSHOT WOUND OF THE CHEST

GUNSHOT wounds of the chest are perhaps of sufficient rarity in civil practice to make the following case worthy of record

A man, aged 46 was accidentally shot in the chest by a .320 revolver, twenty minutes later I found him lying on a bed turned partly on his right side unconscious, and very pale. There was a trickle of dried blood on his cheek below the right corner of his mouth but no other gross signs of bleeding. His respiration was slow and sighing his pulse was so rapid as to be almost uncountable with an occasional dropped beat.

The entry wound of the bullet was in the third left intercostal space close to the sternum and was sealed by clot the surrounding skin, in spite of the dried blood, could be seen to be contused. The bullet was felt under the skin in the eighth left intercostal space, four inches from the mid line. The blackening of the skin, over an area measuring roughly 3 in vertically by 1½ in horizontally showed that the bullet had been fired at close range.

Half an hour later he began to be restless and I gave him an injection of 1/6 grain of morphine. Before there was time for this to take effect the restlessness became very marked and he had to be held down in bed. This phase lasted about ten minutes, and is of considerable psychological interest since, although his remarks suggested a total lack of appreciation of his surroundings yet he told me later that he had wanted to sit up to get more air, and that it had caused him much mental distress to be held down. Two and a half hours afterwards he was still apparently unable to recognize me by sight, though on hearing my name he conversed rationally though feebly.

The bullet when removed under a local anaesthetic the same evening showed no marks except those made by the instruments in its removal. Both anterior and posterior wounds healed well and his progress in general was almost uneventful. During the first three days he coughed up ten or twelve goblets of blood, but was at no time distressed by cough. He was unable to lie on his left side as this caused some embarrassment of breathing and pain round the anterior wound. His temperature ranged from 100.2° F to normal, being more often nearer to normal while the pulse rate dropped from 110 to 90. At no time were there any abnormal sounds in his chest and the percussion note was uniformly clear except for a small area of slight dullness surrounding the posterior wound three days after the accident. On the fourth day he was removed to hospital in case a septic complication should ensue and necessitate operative intervention. It was fortunate that at the time of the accident he was dressing after a hot bath and the bullet only traversed a clean shirt and a new vest. He was able to return home after only ten days in hospital.

Except that he becomes easily tired and has a resting pulse of 84, he is now (three weeks later) leading a normal quiet life.

The patient states that at the time of the accident he felt a burning sensation, but hardly any pain, it was only when he looked down and saw blood that he realized that something serious had happened.

Grays Essex.

L G JACOB, M B, B Ch

FATAL TRACHEAL OBSTRUCTION DUE TO
AN INFLAMED THYMUS GLAND

THE following case of death due to pressure on the trachea by inflamed thymus and lymphatic glands contains some details of general interest.

A boy aged 10 was seen on the fourth day of illness which began with cough and difficulty of breathing. The cough was croupy and the voice was hoarse. The tonsils and uvula were inflamed the temperature was 99.6° F, and the pulse 115. A dose of 8,000 units of antitoxin was given, and repeated the following day. The laryngeal symptoms rapidly disappeared and during the next three days he seemed so well that his mother wanted to give him solid food.

About 11.30 p.m. on the tenth day of his illness he was seized with a cough which continued during the night. On the following day his breathing was embarrassed especially when he moved. His voice was clear and respiratory stridor was heard this was louder over the left lung. There was marked dullness over the manubrium sterni but he did not complain of pain. It was evident that there was something pressing on the trachea and in a young patient thought was naturally directed to the thymus gland. I arranged for his admission into the borough sanatorium. Half an hour after admission he grew still worse. Dr Thorp performed tracheotomy which was of no avail, and the patient died three-quarters of an hour after admission.

A necropsy was performed, and on removing the sternum we found a swelling containing thymus gland and surrounding tissue. When incised a little blood-stained pus escaped and over the cut surfaces of the swelling were seen numerous small haemorrhages.

The pathological report stated that the lymphatic glands (pre-tracheal) showed marked acute inflammatory changes and suppuration the infecting organism being a streptococcus. The remains of a persistent thymus were present inflammatory changes were present in portions contiguous to the adherent inflammatory lymphatic gland but there was no suppuration in the thymus itself. The amount of thymus sent for examination was five or six times as large as the normal gland, and was not the whole of the gland.

The clinical summary of the case is that it was one of laryngeal obstruction which yielded to antitoxin, and that there was a later, and fatal, tracheal obstruction due to an inflamed thymus gland and to suppurating lymph glands.

Sunderland.

J C HAMILTON

A CASE OF TETANUS COMBINED WITH GAS
GANGRENE

THE following case of tetanus associated with gas gangrene, in which the patient recovered following intensive serum treatment, is of some interest.

The patient, a girl of 13 years, was admitted to the Reigate Guardians' Institution, under the charge of Dr C S Crichton, suffering from tetanus. There was well marked trismus, risus sardonicus, and head retraction. A week earlier she had met with a road accident, causing a dirty irregular wound of the left knee and also of the right elbow. Tetanus symptoms first developed on the fifth day. Her doctor saw her on the sixth day, and, after giving an injection of antitetanic serum, sent her to the infirmary.

Under anaesthesia the wounds were excised and dressed with gauze soaked in hydrogen peroxide. Serum treatment was begun with an initial dose of 6,000 units intrathecally and 6,000 units subcutaneously. Four days later the skin just proximal to the elbow showed a sharply defined dark area 4 in long by 1 in broad. This patch was covered with air vesicles of varying size up to that of a pea. As this appeared to be of the nature of gas gangrene, the area was freely incised the skin cut with a crackling sensation and the feeling was that of thin dry leather. The underlying tissues were healthy. B W and Co's recently introduced anti-gas gangrene serum for the treatment of intestinal obstruction was available and as an experiment 40 ccm were given intramuscularly and repeated on subsequent days.

The affected area did not spread but three days later there was a fresh development. A hand 1½ in broad and almost encircling the arm, appeared 6 in proximal to the old area, and a similar hand appeared round the wrist. The intervening skin appeared healthy. The condition now looked grave and the question of amputation arose. As the patient's general condition was not worse than when admitted and as the gas gangrene appeared to be purely superficial, the serum treatment was continued, and the fresh areas were again freely incised.

From that date no further extension took place and the parts quickly recovered. On the fifteenth day after admission all serum treatment was stopped. During that time she had received 102,000 units of antitetanic serum, divided between intrathecal, intravenous, and subcutaneous injections, and 1,300 ccm of anti-gas gangrene serum.

A portion of the skin was excised when the gas gangrene first appeared. The bacteriologist's report states that after heating to 80° C for five minutes and subcultivating anaerobically an abundant growth of a Gram positive sporing bacillus was obtained, which gave the morphological and biochemical reactions of *B. aerogenes capsulatus* (*B. welchii*). Prior to heating long chains of streptococci were also present.

It is interesting to note that the anti-gas gangrene serum used is prepared against *B. aerogenes capsulatus*. What influence, if any, the serum had on the favourable course of this case cannot be judged, but a hopeful line of treatment in a similar case seems to be suggested.

Redhill.

J CHASSAR MOIR, M B, F R C S Ed

RUPTURE OF DIAPHRAGM IN A CASE OF
"VON JAKSCH'S ANAEMIA"

THE case here recorded seems of sufficient interest to merit publication.

A male child aged 1 year and 7 months was admitted subsequently diagnosed by Dr W E Cooke as a case of von Jaksch's anaemia. The infant showed no response to treatment on general medical lines.

On July 3rd, 1928 the temperature for no apparent reason, suddenly rose to over 104° F, and pyrexia was maintained during the ensuing days. On July 7th intractable vomiting commenced. The following day the temperature abruptly dropped to 97°, and the child died.

At the post mortem examination the findings confirmed the diagnosis. In addition the whole of the stomach was found in the thorax rupture of the diaphragm having occurred in the vicinity of the oesophageal opening. Apparently the gradually increasing tension in the abdomen had led to the rupture of a congenitally weak area at this spot. The child did not vomit in hospital until the day before death, but in support of a congenital hernia the relatives volunteered a history of flatulence, frequent vomiting of feeds and borborygmi.

I am indebted to Dr W E Cooke for permission to publish this case.

STANLEY N DOW,
House-Surgeon Royal Albert Edward Infirmary
and Dispensary Wigan

Reports of Societies.

EMPHYEMA

At a meeting of the Medical Society of London, on October 22nd, with the president, Dr J W Cunn in the chair, Dr C I Lakin opened a discussion on the diagnosis and treatment of empyema.

Dr C I Lakin said that while abscess of the lung was rare in pneumonia, empyema was the most common complication. There were two types of empyema that in which the collection of pus was simultaneous with the pneumonia and that in which the pus appeared as a sequel to these the terms synpneumonic and metapneumonic had been applied by Cameron. The latter was the more common, the synpneumonic type being mostly confined to children under 2 years old as part of a generalized pneumococcal infection, it was noticeable that in any case of empyema in a child tubular breathing was often heard through the fluid. Of the metapneumonic type there was a variety which might go undiagnosed, there being no definite history of pneumonia, though the child was obviously ill, with clubbing of the fingers, pallor, sweating, slight fever and dyspnoea. Empyema was probably never a primary infection of the pleura, and there was usually a pneumococcal focus present. The streptococcus produced the second commonest type of empyema, and this was the most serious form. It was important always to ascertain whether an empyema was diffuse or localized before there was any free opening of the chest. An x-ray examination would give useful information, and estimation of the intrapleural pressure would also help, since there was a wide range of oscillations in the absence of adhesions. The physical signs of empyema were, as a rule, those of a pleural effusion. Oedema of the chest wall and bulging of the intercostal spaces were more commonly described than seen, and with regard to displacement of the apex heart probably at least ten ounces of fluid were required before this took place. Interlobar and mediastinal empyema could be very puzzling, and in such cases Dr Lakin believed that radiological examination should precede the use of the exploring needle. Of all the signs of empyema there was not one which was peculiar to an effusion and which might not occur in other conditions, it was important to remember that mensuration of the chest would often show that the side containing fluid measured less than the sound side. In the diagnosis of interlobar empyema there was often a band of dullness over the second and third spaces in front. In differential diagnosis of this condition suppuration within the lung caused most difficulty but there was some help in the fact that the chest in abscess cases was "noisy," with many added sounds of a consonating character. Collection of pus below the diaphragm might give rise to difficulty, and in these cases it should be noted that pus would run out of a needle more rapidly during inspiration whereas in empyema pus emerged more readily during expiration. With regard to treatment Dr Lakin emphasized the need for revision of the old rule that pus should be evacuated as soon as found by costal resection. Aspiration had been substituted as a preliminary measure, and should always be performed when the diagnosis was made. Bacteriological and cytological examination of the fluid should next be made, and then the question when to operate decided. If the pus was offensive it should be evacuated at once. If it was non-offensive and active pneumonia was present aspiration should be continued until after the crisis when an operation could be performed more safely. The disadvantages of delaying the operation (such as thickening of the pleura) were slight. Local anaesthesia was preferable in all cases, and after the operation all steps should be taken to bring about approximation of the pleural surfaces. Sitting positions should be encouraged, and the use of Woulfe's bottles for blowing exercises.

Mr A Tudor Edwards defined empyema as a local collection of pus in the pleural cavity, and said that when the pus was diffuse the term "pyothorax" should be used. He insisted that the condition should never be regarded as an emergency requiring immediate operation. In

pneumococcal cases adhesions between the pleural layers formed early, but in streptococcal cases such adhesions occurred later, a sero-purulent fluid was obtained and an operation was contraindicated. When pneumonia was present aspiration should be employed at intervals until the active stage in the lungs was ended. Repeated aspiration might become increasingly difficult. It was the custom of the speaker to make an incision down to the pleura in such cases and pack this incision with gauze; this was removed when tapping was performed and was subsequently replaced. Local anaesthesia was required for rib resection, and complete closure was not justified. The correct treatment was to drain an empyema with approximation of the lung to the chest wall by adequate drainage, irrigation, maintenance of a negative pressure, and exercises. The dangers of irrigation arose from the use of a small tube and the production of positive pressure. For irrigation the chlorine group of lotions (eucal, etc.) was very valuable, since they appeared to dissolve the exudate on the pleura. The speaker used a special double tube with a flange, and irrigation was practised daily. In interlobar cases drainage should only be employed after the pleural layers had become adherent. The operation might have to consist of two stages, during the first of which the pleural layers were approximated to encourage adhesion. Under the age of 3 synpneumonic types were common, and aspiration should always be tried first. In chronic empyema it was first necessary to determine the size of the cavity to be dealt with. Then free drainage and irrigation were commenced, if the cavity did not appear to be getting smaller some further operation should be attempted. Decortication of the lung should be tried first, and if this failed the chest wall should be collapsed by some form of thoracoplasty.

Dr F J Poynton dealt with some of the problems of empyema in children. He described an apparatus for continuous aspiration devised by Mr T A Reynolds and himself in order to reduce the high mortality of empyema in infancy. He had used this method for more than twenty cases and he believed that there was room for improvement. In a series of seventeen cases treated since 1922 there had been six deaths: one from glioma of the brain, one from a safety-pin in a bronchus, two from meningitis, one from septicaemia later, and one had just faded away after apparent recovery. In three cases an operation for resection had been performed later. The difficulty in this method was to keep the cavity free from secondary infection. There was some difficulty in deciding when to remove the tube owing to the slow expansion of the lung in children, but taken all round, he believed this method of great value.

Dr Walter Broadbent described some cases of interlobar empyema. Dull areas were to be found over the second and third spaces in front, high up in the axilla and at the level of the spine of the scapula behind. The physical signs differed in every case, but the best situation for insertion of a needle was high up in the axilla. In cases of diaphragmatic empyema there was an area of dullness and silence in the lower axilla.

Sir Chambers Saxton inquired if Mr Tudor Edwards ever found it necessary to ligature the intercostal artery, especially in streptococcal or septic cases. He had always practised irrigation, and in the case of sudden death which he had reported in 1920 there was an abscess in the brain. For safety in irrigation he believed in the use of a big tube and antiseptic dressings should always be used to prevent secondary infection. The tube should not be removed too soon, and he recommended the use of oxygen where there was communication with a bronchus.

Dr C T Stebbing described his experiences with 150 cases of rib resection. This was indicated when the fluid became localized and frankly purulent. He believed that an operation should be performed as soon as this was the case. He thought x-rays of great use before operation to indicate the best site for drainage, he always made a large opening and put in a big tube, which should be kept in until the cavity closed. He agreed as to the value of antiseptic dressings but did not think suction drainage was necessary in most cases.

Reviews.

AMERICAN MEDICAL WAR HISTORY

THE War Department of the United States of America is to be congratulated on the possession of resources which enabled it to produce almost simultaneously, towards the end of 1927, three volumes¹ of its medical history in the great war. To the various sections published from time to time since 1921 under the direction of Major-General M. W. IRELAND, the Surgeon-General, have been added Volume II, by Colonel Joseph H. Ford, on administration in the American Expeditionary Forces, Volume VII, by Colonel William N. Bispham, on training, and Volume XIII, in Part I of which Major A. G. Crane deals with physical reconstruction and vocational education, while Part II contains an account of the Army Nurse Corps, by its superintendent, Julia C. Stimson. Those volumes are essentially works of reference, they are divided into sections, subdivided into chapters, complete with lists of tables, plates, charts, and figures. Consisting of 1,123, 1,211, and 998 pages, they weigh respectively 6 lb 7 oz, 7 lb, and 5 lb 15 oz. Included in each is an extensive appendix (covering 290, 456, and 645 pages of small print) containing important reports, copies of circulars, and information from different manuals.

The introduction to Volume II contains an interesting description of the general organization and development of the American Expeditionary Forces, the scope of the volume is indicated by the sections which, in order, deal with the organization and administration of the chief surgeon's office, medical activities of territorial sections, hospitals, evacuation of patients to the United States and discontinuance of hospitals, the army of occupation in Germany, and medical department activities with the American forces in France. For the purpose of this volume the period of war activities extends from April 6th, 1917, to December 31st, 1919. The outstanding feature in Section I is the outline of the medical department's struggle for an organization capable of handling the ramifications of the medical service, and for information which was absolutely essential if the army and the country were to benefit by having a medical personnel in Europe varying from 8.6 to 10 per cent of the total strength, and provision for the hospitalization of their cases on a 15 per cent basis. Three days after the Armistice instructions were issued to reduce the total hospital beds to 7½ per cent. The chapter devoted to hospital centres will repay study by those who may in the future be charged with the control of medical services on lines of communication or at bases. It may interest them in town planning, broaden their minds, and make them realize that peace time economies persisted in during active service can only lead to failure. Only one hospital centre is discussed at length. The chapter on base hospitals in France is an extensive piece of work, for the essential details are a précis compiled from individual records now filed in Washington. This may also be said of the chapter on camp hospitals. The hospitals are detailed by their numbers, each account including the date of organization, mobilization, moves, arrival in France, site, when ready to function, period of functioning, numbers treated, dates of leaving France, arrival in America, and demobilization. Names of commanding officers and of chiefs of the surgical and medical services are also given. Such details do not interest the general reader, a table would have lightened the volume and given the details at a glance. Section IV, on the evacuation of patients to America, contains certain facts worth noting and remembering. At the evacuation bases—St. Nazaire, Brest, and Bordeaux—there was a physical disability board, which examined all patients before deciding which cases were to be invalided to America. This is a most

important detail if the wholesale evacuation of patients likely to be fit for duty in a short time is to be prevented.

Volume VII, on training, is so crowded with facts that it will appeal only to officers who are either specially detailed for or interested in the exact type of work recorded. It is perhaps necessary to have a complete record, and it has been the aim of the volume to show how the medical department trained its personnel to fit the principles of medicine, surgery, and hygiene to military life. The first section deals with training in the United States, and the second section gives a detailed account of training in corps, army, and special schools in the American expeditionary forces in France.

Physical reconstruction and vocational education, the subjects forming Part I of Volume XIII, were early developed by the belligerent countries, but pioneers do not often speak of their work, and it is therefore all the more pleasing to read that "when we entered the war, nearly three years after its commencement, no pioneer road was left for us to follow with respect to the physical reconstruction and vocational re-education of our wounded or otherwise disabled soldiers and sailors. It was left for us merely to select a plan and to modify it to meet our own needs." How this was accomplished is shown in this volume, Part II of which is an interesting record of the organization and work of the Army Nurse Corps in America and in France.

The books under review, particularly Volume XIII, are well illustrated and printed on excellent paper in a type that makes pleasant reading but the method of putting copious reference numbers in the text, for verification elsewhere, tends to distract the reader's attention and is to be regretted. On the whole, we would have preferred less quotation of chapter and verse, trusting the historian to give a broad and fair survey.

DEGENERATION AND REGENERATION OF NERVES

To criticize the work of Ramón y Cajal is difficult, for the simple reason that one is so impressed by the extraordinary thoroughness of his work and by the painstaking wealth of detail. In *Degeneration and Regeneration of the Nervous System*² Cajal has given of his best. The book represents the fruit of eight years' research, and was originally published in Spanish in 1913, apparently most of the copies going to South America. It is a great pity that we have had to wait fifteen years for the appearance of an English translation of this remarkable work. It is a still greater pity that Cajal did not see his way to adding to the bulk of it by bringing it up to date thoroughly instead of merely inserting an "additional note" at the end of some of the chapters, giving an account, very cursory as a rule, of more recent work on degeneration and regeneration. Many readers will miss the name of Rio del Horta, which they had come to look on as almost a 'household word'.

The work is in two volumes, the first of which deals with traumatic degeneration and regeneration of the nerves. Cajal is a strong supporter of the neurotropic hypothesis of regeneration, but he discusses adequately the electrical theories of Kappers, Child, etc., and the mechanical theories of Heidenham and Harrison. A full discussion of these theories in view of the advances of the last few years from the work of Ariens-Kappers, Mauesco, and others would have added greatly to the value of the last chapter. The second volume is devoted to degeneration and regeneration of the nerve centres. This volume is divided into four parts, the first dealing with the sensory and sympathetic ganglia, the second with the spinal cord and the nerve roots, included in this part we have the optic nerve and the retina. The third part deals with the cerebellum and the fourth with the cerebral cortex. In these chapters the notion of injury, compression and cold, and of infections of various kinds, are dealt with. The section dealing with the cerebral cortex

¹ The Medical Department of the United States Army in the World War Prepared under the direction of Major-General M. W. Ireland. Part I. Administration. By Colonel Joseph H. Ford. M.C. Vol. VII. Training. By Colonel William N. Bispham. M.C. Vol. XIII. Part I. Physical Reconstruction and Vocational Education by Major A. G. Crane. Part II. The Army Nurse Corps by Julia C. Stimson. Washington. U.S. Government Printing Office. 1927. (Sup. rev. 8vo. Vol. II pp. 1123. 165 figures. \$4.00 dollars. Vol. VII pp. x + 1211. 33 figures. 3.25 dollars. Vol. XIII pp. xi + 998. Illustrated. 3 dollars.)

² *Degeneration and Regeneration of the Nervous System*. By S. Ramón y Cajal. M.D. F.R.S. In two volumes. Translated and edited by Raoul V. May. Ph.D. Harr. D.Sc. Paris. London. Milford Oxford University Press. 1928. (Med. 8vo pp. 769. 317 figures. 60s. net the two volumes.)

is perhaps the most interesting part of the whole work. Here the origin of the rod-cells or Stäbchenzellen of Nissl and the Gitter cells is well discussed.

The illustrations are very well done, and the two volumes reflect great credit on the Oxford University Press. The work has been so well translated by Dr RIGOLD MAX that it might well have been originally written in English. The feeling, however, after going through the two volumes, is one of disappointment that the whole work was not recast and brought thoroughly up to date when an English translation was being undertaken. Fifteen years behind the times is a long time in these days of co-ordinated and highly developed research.

FRACTURES—IN SPANISH

IN the preface to the first volume³ of his book on fractures Professor LAUREANO OLIVARES tells us that he has long hoped that the needs of Spanish and Hispano-American surgeons would be met by an authoritative work on fractures in his native language. He has now taken a long step towards supplying this want by the publication of this volume, in which the anatomy and physiology of bones, the pathology of fractures, and the various methods employed in the treatment of fractures are discussed. Another volume will follow in which fractures of the several bones and their various types will be described and their appropriate treatment indicated. As regards general methods Dr Olivares thinks that most weight must be laid on the use of bloodless proceedings so-called, which must, at present, and probably always will, be adopted in the majority of cases. Nevertheless a considerable amount of space is devoted to descriptions of methods of skeletal traction such as Steinmann's pins and different types of ice-tongs and bone-plates and bone-grafts. We are reminded that the author is treating of accidents in Spain or South America by finding at page 77 a most interesting radiograph of an incomplete but comminuted fracture of the tibia inflicted by a bull's horn. Such an injury in northern Europe is little likely to occur, except perhaps as a result of gunshot.

Adequate consideration is given to ischaemic paralysis as a result of fracture and its treatment, and there is a useful chapter on separation of epiphyses. The diagrams illustrating the effect of position in correcting or exaggerating the deformity of a fractured long bone, as in the case of fracture of the humerus or femur, are clear and instructive. A chapter on open or as we should say, compound fractures, includes gunshot fractures and gives much information on firearms and projectiles. We are glad to see that British and North American bullets do not interest the Spaniards, for we infer therefrom that the possibility of warfare between these three peoples is excluded from the author's mind. Thomas's splints on the contrary, receive due attention. The figures and plates in this volume to the number of 470 are excellent.

If the second volume is equal in merit to this Spanish surgery need no longer look abroad for an excellent guide to the treatment of all kinds of fractures.

PATHOGENIC MICRO ORGANISMS

FOUR fasciculi have appeared, forming parts of several volumes of the third edition of KOLLE and von WASSERMAN's admirable handbook of pathogenic micro-organisms.⁴ We mentioned the publication of previous fasciculi in our issues of May 7th, 1927 (p. 839), and February 11th, 1928 (p. 223). The new parts are as useful and comprehensive as their predecessors, particularly commendable is the full bibliography, and some of the fasciculi contain good illustrations. It is impossible to do more than mention the contents of each part for the benefit of readers especially interested in these subjects.

Part 21 of Volume I contains articles on the congenital transmission of infectious diseases, by Professor H. BRAUN

and Dr K. Hofmeier on the specificity of the exciting cause of infectious, and the basis of the teaching of acquired active and passive immunity, by Professor W. KOLLE and Dr R. PÜGGE, and on natural immunity, by Professor M. HAHN. In Part 15 of Volume II Professors E. P. PICK and F. SILBERSTEIN deal with the biochemistry of antigens and antibodies, Dr L. E. WALBUM with toxin and antitoxin, Professor E. PULBRAM with bacterial haemotoxins and anti-haemotoxins, Professor R. KRAUS with the toxins and antitoxins of vibrios, and Professor O. BAIL with bacterial agglutinins. Two new parts of Volume IV have been published of these, Part 17 contains articles by Professor W. v. LANGELSHIM on streptococcal infection, by Dr C. W. JUNGBLUT on scarlet fever, by Professor F. NEUFELD and Dr R. SCHULTZE on the pneumococci, and by Professor M. EISEL on tetanus. In Part 20 of this volume Dr J. ZEISSLER writes on the gas-producing infections in men, Dr H. FOTH upon anthrax, and Professor K. F. MEYER on botulism. Part 18 of Volume V contains articles by Professor E. WERNICKE and Dr H. SCHMIDT on immunity, serum therapy, and prophylactic vaccination in diphtheria, by Professor H. A. GINS on the *B. fusiformis*, by Professor B. MOLLERS on tubercle bacilli, by Professor H. SELTER and Dr W. BLUMENBERG on the pathology and mode of infection of tuberculosis, by Dr F. LOWENSTEIN on immunity in tuberculosis and tuberculin treatment, by Professor R. KRAUS on the basis of prophylactic vaccination with B.C.G., and Professor W. ZWICK and Dr J. WITTE on prophylactic vaccination against tuberculosis in domestic animals and cattle. In Part 16 of Volume VI Professor R. O. STEIN discusses ulcers molle, Dr S. L. FRANCIS tularemia, Dr R. ABEL the capsulated bacilli, Dr T. AXENFELD the infections of the conjunctiva, Professor E. KUNST the flora of the mouth, nose, and vagina, and Professor A. NISSE the normal intestinal bacteria and their relation to health. Part 22 of Volume VI deals with various topics, including coliform bacteria, described by Professor A. NISSE, swine erysipelas by Professor H. v. PREISZ, haemorrhagic septicaemia by Professor F. v. HUTYRA fowl cholera by Professor R. MANNINGE abscesses and suppuration in domestic animals by Professor F. GLAGE, infections associated with the breeding of animals by Professor H. MIESSNER and Dr R. WETZEL and an article on glands in cattle by Professor J. BONGERT. Part 19 of Volume IX contains two articles, the first, on foot-and-mouth disease, is contributed by Professor O. WÄLDMANN and Dr K. TRIANTHEIM while Professors P. UHLENHUTH, H. MIESSNER, and Dr W. GEIGOI have collaborated in an article on the virus of swine fever.

We commend highly the new additions to a series which has already deservedly won tributes of praise.

POSTURAL REFLEXES

UNDER the name of elementary posture reflexes Drs FOIX and THEVENARD in 1923 described certain phenomena observed in certain circumstances in the normal living muscles. Under the same title, *Les Reflexes de Posture Elémentaires*,⁵ Dr P. DELMAS-MARSALET of Bordeaux discusses at some length the practical application of a knowledge of these reflexes in diagnosis and treatment, especially as a means of discriminating lesions of the cerebrum from those of the pyramidal tract. The reflex which he has generally made use of for this purpose is that of the tibialis anticus, in the following manner. When in the relaxed and resting limb the foot is passively dorsiflexed and inverted, a contraction of the muscle occurs which does not at once disappear when the foot is released. This phenomenon would appear to be the opposite to the stretch-reflex of Sherrington. The author records the successive phases of this contraction and relaxation by means of a slightly modified Marey's myograph. The results of his many observations may be thus shortly indicated. In neuritis from lead poisoning, anterior poliomyelitis, tabes, hemiplegia (both flaccid and spastic), lateral and disseminated sclerosis, syringomyelia, and compression of the cord by tumour, the reflex is absent. In post-encephalitic

³ *Fractures*. Tomo I. By Laureano Olivares, Professor of Pathology and Clinical Surgery in the Central University and Surgeon to the Provincial Hospital of Madrid. Madrid: Javier Morata, 1928. (Sup. 8vo pp. xxii + 407, 470 figures.)

⁴ *Handbuch der pathogenen Mikroorganismen*. Begründet von W. KOLLE and A. v. WASSERMAN. Dritte erweiterte Auflage. Jena: G. Fischer, Berlin: Urban und Schwarzenberg, 1928.

⁵ *Les Reflexes de Posture Elémentaires*. Par P. Delmas-Marsalet. Préface du Professeur J. Pachon et H. Verger. Paris: Masson et Cie, 1927. (Med. 8vo pp. 174, illustrated 16 fr sans majoration.)

Parkinsonism, whether bradykinesia or not, or acute decerebration from epidemic encephalitis, and in paralysis agitans, the reflex is exaggerated. Certain therapeutic measures affect the duration and force of the phenomenon in diseased states. Thus, passive and active mobilizations diminish it temporarily. Certain drugs, such as hyoscine, have the same effect, and by their use it is possible to abolish this reflex, leaving the effects of pyramidal lesions evident. The therapeutic employment of this drug promises improved results. This study is very fully documented with case histories and many myographic tracings. Neurologists and pathologists alike should find it of considerable interest.

NOTES ON BOOKS

WE have received the first six issues* of a German series intended for the general practitioner, of which the subjects and authors are as follows: No 1, the initial stages of the most important mental diseases, by Professor Alexander Pilcz, No 2, disturbances of sleep and their treatment, by Professor Otto Maiburg, No 3, acute otitis media, by Professor Otto Mayer, No 4, diphtheria and other forms of sore throat, by Professor Carl Leiner and Dr F. Basch, No 5, convulsions in childhood, by Professor Julius Zappert, and No 6, glycosuria, renal diabetes, and diabetes mellitus, by Dr Herbert Elias. All the works emanate from well known authorities, and are written in a clear, concise, and practical manner. The work on diphtheria, which may be taken as an example, contains a brief epidemic logical introduction, which is followed by a fairly full clinical description of the varieties of the disease, the diagnosis and treatment, the various forms of sore throat in other infectious diseases, Vincent's angina, and all other forms of sore throat.

Dr W. A. FISHER of Chicago has produced a second edition of his book on *Ophthalmoscopy, Retinoscopy, and Refraction*. The publisher has done his work well, for the printing and binding are excellent, but we are not impressed by the subject matter. There are numerous fundus drawings in colour, but they are so small as to be of little value to the student. A fundus drawing $1\frac{1}{2}$ inches in diameter as the sole occupant of a page $8\frac{1}{2}$ by $5\frac{1}{2}$ inches fills out the volume, but such miniatures, though pretty to look at, are scarcely instructive. There is other waste of a more surprising kind. An illustration of an empty cotton reel would seem to be a work of supererogation, so also the devotion of a whole page to a couple of figures taken from a wholesaler's catalogue of spectacle frames. The text is short and scrappy, and is rather suggestive of a reproduction of lecture notes—sufficient as an outline of a discourse to be given, but somewhat cryptic to the uninitiated.

Dr W. G. AITCHISON ROBERTSON'S little book of *Aids to Public Health** (which we reviewed on its first appearance in our issue of July 7th, 1923, p. 22) has undergone rearrangement and enlargement, additions in particular having been made to the chapters on medical instruction of school children, maternity and child welfare and industrial hygiene. Although we find no mention of the Weil-Felix reaction in the section on typhus, the work in most respects has been brought well up to date, and the second edition will form a useful introduction to larger textbooks on public health.

The biological treatment of infections,⁹ by Dr A. JENTZER, contains a good summary of the pharmacological actions of the volatile oils, and those interested in this subject will find a useful bibliography containing some hundreds of references. The greater part of the volume is devoted to a description of the effects produced in septic conditions by the intravenous injection of a mixture of volatile oils and resins which has been named 'themsaline'. The author claims that this treatment produces remarkably beneficial effects.

Mr R. A. FISHER'S *Statistical Methods for Research Workers*,¹⁰ which is designed to serve as a manual for biological research workers without offering mathematical proofs of the

* *Bücher der ärztlichen Praxis*. Vienna and Berlin: J. Springer 1928. (54 x 81) No 1 pp 58 3 figures RM 1.70. No 2 pp 48 3 figures RM 1.50. No 3 pp 47 3 figures RM 1.50. No 4 pp 80 1 figure RM 2.50. No 5 pp 50 RM 1.60. No 6 pp vi + 88 7 figures RM 2.60. *Ophthalmoscopy, Retinoscopy and Refraction*. By W. A. Fisher M.D. F.R.C.S. Second edition revised and enlarged. Philadelphia: F. A. Davis Company 1927. (Demy 8vo pp 291 211 figures 24 plates 3.75 dollars.)

Aids to Public Health. By W. G. Aitchison Robertson M.D. D.Sc. F.R.C.S. Ed. Second edition. Students Aid Series. London: Baillière Tindall and Cox 1928. (Fcap 8vo pp vi + 186 3 col net.)

Traitement Biologique (Biotherapie) des Infections. Par Dr Albert Jentzer. Paris: Masson et Cie 1928. (7 x 91 pp 424 169 figures. 1 fr. sans migration.)

Statistical Methods for Research Workers. By R. A. Fisher Sc.D. Second edition revised and enlarged. Biological Monographs and Annual. No 1. Edinburgh and London: Oliver and Boyd 1928. (Demy 8vo pp xi + 259 12 figures. 15s net.)

underlying theories, has been revised and extended in the light of the experience gained since the first edition appeared about three years ago. The principal change has been the addition of a chapter on the principles of statistical estimation, which received only general discussion in the earlier edition, and one of the tables has been extended to increase the range of its utility.

PREPARATIONS AND APPLIANCES

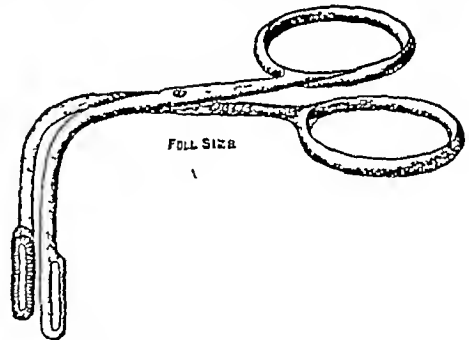
A SYRINGE FOR INJECTION OF VARICOSE VEINS. Dr A. A. MILLER (London, W.) writes: As is well known it is essential for a successful injection that the sclerosing solution should come in intimate contact with the inner coat of the varicose vein in order to injure the endothelium; this injury will be greater the more concentrated the injected solution. On the other hand it is necessary to make sure that the lumen of the vein has been entered, and this is done by aspirating some blood. The blood thus drawn into the syringe is apt to reduce the concentration of the sclerosing solution. It is therefore essential to



aspirate as little blood as possible and a syringe which allows the smallest quantity of blood to be clearly detected is indicated. I have used such a syringe for the last six months with most gratifying results. The essential part of it is the long fine nozzle made of polished glass magnifying the extremely fine lumen. An infinitely small amount of blood is readily observed, which could not cause any dilution of the sclerosing liquid; a fine short bevelled needle is used with the syringe. The syringe is manufactured by Messrs Charles Kung, 34 Devonshire Street, London.

PYELO-LITHOTOMY FORCEPS

Mr W. K. IRWIN F.R.C.S. (London W.) writes: When removing calculi through an incision in the renal pelvis I have often found difficulty in manipulating the ordinary type of forceps, especially if the patient is stout, the pedicle short and the kidney not readily mobilizable. I have therefore designed the instrument shown in the accompanying illustration. The inner end for



grasping the calculus is $1\frac{1}{2}$ in long, is bent at a right angle to the handle, and has concave fenestrated jaws. The handle portion is $2\frac{1}{2}$ in in length. With such an instrument one can work in a much more limited space than with a straight or nearly straight type. It has been made for me by Messrs Allen and Hanburys, Ltd., of Wigmore Street, W.

THE 'A AND H' KNIFE

WE have received from Messrs Allen and Hanburys Ltd. (48 Wigmore Street London W.) a specimen of their 'A and H' surgical knife with interchangeable blades and stainless steel handle. This detachable-bladed scalpel is made entirely in England. Its special features are the ease and safety with which blade and handle can be put together, the rigidity of the whole instrument when assembled, and the simple and convenient design of the grooved handle of hard stainless metal. The blades are made in three sizes from the best Sheffield steel. The several parts can be bought separately, but a complete set comprising handle and six of each size of blade, is sold in a metal box at 16s 6d. With this outfit the surgeon can depend on having a sharp knife ready for use at the shortest notice.

'TABLOID' EPHEDRINE HYDROCHLORIDE

Since medical practitioners have reported that in many cases the response obtained from the administration of half of a half grain of 'tabloid' ephedrine hydrochloride is adequate, Messrs Burroughs Wellcome and Co. now issue 'tabloid' ephedrine hydrochloride gr $\frac{1}{4}$ (0.016 gram) in bottles of 25 and 100. This, like all the firm's ephedrine products, is prepared from the natural alkaloid—the optically active isomer which rotates the plane of polarization of polarized light to the left. Dextro-rotatory ephedrine has little activity compared with its optical isomer. The racemic (optically inactive) synthetic ephedrine has been shown to possess only half the therapeutic activity of ephedrine carefully prepared from the genuine Chinese plant. Burroughs Wellcome and Co. add that they have ensured an adequate supply of authentic ma huang from China.

THE STATE OF THE PUBLIC HEALTH

SIR GEORGE NEWMAN'S REPORT FOR 1927

[FIRST NOTICE]

IN his annual report on the state of the public health¹ the Chief Medical Officer of the Ministry of Health advances four basic principles essential to the establishment of a sound national system of preventive medicine: there must be precise inquiry into, and accurate registration of, the essential data; there must be scientifically established and clearly formulated norms of health and physiological processes; there must be an ever-growing knowledge of the character and incidence of disease, its causes, and prevention; and, finally, as our practice of the principles of public health is ultimately moulded by practicality, public opinion, and financial resources, there must be national organization of health services. The problems of public health involve a consideration of the whole physical life of man, of everything which affects it, prolonging and enlarging it, or shortening and restricting it. How are healthy men and women to retain their health and grow in physical grace, knowledge, and capacity? How are children to be so nurtured as to grow up into healthy adults? How are the sick to be treated so that they may return healed as soon as possible to the ranks of the workers? These are problems that confront all who are concerned with the health of a community, Sir George Newman in his report presents the data on which any attempt to solve them must be based.

Population, Deaths, and Births

In 1927 the population of England and Wales increased by 200,000 over that of 1926. The bulk of this population—no fewer than 23½ millions—belongs to the age groups between 25 and 55; there are only six million children of school age, and only six million persons above 55 years of age. Males outnumber females in every age group up to 15, after that there is a steady preponderance of females, 654,172 children were born in 1927, much the lowest number for many years, 484,609 persons died. The decline in the birth rate and in the infant mortality rate is maintained, the death rate, on the other hand, is probably at its lowest point, and owing to the change in the age distribution of the population it may soon show a slight upward tendency. The principal causes of death in 1927, with the proportion per 1,000 of deaths from each cause were, diseases of the heart and circulation 201 (188 in 1926), bronchitis, pneumonia, and other non-tuberculous respiratory diseases 157 (150 in 1926), malignant diseases 111 (117 in 1926), diseases of the nervous system, 90 (103 in 1926), and all forms of tuberculosis 79 (82 in 1926). The death rate of infants under one month still remains high and shows no diminution in the last five years, but the death rate under one year has been brought down to only 70 per 1,000 births. As a low mortality rate is associated with a low morbidity rate this implies not only a great saving of infant life but a general improvement in the physical equipment of the present generation of children. The death rate among illegitimate children remains high being as many as 120 per 1,000 born. There is still no decline in the puerperal mortality rate, 2,690 women died in childbirth in 1927, and of these 1,026 died from puerperal fever—a preventable disease. There was an increase in the incidence and mortality of pneumonia, small pox, cerebro-spinal fever, and enteric, and a decline in poliomyelitis and encephalitis lethargica.

Epidemiology

Scarlet fever and diphtheria were more prevalent in 1927 than in 1926, but less fatal. The fatality rate was as usual, higher in diphtheria than in scarlet fever though the ratio in each case (52.5 per 1,000 in the former

and 6.8 per 1,000 in the latter) is the lowest recorded. Scarlet fever thus maintains the diminished severity which has characterized it in recent years. Five fairly considerable outbreaks resulted in a great increase in the incidence of enteric fever in 1927 over that of 1926—3,533 cases as against 2,739. The numbers of notified deaths from this fever were the same in the two years so that the fatality rate declined. The increased incidence and mortality from pneumonia in 1927 were associated with the recrudescence of influenza at the end of 1926 and the beginning of 1927, there were 67,757 cases with 37,242 deaths.

Small-pox

Small-pox increased in prevalence from 10,146 cases to 14,767, and the fatality rate, though small, was higher—3.2 per 1,000 in 1927, and 1.8 per 1,000 in 1926. In 1926 only one case occurred in Wales, in 1927 2,442 cases were reported. During the year 49 deaths occurred in respect of which small-pox was entered on the death certificate as the cause of death. Of these 35 were in unvaccinated subjects, 12 in subjects who had been vaccinated in infancy, and 2 in subjects in which the evidence as to vaccination was doubtful. An analysis of the age distribution of small-pox incidence in relation to the vaccinal condition of the patients is instructive. Only 26 vaccinated persons under 15 contracted the disease, no fewer than 6,013 unvaccinated persons of the same age group contracted it.

The Enteric Fevers

Exact information is lacking as to the relative incidence of diseases of the typhoid group, but the incidence of paratyphoid B fever appears to have increased in recent years. Paratyphoid fever is often so mild in character that many cases may escape detection and the number of notifications is therefore not a reliable index of its incidence. This fact may also account, in part, for the difficulty in tracing the source of infection in some outbreaks. The decline in typhoid mortality is attributed to the improvement of public water supplies, the prompt removal of faecal matter and house refuse, the early recognition and removal of cases to hospital, the education of the public in hygiene, and the improvement which has taken place in the technique of preparing, handling, and storing foods.

Diphtheria

The value of artificial immunization against diphtheria is emphasized in this section of the report. The improved methods and materials now used are effective and properly safeguarded, and though they may not afford immunity over the whole of life, they will, in most cases, do so during the early susceptible years. Three doses of toxin-antitoxin will produce full immunity in 80 to 90 per cent of children. Schick testing before inoculation is not necessary, but it is advisable to perform a Schick test three months after a course of treatment, and to give a fourth or even a fifth dose in cases that are then Schick-positive. The duration of immunity cannot be accurately estimated, but it has been shown to last nine years, by which time it becomes merged into the immunity naturally acquired with increasing age. The view is expressed that no local authority has done its duty until every parent in its area knows that his children can be thus inoculated with reasonable certainty of complete immunity. Not only are most young children susceptible, but they are more likely than older ones to take the disease in a severe form. Most deaths occur under five. It is useless to wait until an epidemic and then inoculate; protection is not complete for several months and immunization should therefore occur when there is no immediate fear of exposure to infection.

Scarlet Fever

Scarlet fever antitoxin is being increasingly used, and has proved effective in treatment. Administered early it lessens toxæmia and diminishes the risk of septic complications. On the other hand, it has no direct curative effect on already existing complications. The material for performing the Dick test and for producing active immunity with diluted toxin are not yet sufficiently standardized to justify their general use.

¹ On the State of the Public Health. Annual Report of the Chief Medical Officer of the Ministry of Health for the year 1927. London: H.M. Stationery Office. (3led. 8vo. 2s. 6d. net.)

Encephalitis Lethargica

There has been a progressive decline in the reported incidence of this disease since the peak year of 1924. The figure for 1927 was 143. The ratio of deaths to reported attacks continues high, and if one adds the deaths following the chronic effects of this disease, even in patients who may originally have been classed as "recovered," it appears that encephalitis lethargica eventually contributes to the death of 35 to 40 per cent of known cases. The sequelae of encephalitis lethargica continue to present serious problems in the administrative care of its victims, 45 to 50 per cent of all cases show various degrees of permanent disability. About half of these develop Parkinsonism, which, sooner or later, in the great majority, proves fatal. Mental impairment is almost invariable, especially in young children, and in 25 per cent of patients who do not recover completely from the acute attacks this impairment is a serious problem. Probably 50 to 60 per cent of patients suffering from the sequelae of encephalitis lethargica require special after-care and treatment—either close observation and control on account of their mental or moral disability, or nursing and after-care on account of their physical infirmities. The first group includes some who appear likely to profit from remedial and re-educative measures. The "encephalitis unit" at Winchmore Hill is an attempt to deal with the administrative problem of post-encephalitis lethargica. It not only provides treatment and after-care, but functions as an observation centre and clearing house, where cases are grouped according to their after-care necessities, and, so far as possible, are allocated accordingly. The adolescent case, subject to serious conduct changes and requiring observation and control, has not yet been adequately dealt with. It is suggested that large cities might combine on a regional basis to provide institutional resources for encephalitis units dealing with all post-encephalitic patients, including those who might be unsuitable or ineligible for other institutions.

Tuberculosis

The number of deaths from all forms of tuberculosis was 38,173, as compared with 37,525 in 1926. These figures, though they show an increase over those of 1926 (in which year there was an unexplained sudden drop), are lower than those of 1925, and in general the downward trend in this death rate is maintained. Notification returns are still unsatisfactory, and in some areas the number of notifications is only about 70 per cent of the new cases that come to the knowledge of the local authorities. Moreover, in some areas very little attempt is made to persuade contacts of newly notified cases to attend for examination. Where attention has been given to this point a considerable number of contacts have been found suffering from tuberculosis at the stage of their malady which gives the best chance of a successful issue to treatment. There is occasionally an unfortunate tendency to keep patients attending the tuberculosis dispensaries without coming to a clear decision on the diagnosis. Throughout the country, however, the diagnosis of 92.9 per cent of dispensary cases is completed within three months. The importance of repeated sputum examinations for diagnosis, prognosis, and selection of cases for institutional treatment is strongly emphasized. Many patients are classed as F.B. negative, not because the bacillus is shown to be absent, but because sputum examination has been neglected, a fact which robs statistical studies of much of their value. England is far behind America and a number of other countries in the use of x-rays for confirmatory diagnosis. Local authorities which have failed to consider sympathetically the requirements of tuberculosis officers in this matter are largely responsible. It must be made clear that expenditure that helps to achieve accurate and early diagnosis of tuberculosis is not only justifiable, but is probably a real measure of economy. Cases undergoing sanatorium treatment may be classified as early, intermediate, and advanced. Many of the intermediate type are kept in sanatoriums for six months or longer, though it is suggested, they would probably do better with shorter periods of treatment, repeated when relapses occur or are imminent. The need for prolonged treatment in early cases offering real hope of arrest, and in advanced dangerously infective cases, is stressed.

Methods of Treatment of Tuberculosis

Under this heading a review is made of the immediate and end-results of treating tuberculosis by artificial pneumothorax and other surgical procedures, by sanocrysin, and by tuberculin, and an account is given of B.C.G. immunization. The information given in the annual report for 1925 as to the late results of treatment by artificial pneumothorax is supplemented by a report of an investigation into the after-histories of 111 patients so treated during the past ten years. The results have continued to be extremely encouraging. Sanocrysin is still under investigation, with a slight balance of evidence in favour of its use in carefully selected cases. Dr. Burrell considers that the acute bilateral case in which the worse lung can be treated by artificial pneumothorax, and the type of case in which the tubercle bacillus persists in the sputum in spite of prolonged treatment and improvement in other respects, are particularly suited to sanocrysin treatment. Tuberculin is still out of favour, but more information about Professor Calmette's B.C.G. is required before a definite view as to its value can be arrived at. According to Calmette a comparison of the mortality of vaccinated and unvaccinated children in contact with tuberculous mothers shows that the rate for the former was 6.6 per cent, and for the latter 24 per cent. A close analysis of these figures by A. Woolgren shows the need for more detailed information, especially as to the mortality rates of vaccinated children brought up in contact with tuberculous mothers, before Calmette's claims can be fully accepted.

Mortality in Pulmonary Tuberculosis

A study of mortality curves suggests that there are at least two independent influences affecting the mortality from pulmonary tuberculosis in adult life. The first, to which females appear to be more sensitive, produces its maximum effect in early adult life—in the 20 to 25 age period. The second exerts its maximum effect between the ages of 40 and 50 in the case of males, and somewhat earlier among females. It is suggested that pulmonary tuberculosis exerts its maximum biological effect in early adult life, and that urbanization is responsible for the high mortality in middle life.

THE GENERAL PRACTITIONER AND PREVENTIVE MEDICINE

PRESIDENTIAL ADDRESS TO THE SOCIETY OF MEDICAL OFFICERS OF HEALTH

THE annual general meeting of the Society of Medical Officers of Health was held on October 19th, when Dr. JOHN HOWARD-JONES, medical officer of health for the county borough and port of Newport, Monmouthshire, was installed as president of the society, and delivered an address on "The role of the general practitioner and specialist in preventive medicine."

Dr. Howard-Jones began by recalling the extent to which knowledge of disease had been effective in reducing the death rate and infantile mortality in recent years, while public health efforts had been practically confined to the removal of the more obvious causes of sickness and death, a stage had now been reached when, beyond routine work, attention could only be devoted to the individual and the application of the laws of physiology to the prevention of disease. Each individual must realize his responsibility for the preservation of his own health and that of those under his care. In the public health service there was a relatively small percentage of those engaged in the practice of clinical medicine, he thought they must agree with Sir Arthur Newsholme that complete success would not be achieved "until means are discovered for training and enlisting every medical practitioner as a medical officer of health in the circle of his private or public practice, and of securing his services not only in the early and prompt detection of disease, but also in the systematic supervision during health of the families under his care, and in advising them as to habits or methods of life which are inimical to health." Dr. Howard-Jones called attention to the statement in the evidence given by the British

Medical Association before the recent Royal Commission on National Health Insurance "The alleviation or cure of morbid conditions when once they have arisen is, relatively to other matters, a minor part in the campaign for public health." He proceeded to show how the participation of the general practitioner in preventive medicine was being advocated from all quarters and in most countries, and to discuss those particular problems which fell outside the routine work of the medical officer of health.

Maternal Mortality

It was a deplorable fact that maternal mortality in this country had been practically stationary for nearly twenty years, in spite of the gradual substitution of the old untrained midwives by partially trained women, and the provision of medical help in cases of emergency before, during, and after childbirth. Unfortunately, however, more attention was paid to the treatment of symptoms than to the prevention of disease, and this in many towns led to unnecessary instrumental intervention, which was now recognized to be prejudicial to mother and infant. The time had come to reconsider the whole subject. As regards the national insurance maternity benefits no conditions were laid down as to how the recipients should spend the money, it was generally felt, therefore, that the administration of these should be co-ordinated with the maternity and child welfare service. The more recent records of some of the most enlightened midwifery departments of the great hospitals afforded gratifying evidence of the value of adopting preventive principles in the practice of midwifery. Dr Howard-Jones next reviewed the proposals of the British Medical Association and others. It was urged that provision should be made for the attendance of a doctor and a midwife at every confinement, and that while the midwife should usually conduct the normal delivery, the doctor would be responsible for ante-natal examination and supervision. He would attend at the confinement if difficulty arose, and also during the puerperal period as the case required. There should be consultant and specialist services for difficult cases and local authorities should provide accommodation in institutions under the maternity and child welfare scheme. Such a plan would ensure a definite place in the maternity scheme for the medical practitioner, it was most desirable that he should play a definite part in a well-organized maternity scheme, since after supervising the ante-natal care of a patient he ought to continue in charge until she was restored to normal condition, if possible.

Teaching of Midwifery

The organization of a systematic study of the woman during pregnancy was a recent development at the medical training schools, as an element in the training of the medical student and the pupil midwife, ante-natal work had hitherto been entirely fortuitous instead of being systematized and compulsory. Individual general practitioners throughout the country had, however, acquired for themselves the necessary knowledge and had devised admirable schemes for the women under their charge.

Discussing the causes of foetal and neo-natal mortality, Dr Howard-Jones quoted various authorities to illustrate the need for and the value of, ante-natal care and preventive work. The public needed education in regard to the advantages of preventive midwifery over the present popular but largely unnecessary delivery by instruments—with its greater danger of sepsis and trauma to mother and infant. It had been repeatedly stated in official reports that the teaching of obstetrics and gynaecology in most of, if not all, the medical schools in Great Britain left much to be desired. The new curriculum in midwifery included a certain amount of training in midwifery, in view of the fact that the deaths from premature birth and diseases of early infancy exceeded 25,000 per annum, this provision could not be regarded as premature. Midwifery was primarily physiological, and if conducted on preventive principles the pathological aspect of the work would be reduced to a minimum. Some midwifery teachers were doing great service by emphasizing the importance of ante-natal supervision and of dealing with

labour on physiological lines. Referring to the tendency to curtail the number of children in each family, the speaker said that from the parents' point of view the necessity for skilled ante-natal and natal care was assuming serious importance. There would be an increased proportion of first births, and these required greater supervision. Midwifery in industrial practice was generally underpaid if they were to secure ante-natal and post-natal treatment the question of remuneration would have to be reconsidered. The public would have to be educated up to paying for preventive midwifery, and the State and the local authorities would have to revise their present policies.

Co-ordination of Health Services

The Poor Law service included some 4,000 part-time or whole-time medical practitioners, this medical service was never based on preventive principles. Up to the present time it had not been co-ordinated with preventive medicine—to the great disadvantage of the public health. Opportunities would soon be available for remedying this state of affairs, but success would depend upon the spirit in which the central and local authorities undertook the necessary reforms. The aggregation of Poor Law medical relief, maternity and child welfare schemes, school medical services, mental hospitals, mental deficiency services, pensions medical work, public health services, and national health insurance amounted to a partial State medical service. Some of these branches were based on the ideals of preventive medicine, but the more costly were not. According to its preamble, the National Insurance Act was to "provide for insurance against loss of health and for the prevention and cure of disease." Prevention was given priority over cure, but it could not be denied that the Act continued the old-established idea of medical treatment by a visit and a bottle of medicine for a third of the population. The great fault in the present system was that medical advice was only obtained after disease had actually attacked the patient. Fees would have to be increased and the size of "panels" reduced to enable the general practitioner to practise preventive medicine among his patients. Referring to the need for the teaching of medicine on physiological and hygienic lines, Dr Howard-Jones said that those teachers who were impregnated with the old "pathological" principles would probably not help much in this direction consequently it would take many years before much real progress would be made. He understood that post graduate courses which would enable practitioners to prepare themselves for more active participation in this preventive medical work were not available in this country. Unless something were done in this connexion the general public would not participate in the benefits to be derived from the great advances which had been made in physiology, biochemistry, and dietetics by those engaged in research work.

Health Propaganda

Public opinion was ripe for instruction in matters pertaining to the care of health, health propaganda was becoming increasingly popular. Much of this work was undertaken by men who had had no medical training and was of the nature of "stunts," a great deal consisting of thinly veiled advertisements. There was, therefore, a danger of reaction on the part of the public unless the work was performed by disinterested propagandists trained in the laws of preventive medicine, this could only be done by the enlightened medical practitioner. The most effective educational work was individual instruction given at the psycho-logical moment, and not class teaching this could best be given by the private or "family" doctor. His opportunities for service were undoubtedly great, not only in guiding the patients in the intricate paths of health, but also in assisting the present activities of public health authorities, as in the case of tuberculosis. There was much work to be done in educating the public as to the true value of drugs in the cure of disease.

Dr Howard-Jones then paid a tribute to specialists and research workers for what they had done in advancing the knowledge of preventive medicine and in educating the public. He added that the principle of periodical

medical inspection had long been established in the navy and army, and had been extended to the younger members of the civil population. Its further extension to the general community should naturally follow. It had been recognized by some of the leading American insurance companies that it was cheaper to maintain health than to cure sickness, and there was a growing realization of the importance of health propaganda among British companies. The general public was also beginning to appreciate medical supervision.

INTERNATIONAL SOCIETY OF MEDICAL HYDROLOGY

ANNUAL MEETING IN ENGLAND

(Concluded from page 718)

AFTER two days' conference in London, which constituted the first part of the annual meeting, a party of 105, consisting mainly of members of the International Society of Medical Hydrology from seventeen different countries, accompanied by wives and daughters, started on a tour of the more important English spas.

Visit to Harrogate

The first spa they visited was Harrogate on October 12th. After an address by Dr. FERGUSON on the waters of Harrogate they inspected the baths, and were much interested in the various hydrological measures, as well as in the melted paraffin wax baths for chronic joint diseases. The morning session, held on October 13th at the Royal Bath Hospital, was devoted to the treatment of children in waters and baths. Among the papers were the following.

Dr. A. KELLER described the work done at the Children's Hospital at Rheinfelden (Switzerland), which has 115 beds. The cases treated are mainly the more chronic forms of tuberculosis, lymphatism, and conditions of malnutrition and debility. Good results were obtained from lime baths, which were given two or three times a week for four weeks at a temperature of 97° F. The strength of the baths varied from 1/2 per cent for the more debilitated to 4 per cent for the more robust. It was in general observed that the weaker baths had a more immediate effect, while with the stronger the effect might be delayed to a later stage in the course of treatment.

Professor GROEDL stated that it had been found at the two children's institutions at Nannheim, in which 30 per cent of the patients were suffering from heart disease, that treatment with saline baths of gradually increasing strengths was less fatiguing when combined with CO₂ effervescence.

Dr. SIGMUND WASSERMANN (Frankfurt and Vienna) summarized the fashions through which iron medication had passed, and quoted recent work done by Starkenstein and others which showed that the only therapeutically active form was the instable ferrous iron, thus accounting for the empirical observation that ferruginous waters should be drunk fresh from the springs. Since the metabolism of iron was more easily deranged in children than in adults, he considered that the use of chalybeate waters in anaemic conditions in children might with advantage be further developed. The author had also found good results from ferrous waters in gastro-intestinal catarrh.

Professor STANLEY (Birmingham) described the use of hydrotherapeutic measures as a sedative, and stated that he had found them particularly useful in chorea either in the form of hot packs at 100° F. lasting about twenty minutes in such children as were not frightened by this treatment or hot baths at 98° F. As a gauge of the improvement obtained he made every child write its name and the date in ink on the case sheet daily. The variations in muscular co-ordination could thus be seen at a glance, and improvement became evident in many cases after one or two packs daily for four or five successive days. Though there could be no doubt that hot packs were often effective when drugs failed, a child occasionally became more irrit-

able after a hot pack, it was, however, difficult to compare the results of pack treatment with those obtained from the various drugs which had been used. In discussing the mode of action of the pack in these cases he pointed out that chorea in children was one of the few conditions in which a subnormal temperature might continue for weeks in conjunction with a rapid pulse, indicating a disturbance of the heat-regulating mechanism. It seemed probable, from recent work on the heat-regulating functions of the supranal glands, that both the subnormal temperatures of chorea and the hyperpyrexia of other forms of acute rheumatism might be due to derangement of the heat-controlling functions of the thyroid and suprarenals by rheumatic infection.

Professor CATTANEO described the uses of alkaline and chloro-iodide waters, "pulverized" by the passage of compressed air, in the treatment of catarrhal and other conditions in children. Dr. HINSEN mentioned, among the difficulties of applying spa treatment to children, the fact that there were no suitable institutions for treating small paying patients away from their fussing mothers comparable with those belonging to charitable organizations. A paper was read also by Dr. ANGLADE (La Bourboule) on mineral waters. In the brief discussion which followed the papers Dr. POUTON, referring to Professor Groedel's remarks, suggested that light might be thrown on the problem of CO absorption through the skin in CO baths by estimating the CO₂ content of the mucus secreted during and immediately after the bath.

Dr. J. A. THOMSON (Harrogate) next demonstrated a series of nearly fifty radiograms of cases of osteo-arthritis to illustrate his thesis that the typical and diagnostic lesion of this disease is a cyst-like focus of bone destruction surrounded by a ring of osteo-sclerosis. He had found that these foci were so small in early cases as to be scarcely distinguishable, that they gradually increased in size or number, and that the individual foci were subject to alternating activity and subsidence, thus accounting for alternating periods of exacerbation and relief of symptoms. He maintained that the clinical symptoms depended more on the position of the active focus in relation to a weight bearing or friction-bearing surface than on the condition of the joint as a whole.

Cases of various types of chronic joint disease were demonstrated by the physicians of the hospital, and parties were shown round the wards and baths. It was noted with interest that here, as also in the Devonshire Hospital at Buxton, considerable space is allotted to recreation rooms for the patients, as the importance of this aspect of hospital treatment has not in general received much attention hitherto.

In the afternoon the members of the society visited Mountains Abbey under the guidance of Dr. Moody, the organist of Ripon Cathedral.

Buxton

On October 14th three charabancs took the party to Buxton, where after a short paper by Dr. BROOKLYN on the physical and chemical properties of the waters, visitors were shown round the Thermal Baths and the Natural Mineral Water Baths. The visitors thoroughly investigated the baths, which have been recently rebuilt, and were much interested in the aerated flowing bath, the swimming pools of blue water characteristic of this spa, and the white marble drinking fountain where the glass is dipped and filled fresh from the flowing source.

At a reception given by the Buxton Medical Society Mr. HARRY PLATT discussed co-operation in the treatment of chronic rheumatic diseases between the spa hospitals, the universities, the medical schools, and the treatment clinics which were being started.

On the following day members of the staff of the Devonshire Hospital demonstrated cases of gout, osteoarthritis and rheumatoid arthritis, and described the method used to estimate the radium emanation in the water.

A permanent international society for the study of rheumatism was constituted by delegates from the national committees and societies.

Rheumatism as a national problem was the subject of the final discussion held at Buxton on October 15th, under the presidency of Dr BUCKLEY. Reports were presented by delegates from seven countries. Dr A. ZIMMER (Germany) stated that information on incidence and cost of treatment had been collected covering over one million cases, and it had been clearly shown that though the incidence and invalidity due to rheumatic disease was considerably greater than that of tuberculosis the amount expended on treatment was much less. Dr DALMAY (Hungary) reported that, though in his country rheumatic diseases appeared to be less prevalent than in some others, careful statistics were now being collected, and with the support of the Hungarian Ministry of Health collections of papers bearing on the subject were to be translated and published from time to time. Dr KARLSSON (Sweden) said that in Sweden the most important recent advance had been in training in new occupations during or after treatment of such workers as were unfit to return to their previous employment.

Dr R. FORTESCUE FOX, speaking for the British committee, which was about to give place to a more permanent body, emphasized the value of co-operation between medical and industrial organizations in dealing with those rheumatic problems in which both were interested, this appeared to have been more effectively developed in Great Britain than elsewhere. Dr VAN BUREN (Holland), Dr FURFAYROLLES (France), Dr SARMENTO (Portugal), Dr FROHNE (Wiesbaden), Professor PLATZ (Hamburg), and Mr APPLETON (Federation of Trades Unions) also spoke. Discussing the perennial topic of nomenclature, several delegates agreed that the classification adopted in the English Ministry of Health reports was the most useful that had so far been devised from a theoretical and practical point of view.

In a paper on "A rheumatism clinic," Dr A. R. NELIGAN enumerated the most important problems which faced those who proposed to organize such a clinic in England. He suggested that some reciprocal arrangement with the out-patient and in-patient departments of existing hospitals and close co-operation with the general practitioners sending the cases for treatment was very desirable, and that much thought and care should be devoted to research.

In the afternoon the party drove to Chatsworth, where they had tea at the invitation of the Duke and Duchess of Devonshire. On their return to Buxton Dr BUCKLEY (U.S.A.) read a paper on the hot sulphur springs of Santa Rosalia in Mexico, which contain, in addition to colloidal sulphur and sulphur compounds, a new type of sulphur bacteria belonging to the class *Sulfomonas thiocyanans*, first discovered by Waksman and Starkey.

DRITWICH

On October 16th the party proceeded by road to Droitwich where they were entertained at luncheon in the Salters' Hall by the Corbett trustees, the present proprietors of the spa. Hospitable speeches were made by Mr Jacobus Hood on behalf of his co-trustees, by the mayor on behalf of the municipality, and by a former mayor, Mr Percy Pond, who addressed the visitors in French, German, Spanish, Portuguese, and Italian. Dr Malcolm Campbell welcomed them in the name of the medical profession of Droitwich, and Dr Percy Roden gave a brief address on the local brine treatments. They were then conducted in four parties round the St Andrew's bathing establishment, where demonstrations were given of the uses of natural brine baths, more particularly in chronic rheumatic disorders. It is of some interest to recall here that one of the first medical men to draw general attention to the possibilities of Droitwich brine baths in rheumatism, sciatica, and gouty arthritis was Sir Charles Hastings, founder of the British Medical Association, who practised in the neighbouring city of Worcester.

BATH

The tour ended with a visit to Bath. The members of the society and their friends were welcomed in the Pump Room on October 16th by the mayor, Alderman Cedric

Chivers, the mayoress, Madame Sarah Grand, being absent through illness. The director of the hot springs of Bath, Mr John Hatton, addressed the guests on "The Baths of Bath throughout the Ages." He believed that the springs must have been used by man for some 10,000 years, especially by the peoples who erected the stone monuments at Stonehenge and Avebury, and the lake villages at Glastonbury and Meare. But the earliest legend of a cure at Bath was associated with the name of Bladud, the leprous son of King Lud Hudibras, in 863 B.C. Mr Hatton described the foundation of the Roman baths from A.D. 55 onwards, their destruction and subsequent restoration by the Saxons, and the great revival of Bath as a place of healing under John de Villula, first Norman bishop of Bath and Wells. In 1542, on the dissolution of the monastery, the control of the baths passed to the city, and in the eighteenth century they were reconstructed by John Wood the younger. During the sixteenth century publication of treatises on the curative effects of the waters began, together with sundry speculations on the cause of the heat of the water. Pepys, in 1668, had qualms because it could not "be clean to go, so many bodies together in the same water." At that time mixed bathing was still in vogue. Mr Hatton called attention to the brass rings, bearing the names of donors and inscriptions, affixed to the King's bath as votive offerings during the seventeenth and eighteenth centuries, and used for bathers to hold. He concluded his address by recalling the revival of drinking of the waters in 1663, and the establishment of the first Pump Room in 1704.

Dr J. M. H. Munro described investigations he had recently undertaken on the radium content of the waters, researches which had just been published in a pamphlet. He illustrated his remarks by lantern slides showing the methods of measurement of radon in the water, and by placing an emanation chamber in an epidiascope and filling it with gases from the spring he demonstrated on the screen the fall of the electrified gold leaf of an electro-scope to complete collapse in less than thirty seconds. He pointed out that the highest value of dissolved radium found in the mineral springs of Canada reported on by the Government was 46 units per litre, while 138 units were found by Ramsay in the King's Well water. All patients who drank the waters and took baths in bath-rooms of moderate size, and to a less extent those who used the swimming bath and the Pump Room, were taking in radon in the water they drank and the air they inhaled. Dr Munro's pamphlet contains an account of radium, and an interesting summary of the researches he has carried out at Bath.

On October 17th the visitors were received in the Pump Room by Dr Rupert Waterhouse, who described briefly the advantageous situation and climatic conditions of Bath—the three springs—the Cross, the King's, and the Hot—with temperatures ranging from 104° to 120° F., the mineral contents of the water, and the chief disease for which it was used. Demonstrations were then given to parties of the guests of the various methods of treatment given in the baths. The foreign members of the society were impressed by the wide range of baths and apparatus available, including the deep baths of 300 to 500 gallons which are a specialty of Bath, Aix, and Vichy donches, whirlpool and Nauheim baths, mud packs of volcanic deposits from the neighbourhood, Plombières treatment, and every variety of electric, Greville, and radiant heat bath. At the Royal Mineral Water Hospital cases were shown by Drs Waterhouse, Gordon, Lindsay, Vincent Coates, and Gordon Watson. Dr Waterhouse demonstrated various forms of spondylitis. Dr Coates had chosen cases to illustrate his view that arthritis was often a matter of systematic and not of focal infection. Dr Watson showed patients whose chief symptom, loosely described as sciatica, would be better termed sciatic pain.

The members of the society were entertained at luncheon in the Guildhall by the mayor of Bath. In reply to the toast of "The Visitors" speeches were made by Professor Sarmiento of Portugal, Dr Keller-Stophang of Switzerland, Dr Schmidt of Czechoslovakia, and Dr Takayasu of Japan. The afternoon was spent in viewing the sights of Bath and visiting the Roman baths.

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AUTHORITY IN HEALTH PROPAGANDA

THE personal factor has in all ages played a considerable part in determining the success or failure of schemes and enterprises. Movements which have attained wide vogue have often derived their impetus as much from the character of their originators as from their own actual or reputed merit. The authority with which the leader stated his tenets and pointed the course of action was quite as effective as his reasonings or his arguments. It is therefore not surprising if in relation to health propaganda—a modern movement which rivals in importance many good enterprises of the past—some hold that the mind of the public is prone to respond to personality at least as readily as to argument. But while even an easily demonstrable truth is more assured of acceptance if taught by those who speak with accepted authority, there is a little danger that the appeal on the grounds of personality may sometimes be used as a substitute for the appeal to reason and understanding. If the health propagandist can produce in the people a settled disposition towards healthy living it may seem to matter little whether his object is attained by his personal influence, the cogency of his reasoning, or a judicious combination of both. In an ideal world the appeal to reason would suffice, but, human nature being what it is, the unpalatable fact must be faced that a capacity to exploit personality and invoke authority is not, and never has been, necessarily allied to the strictest regard for scientific truth.

The medical practitioner of this country appears to be well entitled to speak with authority on the subject of health and its attainment. It is said by Dr W. W. Jameson, in his address which we print elsewhere in this number (p. 733), that for the dissemination of health knowledge among the public no one has a greater opportunity than the general practitioner. He meets these opportunities every day in his practice. And other avenues are opening. The Industrial Health Educational Society, for example, has enlisted the services of the medical man to give health lectures to workpeople. The ordinary man or woman feels that as a doctor he understands his subject, and is ready to accept his teaching accordingly. But such teaching is likely to remain longest in the memories of those who have grasped the reasons underlying it, even though the reasons pass out of consciousness.

In order that the doctor may play a worthy part in the health movement of the time, as every doctor will desire to do, it is essential, as Dr Jameson points out, that during his training as a medical student his mind should be focused upon the preventive aspects of medicine in general and that he should be made acquainted with the organization of the health services of the country, with the duty he will owe to local public health authorities, and with the

help he may expect from them in return in the conduct of his profession. Of the preventive aspects of medicine it may be said that the best teachers have not failed to insist upon them, and that at the present time these aspects are thrown into high relief by the plans for the reconstruction of the teaching of midwifery, already inaugurated by some medical schools and in course of adoption by others. The methods for controlling maternal mortality, the teaching of which constitutes the primary object of these changes, are an impressive lesson to the student. He is taught not so much how to apply the forceps as how to obviate their use, not so much how to treat puerperal sepsis as how to prevent its occurrence. He is taught in the ante-natal clinic to seek and remedy those conditions which, left untreated, will lead to prolonged or difficult labour. This experience conveys to his mind a vivid picture of the uses of prevention, and suggests the question, "Why not prevention in other fields?" The practical importance of instructing the student in the organization of the health services of the country is almost too obvious to need emphasis. Care, however, should always be taken to link up administrative and other measures with the fundamental scientific principles whether of chemistry, bacteriology, physiology, or pathology, on which they must ultimately rest. The minutiae of 'jointing' lead pipes to stoneware are not of medical interest, but the general medical practitioner as an expert in health to whom his fellow citizens will turn for guidance, should know something, say, of water purification, and if he does not learn it as a medical student he is unlikely to learn it at all.

The ante-natal clinics, the maternity and child welfare clinics, and like undertakings with which they are usually associated, are invaluable centres of propaganda, not only for the health of mothers and infants, with which they are immediately concerned, but also for health in general. The views of the "welfare," as these institutions are familiarly termed by their clients, are freely sought and usefully given on health questions of all kinds. Many of these centres do not confine their educational work to direct instruction of the individual patient by the medical, nursing, and health visiting staffs. They hold classes in such subjects as infant care and elementary physiology, and help thereby to lay the foundation of understanding with which unhygienic practice is incompatible. Even in schools, where authority is bound to play a part in all education, it is wise as early as possible to correlate the authoritative inculcation of good habits of living—which to the child are sure to appear as somewhat arbitrary, if not actually unpleasant—with elementary instruction in the principles of hygiene. The child is a creature that asks the reason why, and this characteristic may be usefully exploited throughout his education.

Dr Jameson says that there are over fifty societies now engaged in health propaganda in England. A considerable number of these, in so far as they strive to teach the principles of health and not merely to exploit the personality of those who voice their views, may be commended as doing work of great value to the public. Many, however, will agree with

the statement made by Sir George Newman in his Annual Report on the State of the Public Health, of which our first notice appears at page 753, that 'this excellent work does not, however, absolve the local authorities from their responsibility to co-ordinate and supplement, and if necessary lead.' Neither, we may add, does it absolve the private practitioner, who, more than anyone else in the country, is fitted by his special experience to lead the public to a knowledge of the scientific facts on which all preventive medicine is grounded. 'Without the consent and intelligent participation of the individual,' says Sir George Newman, 'the efforts of the State in their behalf must of necessity fail to reach their goal.' Consent may be obtained by authority, but only by reasoned health propaganda can the desirable combination of consent and intelligence be assured.

MATERNAL MORTALITY IN AUSTRALASIA

THE final report of the Director of Obstetrical Research in Victoria and the last report of the Director of Health in New Zealand show that the Antipodes have the same heart-searchings as ourselves over their maternal mortality. The Victorian Branch of the British Medical Association anticipated the parent body, for it set up a committee to investigate puerperal mortality six months earlier than the Association at home, and its report appeared three years (March, 1925) before the English final report (April, 1928). One consequence of the work of our Victorian colleagues was a benefaction of £10,000 for the investigation of the causes of maternal mortality and morbidity throughout the State and to suggest means to lessen the same. Under the terms of this bequest an Obstetrical Research Committee was appointed, and Dr Marshall Allan was chosen as Director of Research. Dr Allan's final report was issued this summer, and adds confirmation to the conclusions of the English and Victorian committees.

All three reports make suggestions as to the better obstetrical training of medical practitioners and midwives, better hospital provision and ambulance facilities for difficult cases, and further research into the causes of puerperal sepsis and toxæmic states. Each lays emphasis also on the importance of antenatal supervision in order to lessen complications in pregnancy and labour. These conclusions must receive general acceptance, but the thorny problem of putting them into practice and of bringing about a lessening of maternal mortality seems no nearer of attainment, and the New Zealand report says that 'in spite of the very active campaign for the reduction of these deaths the rate of 4.91 per 1,000 live births represents an increased rate on the preceding year.'

The lowering of the maternal mortality has proved much more difficult than that of the infantile mortality—the one with which it is so often compared, and behind which it lags so far. A rate of over 150 infants dying in the first twelve months out of every 1,000 births registered left much more room for improvement than a death rate of less than 5 mothers for every 1,000 live born children. The infantile death rate is due to simpler causes and calls for simpler measures than deaths in labour, for in obstetrical work the rapid changes make all difficult labours into emergency cases. Besides calling for sound judgement, these complications are too occasional in the practice of most individual doctors to allow of any but those with hospital appointments to acquire a wide experience of

them. General improvement in hygiene, which has done much to reduce infantile mortality, seems to be a factor of far less moment in maternal mortality, and our knowledge of the etiology of the two largest elements—sepsis and toxæmic states—is still insufficient. The striking drop in the infantile mortality during this century is largely attributable to the education of the mothers and the effort to return to physiological methods, natural feeding, and a more natural life with free access to fresh air and sunlight so far as this is attainable. The lesson is still to be learnt in midwifery practice that the primary object in Medicine should be more closely followed—that of securing the physiological throughout pregnancy and parturition. Education of the child-bearing woman will also be required, for the call of the patient for intervention in labour is too insistent to be resisted by the practitioner, and thereby the physiological becomes more difficult of attainment.

This point, in so far as assisted delivery is concerned, receives full attention both in the report of the Director of Obstetrical Research in Victoria and in a special contribution to the New Zealand report by Dr Henry Jellett, formerly Master of the Rotunda Hospital in Dublin and now consulting obstetrician to the Dominion Department of Health. In the former document a forceps rate of under 30 per cent is regarded as not unreasonable in private practice based on the result of interviews with individual practitioners (633 in all) throughout the State. From the same evidence it appears that the rate is lower in the country districts, increases in the larger towns, and reaches its zenith in Melbourne, where it is higher in the residential than in the industrial areas. Personal impressions, however widely obtained, are not good evidence, and were rejected by the British Medical Association Committee in this country. Dr Jellett regards 6 per cent as a forceps rate which ante-natal care and a sound management of the first and second stages of labour render possible without unnecessary suffering or injury to mother and child, and he ascribes an unduly high rate to obstetrical inexperience and to pressure by the patient's relatives. The difference in the class of practice is not taken into account, though that more than anything else makes it impossible to lay down a flat rate. New Zealand hospitals show a steady decline in the institutions as a whole, a lessened forceps rate in the larger more than balancing an increasing rate in the small hospitals. In two years the rate in the hospitals has dropped from 14.3 to 12.5 per cent. One of the concluding remarks of Dr Jellett's report is that 'the public should remember that to the unavoidable consequences of disease and deformity, and of the sometimes avoidable consequences due to insufficient medical or nursing education, there must be added the wholly avoidable misfortunes resulting from misguided and clamorous relations, neglected advice, and unsuitable surroundings.' Although he mentions the need for educating the public he scarcely stresses this point, yet a change in the attitude of patients and their relatives towards labour would appear to be necessary to more physiological child bearing.

One thing clearly brought out by a study of these investigations by committees is that the results achieved by such inquiries are not likely to be commensurate with the time, trouble, and expense involved. Nevertheless, the committees have served a good purpose in showing that many factors go to maintain maternal and infantile wastage and that it is the pursuit of no single factor, but an advance in all directions, that will lead to gradual improvement.

INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY

UNDER the patronage of the King the fifth International Congress of Military Medicine and Pharmacy will be held in the Great Hall of the British Medical Association next year, from May 6th to 11th. This congress owes its origin to the inter-allied surgical conferences which were held during the war with a view to deriving the utmost benefit from the knowledge gained by each of the allied countries as regards the treatment of wounds. The Belgian Army Medical Service, realizing the value of such conferences in times of peace, took the initiative by summoning, in 1921, an International Congress of Military Medicine and Pharmacy, at which twenty nations were represented. This was followed two years later by a congress in Rome, a third in Paris in 1925—when forty nations co-operated—and a fourth at Warsaw in 1927, which attracted the delegates of thirty-two nations. The subjects to be discussed at the forthcoming congress are the evacuation of the sick and wounded by water and by air, together with the role of the medical services in combined operations, tropical fevers of short duration, wounds of blood vessels and their sequelae, the physical and chemical analysis of glass and rubber articles employed by the medical services, and the standard of dental and physical fitness in the various military services. In connexion with the congress there will be an exhibition of medical and surgical equipment, and visits will be paid to stations of the three fighting services. The president of the organizing committee is Lieut-General Sir Matthew Fell, Director-General of the Army Medical Services, and the secretary is Major A. D. Stirling, R.A.M.C., The War Office, S.W.1. Medical officers, dental surgeons, and pharmacists who belong or have belonged to the forces of all members of the League of Nations are invited to the congress, and also officers of organizations in association with the medical services. The subscription is fixed at 10s. for men and 7s. 6d. for women, this entitles the subscriber to copies of the official reports and participation in the official excursions and receptions. Those who wish to attend are asked to notify the secretary as early as possible before January 1st, and, at the latest, by February 1st. Railway companies in Great Britain and Ireland have agreed to issue tickets at reduced fares.

THE DELINQUENT PERSONALITY

THE literature of child psychology, educational psychology, the psychology of the delinquent and the criminal, grows apace. In a relatively new study, with an increasing tendency to devote itself to immediate practical application, there can be very few publications on these subjects which do not contain some facts or suggestions of real importance, but that the value of a volume is not in proportion to its size is illustrated by two books now before us. One is a little work by Dr R. G. Gordon in the well-known To-day and To-morrow Series, entitled *Autolycus, or the Future for Miscreant Youth*¹, the other is *Emotion and Delinquency*² by Dr L. Grimmer, a volume in the Library of Educational Psychology. The former is a setting-out of English thought and it presents a stimulating general survey of the whole subject, the latter is, in the main, a series of American examples. The aims of the two books are no doubt not identical, though they are very similar, and each may be said to fulfil the purpose of its author and publisher, yet of the two it is in Dr Gordon's booklet that the growing public interested in this branch of social psychology and action will find more of help, of direction,

and of practical value. The one objection that can obviously be raised to it is the use of the word "miscreant" in its title: this is perhaps a concession to the series in which it appears. The word is much too strong. The most authoritative of dictionaries gives its meaning as an adjective "depraved, villainous, base," and as a substantive "a vile wretch." "Delinquent" is much better. Each book is a valuable attempt to enable us to understand the youthful delinquent, and, through understanding, to discover what can be done by the doctor, the teacher, the parent, the social worker, and the public in general to help the child, the adolescent, the youth whose make-up and environment put him or her in a position of danger. Dr Gordon's basic thesis, here as in his other writings, is that personality includes the relationship of the individual to his environment, and that as regards the unstable personality "the neurotic is characterized by conflict within the ego between the various impulses which go to make up the individual himself, while the delinquent is characterized by conflict between the ego and the environment." The delinquent often is neurotic, but this is not necessarily so. Unless, however, this underlying factor, the peculiarity in the personality of the delinquent, is recognized, studied, and allowed for (since its elimination must be regarded as remote), the removal or improvement of secondary factors of influence, such as those connected with physical health, housing conditions, opportunities, and provocation, may well prove to be profoundly disappointing. In a series of short but extremely interesting and suggestive chapters Dr Gordon goes on to discuss the social factor, the educational factor, the psychological factor, the medical factor, and the aims of the future in dealing with each and all of these. He stresses, of course, the fact that it is the child's emotions even more than its intelligence that need attention and adjustment. In the home "a child should be reared as part of an equilateral triangle. Mother and father should both exert their influence from a different but an equal angle, neither ousting the other in affection or regard, and remembering that the child is also an equal, neither to be repressed into submission nor adulated into ascendancy." Thus the illegitimate child, the orphan, the child in a jarring household, are obviously in special danger and need. In the school both the backward and the intellectually precocious require particular attention, and "the teacher will realize the responsibility which he holds in respect of the emotional development as well as of the intellectual development of the child," and that "each child has his own impulses, ambitions, and capabilities." The appointment of skilled psychologists by educational authorities to help the teachers, and the parents, in their difficult task is likely to be a great advantage. Certain children also "show asocial behaviour which is directly or indirectly traceable to states of bodily or mental health which come within the purview of the physician." Consequently in dealing with the problem "the doctor must have a place, but he must be a man of wide experience, and above all be free from preconceptions and prejudices." These are but indications of the wide field which Dr Gordon surveys, and his book will be found full of information, stimulus, and suggestion to all concerned. Small in compass, it is rich in wisdom. Dr Grimmer's book is, by contrast, rather a clinical study of some five hundred delinquent individuals from the New York Neurological Institute—all females. From the standpoint of a medical man he investigates the heredity, the family history, the physical and mental states, the environment, of these cases, and draws a few general conclusions. He deals with the power of the emotions as against control by the intelligence in these instances of social misbehaviour, but seems to regard intellectual defectiveness as a more prevalent and potent factor than does Dr Gordon, he attaches considerable importance to endocrine disturbance as constituting

¹ *Autolycus or the Future for Miscreant Youth*. By R. G. Gordon M.D. D.Sc. F.R.C.P. Ed. To-day and To-morrow Series. London: Kegan Paul Trench Trubner and Co. Ltd. 1928. (Pcap. 8vo. pp. 94. 2s. 6d. net.)

² *Emotion and Delinquency*. By L. Grimmer M.B. Library of Educational Psychology. London: Kegan Paul Trench Trubner and Co. Ltd. 1928. (Ocm. 8vo. pp. ix + 147. 7s. 6d. net.)

a genuine organic inferiority in the case of most, or many, delinquents. The difficulties of racial adjustment, too, are naturally prominent in the cosmopolitan conditions with which Dr. Grimbarg deals.

HEALTH ACTIVITIES OF THE LEAGUE OF NATIONS

AN interesting survey of the scope and character of the Health Organization of the League of Nations is given in the agenda prepared for its governing body—the Health Committee of the League—at its meeting this week in Geneva. After considering various resolutions and decisions of the Assembly and Council affecting its work, the committee will apply itself to the question of co-operation with Latin America, and will have before it reports of the various health commissions and conferences which have met since its last meeting. Commissions are at present engaged upon studies of malaria, cancer, small pox, and vaccination at the committee's behest, while the conferences under its auspices consist of experts in child welfare, the sero-diagnosis of syphilis, and anti-tuberculosis vaccination. Certain aspects of the opium question, notably the application of the articles of the Convention of 1925 regarding products to be added to or withdrawn from the list of drugs covered by the Convention, will also come under review, and cognizance will be taken of sanitary conditions in Greece and other countries in connexion with the recent dengue epidemic. Before the meeting of the parent body the committee on syphilis—to be attended by experts from Germany, Great Britain, France, and the United States—will meet to discuss modern methods of treatment, the durability of the clinical results obtained in connexion with the apparent recrudescence of syphilis in certain countries, and the training of doctors in modern methods. An anti-tuberculosis congress was held at the Pasteur Institute in Paris on October 15th, to establish the best methods of demonstrating the immediate and deferred results of BCG vaccination on laboratory animals, cattle, and human beings. The organization of this congress affords a good example of a method often adopted in such matters in connexion with the health work of the League—a method which might be described as the internationalization of expert opinion. Three sub-committees, composed of bacteriologists, clinicians, and veterinary surgeons respectively, studied the question. The bacteriologists included British, American, German, Austrian, and Russian experts, the clinicians were drawn from France, Norway, Austria, Italy, Spain, and Germany, the veterinary surgeons from Italy, Holland, Poland, and France. Representatives of eleven different countries were therefore co-operating in the work. The Mandates Commission of the League will also meet at the end of this month, and among the items on its agenda is the subject of public health in mandated territories.

THE NATIONAL INSTITUTE FOR THE DEAF

THE work of the National Institute for the Deaf, a body which was constituted in its present form some four years ago, appears to have received comparatively little support from the public, despite the magnitude of the task which it has undertaken and the evident inadequacy of the existing machinery for the care of the deaf. In the report of the Institute for the year ended March 31st it is suggested that deafness, except by those affected by it and their immediate associates, is of all afflictions the least understood, and that it is consequently difficult to arouse interest in the deaf and their problems. According to this report there are some 40,000 deaf-born persons in the country who depend for assistance from the age of 16 almost entirely upon voluntary agencies, State provision is

made for their school education, but after its completion the authorities take no cognizance of the fate of the deaf. In addition to the deaf-born there are large numbers of persons who have become deaf at later stages in life, but who also need assistance and advice. The Institute has, through members occupying seats in the House of Lords, endeavoured to enlist the sympathies of the Government, with, it appears, little success, and the necessary work will therefore remain in the province of voluntary effort. One of the first tasks undertaken on the reorganization of this society a few years ago was a survey of the existing machinery, followed by a conference of the various bodies interested in the welfare of the deaf, and by the promotion of measures to secure more effective co-operation among them. The report shows that societies for the care of the deaf and dumb are in operation in some fifty districts—often with totally inadequate resources in workers and money—while in large areas no such agencies exist, with the result that probably half the deaf and dumb are receiving no assistance whatsoever. In its effort to secure the national organization of the work the Institute's policy is to promote the establishment of counties associations for the deaf, covering the whole country in seven districts, and composed of representatives of Education Committees, Poor Law authorities, voluntary schools and welfare societies, and persons specially interested in deafness. Such associations have already been established in Scotland, and for the northern and midland counties in England. It is hoped that these bodies, by securing the co-operation of parties who have hitherto worked independently of each other, will gain the support of the public and make possible a much more effective system. The problem of securing employment presents special difficulties both to the deafened and the deaf-born, and there is an urgent need for training facilities and for some means of securing their entrance into industry in occupations suited to their conditions, facilities are also required for their higher education. Among the Institute's auxiliaries is a useful and active medical committee, which includes several nurses and others possessing special knowledge of the needs of the deaf, the committee endeavours to prevent deafness by the dissemination of advice as to the need for early treatment of diseases likely to cause it, and for the entire avoidance of panaceas advertised by unqualified persons. It is suggested that the inclusion of specialist treatment in ear, nose, and throat troubles as an additional benefit under the national health insurance scheme would doubtless have an important effect in preventing deafness, representations have been made on this subject to the Ministry of Health. Only a few approved societies, it has been found, provide, or assist in providing, aids to hearing for their members as an additional benefit, and the Institute urges that all societies should consider the advisability of doing so. In this connexion it may be noted that the Institute has issued a warning against the indiscriminate purchase of electrical aids to hearing, urging that deafened persons should invariably consult an aural specialist, at an ear hospital or privately, and be guided by his advice as to whether an instrument is likely to be of use. If the advice is favourable deafened persons should deal only with firms which allow a home trial of two or three weeks before purchase, or which agree otherwise to meet them considerably if the instrument fails to be of service. The financial position of the Institute, we regret to note, is unsatisfactory, the ordinary income last year was only £1,025, and it was necessary to draw upon the sum of £1,491, raised by a special appeal, to meet the expenditure. As a result it was impossible to initiate the provision desired for the care and training of blind-deaf infants, the industrial training of deaf and dumb adolescents, the care of mentally defective deaf, and the employment of the deaf.

DIPHTHERIA IMMUNIZATION THE QUEENSLAND FATALITIES

WE have now received the full text of the report of the Royal Commission of Inquiry into the fatalities which occurred at Bundaberg, Queensland in January last. An outline of the findings of this Commission was given in the *British Medical Journal* of June 23rd (p. 1076). The report,¹ which has been published by the Government of the Commonwealth of Australia, is a document of very considerable scientific interest. In addition to a narrative of the events that followed the inoculation of children with a diphtheria toxin antitoxin mixture, there are now made available details of the clinical histories, an analysis of the symptoms and a careful discussion of their significance. The pathological investigations as reported in length, and the considerations which led the Commission to incriminate a pathogenic staphylococcus are fully recorded. In thirty-one appendices to the report the various steps of the inquiry are set out in detail. The wide range of possibilities entertained and excluded only after elaborate consideration is particularly noteworthy and it is clear that the utmost care was taken to arrive at a correct verdict. Examination of all the available evidence points to the injection of living staphylococci as the cause of the deaths at Bundaberg. There can no longer be any doubt that these regrettable fatalities were accidental, and that such an accident is most unlikely to happen again. The Commissioners declare with emphasis that active immunization is the only specific measure at present known for the control of the incidence of diphtheria, and that there is no inherent danger in its practice when properly controlled.

THE DIETETIC TREATMENT OF INFANTILE DIARRHOEA

It has been shown that infantile diarrhoea may occur on a diet of sterile milk if the quantitative and qualitative composition exceeds the limits tolerated by the infant. An increased motor and secretory activity of the bowel ensues, and the pH of the different sections of the gut alters, with the result that organisms normally present and harmless in one section migrate to another, and there become pathogenic, thus constituting an endogenous infection. Professor L. Moll² believes that this is a more frequent cause of diarrhoea in infancy than exogenous infection. Hence, apart from any aperient action which they may have, antibacterial remedies (such as calomel and salol) are unlikely to be effective as intestinal disinfectants since they will inhibit the growth of physiological as well as pathological organisms. At the beginning of treatment in a case of infantile diarrhoea Moll withholds food for a maximum period of twenty-four hours, giving only water or tea. He considers that this period should be as short as possible in view of the risk of acidosis if there has been much vomiting; moreover, the sick infant is unable to retain water in the tissues, since the metabolism of mineral salts is deranged and an excess of these salts is being excreted. He therefore recommends that a "stabilizing" diet should be substituted as soon as possible. This must contain enough water, salts, and other constituents to make up for the dehydration which has occurred and to arrest the loss of weight as quickly as possible. Its caloric value should approximate to that of human milk, and at the same time it should be readily digestible. Human milk, even where procurable, was found unsuitable for this stabilizing diet because of its low salt and protein content since the loss of protein in infantile diarrhoea is high it must be replaced as quickly as possible. The addition of calcium whey

(prepared by adding 4 grams of calcium lactate to 1 litre of warm skimmed milk and then boiling and filtering) containing lactose, calcium salts, and 0.3 per cent protein was found very useful. For older infants a mixture of biscuit flour or rice, with water, salt, sugar, sodium bicarbonate, and beaten yolk and white of egg, was first steamed, then pounded and passed through a sieve, and used to thicken either tea or calcium whey. This has the advantage over other flour mixtures that the low protein content is supplemented by the egg, and the method of preparation ensures that a large surface of the particles of flour is accessible to the gastric juices. An almond whey mixture was also used with success, it was either added to human milk or given with one of the cooked flour mixtures. This almond milk whey resembles human milk in its proportions and caloric value, it has, however, a higher percentage of ash, contains added flour and vegetable instead of animal fat, with a lower melting point. All these diets increase the acidity of the stools, which are usually alkaline in the diarrhoeas of artificially fed infants. The infants were kept on one of these diets for four to eight days, and were then placed on a normal diet again or on the one they were taking before the illness. Since this method of treatment was adopted at an institution for maternal and infantile welfare in Vienna, the mortality from infantile diarrhoea has fallen from 32 to 5.1 per cent.

GENERAL MEDICAL COUNCIL BY ELECTION

VOTING papers in connexion with the election of two direct representatives on the General Medical Council were issued on October 20th to all practitioners having registered addresses in England and Wales. Any such practitioner who has not received a voting paper, whether he wishes to vote in the election or not, should immediately communicate with the Registrar of the General Medical Council, 44, Hallam Street, Portland Place, London, W.1, in order to ascertain that his address is correctly entered in the *Medical Register*. Voting papers must be returned so as to reach the Registrar on or before Monday next, October 29th. The joint election address of Dr J. W. Bone (of Luton) and Dr E. K. Le Fleming (of Wimborne) appeared in the *Supplement* to our issue of October 13th. These two candidates were chosen for support by the British Medical Association at the Annual Representative Meeting in July last.

THE Bradshaw Lecture on pyelitis and pyelonephritis will be given before the Royal College of Physicians of London by Dr A. G. Gibson on November 1st. Dr G. F. Still will deliver the FitzPatrick Lectures on the history of pediatrics to the end of the sixteenth century on November 6th and 8th. The lectures will be delivered at the College, Pall Mall East, S.W., at 5 p.m. on each day, and any member of the medical profession will be admitted on presentation of card. The Lloyd Roberts Lecture on Faraday's diary will be given by Sir William Bragg, K.B.E., F.R.S., at the house of the Royal Society of Medicine, 1, Wimpole Street, W.1, on November 29th at 8.30 p.m. Tickets of admission can be obtained on application to the secretary.

THE nineteenth annual exhibition of electrical, optical, and other physical apparatus arranged by a joint committee of the Physical and the Optical Societies, will be held on January 8th to 10th at the Imperial College of Science and Technology, South Kensington. As on previous occasions it will include a trade section and a research and experimental section. The committee invites offers of exhibits illustrating the results of recent physical research, lecture experiments and historical exhibits in physics will also be welcome. Offers should be communicated immediately and in any case not later than November 14th, to the Secretary, Physical and Optical Societies, 1, Lower Gardens, Exhibition Road, London, S.W.7.

¹ Report of the Royal Commission of Inquiry into Fatalities at Bundaberg. Printed and published for the Government of the Commonwealth of Australia by H. J. Green Government Printer, Canberra No. 235-F 255, 2s. 6d.
² *New Klin. Woch.* August 30th 1928, p. 1249.

Nova et Vetera.

FLORENCE NIGHTINGALE AND NURSING IN FEVER HOSPITALS

A DISTINGUISHED member of the British Medical Association has presented to the collection of autographs in the Library an interesting holograph letter from Florence Nightingale, written in December, 1893. Dr E. W. Goodall, to whom the letter was written, is well known as an authority on infectious fevers and as a former medical superintendent of fever hospitals. It was in that capacity that he sought the advice of Miss Nightingale on questions of nursing fever patients. In a letter to us covering his gift Dr Goodall writes as follows:

The occasion of its (Miss Nightingale's letter) being written was as follows: I was bringing before the Committee of the Eastern Hospital, Homerton, a scheme for improving the nursing service and for keeping up a steady supply of suitable probationary nurses. One of the members of the Committee was the Hon. Maudo Stanley. She was able and kind enough to give me an introduction to Miss Nightingale.

In reply to Dr Goodall's request for an interview he received the following letter:

Dec. 28/93
10 South Street
Park Lane W

DEAR SIR

I shall be much pleased to see you on Saturday afternoon at 4 to 5, as you kindly propose. But it will be to receive information from you, which I know your kindness will give me, before a receipt for the 'best method of training Nurses for the Hospital of Met. Asy. Board' can be worked out—or indeed even its A B C.

You possibly may have a copy of the Blue Book (many years old) on 'Cubic Space in Workhouse Infirmarys' which contains a good deal besides 'cubic space'—and in it they have printed a paper which I was desired to write for them and which contains some of the A B C of nursing in these Infirmarys. It is called 'Suggestions &c.' I have not a single copy left. But I would try and get one for you, if you would wish to see it and have it not already.

Pray believe me

Most faithfully yours

FLORENCE NIGHTINGALE

Dr Goodall continues

I visited Miss Nightingale at the appointed hour. She received me most kindly, gave me upwards of an hour of her time and entertained me to tea. But I experienced a surprise and also to tell the truth, a disappointment. I was ushered into a large room upstairs and was greeted by a small, at any rate small looking lady who was sitting up in a very big bed. She was distinctly well nourished and appeared to me to be in good health. She was, I believe, confined to her room, if not to her bed for some years before her death. She was fully dressed in some black material so far as the clothes which appeared above the bed linen were concerned. On the wall behind her and the head of the bed was a shelf which ran the whole width of the bed and was full of books, to one or two of which she referred in the course of the interview. The surprise lay in the contrast between the almost plump little woman I saw before me and the slim figure of the Lady of the Lamp with which the pictures and statuettes had made me so familiar. As for the disappointment, well so far as I could judge from an hour's conversation, she was not conversant with and therefore did not understand the attitude of the nursing profession at that time (1893). If she was not back to, she was looking wistfully back to, the days when a woman took up nursing as a sacred duty towards suffering humanity and not as a means of earning a living in however honourable a way. But Miss Nightingale had then and had had for many years only second hand information concerning the rank and file of the nursing profession. Consequently, though she gave me some excellent counsel on the general question of hospital nursing I do not think she helped me much in respect of the feasibility of my scheme.

In Miss Nightingale's letter, and in the pleasing word-picture drawn by Dr Goodall, we can find no likeness to the arrogant and tyrannical lady who ordered A. H. Clough about and sent him on errands, as depicted by the satirical

pen of Mr. Lytton Strachey in his *Eminent Victorians*. She lived till 1910, dying at the age of 90, full of honours, which included the Order of Merit, and having earned the respect and even the affection of millions.

THE AUSTRIAN LIP

In a well known passage of his autobiography Edward Gibbon wrote "Our immortal Fielding was of the younger branch of the Earls of Denbigh, who draw their origin from the Counts of Habsburg, the lineal descendants of Eltzeo in the seventh century Duke of Alsace. The successors of Charles the Fifth may disdain their brethren of England, but the romance of *Tom Jones*, that exquisite picture of human manners, will outlive the palace of the Escurial, and the imperial eagle of the house of Austria." Unluckily the romantic legend of the common origin of the Teutings and the Habsburgs has been destroyed by the researches of the late Mr. J. H. Round, but this noble tribute to the genius of Henry Fielding remains in untarnished splendour. The prophecy has in part been fulfilled, for although the palace of the Escurial seems likely yet to outlast many centuries, the imperial eagle has taken wing into the limbo of lost causes and has gone, as a national emblem 'for good,' while *Tom Jones* is still reprinted and delights successive generations of readers.

There is, however, a characteristic of the house of Habsburg, to which Gibbon did not allude, which seems to be as persistent as its coat of arms or its Spanish palace. This is that combination of traits of feature which is known as the Habsburg lip, from the fact that a prominent or hanging lower lip is the most obvious of the peculiarities which constitute this family type.

In an elaborate study of the heredity of the stigmata of degeneration Dr. V. Galippe de Paris published in 1905 a well documented research dealing chiefly with the house of Habsburg and its origins.¹ He showed that the peculiarity of the Habsburg lip depends principally on a disproportion and want of adaptation between the upper and lower jaws—that its subjects are underhung, in fact—while at the same time there is a lateral compression of the mandible which tends to render the angle between the two horizontal ram more acute than normal. This deformity French anatomists call *inferior prognathism*. It must not be confused with the prognathism which is a character of the lower races of mankind and which involves a projection of both jaws beyond the vertical line of the ideal orthognathous skull. Without attempting to follow all the footsteps of courtly genealogists who have professed to find the roots of the Habsburg family tree in the year 690, Dr. Galippe goes back to the fourteenth century and begins with a traditional portrait of Ernest I, Duke of Carinthia, which he says shows inferior prognathism. This is succeeded by some 250 portraits, the series only ending in quite recent times and including the unfortunate Archduke whose murder started the world war. In nearly all these portraits, among which are included those of our Stuart kings, Dr. Galippe sees inferior prognathism, in many cases where it must be confessed that a less enthusiastic observer would only see that fullness of the lips which some artists gave to their sitters as a beauty. Dr. Galippe is on firmer ground when he argues that a deformity such as that shown by the Emperor Charles V has been perpetuated by the inbreeding which has been carried to such a pitch by his descendants and collaterals, although few of them showed the peculiarity in so marked a degree as he did, yet it appeared in an extreme form in the Emperor Leopold I (1640-1705), and as late as 1817 in the Archduke Albert Frederick Rudolph who died in 1864.

The basic deformity in the typical Habsburg skull is, according to Dr. Galippe, a lateral compression with corresponding expansion in the antero-posterior direction causing or at least associated with, exophthalmos. He does not mind matters in discussing the royal and noble families of Europe, nearly all of which were tainted with Burgundian blood, and, according to him, few of them

¹ *L'Hérédité des Stigmata de Dégénérescence et les Familles Succédant*. Par le Dr. V. Galippe, membre de l'Académie de Médecine. Paris: Masson et Cie. 1905.

of moral worth, and many of them of feeble intelligence; but after making full allowance for prejudice we must admit on the evidence that the Habsburg lip seems to be a dominant peculiarity, which crops up again and again, even among remote collaterals.

Dr Galippe shows also that a similar deformity existed independently in a marked form among the Medicis of Tuscany, although the deformity in this great mercantile family was not derived from any of the sources of the Habsburgs, it was enhanced by intermarriage with that family. It is most obvious in the portrait of Cosmo III by Westelient, and is unmistakable in that of the first Grand Duke Francis, and in many other members of that family.

Dr Rubbrecht of Bruges has studied this question from a slightly different point of view—that of the connoisseur of paintings and sculpture—and he published the results of his research in a beautifully illustrated work in which he discusses all the available portraits and images of the early members of the reigning families of France, Burgundy, and Austria, and especially the collection of portraits which formed the exhibition of the Golden Fleece at Bruges in 1907, to which pictures were sent on loan from various galleries, including the Royal collection of Windsor Castle, whence came a very notable portrait of the Emperor Charles V by a Flemish master. This portrait, for the faithfulness of which there is strong corroborative evidence, shows the deformity in its most acute degree. The brother of Charles, Ferdinand I, had also a very full and typical lower lip. When it is remembered that the Emperor Charles married his first cousin, and that his daughter and her son did the like, and that such consanguineous marriages were frequent in the family, it is easy to understand the persistence of the Habsburg lip.

From his iconographical studies Dr Rubbrecht comes to the conclusion that the Habsburg family inherits inferior prognathism from the royal houses of Spain and Austria, but that the large lower lip existed in the families of Burgundy and Spain before their union with that of Austria, and, further, that the lateral flattening of the skull, the long nose, and prominent eyes may be found in the ancestors of the Habsburgs in the houses of Burgundy, Spain, and Austria.

To the student of heredity both these books are of great interest. It is easy to understand the persistence of a hereditary trait, in a race which bred in-and-in for so many generations, but it is less easy to explain the persistent fecundity of the race under such conditions.

ANTRAL SEPSIS AS A CAUSE OF ILLNESS

A PERSONAL EXPERIENCE

A WELL-KNOWN surgeon, now retired from practice, sends us the following account of a prolonged period of ill health from which he suffered, attributable, in his opinion, to suppuration in the maxillary antrum. His age is now 73.

In the cold winter of 1916-17 when on duty in France he had severe toothache in the left upper canine, an abscess breaking through the upper margin of the alveolus. Immediately and for long afterwards boils occurred in various places and in 1920 a sebaceous cyst on the back suppurated in that year he began to have recurrent attacks of severe lumbago. In 1925 a sharp attack of influenza was accompanied by acute neuralgia which seemed to arise from the frontal sinuses and was followed by purulent nasal catarrh. During treatment with a mixed streptococcal and catarrhal vaccine a small patch of weeping eczema appeared on the outside of the left leg and gradually spread over an area the size of the palm. It was intensely irritating and at times was almost bullous. After each dose of the vaccine there was definite reaction in the eczematous area. The general condition was that of mild toxæmia with a large excretion of free uric acid. In 1926 while the patient was still getting about with the troublesome eczema phlebitis developed in the left posterior tibial vein opposite the eczema and spread up the femoral to the junction of the superficial and deep femoral veins with great oedema of the thigh and leg. The vaccine was stopped and during nine weeks in bed the eczema practically cleared up though threatening recurrence at times.

L'origine du type familial de la Vaseon de Habsbourg Bruxelles G. Van Oert et Cie, 1910.

In January 1927, while sitting quietly the patient had severe pain in the cardiac region, spreading right and left, and accompanied by intense distress. He was obviously gravely ill. The face was ashen, and there was slight cyanosis but the pulse remained steady at about 70 and the heart sounds were clear. Amyl nitrite only gave slight relief and the pain and distress persisted for some hours. After a stiff dose of whisky in hot water the patient had a fairly good night. Next morning the temperature was raised, but the general condition seemed to have improved. It was found later however that the blood pressure, which a year previously had been 155/60 had fallen to 85/50 and a tentative diagnosis of ischaemic necrosis of the heart was made. Confirmation of this was afforded during the three weeks of desperate illness that followed for signs of transient local pericarditis appeared on three separate occasions and at times fibrillation was present. It was noticed that when the heart was irregular the patient had little or no pain, on the return of normal rhythm he suffered a good deal from a precordial ache and from more intense pain referred to the left shoulder which small doses of morphine relieved. For about ten days a blowing systolic murmur could be heard at the tricuspid area and the apex beat was displaced to the left. The blood pressure was persistently between 80 and 90 systolic and the general condition poor. The patient was extremely weak and flatulence further embarrassed his heart. Three weeks from the initial attack, when some improvement had begun, a pulmonary embolism occurred when he was at rest on his back. The moderate distress and anxiety soon passed off but the patch in the left lung gave rise to a good deal of intercostal pain some days later from pleurisy. In about three months the lung had cleared up, the apex beat was then in the nipple line in the fourth space and there was no murmur.

The pulmonary embolism was accompanied by a curious sensation something not absolute pain was felt in the left arm beginning at the shoulder and trickling down the arm to the left index finger the extreme tip of which became numb and has remained so ever since. The explanation seemed to be that a very minute cerebral embolus formed at the same time as the pulmonary infarct and the inference was drawn that the ischaemic necrosis affected either the walls of both ventricles or the intra-ventricular septum for clearly a lesion capable of distorting both the right and left circulatory systems must be postulated to account for the bilateral emboli. The degree of subsequent recovery suggested that the main lesion was in the septum rather than an extensive necrosis of the walls of both ventricles. An electro-cardiogram three months later showed unusual complexes in leads 1 and 2 and in both the T wave was upside down. Nine weeks after the anginal attack complete rest in bed was abandoned, and very gradually moderate activity was resumed. The blood pressure was then 120, and four months later it was possible without inconvenience to indulge in a little trout fishing and to play nine holes of golf.

The nasal catarrh continued and in July 1927 a specialist pronounced the left maxillary antrum to be very opaque. This was confirmed by radiography which showed the other sinuses to be healthy. Aspiration of the antrum drew off a quantity of horribly offensive pus, of which there had been no indication either by pain or by an offensive odour. An opening was made into the antrum through the inferior meatus and a tube retained for three weeks when the opening bled fair to be permanent. Irrigation was performed from time to time the bad odour disappeared and washing out revealed only a little pus. In November, 1927 a sharp attack of paroxysmal tachycardia lasted two or three hours. The pulse was over 150 and feeble breathing was quick and the mental state was one of anxiety. The attack ended suddenly and the pulse came down to about its normal beat of 60 to 64. Five days later in the middle of the night another attack occurred rather more severe and lasting three or four hours. The heart evidently dilated in these attacks the apex beat was well beyond the nipple line but under treatment by digitaline the pulse became slowed to 50 and the apex beat came back gradually to the nipple line. The tachycardia was thought to be due to auricular flutter the blood pressure then was barely 120. As the washings from the antrum continued to contain much flocculent pus the antrum was opened in December through the canine fossa under local anaesthesia. Two pieces of what appeared to be bone or tooth about half an inch long and nearly a quarter of an inch thick were found lying loose in the cavity and were removed. Another fragment was not removed as it seemed unnecessary to continue the operation. On January 1st 1928 the blood pressure having risen a good deal the canine opening and that in the inferior meatus were both enlarged under ether the remaining fragment of loose bone was removed the portion of the antral floor over the canine region which showed active inflammation was chiselled away and the antral cavity thoroughly cleansed. The antrum now appears free from infection and the mucous membrane under direct inspection by the naso-pharyngoscope looks healthy.

Commenting on this history, the surgeon patient concludes that in 1917 the antrum was infected from the

canine tooth. The infection became chronic, and led to re-infections of the nasal cavity with recurrent coryza. The attack of influenza in 1925 probably caused an acute re-infection of the antrum. Administration of a vaccine some months after influenza, in the presence of antral infection and pus, seems to have induced a toxæmia, which caused the eczema, with general disturbance of metabolism, and later the phlebitis. When the cardiac attack occurred in 1927, with a considerable rise in temperature, it was at first thought that influenza was responsible, but the general phenomena of influenza were absent, and it seemed likely that the suppuration in, and absorption from, the antrum was in fact responsible. Once the antrum was drained the patient's general condition improved greatly until the attacks of auricular flutter in November, 1927. Since then there have been no other similar attacks, attributable no doubt to the rest taken and to the radical treatment of the antrum. The patient's general health has greatly improved, the toxic look is gone, he has had no boils since the antrum was emptied, his colour is good, and his weight has increased from the normal. Moderate physical exercise can be taken without inconvenience, and a certain amount of public work is discharged. The heart is, of course, a damaged organ, but functions regularly except during attacks of flatulence. Colds in the head were frequent up to June, 1927, but none has been experienced since until October, 1928.

The nose and throat specialist thinks that the virulence of the infection led to a necrosis of a localized area of the maxilla below the anterior nagle of the antrum. Gradual separation occurred, and, following the line of least resistance, necrosed into the cavity of the antrum. Thus a loose body which microscopically proved to be decaying bone, was found in the cavity. Suppuration in the antrum of great virulence was the result. No pain was present, and, owing to the consequent loss of smell, the offensive odour was not detected by the patient.

The striking point about the case is that it was possible for a dormant lethal sepsis to remain undiscovered in the body for many years, and to give rise to distant toxic effects which more than once brought the patient to the verge of death.

LOCAL GOVERNMENT REFORM

MEDICAL ASPECTS OF PROPOSED CHANGES

THE main task before Parliament on its reassembly on November 6th will be the disposal of the Government's scheme for the reform of local government and of its financial relations with the local authorities. These changes follow upon the decision to embark upon the plan for the relief of productive industry, propounded by the Chancellor of the Exchequer in his last budget speech, by means of what is commonly described as the "de-rating" of agricultural, industrial, and transport properties. The details of these proposals are already common property, and legislation to give effect to the rating relief scheme has already been placed before Parliament.

It may be recalled that as a result of this measure the local authorities will suffer a considerable diminution in their existing revenue from rates, and that it is therefore proposed to compensate them by grants from the Exchequer. The Government has decided that the execution of its scheme demands, first, a change in the basis of its contributions to local services, and, secondly, a substantial measure of local government reform. In this connexion it has been decided that there is a clear case for reform in the Poor Law and in highways administration and the main primary effect of the proposed changes will be to transfer the responsibility for these services to the county and county borough councils.

Overlapping in Medical Services

A full account of the proposals is given in a memorandum¹ prepared by the Ministry of Health for the information, primarily, of the local authorities concerned in England and Wales. The subject, however, is of

peculiar interest to the members of the medical profession, and deserves their closest attention. It is clear that the carrying out of the scheme will have important effects on the public health service in practically all its branches, and in many areas it will be the prelude to complete reorganization. The memorandum expresses the view that the proposed transfer of the Poor Law administration to the counties and county boroughs is in the traditional line of development of English local government, and recalls that when the parish unit was found too small for its task the larger union was created to supersede it. Under present conditions, it is suggested, the union is often in the position formerly occupied by the parish, and the magnitude of Poor Law work demands that it should be undertaken by local government units of first importance. Further, every rural union in the country has institutions which, with the decline in their areas in the number of persons relieved institutionally, are seldom full, and as regards facilities for medical treatment cannot economically be brought up to date. The memorandum proceeds:

Meanwhile other authorities charged with the duty both of preventing disease and of treating the sick have been established with the result that their functions overlap those of the boards of guardians. The transfer of the Poor Law to county and county borough councils would eliminate this overlapping and would make possible a better classification of the sick and would lead to economies in the provision of institutional treatment, the general demand for which is everywhere steadily expanding.

Administrative Changes

It will be seen from this extract that something much more than a simple transfer of functions is to be expected from the proposed reform, and this is made even clearer by the outline given by the Ministry of the changes in the existing practice in Poor Law administration which will arise. Here, it may be pointed out, the Government evidently intends to allow considerable latitude to the authorities concerned in the manner in which they will discharge their new functions.

After the passing of the Reform Act and before it comes into operation on April 1st, 1930, each county and county borough council will be required to submit to the Ministry a scheme of its proposed arrangements for the execution of its new duties. The memorandum gives an indication of the provisions which may be included in such schemes. It will be permissible to delegate or refer any of the new functions (apart from rating or borrowing powers) to an existing or specially constituted committee of a council, or to a local subcommittee for a particular district. Such committees or subcommittees may contain a minority of co-opted persons, such as former members of Poor Law authorities and members of other local authorities. Where a county or county borough council decides to provide for co-option this must apply to women as well as to men.

Delegation of Poor Law Services

It is suggested that in delegating Poor Law functions to existing committees of a county or county borough council assistance to mothers and children under 5 years might, for example, be a matter for the maternity and child welfare committee of the council. Similarly the education of Poor Law children might be dealt with by its education committee, which might undertake the maintenance of children in institutions, although the cost of this service would not attract an education grant from the Exchequer. Where the council of a county district is a local education authority or a maternity and child welfare authority such services may be delegated to that body. The memorandum states that existing Poor Law Officers will be transferred to the new authorities and proper provision for compensation, where necessary, will be included in the bill. In London as a result of the projected reform, the Metropolitan Asylums Board and the Metropolitan Common Poor Law Fund will cease to exist, the London County Council will assume responsibility for the services now maintained by the Board.

Grants for Health Services

As part of the general scheme of reform the Government proposes to review various grants in aid at present made to local authorities and to widen the scope of the Exchequer grants to make up the deficiencies due to de-rating. Among the grants to be reviewed (that is, abolished) are the percentage grants in aid of certain health services—tuberculosis, maternity and child welfare, welfare of the blind, venereal diseases, and mental deficiency. In place of these percentage grants, and of the others associated with them in the memorandum, is to be substituted a new Exchequer annual grant in aid, fixed in total and for each authority for a period of five years, and revised every five years—what is described as a "block grant." The total sum to be allotted is meant to cover the losses caused by de-rating

¹ *Proposals for Reform in Local Government* Cmd 3134 London H.M. Stationery Office, or through any bookseller 1928 1s net.

and by the abolition of existing grants and is to be augmented by a sum of £5,000,000 of "new money" from the Exchequer for England and Wales. During the transitional period from the old to the new financial system grants will be based partly on the existing method and partly on the basis of the formula which has been devised to secure a more equitable distribution.

Basis for the Block Grant

This formula is designed to give a weighted population, which will be the *primo factor* in allotting the grants. In arriving at this weighted population the estimated actual population will be increased by the percentage by which, at the last previous census, the number of children under 5 years of age per 1,000 of the population exceeded 50, and by other factors designed to compensate for low rateable value, high unemployment, and low density of population. Ultimately the whole of the grant will be distributed under this formula.

Interference with existing arrangements under which certain borough and district councils administer the maternity and child welfare service for their areas is not contemplated, but certain financial adjustments will be necessary. Modifications in the financial provisions of the scheme will be required in its application to London.

SECOND REPORT OF THE ROYAL COMMISSION

The second report of the Royal Commission on Local Government, the preparation of which has been expedited on account of the proposed action of the Government in this sphere, was issued this week, and will be reviewed in an early issue. The report recommends a reorganization of areas to increase efficiency, after a general review of existing units. It is suggested that county councils, in consultation with county district councils, should be required to frame a scheme for the appointment of whole-time medical officers of health, and that where part-time posts fall vacant steps should be taken to secure the appointment of whole-time officers. The Commission considers that the school medical service should remain in the hands of the local education authorities, and that provision should be made for these authorities assuming responsibility for maternity and child welfare work, in certain circumstances, where this service is not already under their control. Modifications are also proposed in the existing system for the allocation of responsibility for supervision under the Midwives Acts and for the treatment of ophthalmia neonatorum, and in connexion with the provision of infectious disease hospitals.

SICK-ROOM ACCOMMODATION AT PUBLIC SCHOOLS

A RECENT memorandum¹ giving the results of an inquiry into the standards of "sick accommodation" at a large number of English public schools is likely to serve as a useful guide to those responsible for providing such accommodation. It is the work of Dr. W. Dalrymple Champneys, one of the medical officers of the Ministry of Health, and is issued by the Ministry.

The types of accommodation found may be classified into four groups: temporary sick rooms at each of the boarding houses, special buildings called sick houses for the reception of non-infectious cases, infirmaries accommodating all cases of sickness, surgical infectious non-infectious and out-patients, and sanatoriums in which infectious diseases and sometimes non-infectious diseases are nursed. The problem of calculating the proportion borne by sick accommodation to boy population at a given school was complicated by the fact that at schools where studies are used as bedrooms these may also be reckoned as sick rooms. In such schools, as each boy may have a room of his own and the special sick rooms must be added to this total, the number of house sick rooms may obviously be larger than the number of boys in a house. Moreover, some schools provide outside accommodation for surgical and infectious cases though it is impossible to allow for this fact in an inquiry concerning the accommodation provided by the schools themselves. An examination of the statistical tables provided in the report brings out the great differences that exist between the sick accommodation of various kinds provided at different schools. For example, the maximum accommodation of sick boys in houses expressed as a percentage of boy population is 10.7 (105.4 if studies which may be used as bedrooms are included); the minimum is 2.9. The maximum of beds in outside houses for infectious cases is 15.3; the minimum 4.5.

The average number of infectious beds outside the houses is about three and a half times that of non-infectious beds.

These figures are of value in showing that the minimum standards of accommodation suggested in a later part of the report are already exceeded in a number of schools, and these not the best endowed of those included in the scope of the survey. The standard laid down by the Voluntary Hospitals Commission in its memorandum on the construction of voluntary hospitals was used for gauging the adequacy of space per bed provided in the wards of a number of school sanatoriums. Only in one or two cases was this standard attained or exceeded, in the great majority nominal accommodation was not compatible with this standard. It is generally not practicable to provide sanatorium accommodation for the large number of cases of sickness which may occur during an extensive epidemic. There exists, therefore, a problem of extra bed accommodation, which at present is dealt with in various ways. At some schools two or three dormitories are taken over, or even a whole house, as an annexe to the sanatorium. At one school a dormitory of 50 beds adjoins the sick house, with which it communicates by a door, usually kept locked. At another school the medical officer has caused two large dormitories of one house to be specially modified so that they can be converted into wards at the shortest notice. Some of the large schools have an out-patient department, where sick boys attend for examination, the administration of medicine, or the treatment of minor surgical complaints. Some schools keep records of a complete examination carried out when the boy enters the school, and of his height and weight at the beginning and end of each term. One school provides for a thorough dental examination once a year, with the result that the amount of dental cases in this school has been reduced by 50 per cent. in the course of four years. An attempt was made to estimate the extent to which sick bed accommodation is used, with a view to determining a standard of sick bed provision. It was generally found that statistics were completely lacking, or were insufficient for the purpose of the inquiry. Dr. Champneys suggests that all medical officers of public schools might adopt a method of expressing sickness rates in the form of boy days, the number of boy days of sickness being obtained by multiplying the number of boys going sick by the average number of days absence per boy on account of sickness.

The second part of the report considers the principles that should guide schools in providing new sick accommodation or extending that which exists. The amount of such accommodation must be calculated in terms of the total resident boy population, probable developments of the school, the purposes for which the accommodation is required, and the type of organization prevailing at the school. The total number of sick beds, including those in all four groups of accommodation, should be not less than 18 per cent of the boy population. The provision of sick beds in the houses—a suggested minimum of beds being 6 per cent of the total boy population—is essential, except in schools so highly centralized that sick boys can be removed to the infirmary, sick house, or sanatorium in a closed conveyance at any hour of the day or night. Sick room beds should be arranged in two rooms to allow for accommodation of an infectious case pending its conveyance to the sanatorium. For schools in which each house has its own sick rooms the total number of beds outside houses should be not less than 12 per cent. Where the infirmary or sick house takes the place of such rooms for a part or the whole of the school a corresponding proportion of beds must be deducted from this figure. The number of non-infectious beds outside houses should be not less than 2.5 per cent of the total boy population, of infectious beds not less than 9.5 per cent. The choice of a site for an infirmary or a sanatorium will be governed by such considerations as area, accessibility, elevation, drainage, water supply and probable developments round the site. The accommodation for infectious and non-infectious cases respectively should be arranged either in different parts of the building as far as possible from each other, or be on different floors, the former alternative being preferable. The out-patient department should be situated in the portion reserved for non-infectious cases. The suggested minimum standards of space allotted for each bed—the most important consideration in planning wards of any type—are: wall space 8 ft, space between beds 5 ft 6 in, floor space 100 sq ft in large wards and 120 sq ft in small wards, and effective air space 1,000 cu ft in large wards and 1,200 cu ft in small wards.

¹ Ministry of Health. Memorandum on the Accommodation for the Sick Provided at Certain Public Schools for Boys in England. London: H.M. Stationery Office, 1928. 1c.

It is, however, strongly recommended that for infectious or respiratory diseases bed space should be considerably increased by spacing out the beds or leaving one unoccupied bed between every two patients. With regard to sanitary annexes, it is suggested that the ideal arrangement is for every ward to have its own well-ventilated annexe, separated from it by a ventilated lobby. Provision for the performance of emergency operations is strongly recommended. An adequately equipped ward or room in the non-infectious part of the infirmary may serve in the absence of a room specially constructed for this purpose. Similarly, facilities for x-ray examination are of value, especially for the detection of fractures, which are of common occurrence on the football field.

The report concludes with some general indications of the present position with regard to the construction of sick accommodation in hospitals and sanatoriums.

TREATMENT OF PULMONARY TUBERCULOSIS IN NEW ZEALAND

As the outcome of insistent demands for increased accommodation for patients suffering from pulmonary tuberculosis in New Zealand, Mr. Young, the Minister of Health, after consultation with the New Zealand Branch of the British Medical Association, appointed three medical men to act as a committee of inquiry. These were Dr F. Fitchett, professor of clinical medicine and therapeutics in the University of Otago (chairman), Dr D. Eardley Fenwick, and Dr T. W. J. Johnson. The report of this committee, which has now been presented to the House of Representatives, deals with the whole question of treatment and prevention of this disease in New Zealand, and more especially with the class of tuberculous patients admitted to the sanatoriums of the Dominion. To facilitate their inquiries the three members of the committee were officially appointed assistant inspectors of hospitals, and in this capacity they visited all the various centres, where a large number of witnesses were examined.

It would appear from this report that in New Zealand, as in other civilized countries, the incidence of pulmonary tuberculosis has declined steadily during the past sixty years. The fall has been uninterrupted, and does not seem to have been influenced by any of the remedial measures introduced in the last thirty years for the direct treatment of the disease.

Though pulmonary tuberculosis has been a notifiable disease since 1901, the earlier returns are stated to be unreliable owing to neglect on the part of some doctors, some being opposed to notification, the increase noted in 1925-26-27 over any previous years is attributable to more patients being notified. In this connexion we might add that in England the subject is also regarded by the public health authorities as being still somewhat unsatisfactory. In Sir George Newman's report for 1926 it was observed that a considerable proportion of tuberculous patients were not notified before death, and a larger proportion only during the last six months of life. More reliable information is given by the death rate figures. In the New Zealand report it is shown that the mortality rate per 10,000 of the population has fallen from 9.70 in 1872 to 3.88 in 1927. These figures place the Dominion in a favourable position. "Indeed," as the report complacently states, "in no other country in the world for which reliable statistics are available is the death rate so low."

The Health Department, which supplied statistical information, was found to be alert in initiating measures for combating pulmonary tuberculosis, and to have kept abreast of the progress in preventive medicine during recent years. These measures include (1) notification, (2) inspection of the homes of tuberculous patients and distribution of leaflets, (3) medical examination of school children, and care of the malnourished and of those who have been brought in contact with the disease in their homes, for whom there are open air schools, nutrition classes, and health camps, (4) the establishment of tuberculosis dispensaries, (5) the segregation of chronic cases in hospitals, (6) the treatment of other cases in sanatoriums, (7) research.

In each of the four chief cities of the Dominion a hospital is reserved for the accommodation of advanced cases of pulmonary tuberculosis, but throughout the country patients in all stages of the disease are to be found in the general hospitals and in annexes attached to them. The committee is of opinion that this class of hospital is not being used to the best advantage of tuberculous patients, because not only is no suitable accommodation specially reserved for them, but there is also a disinclination to admit such patients. It recommends that hospital boards should modify their policy and admit, preferably to specially arranged annexes, cases in all stages of the disease. It is pointed out that while in New Zealand the possibilities for home treatment are great, medical practitioners and students must be given the opportunity for studying the disease if such treatment is to be satisfactory. This cannot be secured if such patients are denied admission to the general hospitals.

The sanatoriums seem for the most part to be suitably situated and well designed, though in three instances it is noted that they have not advanced beyond the early shelter-aggregate plan. While the accommodation in these institutions is adequate, with the exception of Otaki District, it is evident that such is not the case with the hospitals for chronic patients. Provision for these is a step in prevention which is always better than cure. In New Zealand the advanced chronic case is not regarded as a suitable inmate for their sanatoriums. In the North Island the superintendents of the sanatoriums have practically no voice in the selection of patients, they do not see them before admission, and this work is largely in the hands of tuberculosis officers on the Wellington and Auckland Boards. In the South Island selection is made by the medical superintendent of each sanatorium.

As regards the question whether the action taken against pulmonary tuberculosis, other than the provision of institutional beds, is sufficient, the committee finds that the Department of Public Health and the local authorities throughout the Dominion are fully alive to all the means available for sanitary reform, and are active in making them effective. There appears to be a real need for convalescent homes for adult patients. The great fear the public has of infectivity of pulmonary tuberculosis apparently closes the already established general convalescent homes against the tuberculous subject.

The Health Department is recommended to deal sternly with medical practitioners who neglect or decline to notify cases. More domiciliary supervision is advocated in the form of the employment by local authorities of visiting nurses, and it is stated that in the committee's opinion the institutional treatment of chronic open cases should have the first call on funds available for prosecuting the fight against tuberculosis. Under the heading of research it is advised that more definite information should be obtained with regard to the treatment of tuberculosis among the Maoris, and that more active measures be taken for the control of the disease in Maori districts. It is regretted that comparatively little pathological research is being carried on in the Dominion. Sufficient co-ordination of all the agencies dealing with pulmonary tuberculosis is not being undertaken, though signs of progress are noted in some parts. Especially is this seen in the control of sanatoriums, some being governed by the Health Department and some by hospital boards.

In its final recommendations the committee suggests that a division of tuberculosis be established in the Health Department, and that a director of this division be appointed. Further, it is suggested that the routine use of tuberculin in sanatoriums be discouraged, and that the stay of minimal cases should not, as is now the case, be unduly prolonged. The medical superintendents of sanatoriums are urged to admit all cases that would be likely to benefit, and it is further recommended that the establishment of voluntary aid associations should be encouraged.

While pulmonary tuberculosis is not regarded as a grave menace to New Zealand, this highly useful and well drawn-up report should be a most helpful contribution, in view of the stimulus it gives to the authorities for the better co-ordination of the measures and of the efforts now employed in fighting the disease. It appears from a general survey

which is included that New Zealand stands high compared with other countries in the favourable conditions it offers to tuberculous subjects. There is no stint of good food, the climate is good and has a wide range, the financial resources of individuals are greater than those of persons in the same social grade in other countries, and the standard of medical education is high. It cannot be denied that good food, fresh sunlight, and freedom from worry still remain the three leading factors in the proper treatment of tuberculosis.

India.

Overcrowding in Mental Hospitals in India

REFERENCES to the need for increased accommodation and improved arrangements for the treatment of patients in mental hospitals occur in several reports from various provinces on the working of these institutions in 1927. Major-General F. H. G. Hutchinson, surgeon-general to the Government of Madras, in his report on the mental hospitals of the Presidency, states that the accommodation at the Madras Hospital has been found insufficient, and that extensions are also urgently required at Calicut, adding that some progress can be recorded in the modernization of the existing buildings. Certain alterations and additions have been made or sanctioned, but more extensive developments are regarded as necessary. In a note accompanying the annual statements of the Nimgui Mental Hospital, in the Central Provinces, the inspector-general of civil hospitals, Colonel J. Norman Walker, remarks that the outstanding feature of the year was the insistent demand for accommodation, which could not be met. Overcrowding was mitigated to some extent by keeping some sick patients in the hospital ward and permitting a few to sleep in the verandahs at night, while the admission of non-dangerous male patients was restricted. Colonel Walker calls attention to the association of chronic focal sepsis with mental disorders of the type most frequently met with, and states that he is submitting proposals for the establishment of a dental department and the engagement of a throat specialist to treat such cases; thus, he believes, should make it possible to reduce considerably the average stay in hospital and reduce congestion. The report of the Punjab Mental Hospital, Lahore, also records that serious overcrowding was experienced. In Assam, according to the report of Colonel G. Hutchinson, inspector-general of civil hospitals, there was overcrowding in the provincial mental hospital at Tezpur. The reconstruction scheme, however, has progressed very satisfactorily, and provision has been made for ample accommodation on modern lines. When the work is completed in about two years' time quarters will be provided for 690 inmates, against 441 at present. This will solve the difficulties in connexion with overcrowding and the segregation of new admissions and special diseases.

Cholera Control at the Hardwar Kumbh Fair

Elaborate arrangements for the prevention and control of epidemics and the provision of sanitary measures were necessary in the months of February, March, and April last year through the occurrence of the Kumbh fairs, held every twelve years, at Brindaban and Hardwar, in the northern part of the United Provinces. It is estimated that the total attendance during the five days of the Brindaban fair was 2,900,000, and the total at the Hardwar fair 8,000,000. These fairs are attended by people from all parts of India, including several districts where cholera is endemic, and a stringent system of inspection was therefore instituted over persons entering and leaving the area by road or rail. A detailed account of the measures adopted in connexion with the Hardwar fair is given by Lieut.-Colonel C. I. Dunn, I.M.S., director of public health for the United Provinces, in an appendix to his annual report. It may be recalled that Sir Leonard Rogers last year took considerable interest in this matter, and a note on the efficiency of the prophylactic measures appeared in the *Journal* of December 31st, 1927 (p. 1242). Lieut.-Colonel Dunn states that the area was divided into eight circles, each constituted as a complete unit

under the charge of a medical officer of health, with a staff of medical assistants, sanitary inspectors, vaccinators, disinfecting gangs, and other auxiliaries, each circle having hospitals both for general and infectious diseases. Extensive provision was made for sanitation and for increasing water supplies. Every camp and lodging-house was visited and an endeavour was made to see each occupant daily, other means being also employed to ensure the detection of disease. These measures were very effective in reducing the incidence of, and mortality from, cholera, while the establishment of the system of inspection of pilgrims from other parts of India minimized the effects of this immense movement of population in spreading the disease. In 1915—the year of the last Kumbh fair—the number of deaths from cholera in the United Provinces after the dispersal of the fair was 89,993, the corresponding figure for 1927 was 28,285. Lieut.-Colonel Dunn refers to the danger caused by the presence of persons who are incubating cholera, and of carriers, who may easily escape detection, and suggests that the only hope of preventing the introduction of cholera into Hardwar by such cases would be either the quarantining of all pilgrims entering the fair from infected areas or their inoculation against cholera. In connexion with the Hardwar fair, about thirty private hospitals and dispensaries were maintained by voluntary agencies between 40 and 50 medical officers, and over 2,100 other members of the public health services, reinforced by 350 police on sanitary duty, were employed, while several hundred men of the railways were also placed on special duty during the fair. The opportunity was taken to promote educational work through the distribution of leaflets, the delivery of lantern lectures, and the provision of cinematograph displays. It is interesting to note that in view of the importance of this type of propaganda a change has been made in the United Provinces in the health organization to release an assistant director of public health for whole-time duty in charge of the provincial hygiene publicity bureau, over 14,500 lectures were given by public health personnel in 1927.

Reconstruction of the Government General Hospital, Madras

The report of the Government General Hospital, Madras, for 1927 contains a detailed account of the scheme for the reconstruction of the hospital on which work has been commenced. It is claimed that its completion will provide for Madras a general hospital which will bear comparison with any in the East. The accommodation will be increased from 540 to 650 beds, thus relieving the congestion which is being experienced in certain departments at present. Several minor improvements have already been effected in the existing buildings, which date from 1772, and further changes will be made under the remodelling scheme. This scheme provides for the demolition of a number of sheds around the main building and the erection of new structures to accommodate surgical wards, an operation block, an out-patient department, a casualty ward, a venereal block, pathological laboratories, an x-ray institute, and administrative accommodation. All the new and existing buildings will be linked together by corridors at various floor levels where necessary, and special facilities will be provided for the clinical instruction of students from the medical school attached to the hospital. New offices are also being provided in the scheme, which will, it is expected, take four or five years to complete, at a cost, excluding the pathology block, of about £295,000. The clinical teaching of students has been entirely reorganized during the year, and is now conducted on the lines followed in British medical schools.

New Hospital at Peshawar

It is expected that the new hospital now under construction at Peshawar to serve the civil Indian and European population of the North-West Frontier Province will be completed by the beginning of next year. The hospital occupies a site of about ten acres, and will provide 154 beds, including a European ward of twelve beds. It owes its existence to the initiative of Colonel C. I. Bierley, chief medical officer of the province, who, in 1925, formulated a scheme for the provision of a modern provincial civil hospital, the need for which had been felt in the

mon. The foundation stone was laid by Lady Reading in 1926. A contribution of about Rs 1,69,000 has been made by the Government of India, and a sum of Rs 3,10,000 has been provided by the Peshawar Municipality, while public subscriptions have amounted to Rs 1,60,000. Considerable additions to those sums, however, will be required to cover the cost of work still to be done.

Scotland.

Scottish Board of Health

THE draft of the Reorganization of Offices (Scotland) Act, 1928, which has now been issued, provides for certain departments being organized under the Secretary of State for Scotland, and several boards, including the Board of Health will now be converted into departments, it is proposed that the change should take place at the end of the present year. The Secretary of State for Scotland has designated as the head of the Department of Health for Scotland Mr. John Jeffrey, C.B.E., who will be permanent secretary to the department. Mr. Jeffrey was appointed to the clerical staff of the Board of Supervision in 1892, and on the abolition of that board was transferred to its successor, the Local Government Board for Scotland. He served as secretary of the Committee on Poor Law Medical Relief in 1902, as secretary of the Royal Commission on the Poor Laws and Relief of Distress, and later as general superintendent of the poor under the Public Health Act for the Northern Highland district. When the National Health Insurance Act came into force in 1911 he was appointed secretary to the Scottish Insurance Commissioners, and in 1919, on these Commissioners being amalgamated with the Local Government Board to form the Scottish Board of Health, he was appointed general secretary of the new board.

Glasgow Royal Infirmary

A new wing, completing the reconstruction scheme of the Glasgow Royal Infirmary, was on October 12th opened by Sir John Gilmour, Secretary of State for Scotland. Lord Provost Sir David Mason presided over a large assembly, and said that they were met to put the final seal on a great undertaking—the reconstruction of a great infirmary. During the years which had been occupied in alteration not a single patient had suffered inconvenience. Mr. James Macfarlane, chairman of the board of the Infirmary, outlined the work of reconstruction, which he said had been initiated by Sir David Richmond in 1897. The actual building was commenced in 1905, and the work of rebuilding the main hospital had been finished in 1914, when the complete building was reoccupied, and was opened by the King. The lost portion of the reconstruction scheme had been delayed by the outbreak of the war, but was now concluded. The Infirmary had been reconstructed by the voluntary contributions of all classes in Glasgow and the surrounding district, although there had been numerous outstanding benefactors who were commemorated by parts of the Infirmary being named after them. The building to be opened contained two casualty wards which were dedicated to the memory of John Ross of Lochbrae, Bearsden, and the lecture theatre, built on the site of the ward in which Lord Lister worked from 1861 to 1869, would bear a panel inscribed to his memory. Thus, after thirty-one years, the reconstruction of the Infirmary was now ended. Sir John Gilmour said that it gave him great pleasure to take part in a ceremony which meant so much for Glasgow and the wider field of surgical work, saying that he was one of those who were wholeheartedly in favour of retaining the voluntary principle in regard to hospitals. Glasgow Royal Infirmary had a noble history of development, but it should not be entirely on the generosity of those whom he heard described as "merchant princes" of the city that this great institution should depend for its support. Such a hospital was the concern of every man and woman in the city, and if this was recognized by all a state of financial stability would be achieved which was essential for the future. The speaker

then referred to a new development which he suggested was necessary. In the Royal Infirmary they were retaining in hospital for a period of cure and for the healing of wounds numbers of patients who might be removed to another area, perhaps to some annexe. It would be the height of folly to proceed with such a scheme until a way could be clearly seen to meet the heavy expenditure and daily cost, but he would suggest to those responsible for directing the affairs of the Infirmary that the provision of an annexe in the outskirts of the city should be their next ambition. He looked forward to the co-ordination of general services in the great cities and in the country, and to the removal of some of the services which, in his opinion, as they were worked to-day, were less effective than they might be. There must be, however, behind such changes the genuine interest of every citizen in voluntary hospitals, which had been the great incentive of their work in the past. He then declared the reconstructed building open.

Edinburgh Chair of Chemistry

Professor James P. Kendall, who has been appointed professor of chemistry in the University of Edinburgh in succession to Sir James Wolke, delivered his inaugural address on October 9th. Principal Sir J. Alfred Ewing presided. Professor Kendall, who had spent fifteen years in America, took for his subject "Chemistry in America," and reviewed the growth of this subject in the United States from its beginnings in the eighteenth century, pointing out that in its early days the subject had been influenced to a great extent in America by the teachers of Edinburgh University. In his own department at Washington Square College of New York University there were in 1919 40 undergraduates and 3 members of the staff, while in 1923 there were 1,200 undergraduates and 14 teachers, and in 1927 2,500 undergraduates and 60 teachers. Many American universities had found it necessary to regard chemistry not as a single subject, but as one of several branches, so that in many places chemistry had become a faculty in itself. One naturally asked where all these thousands of chemists in America obtained employment. Some went into teaching, some into research institutions under the Government or other bodies, but most of them went into industry. The necessity for having trained chemists—as distinct from routine chemists—in various industries had been recognized in America earlier than in this country. In America for at least a decade trained chemists had been employed in industry, and various industries had initiated research laboratories for purely academic work in the belief that this might lead to results valuable to themselves. Still, the demand for chemists was greater than the supply, and chemical industries had to pay young chemists salaries as high as those given in the universities. Industry was in some cases depleting the universities of their teachers, but this problem was beginning to be solved by the scientific staffs of the large industrial laboratories helping the universities in the education of the students. In this way, too, the industries fixed their attention on the more promising students whom they expected to secure in the future.

Veterinary Science in the West of Scotland

A public meeting was held in Glasgow on October 19th under the chairmanship of the Lord Provost, Sir David Mason, to appeal for funds to secure the continuance and improvement of the Glasgow Veterinary College. Professor Glaister said that the governors of the college were appealing to the citizens to prevent the extinction of a college which had done good work for the past sixty-eight years. From 1809 until 1926 the Royal (Dick) Veterinary College had received from the Government sums for capital and for maintenance amounting to over £71,000, while during the same period the Glasgow college had received amounts totalling only some £16,000. He did not agree with the view now held by the Government that one veterinary college should suffice for the whole of Scotland. The Duke of Montrose, honorary president of the college, said that the Government had suggested to agriculturists that they should ignore the cultivation of cereals and take up animal

husbandry, if they did this they must have behind them an up-to-date veterinary service. In the Glasgow district there were something like three million head of cattle, and it was necessary to exercise care in preserving these and keeping away scourges. He thought, therefore, it was essential that they should maintain an up-to-date veterinary college in the locality. Sir Robert Wilson, chairman of the Glasgow Education Authority, moved a resolution recommending the appeal of the governors to public bodies and citizens in Glasgow and the West of Scotland, as well as to stock raisers and owners. He was informed that the education authority had power to assist an institution such as the college, and he considered it would be a public scandal if the college had to shut its doors for want of support. It was pointed out that £20,000 would be required, and it was suggested that 100 persons might be found willing to give £200 each for the purpose.

Ireland.

Rockefeller Fellowships in Dublin University

WITHIN the last few months the trustees of the Rockefeller Foundation have given their assent to a scheme for the establishment of research and teaching fellowships in connexion with the medical school of Dublin University and three fellowships each worth £500 a year have been provided. One came into being on October 1st, another will be created in October, 1929, and a third two years later. The fellowships are residential and each holder will be required to work in a department of Trinity College Medical School, mainly on research but with some teaching as part of his duties. The present scheme is tentative in character, and will be subject to review after five years. Under this scheme Dr R. A. Q. O'Meara, M.Sc., has been nominated as Rockefeller Foundation Fellow in Public Health, his appointment dating from October 1st.

Voluntary Patients in Mental Hospitals

In connexion with the death recently of an ex-soldier, who was run over by a railway train in Dublin, Dr J. O'Connell Donelan, medical superintendent of the Grange-gorman Mental Hospital, in the course of a report, states that the press account of the inquest proceedings conveyed the impression that an application for the man's admission to Grange-gorman Mental Hospital had been refused. This was entirely erroneous, for no application had been made. The doctor who attended the man had stated that he had written a letter recommending his admission as a voluntary patient. Apparently this letter was delivered but did not reach Dr Donelan personally. In any case he could not have done more than issue a blank form of application, with a set of instructions for its completion. To secure the admission of the deceased, the statement points out, the application would have had to be completed by the patient's wife, father, or other relative, the medical certificate of insanity by the patient's doctor, and the recommendation for admission signed by a peace commissioner. It appears that the patient's father received an application form, but took no further action. Dr Donelan was, of course, debarred from admitting anyone until the legal formalities had been complied with. Dr Donelan's report admits that these regulations may seem "red tape" in the eyes of the coroner concerned but points out that neither the committee nor the medical superintendent is responsible for them. At the adjourned inquest on August 29th the wife and father of deceased said that they had never observed any signs of insanity in him and his medical attendant stated definitely that at no time could he have certified him to be insane. On this evidence the patient was not eligible for admission to a public mental hospital, and the medical superintendent would have been powerless to take any action in his case. Nevertheless, the coroner's jury returned a verdict of suicide while insane. The question of the admission of voluntary patients to public mental hospitals has been under consideration in the Free State for a long time but nothing has yet been done to alter the law. Voluntary patients can however be admitted to private institutions on complying with certain formalities,

one of which is an application to the inspector of mental hospitals in the patient's own handwriting. Had the coroner been aware of the law, it is suggested, the misunderstanding and unpleasantness which arose at the inquest, and which was reported so prominently in the press, could not have occurred. The committee of the hospital expressed its approval of Dr Donelan's action.

County Hospital Surgeon and Fees for Private Cases

At a recent meeting of the Tyrone County Hospital Committee the chairman read a letter from Dr Bradley, secretary of the Tyrone Division of the British Medical Association, in which the Division protested against the committee of management of the hospital imposing, as a condition of the appointment of a surgeon, a provision that he should forfeit all fees for operations. As an alternative the letter suggested that a certain number of beds should be reserved as private beds for the hospital surgeon, where he could charge fees for operations. They also suggested that a number of beds be allocated for difficult midwifery cases, that a maternity nurse be appointed, and also that a dental clinic be established in the hospital. The chairman said it was distinctly understood that the salary fixed covered all emoluments. Eventually it was decided to state that the committee would be prepared to confer with the Division on the points raised.

Health Insurance Medical Certification in the Free State

At a recent meeting of the executive committee of the approved societies a statement, supplied by the National Health Commission, was read in connexion with the working of the district medical referee scheme. The medical referees are appointed by the National Health Commission, and are independent of the approved societies. It appears from the statement that 13,395 applications for a second medical opinion were received in 1927, and that of those 409 (3 per cent) were rejected as unsuitably selected for examination, and 581 (4.3 per cent) were not proceeded with owing to the issue of final certificates prior to the date fixed for examination, leaving 12,405 references in regard to which notices to attend for examination by the district medical referee were issued by the Insurance Commission. An analysis of the result of these notices throws an interesting light on the system of medical certification under the Act. No fewer than 4,410 claimants (35.6 per cent) failed to attend, some (presumably a very small number) supplying certificates of physical inability to attend, some declaring "off" after receipt of the notice and before the date fixed for examination, and some simply ignoring the summons and therefore becoming disentitled to the benefit claimed. The remaining 7,995 claimants were submitted to medical examination, in 3,200 cases the referees concluded that the claimants were not incapable of work within the meaning of the Insurance Act, while only 4,795—representing 60 per cent of those examined, but only 38.6 per cent of those summoned—were, in the opinion of the referees, incapable of work and entitled to further benefit. Considering the above statement, and the particulars supplied by the National Health Commission to the Irish Medical Committee, there is no doubt that an extraordinary disproportion exists in the number of certificates issued by medical certifiers under almost exactly similar conditions, including the incidence of illness. An example of the conditions obtaining under the existing method of certification was given in the *Journal* of March 3rd, at page 374, together with an account of the estimated effects of the proposed adoption of the county area as the basis for the payment of medical certification capitation fees. Practitioners who are certifiers for sickness benefits under the National Health Insurance Acts in the counties of Cavan, Cork, Kilkenny, Limerick, Tipperary (S.R.), Wexford, and Wicklow have now declared against the decision of the National Health Commission to change the area of the pool for payment of certification from the dispensary district to the county, and have expressed their desire to adhere to the agreement they entered into in 1915 with the Commission, which assumed the dispensary district as the area of the pool for rural districts and urban areas with a population of less than 10,000. The main objection to the change of the area is that most medical certifiers would have the capitation fee for medical certifi-

entation of insured persons reduced from 2s 8d or 2s 3d to as low as 9d. This reduction would, however, mean a very substantial increase in the capitation fees of those doctors whom the National Health Commission and the approved societies choise with issuing an abnormally high number of certificates. In view of this the decision of the Commission to change the area of the pool is regarded as inexplicable, particularly as it has always been agreed between the Commission and the Irish Medical Committee that a medical certifier should not be encouraged to issue certificates involving an increase in the agreed capitation fee. So far no count, with the exception of Clare, has signified its willingness to accept the county pool, and it appears that Clare has done so in the absence of figures to show the undesirable effect of the change.

England and Wales.

Medical Service in Liverpool Cathedral

THE Liverpool annual medical service was held in the Cathedral on Sunday, October 14th. It was attended by a large number of medical men and women, of whom sixty were in robes and formed a procession. The sermon was preached by the Bishop of Liverpool, who dwelt on the importance of joining the spiritual and psychological with the medical in the processes of healing, in accordance with Christ's double command to preach and to heal. He also spoke of the wrong attitude which some people had towards disease and pain. He considered that it was not God's will that people should suffer. The Lessons were read by Dr Murray Cairns and Dr Bernard Chavasse. The Lord Mayor (Miss Margaret Bervan) attended in stato, and a large congregation was present. The collection, £97 4s 6d, was in aid of the Royal Medical Benevolent Fund.

King Edward's Hospital Fund for London

The statistical report for 1927 on the finance of London hospitals, prepared by the hospital economy committee of King Edward's Hospital Fund, follows the lines of the previous issue, which was the first of a new series, but includes particulars relating to two more hospitals, bringing up to 136 the number covered by this survey. Where figures for earlier years are given, however, they are generally in respect of all the hospitals now included, and therefore differ from the figures previously published. An interesting general review is given of the hospitals as a whole, with numerous coloured graphs illustrating the changes in the volume of work and in finance during the past year, while detailed analyses are furnished of the income and expenditure of each institution. There has been a steady increase in the number of beds available and beds occupied since 1923, the number of beds available increased by 420 during 1927, making the total 15,040 against 13,640 in 1923. The average number of beds occupied was 12,430 last year, compared with 12,150 in 1926 and 10,960 in 1923. New in-patients numbered 212,000 and new out-patients 1,670,000, as compared with 175,100 and 1,514,000 respectively five years ago. During the past two years the rate of increase in beds available has exceeded the rate of increase in beds occupied, while the number of in-patients has risen appreciably each year the average period of residence has been reduced. In the out-patient departments, however, there has been an increase in the average number of attendances recently through the provision of such forms of treatment as light and massage, which are of protracted duration. On the financial side the report shows that the hospitals in 1927 more than made up the ground lost in the previous year in respect of income. The total general fund income amounted to £3,241,000, against £3,041,000 in 1926 and £2,958,000 in 1923. Donations increased by £61,000, receipts from patients by £66,000, and legacies by £76,000. It is interesting to note that receipts for services rendered have increased much more rapidly than income from any other source. Payments from patients, for example, have

risen from £562,000 in 1923 to £778,000 in 1927. The expenditure of the hospitals last year was £3,170,000, compared with £3,079,000 in the previous year, and £2,712,000 in 1923. There was therefore a net aggregate surplus for the year of £71,000, in 1926 there was a deficit on the aggregate, but in the three preceding years the surpluses shown were much greater than that of last year. These figures, however, merely represent a comparison between income and expenditure in the general fund, and take no account of accumulated surpluses or deficits of previous years or of appropriations from the general fund to expenditure on buildings and equipment. On this basis, 80 hospitals last year showed surpluses amounting to a total of £178,000, and 56 showed deficits amounting to £107,000, six of the twelve general hospitals with medical schools showed deficits, some of which were considerable, but the "group" deficit was very small. In addition to general fund income the hospitals received in 1927 £188,000 for endowment, and £896,000 for buildings and equipment. The statistical tables embodied in the report give particulars of the work done and the cost of working at each hospital, and are designed, by grouping institutions in classes, to enable management bodies to compare their expenditure with that of similar hospitals, and so to assist them in securing an economic administration. For the same purpose an appendix to the report gives the average consumption of selected commodities at different classes of hospitals. The hope is expressed that the report will be of assistance to managers in the performance of their duties.

King's College, London, Centenary Appeal

The occurrence next year of the centenary of the foundation of King's College, London, is being made the occasion for the issue of an appeal for £350,000, required for extension of the buildings and the provision of educational endowments. The college has acquired a 200 years' lease of nearly 5,000 square feet above the Aldwych station, and plans are being prepared for the erection of a new building on this site. The rebuilding of the existing south-east block will provide the urgently necessary expansion of the department of chemistry, which serves the three faculties of medicine, science, and engineering. New and better rooms for the department of anatomy, which now occupies the lower part of this block, will be constructed on the roof of the college, in immediate contiguity with the department of physiology. In the space thus vacated by the anatomical department new rooms will be made available for the use of the department of chemistry, increasing it by nearly 50 per cent, and permitting the development of teaching in accordance with modern requirements for the application of scientific research to industry. The estimated cost of this rebuilding is £125,000, and for the completion of the existing theological hostel £15,000 is desired. A further sum of £125,000 is urgently needed for the endowment of special chairs for the faculties of natural and medical science, arts, and engineering. Scholarships and bursaries will absorb a further £50,000, and a sum of £35,000 is required for the educational endowment of the department of theology. It is recalled in the appeal that the proposal to found the college was first made at a meeting in June, 1828, under the chairmanship of the Duke of Wellington. A Royal Charter of Incorporation was received in August, 1829, and King George IV, as patron, granted the present site in the Strand. Medicine was one of the first faculties instituted, and in 1839 King's College Hospital was established in Lincoln's Inn Fields. It is recalled that some fifty years ago King's College invited Lister to come to London in face of strong opposition from King's College Hospital. Before the war the full-time day students numbered 700, whereas at present there are more than 1,200 undergraduates, 300 post-graduates, and 500 evening department students. Another important development since 1913 has been the annual provision of free public lectures on the latest discoveries in science and art, these have attracted large audiences. An influential appeal committee has been appointed. Copies of a detailed statement of the more urgent needs of this institution may be obtained from the secretary, King's College, Strand, W.C. 2.

Correspondence.

X-RAY DIAGNOSIS

Sir,—I think Mr Paterson might have something to say if I, as a mere radiologist, had the courage or temerity to write on the fallacy of surgery in abdominal diagnosis!

As it is very clearly put in the excellent leader in the *British Medical Journal* of October 6th (p 617), almost all fallacies enunciated and discussed at the Cardiff meeting might be more correctly described as mistakes. And mistakes will always be made in all diagnoses—clinical, surgical, or otherwise. They are inevitable, experience alone will reduce their number.

Most of the so-called "fallacies" cited by Mr Paterson are well-recognized pitfalls to the inexperienced radiologist; they are mistakes which might even jeopardize a candidate's chance of passing the radiological diploma examination. Everyone will agree that nothing should supplant a careful clinical examination, many are equally convinced that there does exist the possibility of a radiological diagnosis. Dr Herniman-Johnson's contribution makes it clear that Mr Paterson's troubles would be lessened if he had the services of an experienced radiologist. A radiological investigation of the intestinal tract is essentially fluoroscopic, owing to the type of structure examined, radiographs being used to demonstrate conditions already diagnosed on the screen. The production of a satisfactory radiograph is, of course, essential, but does not necessarily imply correct interpretation or accuracy in diagnosis, and thus, after all, is the crux of the examination. Radiology, as well as medicine, is an art, it has many pitfalls for the unwary. The examination of the intestinal tract fairly bristles with them, and here errors in diagnosis may lead to serious results. There is a tendency nowadays for medical men to be jacks of all trades and masters of none. Many general practitioners consider surgery easy and perform all operations themselves, while others do their own pathology or radiology; unfortunately, the patient is often the victim of these "all-round" men.

Modern medical science is complex, no single brain can possibly cope with the complexities and intricacies of its innumerable developments. Some years ago I was reprimanded by a medical practitioner for daring to include a report with radiographs—being classified, no doubt, as a "medical photographer". One proudly hoped that this attitude had more or less passed away—I am, etc.,

London, W 1, Oct 15th

S GILBERT SCOTT

Sir,—Reading over Mr Herbert Paterson's paper, entitled "Fallacy of x rays in abdominal diagnosis" (October 6th, p 595), I find myself entirely at a loss to discover the fallacy in most of the examples given. They are, indeed, not fallacies, but gross mistakes and illustrations of lack of judgement.

Discussing the question of the use of x rays in cases of fracture, Mr Paterson condemns house-surgeons for sending cases for radiological report before making a diagnosis. He contends that a diagnosis should be made first. Why? The medico-legal aspect alone demands an x-ray examination in all such cases. Who may be certain that there is a fracture, we can never be certain that there is not a fracture. I was taught as a student to use my eyes and ears first and foremost, and my hands last, and the use of the eyes has certainly not been exhausted until x rays have been resorted to. Personally, if I had a suspected fracture, no surgeon should lay hands on me until I had had an x-ray examination made. After all, the patient is the first consideration, not the diagnostician. The statement that radiography must not be made a substitute for a thorough and careful clinical examination is repeated nowadays *ad nauseam*, and seems to me utterly meaningless. In more cases than not a clinical examination is only rendered thorough when combined with an x-ray examination.

Mr Paterson appears to be unduly impressed with the radiogram. The radiological report, more often than not, is based on a careful screen examination, and not on the radiogram, and if there is one thing a radiologist should not do it is to draw inferences by guessing. In the case of intestinal stasis a shadow cast by the remnants of a barium meal adhering to the mucosa should deceive no one, since it causes merely a ghost-like shadow. Moreover, if faeces can be examined for the presence of charcoal, they can be equally well examined for the presence of barium. To quote a case of local muscular spasm in the stomach being discovered at operation to be due to a diseased appendix, and not to a gastric lesion, merely shows that the radiological examination was not a thorough or complete one—that is, other possible causes for the spasm had not been investigated. The first illustration shown is a radiogram of the stomach, suggesting gastric carcinoma. I can see no resemblance in it at all to the appearance of a typical radiogram in a case of cancer of the stomach, and, even if there were any doubt, no diagnosis should be made unless the appearance is definite and identical on several examinations. The statement that duodenal ulcers are not often shown by radiography is, in my opinion, absolutely untrue. If a screen examination is carefully carried out most duodenal ulcers reveal evidence of their presence, although it may be more difficult to demonstrate them in a radiogram. Over 98 per cent of gastric ulcers will be revealed by means of a barium meal examination, and I do not agree that it depends mainly on their size whether they can be demonstrated or not. It is not a fallacy when a gastric or duodenal ulcer is missed by reason of the fact that the patient has not been examined in more than one position. This is merely another instance of incomplete examination.

Fig 2, again, is shown as an example of a radiogram, the appearance of which is said to simulate that caused by cancer of the stomach by reason of the fact that the stomach was incompletely filled with barium. I see no resemblance in it at all to a typical radiogram of gastric cancer, and if the stomach was incompletely filled with barium the examination itself is obviously incomplete. In the case of scybalous masses causing shadows indistinguishable from gall stones this is very easily cleared up by a repeat examination after purgation, and certainly would not mislead a radiologist of experience. To diagnose a doubtful shadow in the region of the ureter wrong as a ureteral calculus is another example of incomplete examination, since this can be cleared up by means of a uroteric catheter, etc. and if it is thought necessary to exclude the possibility of a stone having been passed into the bladder between the time of examination and operation, it is surely a simple matter to make a rapid screen examination immediately before operation.

Fig 4 is shown as an example of a shadow resembling the appendix in a case where the appendix had been removed. To my mind there is no resemblance at all to the shadow cast by a barium-filled appendix, and in any case the presence of the operation wound would naturally cause one to inquire if the appendix had already been removed.

Mr Paterson quotes a case where the radiogram of the stomach, in a case of advanced gastric cancer, showed no abnormality. This radiogram is unfortunately not shown, and is the one which I should have particularly liked to have seen. Personally, I find it extremely difficult to believe that a case of such advanced growth should fail to show some evidence in an x-ray examination. A radiologist is not called upon to diagnose adhesions merely because certain portions of the bowel are immovable, his report should simply be a statement of facts. If frequent observations are made it is not possible to mistake a dilated rectum or pelvic caecum for a distended ileum. This is not a fallacy, but bad observation. Lastly, in the case of healing gastric ulcers, it is not uncommon to find amelioration of symptoms coinciding with definite diminution in the size of an ulcer niche, and I find it difficult to believe that this is anything but good evidence of progressive healing—I am, etc.,

HOVE OCT 16th.

C GUY WHORLOW

RADIUM IN THE TREATMENT OF CARCINOMA CERVICIS

SIR,—In reply to Mr Malcolm Donaldson's letter (October 13th, p 675), I consider his remarks not only ungenerous, but absolutely unjustifiable, especially when he refers to my paper, read at the Cardiff meeting (October 6th, p 609), as liable to do a great deal of harm to the progress of the treatment of carcinoma of the cervix.

Everyone is not so fortunate as Mr Donaldson in having a large supply of radium available for the treatment of his hospital patients.

It is to say the least, regrettable that anyone having such advantages should publicly decry a colleague whose aims and objects are precisely the same as his own, but who has only a hospital supply of 50 mg of radium element at his disposal, and extremely restricted facilities for using even this small amount on the very large number of patients who are in urgent need of it.

The cases referred to in my paper as having 100 mg radium element were several private cases for whom the larger dosage (hired) was available. Originally I treated them by direct application as described in my paper, with astonishingly good results, but latterly I have employed a technique similar to that described by Dr Gray Ward, whose paper preceded mine at the Cardiff meeting—I am, etc.,

E FARQUHAR MURRAY, M.D., F.R.C.S.

Newcastle-on-Tyne Oct 15th.

HYPERPHORIA

SIR,—In your issue of October 13th (p 659) your reviewer of a book on extra-ocular muscles censures the recommendation of the author to use as much as 10 prism dioptres in prescribing prisms for this condition.

I think it right to point out that at least in certain cases such strong prisms, or even stronger, are of the greatest relief. I can cite the example of a man aged 30, a member of the medical profession, who has worn prisms for hyperphoria since 1917—at that time of total strength of 4 prism dioptres. In 1925 I found hyperphoria of 16 prism dioptres and obtained fusion with the use of 11 dioptres. I prescribed 5 prism dioptres apex up in the right eye and 4 prism dioptres apex down in the left, with complete relief of headache and diplopia. The patient's letter after trying these glasses states, "Having given the glasses four days' trial, I am delighted to say I have not found them so comfortable for years." In August, 1926, examination revealed 15 prism dioptres of hyperphoria. In June, 1927, complaint of recent discomfort was made. Hyperphoria was found to be 16 prism dioptres, and the prescription of a total of 10 prism dioptres was found to be comfortable. I feel sure that there is a certain amount of colour at the margin of objects owing to the use of such high prisms, but there is no question as to the relief afforded by the prisms.

Occasionally prisms relieve the discomfort of ocular palsy. A patient with a partial right superior oblique palsy after using as much as 8 prism dioptres in each eye for a whole year writes as follows: "What an inestimable boon the glasses are. No more double vision or headache."—I am, etc.,

London, W 1, Oct 16th.

HUMPHREY NEAME

BACTERIAL FLORA OF THE INTESTINE

SIR,—Professor Cruickshank's address (September 28th, p 555) raises a number of points of interest, both to clinicians and bacteriologists. It is my experience that some individual clinicians, friends of my own, have on occasion been inclined to assume an amount of knowledge on my part greatly in excess of what I am personally conscious of. While this is flattering in a way, it does not help much to a solution of difficult problems. I suggest to these gentlemen that if they will "read, learn, and unwardly digest" Professor Cruickshank's paper, their perspective will in future be better adjusted to the realities of the situation.

What one feels, in attempting practical work in connexion with the intestinal flora is the want of a normal

standard, and that everyone is therefore a law unto himself. This obviously leads to chaos—where we have now arrived. I have been examining films from faeces from time to time for twenty years, and I must confess that I am no more competent to decide when a film is normal or when it is abnormal than I was to begin with. One can judge that there is a predominance of Gram positive or of Gram-negative organisms as a result of experience, but that is about all.

At present, as Professor Cruickshank points out, "the examination of one stool may require many days' work." This is, of course, impracticable for most men in ordinary practice, even if such an examination were to yield results of therapeutic as well as academic interest.

Some time ago I had a patient who for a number of years was completely or partially incapacitated owing to an infection of the respiratory tract. I had myself treated him with a vaccine prepared in the ordinary way with little if any success. He went abroad and had similar treatment by another bacteriologist, also without much success. On his return home, acting on a suggestion originally, I think, made by Sir Almroth Wright, I selected from a comparatively mixed flora those microbes in the sputum which grew out freely in the patient's own blood, used as the culture medium for the preparation of a fresh vaccine. The success of this method was in this case quite dramatic.

I read, therefore, with unusual interest Dr Cronin Lowe's paper (July 21st, p 98), in which he deals with what has been termed "pathogen selective cultures." It seems to me possible that a useful working standard of pathogenicity for the intestinal flora might be evolved on the lines suggested in his paper, or on somewhat similar lines. I have been able to confirm Dr Lowe's observation that a patient's blood may inhibit growth from a certain quantum of his own faeces. In what proportion of blood to faecal matter will growth be inhibited in average healthy individuals? If this question could be answered it seems to me we should be within sight of a practical working standard for faecal investigations which would at all events enable us to substitute reasonable presumption for guesswork.

There is one point on which Professor Cruickshank is not, I think, perfectly clear—the impermeability of the intestinal mucosa to bacteria and their toxins. If he means that this impermeability is absolute I agree with Dr Jenkins in thinking that no proof of this has been adduced. If, on the other hand, he means that there is comparative impermeability to bacteria and their toxins in health, I think that everyone, both on theoretical and experimental grounds, would agree. The borderland, however, between health and obvious disease is, I think, wide enough to permit us still to retain the hypothesis of intestinal infection and toxæmia without inconsistency.—I am, etc.,

Manchester Oct 15th

J STAVELY DICK

ISCHAEMIC CONTRACTURE

SIR,—Perusal of Sir Robert Jones's most interesting paper on ischaemic contracture (October 13th, p 639) shows that even he claims little personal experience of the value of operative treatment in the acute stage. Probably this is due to the fact that patients are brought to him only after the acute stage is passed. At any rate it encourages me to place on record the following instructive case. The fact that ischaemia threatened a lower limb and not an upper is of little moment.

A man aged 29 sustained a Pott's fracture while playing football on Saturday February 26th. He was taken to hospital and treated by the house-surgeon on duty. The fracture was not a bad one and beds were at a premium, so a plaster cast was applied from the toes to below the knee, and the patient was sent home. He spent two sleepless nights owing to pain was sent to hospital again two days later and was admitted. I saw him for the first time that evening. He was in considerable pain and the toes were very swollen, so I gave instructions for the plaster to be removed. On the Wednesday morning I was asked to see him again. There was much swelling of the foot and leg, the foot was almost black and sensation and motor power were entirely lost. The calf was tense and unyielding to the touch and the patient complained of a feeling of tightness in that region. He was immediately taken to the operating

theatre and an incision was made through the skin and deep fascia on the inner side of the leg extending from just above the ankle to just below the knee. The muscles at once bulged through the fascia and the wound gaped widely a little fatty blood oozed from the veins. The patient was returned to bed and the limb was placed on its outer side with the knee flexed the position originally advocated by Pott. Next day the limb was still swollen but it was warm and pink it was insensitive and immobile, but it was alive. Several blebs had appeared on the skin.

From this time there was slow but steady improvement. The wound took over two months to heal, and there was a little sloughing of the muscle in the centre of the incision where, presumably constriction first occurred. The swelling subsided gradually, and sensation returned in a manner identical with what one would expect after primary suture of a divided nerve. At the present time eight months after the accident, sensation to pricking is present in part of the foot there is good range of movement at the ankle and no contracture. Union of the fracture has been delayed, but callus is visible on x-ray examination. The swelling has entirely subsided.

The lessons to be learnt from this case are obvious. I wish to place it on record solely as evidence of the value of free incision through the deep fascia in cases of threatened ischaemia complicating fracture—I am, etc.,

C C HOLMAN

Northampton, Oct 15th.

THE DEFINITION OF DRUNKENNESS

SIR,—With reference to the letter of Dr Sidney Matthews (October 20th, p 726), whenever I give evidence in a case where a person is charged with being drunk in charge of a car I never use the word "drunk," but state that the defendant was so much under the influence of alcohol that he was incapable of driving a motor car. If I am cross-examined as to whether he is "drunk," I decline to discuss that expression, owing to the fact that it is used in various ways by different people, and I maintain the definition given above.

This matter was clearly put by Mr F Freke Palmer in a discussion at the Society for the Study of Inebriety held in January, 1925. He gave the following opinion:

"As the question now being discussed is vital both to the person charged and to the public whose lives and limbs are endangered and as the magistrates and judges differ in their opinions as to what constitutes drunkenness there ought to be a definition of drunkenness. I suggest that it might be 'A person so affected by intoxicating liquor as to be a danger to himself or a danger or nuisance to others'—I am, etc.,

Bullth Wells Oct 20th

W BLACK JONES, J P, M D

SIR,—This vexed question is once again before the profession in the pages of the *Journal*. My sympathy is with Dr Matthews but that will not change the law.

Sir James Purves-Stewart, addressing the members of the Society for the Study of Inebriety, is reported to have given the following definition:

A drunken person is one who has taken alcohol in sufficient quantity to poison his central nervous system producing in his ordinary processes of reaction to his surroundings a temporary disorder which causes him to be a nuisance or danger to himself or others.

In those cases of drunkenness which are so frequently before judge and jury to-day in connexion with motor cars, etc., this appears to be a sound definition. If the man's condition comes within the terms of this definition then a police surgeon to my mind, is justified in going into the witness box and declaring the man to be "drunk" but as to whether he is fit or not to drive a car does not concern him. We must always bear in mind that we must be guided by the law as it stands and not attempt to guide the law—I am, etc.,

Chichester Oct 21st

A M BINFORD

SIR,—Most people will agree with the chairman of quarter sessions in ruling that Dr Sidney Matthews's evidence was too ambiguous to be accepted as evidence. There is no legal definition of drunkenness, whatever definition there is is a medical one. Specific tests for drunkenness are fallacious and misleading, and should never be applied. Indeed King's Regulations for the Army

forbids any soldier arrested for this offence being put through any test. The difficulties of borderline cases are considerable. In the case in question Dr Matthews considered the man to have been under the influence of alcohol and unfit to drive a car or ride a motor bicycle in consequence. So that he might with absolute justifiability have certified him as "drunk."

Speaking generally, a state of drunkenness can only be judged by the loss of fitness for any duty, either of self care and control and intercourse with others, or for a trade or business task, or for a naval or military duty, or any self-imposed duty. If a man is found unfit for any of these, the unfitness being due to alcohol and not to injury or disease, nor drugs taken under medical advice the possible effect of which the recipient has not been warned against by his doctor, then the man is technically and legally drunk. It must not be forgotten that drugs are a legal cause of drunkenness. It entirely depends on the conditions under which they are taken whether the person is culpable or not. A person taking drugs, even under medical advice, which he knows or is warned may cause symptoms (loss of co-ordination and control) akin to alcoholic drunkenness, is unfit to drive a motor car, and is culpable if he tries to do so.

The driving of a motor car requires a high degree of co-ordination and judgement, and even a still higher degree of the same is needed to ride a motor bicycle with safety. An amount of alcohol which may have no particularly noticeable effect on a man's ordinary conduct may still be sufficient to upset his co-ordination for the above purposes. So that unless the fitness to drive is taken as the test of sobriety in this class of case many offenders, who are a danger to themselves and the public, will escape scot-free from the major and possibly well-deserved charge. If the doctor called in finds no evidence of disease, injury, alcohol, or drugs, then the delinquent can only be charged with driving to the public danger—I am, etc.,

S H FAIRRIE,

Sandgate Kent Oct 22nd

Lieutenant-Colonel R A M O (ret.)

SIR,—In my opinion a medical man called to examine a person accused of drunkenness should not try to find out whether the person is "police court drunk" or drunk in "the ordinary sense of the word," whatever these undefined and loose expressions may mean. The examiner must form his own definition of drunkenness, and determine whether the examinee is or is not in a condition which coincides with that definition. It is for the court to decide whether the condition as described constitutes "drunkenness."

I enclose a reprint of an article of mine on this subject, which appeared in No 4, vol 1, of the *Police Journal* published quarterly by Philip Allan and Co., price 5s a quarter. If Dr Matthews would care for a copy I should be pleased to send him one—I am, etc.,

Thurlestone, Oct 22nd.

GORDON WILSON

ANAESTHESIA FOR REMOVAL OF TONSILS AND ADENOIDS

SIR—As a result of the eloquent descriptions of methods, both of operation and of anaesthesia, which have recently occupied your correspondence columns, operators must now be filled with envy at the dexterous rapidity (or rapid dexterity) of their more able colleagues, and with scorn at the sluggishness of those unfortunates who spend ten or even twenty minutes in the painstaking performance of such a trivial procedure as the removal of tonsils and adenoids. Or, of course, vice versa. Anaesthetists, not to be outdone, must now be equipping themselves with special gags, complicated inhalers, weighted intrabuccal tubes, and large cylinders of nitrous oxide, oxygen, and carbon dioxide.

To this discussion I offer one small but (I dare to say) important contribution—namely, a reminder that, in this operation above all others, "the best anaesthetic is a good anaesthetist"—I am, etc.,

Aberdeen Oct 13th

H ROSS SOUPER

INTESTINAL AMOEBIASIS IN BRITAIN

Sm.—Dr Hugh Willoughby in his letter (September 29th p 586) states that he would be interested to hear of other cases of indigenous intestinal amoebiasis in this country. In the course of the last eight years we have seen four such cases, and another in a patient who had lived only in New Zealand before coming to this country. The most instructive case was perhaps the most recent.

A boy aged 16 who had never been out of England developed diarrhoea with the passage of blood in small quantities at infrequent intervals. A mildly inflamed appendix was removed but the symptoms remained unaltered. Three months later a diagnosis of ulcerative colitis was made on sigmoidoscopic examination the appearance being that of simple ulcerative colitis.

He was admitted to New Lodge Clinic two years after the commencement of his illness. The lower part of the bowel accessible to examination was not ulcerated but occult blood was constantly present in the stools. Infected tonsils were removed and with rest diet and local treatment to the colon by lavage his condition improved, the test for occult blood becoming negative.

For a recurrence of symptoms he was readmitted in May 1928. Small superficial ulcers were seen by the sigmoidoscope. The whole mucous membrane was very friable and bled on the slightest touch. Improvement again occurred with rest and local treatment. On both occasions the stools and swabs from the intestinal mucosa were examined frequently both culturally and microscopically but no marked departure from the usual picture obtained in diarrhoea was noted. Various pathologists had made previous examinations on many other occasions with similar findings.

After a third relapse a few weeks ago sigmoidoscopic examination immediately revealed the typical picture of uncomplicated amoebic dysentery. The lesions had the appearance of small boils as described by Dr A F Hurst situated on perfectly normal mucous membrane. The base of each was redder than the surrounding pink mucous membrane. The apex of the unbroken lesion was yellow. A few had ruptured at the yellow apex and were discharging.

Treatment with emetine was immediately started and after four injections the mucous membrane was almost normal. After a full course of twelve injections all abnormal signs had disappeared leaving a perfectly healthy mucous membrane. Swabs were taken from the broken lesions before treatment was started, and microscopic examination revealed the presence of encysted amoebae of the histolytica variety.

This case would seem to show that routine examination of the stools is useless as the sole test for dysentery carriers. A positive finding would, of course, be of value but the value of a negative result is very slight. It is essential in all cases to use the sigmoidoscope, to use it early, and to use it frequently. If the condition is uncomplicated the sigmoidoscope will always establish the diagnosis although it may be impossible, even with a typical picture, to demonstrate amoebae.

Three of the other cases seen were diagnosed entirely on the sigmoidoscopic appearance, after repeated examinations of the stools by different pathologists had failed to reveal any sign of amoebic dysentery. These cases responded at once in the same manner as that described above to the administration of emetine injections. Two of these patients had received prolonged and unsuccessful treatment for colitis before being examined by the sigmoidoscope—I am etc.,

Windor Forest Oct 16th.

JOHN F VENABLES, M D

A LONG MEDICAL PEDIGREE

Sm.—I noticed in the *Journal* for September 29th (p 583) the record of a medical family, stating that it would be interesting to learn if this could be approached by any other, so I venture to send some particulars of mine.

My grandfather on the maternal side was the last medical man to be medical registrar for Scotland, he was succeeded by J Robertson W S. When I qualified and went to register Mr Robertson gave me a copy of my medical pedigree which he had compiled including only Fellowships of the Edinburgh Colleges and not original qualifications. He told me that, taking both sides of the house into consideration, I had the longest pedigree in the Register. I append the names with the years of admission as F R C S and/or F R C P Ed.

The successive generations on the maternal side are (1) Alexander Inglis (1717) (2) his sons W Inglis (1743) and Andrew Inglis (1789), (3) the sons of Andrew Tom Inglis (1817) and Archibald Inglis (1825) (4) the son of Archibald Andrew Inglis II (1863). On the paternal side were Thomas Dickson (1873) and his son, F K Dickson (1831). My eldest brother, T G Dickson obtained the triple qualification about 1896, and I graduated M B, Ch B Ed in 1905.

The Inglis family have mostly been in practice in Edinburgh, except that the original Andrew was for a time in Paris, and the last Andrew, my uncle, was professor of midwifery at Aberdeen University. My grandfather Archibald Inglis was president of both Colleges and with my great uncle, Dr Graeme Weir, was one of the founders of the Edinburgh Sick Children's Hospital. My paternal grandmother was a daughter of John Thomson physician of Minto House who founded the Thomson Bursaries. Thomas Dickson was superintendent of the Cheadle Royal Asylum and afterwards founded Wye House Private Asylum. Buxton he was also one of the founders and a member of the original staff of the Devonshire Hospital, Buxton. At the Wye House Asylum he was succeeded, first, by my father, and then by my brother. I myself have been in general practice here for the last twenty years.

This is a long medical pedigree. I have no means of finding out when the earlier members of it originally qualified, as I have only the dates of their Fellowships.—I am, etc.,

Oxford Oct 7th

FRANCIS H DICKSON

Obituary

GEORGE HALKET, M D, F R F P S GLAS,

Consulting Physician Royal Samaritan Hospital Glasgow

WE regret to announce the death of Dr George Halket, one of the founders of the Royal Samaritan Hospital for Women, Glasgow, which occurred at his residence in that city on October 6th.

George Halket was a native of Glasgow and entered the University there shortly before its transfer to the present site at Gilmohrhill. He graduated M B, C M in 1873, and proceeded M D in 1882, being admitted to the Fellowship of the Royal Faculty of Physicians and Surgeons two years later. After graduating he spent some time on the Continent, continuing his medical studies at Vienna and Berlin, where he devoted his attention specially to obstetrical and gynaecological work, which became his chief interest in life. On his return to Glasgow he commenced general practice in the Anderston district, where he was a popular figure for many years. For a short period he was medical officer to the Barony parochial board but found the tenure of this office incompatible with the increasing demands of his private practice. His specialized interest in gynaecology led him to recognize the need for institutional treatment and along with three of his colleagues—Dr Stuart Nairne, Dr Park, and Dr Thomas McKee—he established a clinic for women in 1886. The premises secured for this purpose consisted of a small hall with an adjoining shop, and were equipped by these four men. Their work, as it grew, attracted considerable attention, and the support of the public was soon enlisted for the venture so that it was possible to secure improved facilities and ultimately to establish the institution now known as the Royal Samaritan Hospital. For about twenty-five years, until 1911, Dr Halket served the hospital as its physician, and until his death its affairs held a high place in his mind and heart.

Throughout his career he displayed a keen interest in the scientific side of medicine, he served a term as president of the Glasgow Obstetrical and Gynaecological Society nearly forty years ago, and was vice-president of the Glasgow Medico-Chirurgical Society in 1898-1900. Dr Halket was a prominent member of Clarendon Church for many years, and at the time of his death was the senior member of the Kirk session.

Dr JAMES STEVENSON, who died suddenly at Clydebank on October 3rd in his forty-fifth year, was the son of a medical practitioner of that town. He was educated at Glasgow High School and proceeded thence to the University in that city graduating M B, Ch B in 1906. Three years later, after holding a resident post at the Glasgow Maternity Hospital, he succeeded to his father's practice in Clydebank. He was also medical officer for the Clydebank district of Old Kilpatrick parish, and police surgeon to the burgh of Clydebank. Dr Stevenson, who was a member of the British Medical Association and the Glasgow Medico-Chirurgical Society, was held in high esteem by his many friends and patients.

The Services

INDIAN MEDICAL SERVICE

THE following amendment to Rule 10 of the Study Leave Rules for the Indian Medical Service, published with Army Department Notification No 890, dated July 9th, 1926, has been made by the Secretary of State for India in Council

After the penultimate paragraph of the said rule there shall be added

'Study allowance may be given at the discretion of the Government of India or a Local Government for any period up to fourteen days at one time during which the officer is prevented by sickness, duly certified by a medical practitioner, from pursuing the sanctioned course of study

DEATHS IN THE SERVICES

Colonel Robert James Geddes, C.B., D.S.O., Army Medical Service (retired), died at St Andrews on September 27th, aged 70. He was born in Glasgow on August 13th, 1858, and educated at the university in that city, where he graduated as M.B. and C.M. in 1882. He also subsequently took the D.P.H. of the Scottish Colleges in 1903. Entering the army as surgeon on February 2nd, 1884, he became lieutenant colonel after twenty years service, and colonel on February 5th, 1913, retiring on December 26th, 1917. He had a long record of war services: Burma campaigns, 1888-89, medal with two clasps, Chin Lushai campaign of 1889-90, clasp, Meknau expedition, 1898, South Africa, 1899-1902, operations in Cape Colony, the Orange River Colony, and Transvaal, relief of Kimberley, actions at Paardeberg and Dreifontein, mentioned in despatches in the *London Gazette* of September 10th, 1901. Queen's medal with four clasps, King's medal with two clasps, and D.S.O. In the war of 1914-18 he served as D.D.M.S. of the Second and Fourth Corps of the British Expeditionary Force in France, was mentioned in despatches in the *London Gazette* of February 17th and June 22nd, 1915, and received the C.B. on June 23rd, 1915. From 1917 till his retirement in December, 1919, he filled the post of inspector of medical services in Scotland.

Captain Robert John Bertram Buchanan, R.A.M.C. (ret.), died at Eastbourne on September 23rd, aged 48. He was born on September 3rd, 1880, and educated in the medical school of the Royal College of Surgeons, Ireland, where he took the diplomas of L.R.C.P. and S., with honours, in 1903, and the D.P.H., also with honours, in 1906. After filling the posts of surgical resident at Stevens's Hospital, Dublin, resident medical officer of Monkstown Hospital, Dublin, and house surgeon of St Peter's Hospital, London, he entered the R.A.M.C. as lieutenant on January 31st, 1905, became captain on July 31st, 1908, and was invalided out on March 25th, 1916.

Universities and Colleges.

UNIVERSITY OF EDINBURGH

A GRADUATION ceremony was held in the Upper Library Hall on October 20th when the following medical degrees and diplomas were conferred

M.B. B.Ch.—M. Caplan F. M. Melmod
D.P.H.—Lucia L. O. Black Elizabeth F. M. Clark Edith F. Oromb
Isabel R. Gordon Betty M. Kennedy Mary V. Littlejohn
I. McCracken B. C. Mackay Margaret M. D. Miller A. L. H. Rankin
L. N. Sutherland Violet B. Tulloch J. M. Watt.

UNIVERSITY OF GLASGOW

A GRADUATION ceremony was held on October 20th when the following medical degrees were conferred

M.D.—J. A. Kerr * R. A. Lennie * Olive M. Somerville J. W. Hamilton

The degrees of M.B., B.Ch. were conferred upon the successful candidates at the final examinations whose names were published in our issue of October 13th (p. 680).

The Junot Memorial Prize for the most distinguished graduate in medicine for 1928 has been gained by J. S. M. Robertson.

The West of Scotland R.A.M.C. Memorial Prize for the candidate with the highest aggregate marks in medicine surgery, and midwifery in the Final M.B., B.Ch. examination held during 1928 has been awarded to G. L. Montgomery.

* With commendation.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC TRINITY COLLEGE

THE following candidates have been approved at the examinations indicated

FINAL EXAMINATION (*Materia Medica and Therapeutics Medical Jurisprudence and Hygiene Pathology and Bacteriology*)—P. S. Dalbie J. M. Gibson A. Rose N. A. Munnar P. L. O'Neill
R. Howerman C. Bowerman A. Rakoff J. B. Scott (In completion)
D. G. McCauley E. F. S. Morrison C. Ryan
M.A.O.—A. A. Shafik.

* Passed on high marks.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At the meeting of the Royal College of Surgeons of Edinburgh held on October 17th Dr Alexander Miles was re-elected president for the ensuing year, Dr A. Logan Turner vice president, and Mr John William Struthers secretary and treasurer.

The following 27 successful candidates, out of 78 entered having passed the requisite examinations in July, were admitted Fellows

D. A. Abernethy J. Berasteln B. E. Buckingham E. G. Collins
R. O. Craig B. B. Cadgill E. J. G. Glass E. W. Hayward
H. T. Jonning A. H. Johns A. E. H. Kendall A. M. Knistilleke
G. H. Lee J. P. S. Les D. A. P. Macalister C. W. R. McCaldin
G. W. M. Paterson G. Punshon G. Purdy W. L. Thomas
T. H. Thorp V. G. H. Wallace F. B. Walsh L. P. Waters,
A. H. Winchester W. W. Woodhouse R. E. Inle

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

THE annual meeting of the Royal College of Physicians of Ireland was held on St Luke's Day (October 18th), when Dr W. A. Wilson was re-elected president and Dr J. A. Matson elected vice-president.

The following Fellows were elected censors of the College: Dr J. A. Matson, Dr Speucer Shelli, Dr R. H. Hicks, and Professor J. T. Wigham.

The following officers were re-elected: Representative on the General Medical Council: Sir John Moore, treasurer, Dr H. Howley, registrar, Dr T. P. C. Kirkpatrick, librarian, Mr Robert Phelps.

The representatives of the Committee of Management under the Conjoint Examination Scheme were re-elected as follows: Dr Walter G. Smith, Sir John Moore, and Dr T. P. C. Kirkpatrick.

The St Luke's Day dinner was held in the College Hall in the evening.

Medical News.

AT the autumn dinner of the University of London Medical Graduates' Society, to be held on Wednesday next, October 31st, at 7.30, at the Langham Hotel, Portland Place, W.1, Professor M. Hajek of Vienna will be the guest of the society. This opportunity will be taken to give members of the society the latest information about the Bloomsbury site for the University, and of telling them what is being done in regard to that matter. Tickets are 10s. 6d. each, and members intending to be present at the dinner should send their remittances to the honorary secretaries, 11, Chandos Street, W.1, not later than October 30th.

THE annual dinner of the British Institute of Radiology, incorporated with the Röntgen Society, will be held at the Trocadero Restaurant, Piccadilly, on Friday, November 16th, at 7.45 p.m., with the President, Dr G. W. O. Kaye, in the chair.

THE winter course of lectures at the Central London Throat, Nose, and Ear Hospital, Gray's Inn Road, W.C.1, commences on November 9th at 4 p.m., when Mr J. D. McLaggan will speak on otosclerosis. They will be continued on succeeding Fridays at the same hour with the exception of a break at Christmas. Medical practitioners are invited to attend the lectures without fee. An intensive course of post-graduate study will be held at the hospital from April 29th to May 18th, 1929.

THE Fellowship of Medicine and Post-Graduate Medical Association announce that on Monday, October 29th, Mr C. S. Lane Roberts will speak on abdominal pain in pregnancy at the Medical Society of London, 11 Chandos Street, Cavendish Square, at 5 p.m., on Tuesday, October 30th, Mr Lionel Colledge will give a clinical demonstration at 2 p.m. at the Hospital for Diseases of the Throat, Golden Square, and on the following day, Wednesday, at 4 p.m. Dr S. H. Dawkes will give a demonstration on diet and disease at the Wellcome Museum of Medical Science, 33, Gordon Street, W.C.1. There are no fees for attendance at the above. A practitioners' course in medicine, surgery, and the special departments will begin at the Hampstead General Hospital on Monday, October 29th, and continue for two weeks, from 4.30 to 6 p.m. daily. Courses will be held in medicine, surgery, and gynaecology, at the Royal Waterloo Hospital (November 12th to December 1st), in neurology, at the West End Hospital for Nervous Diseases (November 19th to December 15th), in ophthalmology, at the Royal Westminster Ophthalmic Hospital (November 12th to December 1st), in proctology, at St Mark's Hospital (November 12th to 17th), in urology, at St Peter's Hospital (November 19th to December 1st), and in venereal disease, at the London Lock Hospital (November 5th to December 1st). Syllabuses and other particulars may be obtained from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

DR P J KELLY, Surgeon General, British Gambia, has been appointed a nominated member of the Legislative Council of British Gambia and a member of the Executive Council of the colony.

The fifth American Congress of the Child will be held next December at Havana, where all the countries of South America will be represented.

The report of the Medical and Sanitary Department of the Government of the Gold Coast for the year 1926-27 states that the great increase in yellow fever gave serious cause for anxiety, 86 cases with 26 deaths occurring, against 8 cases with 5 deaths in the previous year. The disease affected Africans to a much greater degree than before, and outbreaks occurred over a wide area. It is noted that a large proportion of deaths among so-called non-humans of the white race continue to occur in those who do not reside in segregation areas. A steady increase in the incidence of tuberculosis is recorded, and the opinion is expressed that the problem is undoubtedly one which is growing, especially in connexion with labour in the mining centres. Schemes for housing improvement and for the provision of a large sanatorium will demand consideration in the near future.

The September issue of the *Kenya and East African Medical Journal* contains a statement that the Legislative Council at Mombasa has empowered districts to levy rates for the provision and maintenance of hospitals and other medical services, and that Nairobi and Mombasa have become definitely responsible for public health activities within their boundaries. It is anticipated that at first the Government will contribute financially towards local necessities. It is also announced that it has been decided to proceed with the long delayed building of the Medical Research Library. To the same issue of this periodical Dr J A. Carmichael contributes an article on the use of bismuth in yaws and syphilis. There is also an account of the meeting in April of the Tanganyika Branch of the British Medical Association.

In a recent issue of the *Weekly Bulletin* of the Department of Health of the City of New York it is stated that an epidemic of septic sore throat broke out in Lee, Massachusetts, in July. Within two weeks there were nearly 600 cases, with thirty-six deaths in a population of about 4,000. The epidemic ended abruptly on the enforcement of a local order requiring pasteurization of milk, this followed the recovery of haemolytic streptococci from a cow and from a number of persons concerned with a dairy. Contact cases were very few.

The sixth volume of the *Guide to Current Official Statistics*, issued by the Permanent Consultative Committee on Official Statistics, follows the lines of previous issues. The work affords an admirable, and indeed an indispensable, index to the mass of statistical information contained in Government publications, and is in itself sufficient justification for the existence of the committee responsible for its compilation.

The annual dinner of the staff and past and present students of the Royal Dental Hospital of London was held at the Trocadero Restaurant on October 20th, with the Right Hon. Sir W. H. Goschen, chairman of the hospital, and Sir Holburt Vining as principal guests. In proposing the health of the students and the school, the chairman, Mr G. G. Camplin, recalled the life and work of William Harvey as a stimulus to a high professional ideal. Mr S. B. Newton mentioned the noticeable improvements in the school since his days there as a student. He hoped to see the advent of a postgraduate course, even a three-day refresher course once a year, with every part of the hospital open and clinical demonstrations proceeding, would be very useful to a large number of men. Mr H. W. F. Freeth, the Saunders prizeman, said that the students of to-day were not unmindful of the fact that the majority of the advantages which they enjoyed were the direct outcome of hard spade work in the past by their predecessors. The dean, Mr H. Stoble, said that the number of students this year—117, of whom nine were women—was not quite as great as last. The examination results, about 60 per cent of successes, had been very fair. One student now registered was preparing for the B.D.S. examination of the University of London. The hospital welcomed B.D.S. students, and no school could better prepare the student for that degree as well as for the L.D.S. Much thought had been devoted during the year to the equipment of the hospital and to familiarizing the students with the advances in dental surgery. Some modified courses in radiology and anaesthetics had already been held, and a course in orthodontics was now being instituted. Any real demand for periodical refresher courses would be met. A research laboratory had been opened, and the school had obtained the assistance in an advisory capacity of many first-rate men, including the new honorary pathologist, Dr I. H. Maclean. The health of the chairman was proposed by Mr G. O. Whitaker, who paid a tribute to Mr Camplin's work at the Manchester Dental Hospital and elsewhere.

WI. have received the programme for the centenary celebrations of the Faculty of Medicine in Cairo, and the International Congress of Tropical Medicine and Hygiene, which will be held from December 15th to 22nd. Thomas Cook and Son, Ltd., Berkeley Street, W. 1, are in charge of the excursions, which include visits to Upper Egypt, Palestine, and Syria. The secretary of the congress is Professor M. Khalil, the Congress Bureau, I, Sharia Mazloum Pasha, Cairo.

A COURSE in colonial pathology will be held at the medical clinic at Bologna at the end of November, and will include the clinical aspects and pathology of colonial diseases, colonial hygiene, protozoology, entomology, helminthology, bacteriology, and serology. Further information can be obtained from the Director, Ospedale S. Orsola, Bologna.

A BALNEOLOGICAL congress will be held in Berlin from January 25th to the 27th, this being the fiftieth year since the foundation of the German Balneological Society. Details may be obtained from the general secretary of the congress, Fraunhoferstrasse 16, Charlottenburg, Germany.

WOMEN in Turkey were not allowed to study medicine until 1922, and the first to complete the curriculum obtained their licence in 1927. A certain number of Turkish women had already obtained qualifications in other countries, so that at the present time there are over fifty women doctors in Turkey.

WITH the consent of the Greek Government an Italian scientific commission has gone to Greece to study dengue. Its members are Professor Gabbi, director of the Medical Clinic of Parma University, Professor P. Neri, director of the Institute of Hygiene of Bari University, and Professor P. Pontano, lecturer in clinical medicine at Rome.

THE epidemic of dengue in Greece is subsiding. According to official statistics there had been 631 deaths from the disease in Athens and 1,040 in the whole of Greece up to September 20th, or no less than 1 per mille of the populations of the towns affected.

THE issue of the *Dermatologische Wochenschrift* for September 29th has been dedicated to Professor A. Buschke of Berlin, who is well known for his work on thallium and blastomycosis, on the occasion of his sixtieth birthday.

FRANZ L. THEYSEN, the oldest woman practitioner in Germany, celebrated her ninetieth birthday on September 7th.

DR ERNST DELBANO, professor of dermatology at Hamburg, has been elected an honorary member of the Italian Society of Dermatology and Syphiligraphy.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The Editor, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

THE TELEPHONE NUMBERS of the British Medical Association and the *British Medical Journal* are *W.C.1* 2561, 2562, 2563 and 2564 (internal exchange, four lines).

THE TELEGRAPHIC ADDRESSES are EDITOR OF THE BRITISH MEDICAL JOURNAL *Aitology Westcent London*.

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.) *Articulate Westcent London*.

MEDICAL SECRETARY *Medisera Westcent London*.

The address of the Irish Office of the British Medical Association is 18 South Frederick Street, Dublin (telegrams *Bacillus Dublin*, telephone 62550 Dublin), and of the Scottish Office 7 Drumshigh Gardens, Edinburgh (telegrams *Associale, Edinburgh*, telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

ADMINISTRATION OF LIVER EXTRACT

"W" asks how long it is advisable to continue the administration of liver extract in a patient with pernicious anaemia. This man aged 49 is just recovering from his third attack. The haemoglobin percentage is now 65, and the red blood corpuscles number 4,400,000. He has been taking one capsule of the liver extract daily for about twelve weeks.

WATER SOFTENING

"S S S" would be glad to know of a simple and economical method of softening water, or preventing the formation of "fur" in a domestic hot water supply

ELECTRIC STERILIZERS

"J H D" writes I should be glad to know if anyone with experience can tell me of electrically worked sterilizers, suitable for a small hospital, that can be depended upon and are fool proof

TREATMENT OF CHRONIC URTICARIA

Dr E C MUDIE (Glasgow), referring to the request of "Inquirer" on October 20th (p. 732), writes A child, aged 2½, was brought to me with a history of "epots" covering his body completely (except the cheeks), they came out in crops at frequent intervals. The condition had lasted for two and a quarter years and was tending to become worse. After searching among the various articles of diet for a sensitizing agent and applying different external and internal remedies without success I put the child on thyroid extract which was gradually pushed to his fullest tolerance 5 grains daily. An improvement set in almost immediately the full dose was given, the crops gradually lessened in amount and frequency, and finally stopped. It is now more than eighteen months since the last dose of thyroid extract was given, but the condition has never returned and the boy is perfectly healthy, mentally and physically. I have since tried thyroid extract on milder cases of urticaria with excellent results, so that my conclusions are that this painful condition must have some connexion with endocrine deficiency.

ADOPTION

Dr G O HARTLEY (1, Hutton Hill Gravelly Hill, Birmingham) writes A childless relative of mine is very desirous of permanently adopting a healthy girl aged about 2 to 4 years. I should be greatly obliged if anyone knowing of such a child in need of a good home would communicate with me.

WANTED—A HOME

In response to the request published under this heading in last week's *Journal* (p. 732), replies have been received from seventeen medical men, and these have been forwarded to "F R C S."

INCOME TAX

Commencement of Partnership

"G W M" writes to say that prior to April 1927, he was an assistant to his father in private practice, and carried on a panel practice of his own, and then became a partner in his father's practice by a verbal agreement but still carried on his own panel practice. Income tax returns were made on that basis and subsequently the terms of the partnership were set out in a deed executed on July 4th 1928, which recited that the partnership shall be held to have commenced as from April 5th, 1927. The Inspector of taxes declines to recognize the existence of the partnership prior to July 4th, 1928.

* * Two points need emphasis. The first is that the statement in the deed as to the date from which the partnership is to be regarded as having commenced is binding on the parties to the deed, but not on third parties—for example, the Revenue Department. The second is that though it is usual for partners to enter into a deed, that relationship can be legally established by other means—for example by the intentions of the parties stated and accepted by holding out to the public (for example, by newspaper headings, accounts, public announcement, etc.), that a partnership does exist etc. We advise "G W M" to remind the Inspector that the deed was not essential to the creation of the partnership, and to point out to him each circumstance as will serve to show that that relationship existed from April 5th 1927, onwards, and that the deed merely corroborated his terms.

Replacement of Car Obsolescence Allowance

"R G L" bought an A car in 1926 for £340 and was allowed £88 for depreciation for the year 1927-28. In 1927 he sold that car for £141, buying an E car price £295. He has claimed as an expense of the year 1927 £340—(£88+£141=) £209 (that is £131) but the Inspector declines to make this allowance treating the matter as one of a further capital outlay of £295—£141=£154, and as increasing future depreciation allowances only.

* * In effect "R G L" takes the view that the A car became obsolete in 1927 and claims the obsolescence allowance, the Inspector apparently holds that obsolescence is not involved and that "R G L" will have to look to the increased depreciation allowances for future years to put him right in the long run. The only legal decision in point is that given nearly twelve months ago in the case of the South Metropolitan Gas Company v Dadd—"R G L" might refer to a reply to

C A R M in our issue of March 10th last. The matter is not beyond doubt, but there is some tactical disadvantage in a contention that a twelve months old car is "obsolete" and if our correspondent is likely to remain in practice for some years he may prefer to look to the long run rather than contest the matter further.

LETTERS, NOTES, ETC.

WORKS ON HAEMATOLOGY

Dr A PINFI (Cancer Hospital, Fulham Road, S.W.3) writes I have been asked to undertake the preparation of abstracts of British works on haematology for the new French periodical *Le Sang*. The work would be much facilitated if authors would be so kind as to send me reprints of their papers. Articles dealing with diseases of the blood, symptomatic blood changes, blood cells, leucocyte enzymes, and blood chemistry are included.

INTRAVENOUS INJECTION OF INDIGO CARMIN

Mr A T ROCHE (London, W.1) recalls that in a letter printed in the *British Medical Journal* of May 26th (p. 921), he maintained that the dilution of indigo-carmin for intravenous injections should be 0.4 per cent and not 4 per cent. He finds now that in the chapter on diseases of the kidney in Walton's new *Text Book of Surgical Diagnosis* (1928) the figure is given as 4 per cent in spite of the fact that indigo-carmin is soluble only up to 0.8 per cent.

A SIMPLE ASPIRATION APPARATUS

Mr D G DUFF F.R.C.S. Ed. (Dunbligh) writes An aspiration apparatus is notoriously liable to be found wanting when most needed. The resort to laboriously emptying a thoracic effusion with a 20 ccm syringe proved too tedious an affair to day so the hospital vacuum cleaner was pressed into service an improvised connexion being made with the barrel of a 9 in ward dressing syringe and the bottle from the theatre oxygen apparatus, this then enabled the aspiration to be conducted in comfort to the patient, the small bore of the aspirating needle preventing too rapid an exhaustion. The rubber connecting piece is not present in all vacuum cleaners, but it was found that the metal tube connecting piece of the vacuum apparatus fitted closely inside the wide end of the glass syringe barrel and gave equally good suction.

SEA SICKNESS.

"J C M" writes As an acute sufferer from motion sickness myself I find your commentators on this subject a little wide of the mark. My own disability in that direction was first discovered by my nurse when I was some 16 months old. When sitting on a swing with me on her lap and swaying gently to and fro she found that I was caused to vomit. Since those far off days I have done much travelling by most kinds of transport except aviation, and I have been three times round the world. Naturally I have tried most remedies and have acquired a nice discrimination in the amounts of nausea produced by the various kinds of joggling, swaying, and other motions to which one is subjected. For a short sea trip there is nothing to beat going on board with an empty stomach, choosing the cabin immediately behind the one exactly amidships, and lying prone on one's bunk in the position advocated by Burney Yeo. Neither heat nor cold nor emotions, smells, stuffiness, nor anything else matters a straw in my long experience of motion sickness. In my youthful days, however, I found chocolates particularly beneficial. One patient of my own a boy 12 months old puzzled me much by sudden attacks of vomiting, until I discovered that they were caused by an energetic sister rushing him in his perambulator up and down a pathway. I am acquainted with the scientific explanation of Burney Yeo's position, but should be grateful for information.

MEDICAL TREATMENT IN CHINA

Dr A H SKINNER (Hankow) writes In reply to Fleet Surgeon Home's query on August 4th (p. 228) as to Chinese custom in respect of contract medical practice, I have heard the same story, that a family doctor is paid a retainer which ceases during illness, I fear it is a fairy story, or at any rate it is nowhere known in the centre of China. Native physicians call when sent for, are paid, depart, and do not call again unless asked to do so. A well-to-do patient may change his doctor half a dozen times in a week, his friends give him no flowers but express their active sense of sympathy by heading their favorite medical man to see the patient and prescribe for him. Priests of various sorts are also in emergency, invited to attend—these are cash transactions—so that the invisible powers may not undo the effect of the visible medicines. A Chinese friend of mine attached to the local army finds that his salary is less likely to be overlooked if there has been some sickness among the higher staff officers, and he has attended with good result. Fatal illnesses would probably result in considerable delay in his monthly wage payment. Also in "quiet" times, when the general health of the force is good, his salary, like that of most officers, may fall much into arrears. Incidentally, foreign doctors in the treaty ports have most of their foreign patients on a system of contract attendance. Chinese prefer their own system paying for attendance as and when they need it but we have on our books four native families on contract—one of these for over thirty years—during which time, I need hardly say, they have not enjoyed entire freedom from illness.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges and of vacant resident and other appointments at hospitals, will be found at pages 44, 45, 48, 49, and 50 of our advertisement columns and advertisements as to partnerships, assistantships and locumtenencies at pages 46 and 47.

A short summary of vacant posts notified in the advertisement columns appears in the Supplement at page 183.

An Address

ON

RECENT ADVANCES IN THE TREATMENT OF GASTRIC DISEASES*

BY

ARTHUR F. HURST, M.A., M.D. Oxon., F.R.C.P.,
Physician to Guy's Hospital.

IN May of this year I came of age as a member of the staff at Guy's Hospital. When I recall our knowledge of disorders of the stomach twenty-one years ago and compare it with that of to-day, it is at once apparent that most recent advances in treatment are the result of advances in diagnosis. Radiology was in its infancy in 1907, and only the grossest anatomical and functional abnormalities of the stomach could be recognized with its aid. To-day I am unwilling to diagnose a gastric or duodenal ulcer without direct x-ray evidence of its presence, and I do not think that my colleague Dr. P. J. Briggs has failed during the last five years to discover some abnormality in the outline or movements of the stomach in any case of carcinoma. Test meals were rarely given in 1907, and the significance of the results obtained was little understood. The modern fractional test meal not only shows how much acid is secreted, but it gives an accurate measure of the motor efficiency of the stomach, and affords the only means of recognizing gastritis—a common disorder, formerly diagnosed on insufficient evidence and to-day diagnosed with insufficient confidence. The significance of the presence of occult blood in the stools was unknown twenty-one years ago, and it is only in the past seven years that Dr. J. H. Ryffel at Guy's Hospital, and Dr. J. F. Venables and Dr. T. W. Turner at New Lodge Clinic, have so improved the methods of testing for it that it now ranks with the x-rays in value as a means of recognizing the organic diseases of the stomach. It is almost always found with active ulcers, and its gradual disappearance is an excellent measure of the success of treatment, whilst its constant presence in every stool in every case of cancer is of the utmost importance in diagnosis.

During this same period surgery has taught us that duodenal ulcer is a common disease with characteristic symptoms instead of an undiagnosable rarity. It has taught us how frequently gastric symptoms are the reflex results of disease in the gall-bladder and appendix. Finally, and most important, it has shown us how often it fails to cure the diseases it has taught us to recognize, and how often it gives rise to new and artificial diseases formerly unknown. It has thus stimulated us so to improve our methods of medical treatment that we may look forward to the day when all the unsuccessful gastrojejunostomies have been undone, and the only gastric operation the surgeon is called upon to perform is gastrectomy for early carcinoma.

THE TREATMENT OF ULCER

In the past the medical treatment of ulcer was frequently unsuccessful because it was not founded upon an adequate knowledge of its pathogenesis and was consequently not sufficiently thorough, because it was rarely continued until healing was complete, and because it was not realized that when the ulcer had healed the ulcer diathesis remained, so that unless the essential exciting causes were eradicated and the accessory exciting causes were avoided a recurrence was very likely. I shall briefly consider the principles of treatment, the evidence of healing upon which the duration of treatment should depend, and the instruc-

tions which should be given to the patient so as to make it possible for him to lead an active life without running danger of developing a new ulcer.

A PRINCIPLES OF TREATMENT

1 *The Acid Factor*—The presence of free hydrochloric acid is required for the development of an ulcer. A diet must therefore be chosen which produces as little secretion of acid as possible, and atropine and olive oil should be given to inhibit the secretion of acid, and alkalis to neutralize the acid when it has been secreted both during the day and, what is almost invariably neglected, during the night. I shall presently refer to some recent work on the relative value of the different alkalis and the danger of alkalosis, and how the latter can be avoided. The diet must also be one which contains nothing to irritate the ulcerated mucous membrane chemically or mechanically, and it must be adequate in quantity and quality to maintain the patient's nutrition.

Diet

In nearly all the well-known systems of dieting patients with ulcer tables are given in which changes are made at definite intervals, until, at the end of a varying period, a full or almost full diet is allowed. Such systems are most illogical, as a small superficial ulcer calls for a very much shorter period of treatment than that required for a large penetrating ulcer. Moreover, it is not obvious why any change in the treatment should be made until the ulcer has healed. Such schemes as those associated with the names of Leube, Lenhart, and Sippy, in which the diet is changed daily or every few days for two, three, or four weeks, have thus no rational basis. If a certain diet is suitable for a certain day, it is absurd to assume that every ulcer, whatever its size or position, and whatever the general condition of the patient may be, will have improved in twenty-four hours to just the degree which justifies the addition of an egg or a *zweiback* to the diet.

When the diet has once been modified so as to suit the special requirements of the individual, no further change should be made until all the available evidence shows that the ulcer has completely healed. I doubt whether it is really necessary to have any intermediate diet before the patient changes from the strict diet to the almost full diet of the "post-ulcer regime," which he must keep to for the rest of his life. As, however, it is impossible to be quite certain that an ulcer has healed, I give a diet intermediate between the strict diet and the post-ulcer diet for the patient to take for a week or two whilst he is beginning to resume his usual activities.

In various papers published between 1829 and 1835 Cruveilhier recommended an exclusively milk diet for the treatment of gastric ulcer, and soon afterwards Brinton introduced it into England. Since their day milk has, and I think rightly, formed the foundation of nearly every plan of treatment. Pavlov showed thirty years ago that its fat inhibits the secretion of gastric juice, and that its protein combines with some of the free acid. Freezer, Gibson, and Matthews (1928) have now demonstrated that milk neutralizes approximately its own volume of 0.3 per cent hydrochloric acid*. If, therefore, 1,500 c.c. (2½ pints) could be administered in such a way as to coincide with the varying rates and periods of acid secretion, the milk would by itself be sufficient to keep the gastric contents neutral throughout the day, if not more than 1,500 c.c. of juice containing 0.3 per cent hydrochloric acid were secreted. P. M. F. Bishop, D. Ellis, Evan Jones, G. W. Rake, and B. T. Squires have investigated the effect of different diets and different alkalis in the actual treatment of ulcer patients under my care by removing fractions from their stomach every fifteen minutes for several consecutive hours. It has been found that purely carbohydrate feeds have none of the neutralizing action of milk, and that the latter acts more satisfactorily in small quantities given hourly than in larger doses given two-hourly or still larger every four hours. The administration of milk every hour leads to complete achlorhydria for a considerable part of the day but free acid appears from

* Given in opening a discussion in the Section of Therapeutics and Pharmacology of the Annual Meeting of the British Medical Association Cardiff 1928.

time to time a quarter of an hour before the next feed is due, especially in the afternoon and evening (Chart 1). It is then that the addition of alkalis is required in order to obtain continuous complete neutralization.

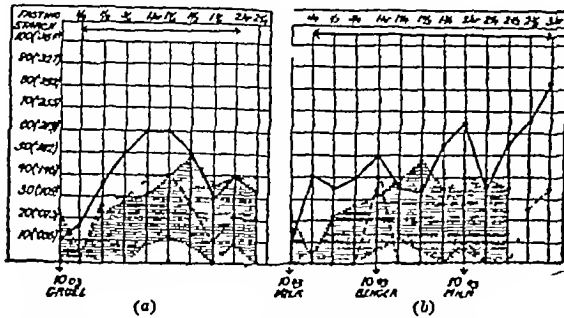


CHART 1—(a) Ordinary fractional test meal (10 oz. gruel) keeps gastric contents neutral for only a quarter of an hour. (b) Milky feeds of 10 oz. keep contents neutral for half to three-quarters of an hour (Evan Jones).

2 The Infective Factor—The essential exciting cause of gastric and duodenal ulcer is infection. It is therefore necessary to eradicate completely any infective foci which may be found. Pyorrhoæa alveolaris requires treatment not only by the dental surgeon but by the patient, whose personal attention to oral hygiene can often bring about the cure of mild forms of the condition. All dead teeth should be x-rayed, and any showing apical infection should be extracted. Areas of rarefying osteitis should be looked for even in edentulous patients, as a residual streptococcal infection may persist for many years after infected teeth have been extracted, as Eyre was the first to show, and as Spencer-Payne has demonstrated in many of my patients. Infected tonsils should be enucleated and the nasal sinuses examined for obvious or latent infection, which should be treated by appropriate measures.

3 Accessory Factors—Tobacco is a very important factor in the pathogenesis of ulcer, largely on account of the increased secretion of acid to which it gives rise, the patient, therefore, should not be allowed to smoke during the period of strict treatment. As fatigue and exposure to cold often play a part in the development of an ulcer, it is best for the treatment to be carried out in bed.

B DURATION OF TREATMENT

Strict treatment must be continued until the ulcer has completely healed. The spontaneous pain often disappears within twenty-four hours, and it rarely lasts for more than a week. Deep tenderness and rigidity may be found considerably longer, but generally disappear long before healing is complete. The stools should be examined twice a week for occult blood, until three consecutive ones have given a completely negative guaiac reaction and have shown no spectrum of haematoporphyrin. The more active inflammatory phase of ulceration may then be regarded as past, but the ulcer is not necessarily healed. In the rare cases in which occult blood remains constantly present, even in specimens obtained through a sigmoidoscope, so as to avoid possible contamination from piles, and in spite of the disappearance of all other symptoms and signs, early malignant degeneration should be suspected, and the necessity for exploratory operation requires consideration. An x-ray examination must be made every week until the crater has completely disappeared. This is a most valuable sign of healing in gastric ulcer, but it is often difficult to recognize the crater in the irregular outline of the bulb in duodenal ulcer, as some permanent deformity almost always persists after the ulcer has completely healed. Only when spontaneous pain, tenderness, and rigidity, occult blood in the stools, and direct radiological evidence of ulceration have all completely disappeared for a week should the strict treatment be discontinued, and then only if the total duration of treatment amounts at least to four weeks, as, from what is known of their pathology, it is difficult to believe that even the smallest chronic ulcer will heal soundly in much under a month. Large ulcers require six or eight weeks, and very large and chronic ones, which

have penetrated the pancreas or liver, may require as long as three months.

C AFTER-TREATMENT

Investigations on the ulcer diathesis carried out at Guy's Hospital and New Lodge Clinic, and in New York by Draper, together with our observations and those of Ryle and Huddy on the familial occurrence of ulcer, have clearly shown that the tendency to recurrence after medical treatment, and of the equal tendency to the development of new ulcers in the stomach, duodenum, or jejunum after surgical treatment, are primarily the result of constitutional peculiarities of the individual. If he returns to the conditions which were present before his ulcer developed, it is only to be expected that a new one will form. This can only be prevented if, in addition to the removal of all foci of infection during the strict treatment, he is given instructions as to his diet and habits, which he must obey for the rest of his life.

If food is properly masticated, by the time it is swallowed it should be so well broken up, softened, and diluted by the saliva that it can no longer exert any mechanical, chemical, or thermal injury on the healthy gastric mucous membrane. Nothing which cannot be reduced to a fluid condition by chewing must be eaten, no pips or skins of fruit, whether raw or cooked, or in jam, marmalade, or cake, and no raw vegetables, no pickles, and no cooked vegetables except in the form of purées, are allowed. Everything which does not lose its chemically irritating properties by dilution with saliva must also be prohibited, this prohibition includes all forms of alcohol, strong coffee and tea, unripe fruit, and the majority of drugs. Smoking must be confined to a limited number of cigarettes provided with a mouthpiece containing a plug of cotton-wool, because of the chemical irritation caused by swallowing small quantities of tobacco juice and the increased secretion of gastric juice which follows the inhalation of nicotine.

ALKALIS

Until recently it had always been thought that the equivalent dose of various alkalis could be calculated from their chemical formulae. As, however, the theoretical conclusions did not agree with clinical experience, I asked Professor C. S. Gibson of Guy's Hospital to investigate the question by modern physico-chemical methods. This he has now done, with Mr. C. R. E. Freezer and Mr. E. Matthews. Their results are of great interest and of much practical value. In their first series of experiments an excess of the "alkali" was added to a constant amount of 0.3 per cent hydrochloric acid, and the hydrogen ion concentrations (pH values) of the resulting solutions were determined. It was found that the "alkali" could be classified as follows:

(a) Magnesium oxide and peroxide and sodium bicarbonate produce an alkaline solution which reaches a maximum and constant degree of alkalinity within a minute. This is higher for magnesium oxide (pH 10.0) than for sodium bicarbonate (pH 8.0). Magnesium carbonate attains neutrality in less than a minute and then becomes alkaline, reaching a maximum (pH 8.5) in two minutes.

(b) Sodium and potassium citrates and tribasic calcium and magnesium phosphates attain neutrality (pH 7.0) within a minute, and calcium carbonate attains neutrality in two and a half minutes, but none of the solutions ever become alkaline.

(c) Bismuth oxycarbonate only reduces the acidity to pH 4.0, the solution never becoming neutral. The proprietary drugs "alecol" (aluminium silicate) and "neutralon" (aluminium hydroxide), which have been much used for the relief of so-called "acidity," have even less effect, the final pH being 2.4 and 3.7 respectively.

In a second series of experiments it was found that the calculated chemical equivalent dose of the alkali required to produce neutralization always failed to do so, owing to the reversed action of water with the salt formed by the combination of the acid with the alkali. Instead of neutrality (pH 7) being attained, most of the alkalis had very little effect, the greatest reduction in acidity being produced by sodium bicarbonate (pH 4.1), and the next by sodium and potassium citrates (pH 2.3).

In a third series of experiments the quantity of 0.3 per cent hydrochloric acid neutralized by 2 grams (30 grains) of the alkali was determined. It was found that, weight for weight, magnesium oxide is the most efficient alkali and that bismuth oxy-carbonate is the least. Calcium carbonate, sodium and potassium citrates, and tribasic calcium and magnesium phosphates have less than one-fifth the neutralizing power of the same weight of magnesium oxide, sodium bicarbonate having rather more than a quarter.

The investigations of Grohn with fractional test meals showed that sodium bicarbonate and magnesium oxide, after neutralizing the acid present in the stomach, stimulated the secretion of more acid than they are, in fact, the most powerful stimulants of gastric secretion known, with the exception of histamine. As Preizer, Gibson, and Matthews found that these alkalis produce an alkaline solution when given in excess, in contrast with most alkalis such as calcium carbonate, sodium and potassium citrate, and tribasic calcium and magnesium phosphates, which produce a neutral solution, it appears probable that it is the alkaline reaction of the gastric contents rather than any specific property of sodium bicarbonate or magnesium oxide which stimulates the secretion of acid. Consequently, if the latter are given in doses insufficient to produce complete neutralization, no secondary stimulation of secretion is likely to occur.

It does not seem to have been realized in the past what efficient alkalis sodium and potassium citrates are. When the former is added to milk in order to combine with its calcium and so prevent the rennin of the gastric juice from clotting it directly it is swallowed, it loses none of its neutralizing power. Freezer, Gibson and Matthews found that milk neutralizes an equal volume of 0.3 per cent hydrochloric acid, so that citrated milk contains the properties of two efficient alkalis—milk and sodium citrate—as well as being an unobnoxious and valuable food (Chart 2).

On the other hand, it is customary to regard bismuth oxy-carbonate as an alkali, although it is interesting to recall the fact that the first bismuth salt employed in the treatment of gastric disorders was the subnitrate which was never supposed to exert any neutralizing action on the gastric juice. As so many patients believe they gain relief from the use of bismuth salts—the oxychloride and subnitrate being apparently as effective as the oxy-carbonate—their physical rather than their chemical properties may perhaps endow them with some soothing action, the nature of which is quite unknown. It has been suggested that they form a protective coating to ulcers, but Briggs has shown by radiological observations that even half an ounce of bismuth oxy-carbonate taken in suspension on an empty stomach does not as a rule adhere to the surface of even a large ulcer crater.

Sodium bicarbonate gives immediate relief to the pain in most cases of ulcer. This is due in part to the almost instantaneous neutralization of the acid present, and in part to the effect of distension of the stomach with gas on the mechanism of the pyloric sphincter. It is, however, an undesirable alkali in the treatment of ulcer, in spite of its popularity with patients and many physicians because as I have already pointed out the neutralization of acid is followed by a great increase in secretion. Moreover the distension of the stomach with gas may be dangerous if an ulcer is near perforation, and its stimulating action on peristalsis is an additional disadvantage.

Magnesium oxide has nearly four times the neutralizing power of an equal weight of sodium bicarbonate and no carbon dioxide is evolved, so that no gaseous distension of the stomach is produced. It has a mild aperient action,

and produces a smaller secondary increase in secretion after the initial neutralization than sodium bicarbonate.

Calcium carbonate has two-thirds of the neutralizing power of sodium bicarbonate, but it does not give rise to any secondary hypersecretion. It has been suggested that the calcium chloride which it forms in the stomach may have some influence in increasing the coagulability of the blood, and it has therefore been recommended when haemorrhage has recently occurred, but there is no deficiency in the blood calcium in such cases, and calcium salts given by the mouth have no effect on the coagulability of the blood.

Tribasic phosphates of calcium and magnesium act, according to Greenwald (1923) as antacids in the stomach, but not as systemic alkalis. We have now had a considerable experience of their use in the treatment of ulcer. They appear to be just as efficacious as the usual alkalis, but I am not yet convinced that they may not also give rise to alkalosis even in the absence of pyloric obstruction and renal disorder. As the magnesium salt is slightly laxative and the calcium salt slightly constipating, the dose of the former can be increased when the patient is constipated and that of the latter reduced. In the uncommon cases in which there is a tendency to looseness of the bowels some of the magnesium salt should be replaced by the same dose of the calcium salt.

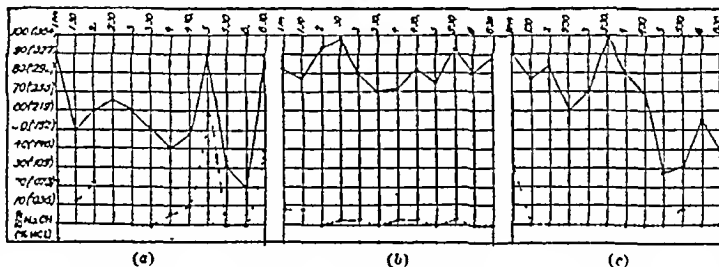
Greenwald stated that tertiary calcium phosphate had only one-fourth of the neutralizing power of the magnesium salt, which was equivalent to the same weight of sodium bicarbonate. But, using more accurate physico-chemical methods, Freezer, Gibson, and Matthews have shown that tribasic calcium phosphate is actually a slightly stronger alkali than the magnesium salt, but for practical purposes they can both be taken to neutralize about the same quantity of acid gastric juice as half of their weight of sodium bicarbonate.

ALKALOSIS

Sippy did not refer in any of his publications on the treatment of ulcer with large doses of alkalis to the toxic symptoms which occasionally develop. In 1923 Hardt and Rivers first drew attention to the subject and in 1925 Venables described seven cases of the kind observed at New Lodge Clinic. Curiously enough, no similar cases have been observed among my patients at Guy's Hospital, though an equal number have been treated in precisely the same manner.

According to Venables, toxic symptoms develop only in cases of duodenal ulcer as there was no case of gastric ulcer in our series. Hardt and Rivers stated that they occurred especially in patients with partial pyloric obstruction, who have in consequence continuous hypersecretion considerable quantities of acid being often lost by vomiting. But only in one of Venables's cases was there any evidence of pyloric obstruction and this patient was the only one who vomited severely.

In some of Hardt and Rivers's cases there was evidence of kidney disease before the symptoms developed, and in their two fatal cases an acute exacerbation of a chronic nephritis was found after death. On the other hand, only one of Venables's patients (a case of chronic prostatitis and cystitis) had a definite history of urinary disease, two others in Venables's series had a slight excess of blood urea before treatment was begun, the figure rising still higher at the end of a week's treatment. In the others no previous estimation of urea had been made, but in two the fall after the treatment had been discontinued was incomplete, so that perhaps some renal insufficiency had previously been present. In every case the blood urea was abnormally



high when estimated after the development of symptoms. The urine was only abnormal in the patient with old-standing cystitis and pyelitis, but in several cases reported by Hardt and Rivers albumin and casts appeared in the urine.

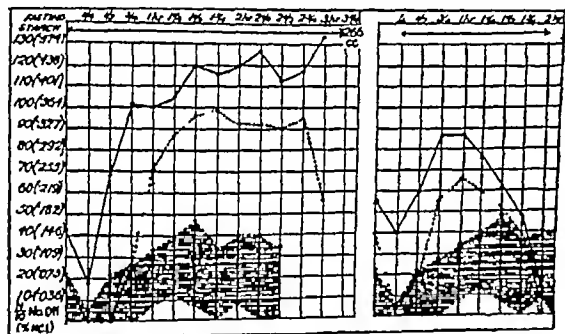
The symptoms generally appear within seven and almost always within fourteen days of commencing the alkaline treatment. Anorexia and depression are always present from the first, the patient being unduly introspective and nervous. He complains of difficulty in taking his milk, and after a time headache, nausea, and vomiting occur. He is irritable, and may complain of pruritus and dryness of the skin. Only in very exceptional cases do more severe symptoms develop. The patient then becomes apathetic and drowsy, and may finally become comatose. In two cases under Hardt and Rivers and in one of Venables's cases death ensued, but as a rule the symptoms never become very severe, and they rapidly disappear on discontinuing the alkali.

THE STOMACH TUBE

The stomach tube is useful in the treatment of two definite conditions—gastritis and pyloric obstruction. It should rarely, if ever, be employed unless one or other of those organic diseases has been definitely proved to be present.

(a) PYLORIC OBSTRUCTION

Increasing experience has shown how frequently the pyloric obstruction caused by an ulcer is due to oedema



(a)

(b)

CHART 3—Man aged 66 with only six months history twelve-hour gastric stasis (starch in resting juice) with hyperchlorhydria and hypersecretion—Chart (a)—secondary to duodenal ulcer. After fifteen days treatment with diet, atropine and evacuation by tube every evening the symptoms had gone and stasis and hypersecretion disappeared—Chart (b).

and congestion in its neighbourhood and reflex interference with the normal relaxation of the pyloric sphincter (achalasia) or pylorospasm. Consequently, when the ulcer heals the obstruction often disappears. If it persists, it is clear that it was from the first mainly due to cicatricial contraction, as a fibrous stricture is generally the result of many years of alternating activity and partial healing, so that its actual development during a course of medical treatment is very rarely observed. I have myself only seen this occur on a single occasion.

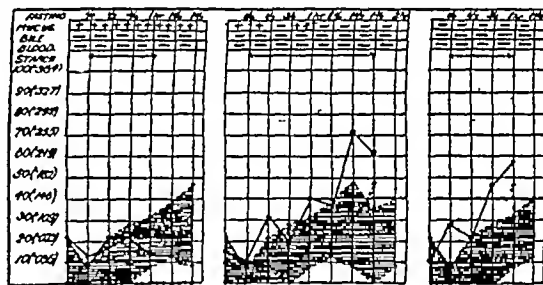
It has often been stated that when pyloric obstruction is sufficient to produce a six-hour residue after an opaque meal a gastro-jejunostomy should be performed without further delay. Our experience shows, however, that medical treatment may lead to the healing of an ulcer and disappearance of obstruction even if there is a twelve-hour residue, and even in exceptional cases a twenty-four-hour residue with peristalsis visible through the abdominal wall.

To obtain the most satisfactory results it is essential that the dietetic and medical treatment should be combined with evacuation of the stomach late in the evening in order to prevent the accumulation of very acid gastric juice, with or without food residue, which would otherwise occur during the night. Accordingly, in every case in which delayed evacuation has been shown to be present with the x rays and fractional test meals we use Senoran's

evacuator just before the patient settles for the night. It is only necessary to empty the stomach, no lavage is required. This can be done most satisfactorily if the last feed is taken three or four hours before the tube is passed. There is no reason why the patient should not have a small feed with a dose of atropine and alkali immediately afterwards, as a tube passed the following morning shows that food taken under these conditions is not retained abnormally long in the stomach. Evacuation is practised every night until not more than three ounces of food and gastric juice are present. When the ulcer has finally healed, the x rays and test meal show that evacuation takes place at the normal rate or with only slightly less rapidity than normal (Chart 3).

(b) GASTRITIS

Chronic gastritis is a not uncommon condition. It may be a sequel of acute gastritis caused by food poisoning or an acute infection. It may result from the constant irritation produced by excessive consumption of alcohol and to a less extent of indigestible and insufficiently chewed food, or from the swallowing of infective material from the mouth or nasopharynx. It can only be diagnosed by means of a fractional test meal, which shows excess of mucus in most or all of the fractions as well as in the resting juice. The thick tenacious mucus sticks to the surface of the mucous membrane and blocks the mouths of the gastric glands, so that only a small part of their secretion can gain access to the lumen of the stomach. At the same time the mucus acts as an alkali and combines with some or all of any free acid which reaches the food. Consequently, achlorhydria is often present, and in every case the quantity of free acid in the stomach is less than



(a)

(b)

(c)

CHART 4—Woman aged 53 with achlorhydria caused by chronic gastritis cured by lavage. (a) January 3rd 1928. Achlorhydria (b) January 6th. After preliminary lavage. (c) March 10th. After treatment with lavage but no lavage before test meal.

the normal for the individual. Hydrochloric acid is often given to patients with achlorhydria caused by gastritis, but it is generally not really required. If a second test meal is given after preliminary lavage, a normal curve of acidity is often obtained, when the achlorhydria persists it is due to true achylia, which is either constitutional, the gastritis being secondary, or the result of complete atrophy of the oxyntic cells following severe inflammation.

The main object of lavage in the treatment of gastritis is to remove the mucus sticking to the surface of the gastric mucous membrane. This can be done most efficiently in the early morning when the stomach contains no food. We have found that it is impossible to dislodge the mucus by ordinary water or by the sodium bicarbonate solution often employed. The only way in which the stomach can be washed completely free from mucus is by means of hydrogen peroxide, the bubbles of oxygen given off when it comes in contact with the mucus quickly dislodge it. It is necessary to begin with a weak solution— $\frac{1}{2}$ drachm to 1 pint—as otherwise the froth blocks the tube. A Senoran's evacuator is used, and lavage is continued until no more mucus appears, the stomach is then finally washed with water. The quantity of mucus is found to diminish very rapidly, and after a few days the strength of the hydrogen peroxide can be increased, as much less froth is produced. A strength of $\frac{1}{2}$ or 1 pint is finally used. When mucus is no longer present in the first washing the lavage is discontinued. A test meal given at this stage, which is

often reached ten or fourteen days and rarely more than a month after the beginning of treatment, shows that mucus is now absent from every fraction, and in most cases an average normal or even a high curve of acidity is obtained (Chart 4). If at the same time a diet similar to that I have already described as suitable for individuals with the ulcer diathesis but no active ulceration is given, and infective foci in the mouth and nasopharynx are treated, there is not likely to be any recurrence of the gastritis.

HYDROCHLORIC ACID

Achylia, or complete absence of free hydrochloric acid from the gastric contents, is a very common condition, it was present in no less than 15 per cent of 762 consecutive cases of abdominal disorder examined at New Lodge Clinic. It is important to decide whether it is due to inability of the gastric mucous membrane to secrete acid—true achylia gastrica—or to mechanical interference with the secretion and neutralization after secretion by excess of mucus in chronic gastritis. Whereas the former condition which is much the less common, should be treated by the administration of hydrochloric acid, the latter, as I have already pointed out, should be treated by lavage, which results in the gradual return of a normal gastric secretion.

Achylia gastrica is generally a familial and constitutional condition but it may also result from a single severe attack of acute gastritis or severe and prolonged chronic gastritis. In the former case it cannot be regarded as a disease, and, though it is present throughout life, it may never give rise to symptoms. In many cases, however, gastric symptoms develop sooner or later owing to the secondary gastritis which is likely to result from the loss of the diluting, softening, and antiseptic action of the gastric juice. Just as the food is prepared in the mouth for its reception in the stomach, so normally it is prepared in the stomach for its reception in the intestines. In achylia gastrica the food leaves the stomach in the same chemical and physical condition as that in which it enters; this often results in irritation of the intestinal mucous membrane, with the result that chronic or recurrent diarrhoea occurs. The absence of the antiseptic barrier offered by the normal gastric juice to swallowed bacteria and the abnormal alkalinity of the intestinal contents may result, as Knott has so clearly demonstrated, in intestinal infection. This is a factor of more or less importance in a large number of diseases, such as appendicitis, cholecystitis, and rheumatoid arthritis, it is probably the one essential predisposing cause of Addison's anaemia and subacute combined degeneration of the spinal cord.

It is clear, therefore, that the treatment of achylia gastrica is not only important for its direct effect on any gastric or intestinal symptoms to which it has given rise, but also in the prophylaxis and treatment of the various conditions I have just mentioned.

The treatment of achylia gastrica is a form of substitution therapy analogous to the treatment of myxoedema by thyroid gland and diabetes by insulin. It is, however, impossible in practice to provide anything approaching the quantity of acid secreted by a normal stomach. The dose often given is totally inadequate, but, if properly administered, it is easy to give as much as 2 drachms of dilute hydrochloric acid (B.P.) three times a day when mixed with half a pint of water; this dose provides a solution of approximately the same strength as normal gastric juice. If symptoms such as diarrhoea have developed as a result of hypochlorhydria, they often disappear at once with only a drachm or half a drachm of the dilute acid.

Though I fear I have been unable to record any recent advance in the treatment of gastric diseases of an epoch-making character, I think that some real progress has been made during the last few years in the treatment of functional gastric disorders and of two out of the three common organic diseases of the stomach—namely, gastritis and ulcer. There is no medical treatment of carcinoma, but the medical treatment of chronic gastritis and of chronic gastric ulcer may be regarded as a real prophylactic measure in preventing its development.

APPENDIX I

Ulcer Diet

1 Every alternate hour from 8 a.m. to 10 p.m. 5 oz. of milk. This can be warm or cold, and may be flavoured with tea.

2 Every other hour, alternating with 1, from 9 a.m. to 9 p.m. a 5 oz. feed, which may be made of any of the following: (a) arrowroot, cream of wheat, Benger's food, junket, custard to any of these red currant, apple, or other fruit jelly can be added, and the junket can be flavoured with chocolate. (b) at least two should consist of a thick white soup or semi-solid purée of potato, artichoke, cauliflower, or parsnip.

3 A rusk with butter should be eaten with three feeds.

4 1 oz. of cream should be added to the 11 a.m., 1 p.m., and 5 p.m. feeds, and $\frac{1}{2}$ oz. of olive oil should be taken before the 9 a.m., 2 p.m., and 7 p.m. feeds.

5 1 drachm of Mixture 1 with 1 drachm or more of emulsion of magnesia, according to the state of the bowels, should be added to each milk feed.

6 1 drachm of Mixture 2 should be taken before the 8 a.m. and 3 p.m. feeds, and 2 drachms before the 10 p.m. feed. The dose should be increased if no dryness of the mouth occurs.

7 1 drachm of tribasic magnesium or calcium phosphate should be taken after the 3, 7, and 10 p.m. feeds with a little water. An extra powder can be taken after any other feed during the day or night if any indigestion or heartburn occurs.

8 Wash the mouth out after each feed and thoroughly clean the tongue by scraping with a spatula morning and evening.

9 No smoking allowed during the strict treatment.

Note.—During the night the patient should have a feed with Mixture 1 by his bedside so that whenever he wakes whether in pain or not he can take a feed. This can be repeated as often as he is awake during the night.

Mixture 1

R. Sodium citrate	15 grains
Water	to 1 drachm

Mixture 2

R. Atropine sulphate	1/200 grain
Water	to 1 drachm

APPENDIX II

Post Ulcer Regime (To be followed permanently)

Avoid alcohol except, if desired later on, a small quantity of light wine or diluted whisky at meals, avoid effervescent drinks, avoid coffee.

Avoid all pits and skins of fruit (whether raw or cooked, or in jam and currants, raisins, and lemon peel in cake or puddings), nuts, and all unripe fruit. For example, an orange may be sucked but not eaten. Currants, raisins, and figs are particularly undesirable.

Avoid all raw vegetables, whether taken alone (celery, water cress) or in pickles or salad, green vegetables must be passed through a sieve and mixed with butter in the form of a purée. Porridge is only allowed if made with the finest oatmeal.

Avoid vinegar, lemon juice, sour fruit, spinach, pepper, mustard, curry, chutney, excess of salt, new bread, tough meat, salted fish or meat, pork, made up dishes, high game, clear or thick meat soup.

Take plenty of butter and cream and a tablespoonful of olive oil before each meal.

Eat slowly and chew very thoroughly.

Do not smoke excessively. No smoking at all if any indigestion present.

A meal or feed should be taken at intervals of not more than two and a half hours from waking till retiring and again if awake during the night. The feeds should, at first, consist of a glass of the following mixture, which should be prepared each morning: a quart of milk, 5 to 10 ounces of cream and 120 grains of sodium citrate in 1 ounce (more or less according to the state of the bowels) of emulsion of magnesia.

Have your teeth attended to by your dentist regularly every six months.

Take no drugs in tablet form.

If you have the slightest return of symptoms, go to bed for a few days on a strict diet, and do not wait for the symptoms to get serious.

THE RESULTS OF SURGICAL TREATMENT OF GASTRIC AND DUODENAL ULCER.

BY

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AN accurate estimation of the comparative values of the different methods of treatment of gastric and duodenal ulceration is fraught with considerable difficulty, and this chiefly owing to the fact that a search is being made for an impossible formula giving the mathematical results of a handicraft. Surgeons make the grave error of comparing the results of a method as executed by one surgeon with those of another performed by a second surgeon, forgetful of the fact that the cases may be in no way comparable, and that the results are entirely dependent upon the extent to which an individual surgeon has perfected his own method. Physicians fall into an equal or a greater error, in that they estimate the results of surgical treatment from the failures that fall into their hands, when they are ignorant of the technique of the operation that was carried out, and have no knowledge of what percentage these failures represent of the total number of operations. The multitudinous statistics that have been published are also in no way comparable. In some published lists the after-results have been traced for only one year, or short after-results have been combined with the figures of cases traced for a longer period. In some the percentage of good results is computed from the total cases, in others, only from those that have been traced. In a recent paper, for instance, the author publishes a table giving 90 per cent of satisfactory results after partial gastrectomy, but his figures do not include those patients who died, 92 per cent. For these reasons the beginner is hopelessly confused, and finds it almost impossible to determine which operation he ought to undertake and practise for the different lesions. The method adopted by the British Medical Association in their combined investigation does much to overcome this latter difficulty, for the only cases which are investigated are those which were operated upon in the years 1920-24 inclusive, and when published these figures should be so arranged that all cases are included and the percentages of good and bad results computed on the total number. It is to be hoped that large numbers of cases will be collected, so that they will form a basis for comparison with the results of other methods of treatment. Such a statistical investigation is specially required of the late results of medical treatment, for until recently very little had been published in this respect. The figures of Dr. David Smith of the end-results of 214 cases treated medically from 1913 to 1922¹ do much to fill this want, and form a useful basis with which the results of surgical treatment may be compared. The immediate results showed 67 per cent of males and 76 per cent of females cured, with an immediate mortality of 2 and 5 per cent respectively. It was, however, interesting to note that if the symptoms had persisted for more than ten years only 25 per cent of each sex were cured by medical treatment. The important figures, moreover, were those of the end-results of cases treated for five to fifteen years. These showed in the males 29 per cent cured, 15 per cent improved, 31 per cent failures, and 19 per cent of deaths, in the females 40 per cent cured, 20 per cent improved, 25 per cent of failures, and 15 per cent of deaths. It is also necessary to note that in this period 5 of the cases developed carcinoma. The importance of these figures lies in the fact that the cases have been traced for a considerable period, for in so many of the reports of the results of medical treatment the cases have been followed only for a short period, often, indeed, for no longer than the periods of remission which are normally seen in the symptoms of untreated patients with gastric or duodenal ulceration.

In presenting the figures of the end-results of my own cases treated in these years (1920-24) attention must be directed to the fact that they only represent the results of the operation as performed by an individual surgeon, for

just as one carpenter carries out the greater part of his work with a saw, while another obtains better results with the use of a chisel, so is it possible that for certain ulcers one surgeon will obtain the best immediate and end results by the use of gastro-enterostomy, and another by the performance of a partial gastrectomy. To this fact insufficient attention has been paid in the many papers that have been written attempting to prove that one or other method is the best form of treatment. Since, however, statistical papers of this sort should be published with the idea of helping beginners in their choice of technique, it will be useful to indicate the reasons why it is considered that the selected operation is likely to give the best results in the hands of the majority of surgeons who have not assiduously practised and become exceptionally skilled in the use of any one method, for there is no doubt that to-day many surgeons are publishing remarkably good results which are due, not to the use of the method they advocate, but to the fact that they themselves have become skilled to an unusual degree in the use of that method.

PYLORIC AND DUODENAL ULCERS

Of the three more commonly performed operations for this type of lesion—(1) gastro-duodenostomy with or without excision, (2) gastro-enterostomy with or without embedding the ulcer, (3) partial gastrectomy—I have always selected as the routine operation gastro-enterostomy with embedding the ulcer. The latter step is performed by so widely embedding the ulcer with a running mattress suture of silk that the pylorus or first part of the duodenum is completely occluded. Later investigations with x rays after an opaque meal show that it becomes patent again in six to eight weeks. A full discussion of the relative values of these different operative procedures is beyond the scope of this article, but it is sufficient to say that the chief objection which has been raised by others to the routine use of gastro-enterostomy is the alleged frequency of the later development of gastro-jejunal ulceration. Von Haberer and others believe that this complication is specially likely to occur if the pylorus be occluded. This danger has been, in my experience, as I think my figures will show, considerably exaggerated, possibly because I only make use of a temporary occlusion. In my own hands this operation has shown a low immediate mortality and a very high percentage of late cures. Partial gastrectomy in my hands, and I believe also in the hands of all who have not practised it in a large number of cases, gives a higher immediate mortality. I have therefore reserved its use for those cases where there was doubt, however slight, of the presence of carcinoma, and as a later measure for the few cases that have developed gastro-jejunal ulceration. The actual figures of my ulcers obtained in this group are shown in Table I, A.

Of the total of 172 cases only 25 were females.

Mortality—In this relatively early series there were 4 deaths—that is, 2.3 per cent. This can and should be considerably reduced. In my later cases there have now been 180 consecutive operations of this nature for uncomplicated pyloric and duodenal ulcers without a death.

Gastro-jejunal Ulceration—This complication occurred in 6 cases (3.4 per cent), and the figures stress the point to which attention has often been drawn that it is a complication almost wholly limited to pyloric and duodenal ulceration there being only one unusual example among the lesser curve ulcers. Thus of the total number of 280 cases in this series there were 7 of gastro-jejunal ulcers (2.5 per cent). Even this is somewhat higher than is seen in larger series. In the total cases operated upon up to February 1927—that is, eighteen months ago—there were 831 chronic ulcers, 15 of which showed gastro-jejunal ulceration, a total incidence of 1.8 per cent.

Carcinoma—It is of interest to note that in no case has carcinoma developed as a late complication so that the claim that partial gastrectomy should be performed to prevent this lesion is unsubstantiated for this group of cases.

Recurrent Ulcers—In one case an ulcer developed on the lesser curve after a pyloric lesion had been cured by gastro-enterostomy.

Satisfactory Results—Many figures that have been published from time to time claim to prove that the end results of this method of treatment are unsatisfactory but this series shows 85.5 per cent satisfactory results for the pyloric ulcers and 81.9 per cent of the total number. If the 3 cases of pyloric ulcer and the 4 cases of duodenal ulcer which could not be traced are eliminated from the series the percentage figures become 90.6 per cent and 88.4 per cent respectively. The standard of recovery is high these patients being free from symptoms able to take a full diet and capable of performing the usual duties of life, which in many cases were of a most arduous and exacting nature.

Analysis of Late Results (1928) of Cases Operated upon 1920-24 (Inclusive)

	Total	M	F	Died	Post-operative Haemorrhage Died	Post-operative Haemorrhage Living	Gastro- jejunal Ulcer	Post-operative Obstruction	Carcinoma	Recurrent Ulcer	Well—		Per centage without Lost Cases.	Not Well	Died Later	Lost
											No	Per cent				
TABLE I PYLORIC AND DUODENAL ULCERS																
A Posterior (gastro-enterostomy)																
Pyloric without stenosis	30	2	8	1	1	1	1	—	—	1	24	86.5	90.6	1 1 5	1 1 2	1 2 4
Pyloric with stenosis	37	29	8	—	—	1	—	—	—	—	34					
Duodenal ..	15	9	5	—	—	1	5	1	—	—	88					
	172	147	25	4	1	3	6 (3.4%)	1	—	1	146	84.9	83.4	7	4	7
B Anterior Gastro-enterostomy																
Pyloric without stenosis	1	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—
Pyloric with stenosis	1	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—
Duodenal ..	2	2	—	—	—	—	—	—	—	—	2	—	—	—	—	—
C Partial Gastrectomy																
Pyloric without stenosis	1	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—
Pyloric with stenosis	7	6	1	1	—	—	—	—	—	—	6	—	—	—	2	—
Duodenal ..	2	2	—	—	—	—	—	—	—	—	1	—	—	1	—	—
	10	9	1	1	—	—	—	—	—	—	8	—	—	1	2	—
TABLE II ADHERENT AND NON-ADHERENT LESSER CURVE ULCERS																
A Wedge Resection and Gastro-enterostomy																
Adherent ..	30	25	5	1	—	—	1	—	—	—	26	35	—	1 2.1	2 1	—
Non-adherent ..	37	26	11	1	—	—	—	—	—	1	35					
	67	51	16	2	—	—	1	—	—	1	59					
B Caustic Excision and Gastro-enterostomy																
Non-adherent	1	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—
C Partial Gastrectomy																
Adherent ..	18	16	2	1	—	—	—	—	—	—	13	13	—	1 3	3 1	2 —
Non-adherent	19	14	5	3	—	—	—	—	—	—	13					
	37	30	7	4	—	—	—	—	—	—	26					
D Gastro-enterostomy																
Adherent ..	3	3	—	2	1	—	—	—	—	—	1	—	—	—	—	—
Non-adherent ..	5	4	1	—	—	—	—	—	—	1	3	—	—	—	—	—
	8	7	1	2	1	—	—	—	—	1	4	—	—	—	—	—
TABLE III HOOR-GLASS STOMACH																
Wedge Resection and Gastro-enterostomy																
Partial Gastrectomy	6	1	5	1	—	—	—	—	—	—	4	—	—	1 1	1 —	—
	14	—	14	1	1	—	—	—	—	—	12	—	—	—	—	—

Four of the patients died at a later period all from some condition unconnected with the ulcer, and since at the time of their deaths they were quite free from all gastric symptoms they have been included among those considered to be cured. The figures of the few cases in which anterior gastro-enterostomy or partial gastrectomy were performed are shown in Table I B and C.

LESSER CURVE ULCERS

In many of the reported series this type of ulcer has not been differentiated from the pyloric. The issue is thereby considerably confused, for whereas many observers have obtained extremely good results with gastro-enterostomy for pyloro-duodenal ulcers, the majority have appreciated the fact that not only does this operation fail to cure lesser curve ulcers—especially if adherent—in some 50 to 60 per cent of the cases, but sometimes a lesser curve ulcer actually develops after the gastro-enterostomy has been performed for the pyloric lesion. In my total cases up to February, 1927, this was seen in 8 patients, in 6 of whom the gastro-enterostomy had been performed by other surgeons and in 2 cases by myself. One of these cases occurs in the 1920-24 series (see Table I, A). On the other hand, local removal of the ulcer alone has in the hands of nearly all surgeons given poor results, a local recurrence taking place in a high percentage of cases. Therefore the operations of choice to-day are (1) some form of local excision by knife or cautery combined with gastro-enterostomy and perhaps with occlusion of the pylorus (2) partial gastrectomy.

It is for this type of lesion especially that the majority of Continental surgeons advocate partial gastrectomy, but there is considerable divergence of opinion as to which

method should be chosen. Schoemaker, by the use of his special technique, removes a large portion of the lesser curve and a smaller portion of the greater curve, others use the Polya or Balfour method, while of late some have abandoned the Polya and returned to the Billroth I method, von Haberer stating that in his experience the Polya operation was unsatisfactory owing to the large number of gastro-jejunal ulcers which followed its use. It is in the choice of these various technical steps that the question should be so largely personal, the figures of the advocates of the different methods not being comparable, for the surgeon who performs gastrectomy for all, including simple cases, will have a low mortality, and he who uses it only for large adherent ulcers will have a high mortality. My preference has always been for local excision with the knife followed by temporary pyloric occlusion and transverse gastro-enterostomy, the latter opening running parallel with and close to the greater curvature, for in my experience this method has given a lower mortality and is remarkably free from ill after-results. The risk of gastro-jejunal ulceration at a later date is almost negligible. In my total series of 278 lesser curve ulcers analysed up to February 1927, gastro-jejunal ulcer occurred only in one exceptional case which fell into this 1920-24 series. Although partial gastrectomy has up to date been found to give exceptionally good results, the removal of three-quarters or more of the viscus for an ulcer, often only 1 cm in diameter, seems an unnecessarily severe and deforming operation. Though no examples have fallen to my experience, Hurst warns us of the danger of pernicious anaemia following the more extensive gastrectomies. For these reasons it has been my routine to excise the ulcers

locally, but wherever there is the slightest possibility of carcinoma, as suggested by the symptoms, by the test meal, or by the x rays, a partial gastrectomy has been performed. With certain large adherent ulcers not only is the danger of carcinoma greater, but a partial gastrectomy becomes the easier operation, and thus has been chosen as throwing a less severe strain upon a patient often enfeebled by prolonged and severe symptoms. The end-results of wedge resection with gastro-enterostomy and temporary occlusion of the pylorus is seen in Table II, A.

Of the total of 67 cases 51 were males and 16 females, a point of interest as many observers have found this type of ulcer to be more common in females.

Mortality—Two of the patients died as the direct result of the operation, giving a mortality of 2.9 per cent.

Gastro-junal Ulcer—In only one unusual case did a gastro-junal ulcer develop. This patient, a male, had a high pre-operative acidity of 0.23 per cent, but there was no concomitant ulceration of the pylorus or duodenum. There was also one recurrence at the site of excision, a complication for which no explanation could be found. No silk suture was used, and there had been no post-operative haematemesis.

Carcinoma—In no case in this series did carcinoma follow the operation and therefore the statement that a wedge resection is unsatisfactory in that an insufficient amount is removed to prevent the possibility of the after-development of carcinoma, is unsubstantiated.

Satisfactory Results—Fifty nine of the patients have remained well being able to eat any food and to live a normal life. They form 88 per cent of the total or, if we exclude entirely from the series 3 cases that have not been traced there are 92.18 per cent of cures.

These figures and those for pyloric and duodenal ulcer compare very favourably with the results of medical treatment as published by Dr Smith. Included with the 59 cases are 3 of the 4 deaths which occurred late after

operation, the death in these cases being due to an entirely separate lesion and the patients being quite free from all gastric symptoms at the time of their demise. It will be seen from Table II, B, that only one case in this series was treated by enteric excision, and the results are not satisfactory, the patient still suffering from some gastric symptoms. The results obtained by partial gastrectomy or gastro-enterostomy alone are shown in Table II, C and D.

Hour Glass Stomach

The number of cases of hour-glass stomach treated in the short period 1920-24 are too small to lead in themselves to any accurate conclusion. It is generally realized, however, that all the older methods which aim simply at overcoming the deformity are unsatisfactory, as they leave untouched the active ulcer on the lesser curve. Treatment must always be aimed at curing this active ulcer, which is associated with the scarring and often with a second stenosing ulcer at the pylorus. Just as with a simple lesser curve ulcer, it has been my practice, wherever possible, to treat these cases by wedge resection, the wedge being made with a very wide base, so that when the opening is sutured the constriction is overcome. This is combined with gastro-enterostomy and temporary pyloric occlusion. In certain cases, however, where the isthmus is very narrow, this procedure is not possible, and a partial gastrectomy is then performed. The results of these procedures in the small groups falling into the time period are seen in Table III, there being 80 per cent of satisfactory results.

REFERENCE.

¹ A Statistical Review of Gastric and Duodenal Ulcer. *British Medical Journal* August 18th 1928 p. 231.

GASTRIC AND DUODENAL ULCER:

AN ANALYSIS OF 200 CASES TREATED BY OPERATION

BY

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AROUND this subject a formidable literature is accumulating. Fortunately the acrimonious controversy which hitherto has raged is shifting from the barren grounds of invidious comparisons between surgical and medical treatment to a more stable statement of facts from both sides. Opinion is becoming more crystallized, and there is now a general agreement that immediate surgery, except for the complications of perforation and possibly haemorrhage, has no place in its treatment, and should only be resorted to after medical treatment has been given a fair but not too lasting trial. Surgery has an undisputed application to all those cases of mechanical defect from the contraction of ulcers, such as duodenal and pyloric stenosis and hour-glass deformity, and also to those cases of deep ulceration involving adherence or penetration of surrounding structures, and suspected early malignancy. In no less equivocal way should medical treatment be devoted to the cure of ulcer in its early stages. This unanimity of opinion, however, does not apply to a large number of cases, which fall into the following groups: (1) cases which have recurred after medical treatment, (2) cases in which there has been recurrent or dangerous haemorrhage after medical treatment. Finally, there is a group of cases in which treatment depends upon the habits and economic or social position of the patient. Some of these eschew operative intervention, others, who will not co-operate or find medical treatment irksome, demand it.

It would seem that any controversy on the subject should be concentrated on those unknown factors of this disease which inflict much suffering on, and severely handicap, a certain section of the community. So far there is a lack of finality on its etiology. Surgery has been foremost in placing our knowledge on its present foundations, chiefly because its results can be checked and analysed, and endo-

logy has earned no mean niche in the elucidation of the problem.

This paper represents an analysis of a series of some 200 cases, which have been treated in the ordinary routine way in the surgical wards of the Charing Cross Hospital. They include the results of a previous series published in this *Journal* in 1926 (vol. 1, p. 936), and belong mainly to Mr. H. S. Clogg and myself. Statistics frequently have a doubtful value, especially if they have a definite case to establish, and vary in the manner of their compilation. They must, however, necessarily serve as the basis of a standard of comparison, and their intrinsic value belongs to the individual, in that they enable him to record his progress. Problems which present themselves in the daily routine of hospital work are apt to pass unnoticed, and can only be rectified and adjusted in their true perspective by the analysis of numerous cases. Unless a surgeon is content to review his work thus he is apt to sacrifice his sense of value judgment.

There has been no selection of cases in this series, the patients have been operated upon and treated according to the facilities provided by a general hospital. The results do not quite reach the high standards which have been published by some authorities, but they do represent a fair estimate of hospital routine work. There is no doubt that they can be improved. Large draughty wards and the constant changing of assistants, sisters, and nurses—all necessary features of a teaching and training institution—do militate against that even flow of team work which is so necessary to the welfare of these patients.

ETIOLOGY

The opinion has long been held that chronic infection is a direct cause of ulceration, and that it is necessary to eradicate any focal sepsis before attempting to deal with the ulcer, on the assumption that it provokes the periodic recrudescence of the symptoms which is so characteristic a feature of the clinical history. In some cases the infective agent reaches the stomach direct. It is therefore necessary to eliminate infective lesions of the gums, tonsils, and nasal accessory sinuses. Pannett considers, however, that ulceration is caused by some specific organism (not yet identified) which reaches the stomach by this route, and

not by the various pyogenic organisms which have been from time to time cultivated from ulcers

In other cases it is believed that infection reaches the stomach by way of the blood and lymphatic streams. It is assumed that bacterial emboli are carried to the region of the pylorus and lesser curve, and as a result of septic infarction cause devitalization of the stomach mucosa and render it a prey to gastric digestion. This theory receives support from the fact that chronic infective lesions are continually being found co-existing with ulceration. The more common of these are apical abscesses, lesions of the gall-bladder, appendix, Fallopian tube, and kidney. The Leeds school has pointed out that it is probable that infection is carried along the lymph channels from the right iliac fossa.

The feature of these ulcers is that they not only exist in an environment of gastric juice, but predominate in certain sites—for example, on either side of the pylorus and along the lesser curve. Traumatic and operative wounds of the stomach heal quite readily, the latter are normally healed in ten days. Therefore in the evolution of an ulcer there must be some factor at work which primarily delays healing, and this factor takes considerable time to act and may keep on acting. The pathologists tell us that histologically these ulcers are separate entities, and that they occur as the result of a true digestive process. The physiologists are still uncertain of the series of changes which regulate the acidity of the stomach and the action of the pyloric sphincter. Bolton and Goodhart have advanced the view that, "when the percentage of acidity of the digesting stomach content reaches a certain average height regurgitation of duodenal contents occurs, and brings down the acid curve by neutralization." This regurgitation is permitted by the relaxation of the pyloric sphincter. To what extent this takes place is not definitely established. Bile should be a common content of the test meal, but this has not been the case in this series. On this assumption it is possible to explain the peculiar selective origin of ulcers that they occur in the zone of interaction between the hydrochloric acid-pepsin juice and the alkaline duodenal contents. When relaxation is active interaction takes place along the lesser curve, and where the pylorus is hypertonic mixing only occurs in the duodenum. The inception of the ulcerative process would take place where these two streams meet, and in a spot where the anti-bactericidal properties of the acid juice have been lessened. On these grounds it would be justifiable to surmise that this zone of interaction is not always a fixed one and that the exacerbations of the ulcerative process only take place when the two synchronize. From the practical standpoint the only three cases of jejunal ulcer in my own personal series would tend to support this. In each case the ulcer was found at the left-hand corner of the anastomosis, which in a posterior gastro-entrostomy would correspond to the nearest point on the lesser curve where the acid and alkaline juices meet.

CLINICAL FEATURES

Although focal sepsis is found to exist in a certain number of cases there are others in which no such cause can be detected. Certain characteristics are found in the majority of cases, but it cannot be said that they are so universal as to constitute an ulcer diathesis. The most typical case is that of an active middle-aged man, rather lean and tall with strained expression, slight mental irritability who tends to become grey prematurely. The predilection for the male sex is seen in the following figures:

	Male	Female
Duodenal ulcer	82%	18%
Pyloric ulcer	91%	9%
Gastric ulcer	75%	25%

This marked affinity for the male has been variously ascribed to differences in his habits—smoking irregular and heavy meals, an increased consumption of alcohol and meat food, all probably causing pyloric hypertension, 86 per cent. these ulcers were on one or other side of the pylorus in males, whereas the incidence of gastric ulcer in females is appreciably higher. Spasticity of the pylorus prevents duodenal regurgitation and alkalization of the

stomach content, yet acid in the duodenum is necessary for the normal closing of the sphincter. Pyloric irritability, we are told, is increased by local disease (ulcer) and irritability of the central nervous system (often reflex), whereas spasm is excited by food irritation, either mechanical or chemical, or by hydrochloric acid. It seems that on this subject we are revolving round a vicious circle, and require further work to clear up a confusing situation.

Tyrrrell Gray has drawn attention to the causal relationship between smoking and ulceration. It would seem that the habitual empty-stomach smoker would be more likely to be affected, and if this is so, we ought to expect in the future an increased incidence of ulcer in women.

With regard to age incidence, the majority of ulcers have been operated upon in the third and fourth decades, with an appreciable increase into the fifth decade for women.

SYMPTOMATOLOGY

It is the experience of all of us to find difficulty in interpreting the symptoms on purely clinical grounds. Although we are wont to associate a standard syndrome with certain types of case its application is by no means universal. The diagnosis of ulcer is based upon pain, vomiting, and haemorrhage. Of these the most important is pain, which is characterized by its periodicity. 99 per cent have complained of it in this series, and it was absent in only three cases—one duodenal ulcer, and two gastric ulcers. Bouts of pain lasting for days or weeks are followed by periods of complete freedom which may continue for months. This intermittency has occurred in over 75 per cent of the cases. In under 10 per cent has the pain been constant, in a smaller percentage the pain has been intermittent at first and constant later. In the cases of pyloric ulcer this later constant pain has run *pari passu* with the decrease in the intermittency.

In the majority of cases pain bears a definite relationship to food. Seldom coming on before half an hour after food, it may appear any time during the interval before the next meal. As a general rule the more distal the ulcer is from the cardia the later the pain appears. The average onset in this series has been as follows:

Duodenal ulcers	Between 2 and 3 hours
Gastric ulcers	1 and 2 "
Pyloric ulcers	1 and 3 "

In only a small percentage of cases has the pain been unrelated to food and in a smaller percentage has it occurred within half an hour after food. For the relief of pain patients often devise different methods. The majority of duodenal ulcers are relieved by taking more food, whereas the gastric and pyloric ulcers obtain most relief after vomiting.

Vomiting is only of importance from its association with pain. It usually occurs when the pain is at its height, and brings with it relief. A relative idea of its frequency is seen in the following table:

Duodenal ulcer	50%
Gastric ulcer	88%
Pyloric ulcer	70%

Its diagnostic value increases in such conditions as pyloric stenosis and hour-glass stomach by its time of onset, amount, and content.

Haemorrhage, whether in the form of haematemesis, melaena, or both, always adds risk to the patient, responsibility to the practitioner, and a higher mortality rate to the surgeon. Its grosser forms are shown in the following table:

	Haema-temesis	Melaena	Haemorrhage and Melaena
	Per cent	Per cent	Per cent
Duodenal ulcer	6	25	11
Gastric ulcer	24	7	14
Pyloric ulcer	7	21	7

No systematic investigations were undertaken for occult blood. These cases have been treated medically at the time of the haemorrhage, and operation, with an occasional transfusion, has been undertaken during quiescent

intervals. Of the fourteen immediate deaths eight had suffered from haemorrhage, and there is no doubt that it is an indication for earlier operation.

DIAGNOSIS

Although a dependable diagnosis can be made in a large number of cases on the history alone, we now have in radiology a most reliable source of information. In atypical cases it should never be neglected. It has been my practice to pursue this form of investigation in all cases of dyspepsia which recur or do not respond to medical treatment, and in all cases of ulcer. In the latter it often fortifies the surgeon with the knowledge of a co-existing ulcer, and with a preconceived plan of operation. To obtain the best results it is essential to collaborate with the radiologist, and in this respect I have been particularly fortunate in receiving much help and co-operation from my colleagues Dr. Russell Reynolds and Dr. S. Cochran Shanks. Since the installation of a new x-ray plant in the hospital the results have been most gratifying. The following table shows the x-ray report checked by the operative findings.

	No. of Cases	Correct	Wrong	Misplaced Ulcers
Duodenal ulcer	39	30	6	3
Gastric ulcer	23	17	2	8
Pyloric ulcer...	20	1	1	—

Under the heading of misplaced ulcers I have classified those reports in which, although an organic lesion was indicated, the lesion did not correspond to the actual site of the ulcer.

The notable difficulty seems to be the differentiation of lesser curve from duodenal ulcers. In the duodenal ulcers two were reported as lesser curve ulcers, and one as a gastric ulcer with delay. Of the eight in the gastric series, five lesser curve ulcers were reported as pyloric ulcers, one as a duodenal ulcer, one as a seven-hour delay, and one ulcer on the posterior pyloric wall as a carcinoma. The one wrong report of the pyloric series was masked by the presence of gall stones.

It is interesting to find that the point raised in a previous communication on this subject, that the posterior ulcer is difficult to identify, has not obtained in this series.

Unusual features were present as follows:

Among the duodenal ulcers a lesser curve ulcer developed three years after gastro-enterostomy.

Among the gastric ulcers a lesser curve ulcer was coexisting with a duodenal ulcer, and a case of lesser curve ulcer subsequently developed a duodenal ulcer.

Multiple ulcers were distributed as follows:

Double duodenal ulcer	1 case
Double pyloric ulcer	1
Multiple gastric ulcers	2 cases
Antero-posterior lesser curve ulcers	2
A lesser curve and a greater curve ulcer	1 case
Antero-posterior pyloric ulcer	1 "

Test Meals

Although test meals have not been given as a routine in these cases, they nevertheless have a definite value. From the diagnostic point of view they have been disappointing, especially in cases of gastric ulcer, and the results have shown a wide variation.

In cases of duodenal ulcer the tests performed by Mr. Jocelyn Patterson have been extraordinarily accurate, and when other evidence is conflicting a sustained hyperchlorhydria often indicates the true diagnosis. In cases of carcinoma the low acid content is of great help.

The chief aid rendered by the test meal is that of guidance for treatment. Cases of the penetrating type of duodenal ulcer associated with surrounding oedema, and with an abnormally high and sustained acid curve, are regarded with suspicion. There is a strong impression that these cases are unsuitable for gastro-enterostomy alone, owing to the fact that they are liable to develop jejunal ulcers.

OPERATIVE PROCEDURES

Without being wedded to any particular type of operation, and with an open and inquiring mind as to which type of operation is best suited for individual cases, the following operations have been performed in this series, in the main by Mr. H. S. Clogg and myself. The average duration of symptoms has been six and a half years, some have been poor operative risks, others have had complications dealt with at the same time, and others have been re-operated upon.

Type of Ulcer	No of Cases	Posterior Gastro-enterostomy	Posterior Gastro-enterostomy plus—				Partial Gastrostomy	Sleeve Resection	Anterior Gastro-enterostomy	Gastro-jejunostomy
			Ulcer Infolded	Ulcer Excised	Appendicectomy	Cholecystectomy				
Duodenal	87	Total 79	15	2	27	3	4	—	4	—
Gastric	76	33	4	8	13	2	27	6	2	2
Pyloric	44	35	4	1*	15	2	7	—	—	—
Totals	207	154	24	11	55	7	33	6	6	2

* Excision only.

The immediate mortality was 14 or 6.7 per cent.

Duodenal ulcer	4 or 4.6	"
Gastric ulcer	6 or 8.0	"
Pyloric ulcer	4 or 8.8	"

Of these 14 cases 8 had had haemorrhage either as haematemesis or melaena.

The later mortality shows that 2 patients died from carcinoma, 1 from lymphatic leukaemia, and 3 as a result of re-operation.

Of the deaths in hospital 6 were due to chest complications, 7 were not stated, 1 was from weakness and anaemia after haemorrhage, 5 were cases of partial gastrectomy, 7 were posterior gastro-enterostomy cases, 1 sleeve resection, and 1 anterior gastro-enterostomy.

RESULTS

All these patients have been written to, and replies have been received from 121. The oldest cases range from seven years, and no case under one year is included.

The following method of assessing the results has been followed, it is based upon the replies from patients or their doctors.

Very Good. Patients showing very marked improvement, have no pain, have gained weight, are at work, and able to eat anything.

Good. Patients who have improved, have no pain, have gained weight, are at work, and able to eat anything, but show a distaste for one or two items of food.

Very Fair. Patients who have improved, but get occasional pain, fullness, and flatulence when over-indulgent with regard to their diet. Their weight is constant and they are at work.

Fair. Patients with subsequent attacks of pain or haemorrhage which have necessitated medical treatment. Some are at work or doing light work.

Poor. Patients in whom operation has been of no benefit and are not able to work. Recurrence or gastro-jejunal ulceration obtained in some of them.

Type of Ulcer	No. of Cases	Very Good	Good	Very Fair	Fair	Poor
		Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Duodenal	58	30	44	8.6	8.6	8.5
Gastric	39	28	14	12.5	2.5	2.5
Pyloric	24	33	41.7	7.9	12.5	4.0
Total	121	32	47	10	7.8	5

A further analysis of the very good and good cases shows that the total average cure without a relapse for the whole series is 3.3 years, and the average for the gastric and duodenal ulcers separately is the same figure. It would appear from these figures that once a satisfactory result from operation is obtained there is no tendency to recurrence.

From the above it will be seen that about 80 per cent may be regarded as cured, about 10 per cent as improved, and about 12 per cent as receiving little or no relief. It is interesting to compare these results with those from individual operations.

	Very Good	Good	Very Fair	Fair	Poor
Partial gastrectomy	3	9	1	1	1
Excision with posterior gastro-enterostomy	3	—	2*	1	1
Sleeve resection	3	—	—	—	—
Posterior gastro-enterostomy—					
For gastric and pyloric ulcer	13	18	—	4	—
For duodenal ulcer	15	25†	5*	3	4
Total (112 cases)	37	52	8	9	6
Percentage	33	46.4	7	8	5

* One with gall stones † Two with gall-stones

The good results from partial gastrectomy amount to 80 per cent, from posterior gastro-enterostomy in gastric ulcer to 89 per cent, in duodenal ulcer to 77 per cent, the combined average from posterior gastro-enterostomy works out much the same as that for partial gastrectomy—that is, 80 per cent.

In this series there have been 6 cases of jejunal ulcer, which agrees with the percentage published by many other observers.

These results, if they suffer by comparison with the results published by other surgeons, are a fair criterion of the treatment which can be expected by the patients from a general hospital, in which it is impossible to cater for individual cases. Measures of improvement are easier to discern than to carry out. Patients are apt to regard operation as a panacea for their ills and a happy release from the toils of medical treatment. Being wage-earners they often have not the time to attend hospital for further advice, and the dietary indiscretions in spite of instruction are often alarming. An inquiry into this subject shows in a general way that pork, beef, and pastry are the main items of disagreement, and it is interesting to note that pastry and carbohydrates upset the duodenal ulcers, whereas the proteins (pork, beef, mutton, bacon, veal) disagree with the gastric ulcers. Fried and recooked foods, fruits, vegetables, condiments, cheese, eggs, cream, milk, and alcohol all appear on the list, with a slight bias against the duodenal ulcers.

I am extremely indebted to Mr H. S. Clogg for his kindness in allowing me to publish his cases and for his very helpful criticisms and guidance.

A CASE OF EXTENSIVE PULMONARY EMBOLISM FOLLOWING FRACTURE

BY

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M.R.C.S. L.R.C.P.

ASSISTANT COUNTY MEDICAL OFFICER KENT AND COUNTY PATHOLOGIST

With a Note by

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The following case appears worth recording.

Mrs. V. aged 43, was seen by one of us (V.C.C.) suffering from a fractured left tibia and fibula (fracture en bloc) and sent into hospital, when the limb was fixed in plaster-of-Paris. She was discharged two weeks later, and the district nurse (who is not a trained masseuse) attended to massage the limb, but a doctor was not called in.

Six weeks after the accident one of us (V.C.C.) was asked to examine the limb. Union appeared perfect and there was no shortening of the leg; there was a moderate

amount of oedema of ankle and leg to the knee, but no varicosity of the superficial veins. The ankle and knee, which were very stiff, were forcibly moved through a few degrees, and the nurse was instructed how to massage and move the limb, the patient was given permission to walk on crutches. She stated that she was being sick, but there was no discoverable cause, and she did not look ill. A sedative alkaline mixture was given, and it was reported that the sickness ceased the same day, and that the patient ate normally afterwards until the time of her death two days later.

At midday on the day of death she asked her companion not to leave her, and requested to be helped out of bed. Almost immediately afterwards she wanted to return, and had hardly been helped back when she gave a slight groan and rolled on to her right side. She then gave another groan, rolled on to her back, and expired. When seen about two hours later she was lying on her back with mouth slightly open and a peaceful expression on her face.

Post mortem Examination

Externally nothing abnormal was found except that the neck appeared unduly movable.

Internal examination. Cervical vertebrae normal and no fracture of cranial bones, brain and abdominal viscera normal, diaphragm contracted, lungs appeared normal, but did not fill the thorax, the heart was contracted and appeared normal.

The heart and lungs were removed and dissected out (C.W.P.). On opening the right ventricle and pulmonary artery a long clot of about the size of the lumen of the internal iliac vein was found. This had evidently folded itself so that two ends were passing into the right branch of the pulmonary artery, and two into the left thus preventing the blood flow to the lungs and producing sudden death. The clot could not be extracted by traction. There was also a free end pointing to the pulmonary valve. The clot as it originally reached the heart must have been several inches long.

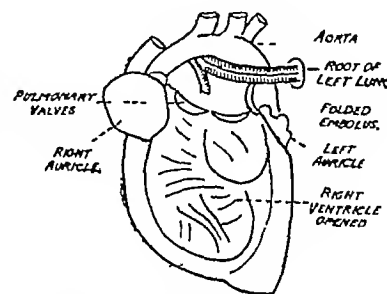


Diagram to show position of the large embolus when pulmonary artery had been opened.

Internal iliac vein was found. This had evidently folded itself so that two ends were passing into the right branch of the pulmonary artery, and two into the left thus preventing the blood flow to the lungs and producing sudden death. The clot could not be extracted by traction. There was also a free end pointing to the pulmonary valve. The clot as it originally reached the heart must have been several inches long.

Pathological Report

The specimen was sent to Professor Ernest Glynn for further examination, and in his absence Dr. Howell Evans has kindly commented as follows:

Sections have been cut from the clot in the right ventricle and from clots found in the branches of the pulmonary artery near the periphery of the lungs.

Dissection of the main branches of the pulmonary artery traced into each pulmonary lobe showed firm clot in many of these particularly in the lower lobe.

1. Clot from ventricle shows distinct lamination and very marked pigmentation. It is obviously *ante mortem* and the appearances suggest that it is a few weeks old.

2. Clot from pulmonary artery, left base shows an appearance almost identical with right. The lung is somewhat collapsed and the bronchial cartilages show slight staining with blood pigment.

3. The clot in this branch of the pulmonary artery is more recent and not laminated but shows well marked pigmentation. The suggestion arising from these three sections is that Nos. 1 and 2 are of some weeks' duration but No. 3 perhaps only a few days.

The specimen raises the question of pulmonary thrombosis or pulmonary embolism. As you know Professor Glynn has for years urged that many cases arose from primary thrombosis in the lung itself. The best evidence of embolism is to find as many sometimes be done a thrombus in a systemic vein which might have given off the embolus. My personal opinion is that the whole process is due to a change in the blood and we have evidence that the most important demonstrable change is the increase in the blood platelets which occurs after operation or after fractures. This means to say that the blood might clot at any given point and I suspect that frequently there is a contemporaneous clotting both in the lung and in a systemic

vein. The present specimen, I believe, shows this point. I cannot help thinking but that the coiled up clot in the heart came from a systemic vein, yet one finds evidence of quite definite *ante mortem* clotting in branches of the pulmonary arteries.

Discussion

The features of this case are

- 1 The lack of proper massago and movement, thus favouring stasis of the blood, which many workers have shown tends towards thrombosis.¹
- 2 The lack of evidence of thrombo-phlebitis before the embolism occurred.
- 3 The length of time which the patient lived, presumably with this large foreign body thrashing about in the heart, the only symptoms being the sickness and the vague feeling of something wrong.
- 4 The remarkable size of the clot.

REFERENCE

- ¹ Lister W A. *Lancet* 1827 1 111.

SOME OBSERVATIONS ON THE ERYTHROCYTE

WITH SPECIAL REFERENCE TO PUNCTATE BASOPHILIA,
DIFFUSE POLYCHROMASIA, AND RETICULATION

BY

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FROM the time that Ehrlich (1885) noted the three distinct basophilic conditions in erythrocytes controversies have waged on their character and significance, but for many years the trend of opinion has been towards the view that punctate basophilia, diffuse polychromasia, and reticulation are expressions of the same process.

Cesaris-Demel (1907) concluded that punctate basophilia and reticulation were identical, and Key (1921) agreed that the basophilic substance in the three conditions was the same. Brookfield (1928) believes that the stippled cells in lead poisoning are immature cells (reticulocytes and polychromatic cells) altered by the toxic action of lead. His

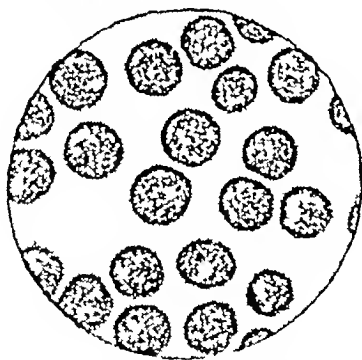


FIG 1.—Erythrocytes showing spongioplasm after the lipid membrane has been altered or dissolved ($\times 1,000$.)

results tend to confirm the work of Hawes (1909) and Key (1924), in which the close numerical relationship between stippled and polychromatic cells and reticulocytes was definitely established.

The nature of the staining substance is still undetermined, nor has any explanation been offered as to why the different appearances occur. Pappenheim (1907) and Biondi (1908) independently propounded the view that the stainable substance was a dye-precipitate upon the surface of the lipid membrane, but, later, Pappenheim (1919) rather altered this idea, and suggested that the lipid component of the spongioplasm was the reacting substance.

That the substance is not chromatin is beyond doubt. The staining reaction with methylene blue-eosin preparations and with methyl green-pyrimin, and the fact that

none of the conditions is visible by dark-ground illumination or ultra-violet light, are among the arguments against punctate basophilia, polychromasia, and reticulation being nuclear in origin.

Gruner (1913) suggested that the reticular substance was not nuclear but plasmatic in character, because in embryos and young animals its abundance was not associated with the appearances of changes in the nucleus. I have confirmed this observation in cases of Addison's anaemia during normoblastic crises, in von Jaksch's anaemia, and in myeloid leukaemia. In these diseases there does not appear to be any relationship between the younger normoblasts and the older normoblasts and the amount of reticular substance.

The present work is an attempt to elucidate these problems. The fact that haemoglobin gives a characteristic reaction with benzidine and hydrogen peroxide was utilized to the exclusion of all other stains. Blood films were made on 3×1 microscopical slides and allowed to dry in the air before treatment. By altering the quantities of the reagents* it is possible to disturb the apparent homogeneity of the erythrocyte. For the better appreciation of the early effects we will take the final results first. Fig 1 is a photomicrograph of erythrocytes from which the haemoglobin has been more or less completely discharged. Benzidine in alcohol and hydrogen peroxide were used in such strengths that when flooded on to the film a greenish precipitate was immediately produced and floated to the surface, the reaction was allowed to continue for twenty minutes. If the corpuscles in the figure are examined with a hand lens an irregular meshwork is seen, and the spaces between the strands have the appearance of pores. The outline of the cells is irregular, but the mean diameter is increased. The probable sequence of events is that the lipid membrane has been oxidized and dissolved, and a slow fixation has brought into evidence a spongy stroma through the interstices of which the reagents have penetrated. Reaction between the benzidine and hydrogen peroxide and haemoglobin has taken place with solution and escape of the end product. Having seen the end result, all kinds of patterns, depending upon the varying degrees of penetration of the envelope and the amount of haemoglobin

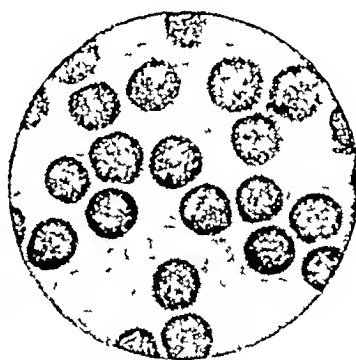


FIG 2.—Erythrocytes showing finely granular punctate basophilia ($\times 1,000$.)

released, would appear possible. This is, in fact, true. Every type of punctate basophilia and reticulation may be duplicated.

Fig 2 is an example of punctate basophilia of the fine type. If the cells are examined with a lens it will be apparent that the reaction has not progressed to the stage of Fig 1. There are areas in which the granules are sharply defined, in others, however, they are blurred in outline, suggesting that the haemoglobin has been reached but different stages of the reaction have taken place. The granules may be fine as in this figure, or coarse as in some of the cells in Fig 4, or they may be irregular in shape and aggregated into small clusters as in Fig 3.

At a further stage the haemoglobin has escaped through

* The reagents are benzidine 0.01 per cent. in 80 per cent. alcohol, and hydrogen peroxide.

the pores and bridged over intervening strands of the stroma Areas have coalesced in an irregular manner and the appearance of reticulation results, as shown in some of the cells in Fig 4

All the forms of reticulation described by Brookfield (1928), from the unfragmented reticulum to the bar form, may be reproduced Fig 5 is an example of the bar form The reticulocytes in Fig 4 suggest that the next stage

results strengthen the belief that the stainable substance is not nuclear in character, but is probably a haemoglobin compound, and that the three basophilic conditions of the erythrocyte are qualitatively the same and vary only in degree The second deduction is that the conditions, when obtained by the usual staining methods, would point to increased permeability or a defect in the lipid envelope of the erythrocyte rather than to youthfulness, although

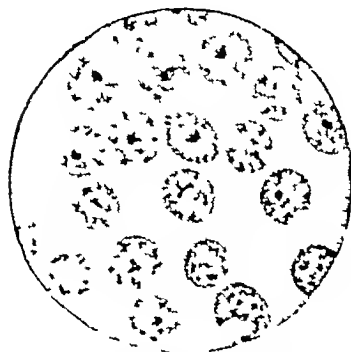


FIG 3—The clumped form of punctate basophilia showing granules of irregular shape. ($\times 1000$)

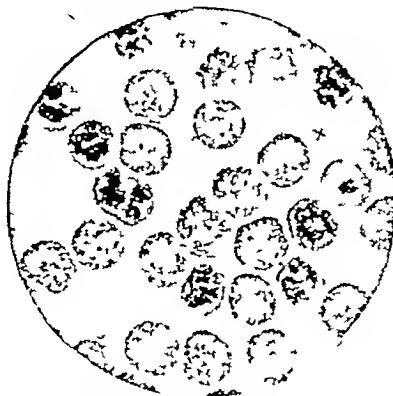


FIG 4—Punctate basophilia reticulation and diffuse polychromasia (X) ($\times 1000$)

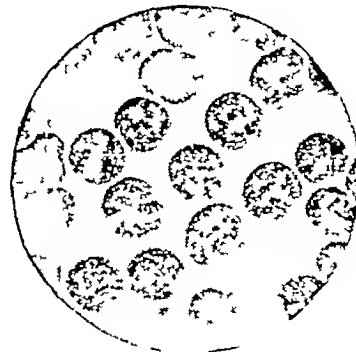


FIG 5—The bar form of reticulation ($\times 1000$)

must be diffuse polychromasia The cell marked X in Fig 4 illustrates the condition up to a point, but there is a rim of unaffected material around the central stained area This is probably due to the time given for the reaction being too short

Comments

This preliminary note is merely intended to place on record the fact that punctate basophilia, diffuse polychromasia, and reticulation may be produced in any erythrocyte The time is not opportune to enter into the discussion which these results open up, but two deductions may, I think, be made The first that with our previous knowledge of the staining reactions the above

there may be, and probably is, a close relationship between punctate basophilia, diffuse polychromasia and reticulation, and immaturity

I take this opportunity of expressing my thanks to my friend C F Hill for his invaluable assistance with the photomicrographs

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BILATERAL OBSTRUCTION OF THE CENTRAL RETINAL ARTERIES

BY

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My excuse for drawing attention to this subject is that Dr T G Wynne Parry published a report of a similar case in the *British Medical Journal* last February and commented upon the rarity of the condition As a matter of fact, a number of bilateral cases have been reported, a few of simultaneous onset, a larger number with an interval between the incidence of the condition in the two eyes The notes of my patient are as follows

A man aged 50 came to Moorfields on November 20th 1920 having lost the sight of the left eye suddenly two days before The vision was reduced to bare perception of light, white opacity of the retina at the posterior pole of the fundus was already present and the macula showed the typical cherry red spot The arteries were narrow Two weeks later the white opacity of the retina had disappeared The right eye with spherical—2D had 6/9 vision and its retinal arteries showed slight sclerosis Dr Gordon Holmes reported that the blood pressure was high 260/156, and that chronic renal disease was present

On April 5th 1922 he came again having lost the sight of the right eye suddenly five nights before Its vision was reduced to finger-counting at one metre The right disc was atrophic, the arteries were narrow with apparent obliteration in places, and the lumina of the veins were much interrupted There was a cherry red spot at the macula and some whitish specks in that region

* A paper read in the Section of Ophthalmology at the Annual Meeting of the British Medical Association Cardiff 1923

Cause of the Obstruction

The work of Coats and others has made it more than probable that most of the cases occurring in elderly folk are due to endarteritis or thrombosis in the central artery itself and that an embolus is unusual Embolism undoubtedly does occur and is probably the correct explanation of the condition when it is present in young adults who are the subject of mitral stenosis, congenital heart lesions, etc Spasm of arteries, haemorrhage into the nerve sheath and pressure on the nerve itself are other possible, but not so well authenticated causes In a number of the cases occurring in young folk no cause can be detected from a general examination of the subject

Obstruction Occurring during Sleep

Frequently the condition of blocked central artery or vein has been noticed first on waking from sleep, and it has been concluded that in the arterial as in the venous cases this was suggestive of a thrombosis In cases occurring in elderly persons with arterial disease this is likely to be the explanation but it is possible for embolism also to occur during sleep

MacWilliam has recently drawn attention to the not infrequent occurrence of cerebral haemorrhage, anginal attacks and death during sleep, and he has explained this by his experimental observations on the blood pressure in this state He finds that there are two entirely different conditions in question in sleep (1) sound sleep, with lowering of blood pressure, (2) disturbed sleep, dreaming etc which may be attended with remarkable elevations of pressure

In sound sleep lowering of the systolic blood pressure to the extent of 15 to 30 mm at the end of two hours

sleep is found, rising gradually in the later part of the night's rest. In 39 patients with an average systolic blood pressure of 204 Brookes and Carroll found a fall of 44 mm after two hours' sleep. Blum found falls of 15 and 21 mm in normal persons, but falls of 31 and 39 mm in persons with high blood pressures.

Disturbed sleep may cause remarkable elevations of blood pressure, increased heart action, changes in respiration, and various reflex effects. MacWilliam found in one subject an elevation of systolic pressure from 125 to 180, and of diastolic from 75 to 105, an increase much greater than that which was produced by ordinary muscular exercise.

These two types of sleep are of interest to ophthalmologists in that they may both have a bearing on the incidence of arterial block in the retina. In the first, ischaemia may be brought about by the lowering of blood pressure in the presence of endarteritis with or without thrombosis, in the second, a sudden increase may dislodge a clot or a portion of valve vegetation as an embolus.

Is Treatment of any Avail in Recent Cases?

By treatment is meant the administration of amyl nitrite, massage of the globe, and paracentesis. Many cases have been reported as successful. Mr Gordon Mackie, in a letter to this *Journal* (February 18th, 1928), stated that he had seen a definite improvement from treatment. As long ago as 1861 Alfred Græfe reported complete restoration of sight in a bilateral case after iridectomy. Mr Paton tells me of a case in which, after massage of the eye by my father, they saw a retinal artery begin to pulsate again forty-five minutes after a complete block. Mr Harrison Butler has also reported a case of improvement in an embolic case by treatment. Personally, I had had no success until three days ago, when a patient was admitted to hospital under my care two and a half to three hours after a central artery embolism. After amyl nitrite and vigorous massage, the vessels had resumed their normal appearance and the embolus had shifted on to a small branch. The white opacity of the retina had already developed, and it is too early yet to say what improvement of vision, if any, will be effected.

Even if no immediate improvement is noticed it is possible that early intervention may assist in some extension of the visual field, as is perhaps suggested by the following case.

The patient was a young man who had mitral stenosis and a blocked central artery, a small area escaped obstruction, being supplied by a posterior branch from the central artery or by a cilio retinal vessel but there was a macular "cherry" spot surrounded later by white opacity. Three and a half hours after he had discovered the block his vision was finger counting in the temporal part of his field. Treatment made no immediate alteration in his vision but eighteen days later he was able to read 6/36 and three months afterwards he saw 6/24 with the affected eye.

In this case, then, some repair in the function of the retina was undoubted, and this presumably took place in the neighbourhood of the edge of the opacity, which was close to the macula itself. It now seems agreed that the usual refilling of the retinal arteries and the occasional return of vision in that part of the field around the disc are due for the most part to dilatation of capillary anastomoses between the choroidal vessels and the retinal arteries on the disc itself. Now the sooner this anastomosis is opened up the greater should be the area of the retina which is not completely atrophied by the ischaemia, and such a dilatation is likely to be favourably affected by reduction of the intraocular pressure.

Retinal haemorrhages in central artery block are sometimes seen in the neighbourhood of the disc, and are considered as due to the yielding of small capillaries, probably in the opening up of anastomoses. They might be considered as a contraindication to paracentesis. I feel, therefore, that it is right to give treatment to any recent case, but that paracentesis should be avoided if haemorrhages are present.

How soon does the White Opacity of the Retina Appear?

De Schweinitz reports that he has seen the white opacity develop as he watched a patient with the ophthalmoscope ten minutes after sudden loss of vision. Of recent cases

under my care opacity of the retina was developed in one patient when first examined two and a half hours after the onset of blindness, in another three and a half to ten hours after the onset, becoming fully developed during the following twenty-four hours, in a third (Alford) it was well marked in nine to fifteen hours.

Visibility of Embolus in a Branch Block

We would expect an embolus to be visible at the bifurcation from which the occluded branch comes. I have only seen three cases in which there was anything visible at this point, and in two of these the mass was apparently external to the vessel. In one it disappeared, in the other it persisted.

The first of these patients was a lad of 21 years, who was passed sound in heart and mind by Dr Gordon Holmes. About twenty-seven hours after the incidence of a block in the inferior temporal branch I noted that "on the disc a small bit of this artery appears collapsed narrow like a thread, at the disc margin and beyond the calibre is normal again." That afternoon Hamblin's artist made a drawing of the fundus which shows a white collar round the vessel at the site of the previous narrowing. This was confirmed by Mr Doyne three days later, on December 6th, but by December 13th Doyne found that the mass had disappeared. On December 31st I too, found no white mass on the vessel, nor was any local constriction or abnormality apparent.

My other similar case was that of a lady aged 47, who had always been an invalid owing to a congenital heart lesion. Some six months previously she had lost the lower field of the right eye suddenly. The ophthalmoscope showed a discrete ovoid bright mass seated on the origin of the superior temporal branch which was well within the disc margin. It covered this vessel being considerably wider than it. Otherwise the vessels looked healthy. I saw this lady again fifteen months later and the mass was unaltered in appearance.

I surmise that in these two cases there was some local reaction in the perivascular sheath round the embolus, possibly associated with a toxic effect of the latter, and that in the one case it was small enough to be absorbed, while in the other it has become organized into a mass of fibrous tissue or cholesterol.

Recently a woman of 38 was admitted to hospital with embolism of the central artery. The appearances of the arteries on the disc were not as if they were collapsed but as if they were filled with a colourless material for a short distance from the centre of the disc the normal coloration being regained just within the disc margins, and the calibre being the same throughout. After treatment the vessels appeared normal again, but further search showed a colourless segment at a bifurcation along the inferior temporal branch. Later in the day this again had moved on and another similar segment was found still more peripherally.

In another case, under Mr Paton, a drawing showed a white mass over the site of an embolus, this perhaps comes in a somewhat different category, as there was a good deal of haemorrhage about it, and it occurred in a patient who was the subject of a malignant endocarditis.

Hay has reported a case with "a spindle shaped greyish-white swelling distending the lumen of the temporal branch at the fork of the inferior retinal artery." Knapp says that the embolus can be frequently observed, and appears like a bright round or angular body.

Pulsation of Vessels beyond the Block

As is well known, it is usual for the vessels peripheral to the block to fill up after the initial collapse, and it is interesting to note in this stage how much finger pressure on the globe is necessary to produce visible pulsation in the arteries. It has been noted by several observers that pulsation beyond the block in central artery obstruction is not obtainable, collapse of the vessel may be obtained, but not pulsation. By some this has been given as a diagnostic sign of some importance in doubtful cases, but it is certainly not invariable, for I have seen pulsation easily elicited in a congenital heart case with embolism of the main central artery.

I have noted, however, in my two cases of branch block above quoted that I was unable to produce pulsation in the branch beyond the block, using an amount of pressure considerably beyond that which produced pulsation in the unaffected branches. It is to be noted that in both of these cases the block was situated on the disc itself and the distal parts of the vessel were probably filled by dilatation of capillary anastomoses from the posterior ciliary vessels near the margin of the disc. In that case no pulse transmission would occur into the vessel, and the flow of blood therein would be very slow.

In the recent case which I have just quoted, in which the embolus moved on into a smaller branch, finger pulsation was afterwards easily elicited in the arteries on the disc

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MYOMECTOMY DURING PREGNANCY *

BY

R VAUDESCAL, M D,

Professeur Agrégé à la Faculté de Médecine de Paris

In this very short review, for which are taken as a basis cases observed in the Clinique d'Obstétrique et de Gynécologie de la Faculté de Médecine de Paris (Professor Brindeau) during the last four years, I will confine my observations to the indications and operative technique of myomectomy during pregnancy.

Primarily, let it be understood that judgement and common sense are required in the selection of each case for myomectomy during a pregnancy. As regards the indications for myomectomy in cases complicated by the presence of a fibroid or a myoma, it is only very exceptionally that operation during pregnancy is the correct procedure because usually these tumours, while they may give rise to difficulty during the actual labour, seldom cause trouble during the pregnancy. Moreover, if it is remembered that the scar left by the operation may be the site of a rupture of the uterus during labour (and such cases are on record) it will be agreed that this procedure is to be avoided if at all possible. However, we are bound to admit that myomectomy is indicated in certain cases, these being as follows:

1 When the fibroid is large and is diagnosed early during the pregnancy, before the third month, and when the swelling of the tumour is easily distinguishable from that of the uterus. By performing myomectomy at this time all possibility of complications is avoided during both the pregnancy and the labour.

2 At any time during the pregnancy when unmistakable signs of necrobiosis of the fibroid appear. Necrobiosis is indicated by the tumour becoming acutely painful and frequently softer in consistency. This is often preceded by hypertrophy of the fibroid, and at the same time there are signs of peritoneal reaction, such as vomiting, abdominal rigidity, and a weak pulse.

3 When, owing to the presence of a fibroid there is an axial torsion of the uterus or a partial retroversion causing a kink in its longitudinal axis and threatening to bring about the termination of the pregnancy.

4 When there is torsion of the pedicle of the tumour, the symptoms of this occurrence being severe and lasting pain accompanied by the symptoms of peritoneal reaction mentioned above.

5 When the fibroid causes pressure on the neighboring organs the chief of these being the bowel (occlusion), the ureter (hydronephrosis, pyelonephritis, or anuria), the urethra (retention of urine), and the veins in the pelvis, causing oedema or thrombo-phlebitis.

With the exception of the foregoing there are no indications to justify a myomectomy during a pregnancy, although it is admitted that such an operation may be successful in other cases.

As for the operative technique, the main points for consideration are as follows:

1 General anaesthesia is preferable to spinal anaesthesia, the reason being that in the latter the contractions of the womb are not suppressed, and are even exaggerated.

2 The tumour should be decapsulated by a single incision running over its summit, and not removed by a circular incision around its base. This allows of easier decapsulation of the tumour, and also of easier closing of the peritoneum afterwards.

3 All bleeding must be carefully stopped. The best method to employ is to understitch the bleeding point with thick catgut, this must be tied loosely to avoid cutting through the tissue.

4 In cases where the fibroid is between the layers of the broad ligament an attempt should be made to approach the tumour by the transligamentous route, incising the anterior or the posterior leaf. Care must be taken to avoid the uterine vessels and the ureter while doing this.

5 No drainage should be employed.

6 Morphine should be given in large doses during the three days following operation. I give 1/6 grain every six hours.

Following these principles the following results have been obtained during a period of six years (1920-26):

Total myomectomies performed during pregnancy	52
Number of myomectomies followed by abortion	4
Number of myomectomies followed by premature labour	4
Number of cases going to full term	41
Maternal mortality	1
Cases not seen again after leaving hospital	2
Infantile mortality including abortions	7
Average maternal mortality	1.9%
Average infantile mortality	13%

Since January 1st 1924 we have operated on 21 women not only during pregnancy but also during labour and the puerperium. In 8 of these patients we were able to perform a myomectomy 3 before term (1 after abortion) 2 after full term and 3 during the puerperium. In 7 cases a living child was obtained. Hysterectomy was performed in 13 cases as follows: 1 vaginal after abortion 6 without Caesarean section (1 two months pregnant, 1 three months pregnant 1 six months pregnant and 3 during the puerperium) 6 after Caesarean section. In 9 cases living children were obtained.

These statistics show that out of 21 cases we were only obliged to operate five times during pregnancy, twice after abortion, eight times at full term, and six times during the puerperium. In other words, in 38 per cent of the cases myomectomy was employed, and in 62 per cent of the cases we were obliged to perform hysterectomy.

This it should be borne in mind that if operation is undertaken during pregnancy it is necessary in 62 per cent of cases to perform hysterectomy. Operative intervention during pregnancy should, therefore, be postponed as long as possible in order to obtain a living child.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ABDOMINAL ANEURYSM DEATH SEVENTEEN YEARS AND SEVEN MONTHS AFTER OPERATION

At the Annual Meeting of the British Medical Association held in Birmingham in 1911 I reported a case of abdominal aneurysm which had been treated the previous year by the introduction of a Colt's cage of 150 inches of wire. At the time of operation there was a large sacular aneurysm in the region of the coeliac axis. The patient had been under careful medical treatment for eight months previously. A few days after operation the aneurysm commenced to harden. Eleven months later an abdominal aneurysm could still be recognized from continued pulsations and a persistent murmur below the tumour, but all pain and discomfort had disappeared and he resumed work without inconvenience. Later still the murmur disappeared, as did all trace of expansile pulsation. To the end a hard mass could be felt with transmitted pulsations from the aorta. There was a history of syphilis and for the last few years the man showed signs and symptoms of locomotor ataxia in a very chronic form.

On March 29th last the assistant medical officer of Guinness's brewery was called to see him. He complained of pain in the right lumbar region and lower abdomen. Examination revealed nothing of significance. The site of the aneurysm (in the upper left quadrant) was not

* A paper read in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association at Cardiff 1928.

larger than previously, and there was no increased pulsation. He had been constipated for some days. There was no abnormality in pulse or temperature. On March 30th his condition was much the same. That night the bowels moved well and he got immediate relief of pain. The following morning (March 31st) he sent a message to the doctor that he felt quite well. Later in the day he sat up in bed and fell back dead. Unfortunately the circumstances were such that no *post-mortem* examination was possible.

Many patients have been cured by the introduction of air into the sac of an aneurysm, but I believe that in no other case on record has the patient survived for so long a time. The man whose case is here recorded was 38 years of age when the operation was performed on August 30th, 1910.

Dublin.

W I DE C WHEELER

CHRONIC NASAL SINUSITIS WITH MENTAL SYMPTOMS

IN view of the call for publication of instances of insanity associated with chronic nasal suppuration two such cases are now reported. It must not be taken, however, that they are cases of toxic psychosis resulting from the sinusitis, for such a conclusion to be drawn not only would a large number of cases of the association of sinusitis with mental symptoms need to be recorded, but the sequence of the insanity on the sinusitis and the sequence of its cure on the cure of the sinusitis must also be shown. In each of the following cases the sinusitis preceded the mental symptoms. The first patient had a right-sided pansinusitis, all the cavities were drained, but the patient died some years later in an asylum. The second had a bilateral pansinusitis, all the cavities have been dealt with and are practically well, but the patient is in an asylum. It must be noted, however, that the cure of the sinusitis is comparatively recent.

CASE I

A riveter aged 46 consulted me in October 1920, on account of asthma which had existed ten years and had kept him from work for the previous year. While the asthma improved for some months after nasal and other treatment, and, as frequently happens, after his several admissions to hospital it always recurred sooner or later, and he seems to have died from its effects on his right heart. The patient had some emphysema, a normal blood pressure and a distinct eosinophilia varying between 8 and 11 per cent—clear indication in my opinion of acidotic tendency, that is of a toxicosis. The granules of the polymorphonuclear cells also took the eosin unusually well.

In November and December 1920, operations were performed on the septum and middle turbinates, and for two months his asthma improved. In January 1921, he complained of right frontal pain. Proof puncture of right antrum was negative, since there was pressure from a large bony cyst which formed the bulk of the ethmoid and reached to the sphenoid; this cyst was removed and the sphenoid was opened but no pus was found (March 1921). The pain above the right eye persisted and some small tags of turbinal root-plate close to the nasal roof were removed three weeks later. During this operation the cribriform plate was accidentally opened and cerebro-spinal fluid escaped. The part was painted with iodine, no plug was inserted, first argyrol and later chloramine-T were regularly instilled, hexamine was given by the mouth and the patient was kept sitting for three days and nights. He recovered without ill effect. In April it was noted that he remained free from asthma and had little pain. In May, however, he showed distinct evidence of frontal sinusitis yet had little pain and could walk for miles, but in November his doctor sent him back to Glasgow Royal Infirmary on account of severe pain above the right eye. The ethmoid and sphenoid cavities were further opened; a "Howarth" operation was performed on the frontal bone and a "Denker" on the antrum. Pus and pulpy membrane were found the frontal mucosa was pulpy throughout. During this residence in hospital he had delusions of suspicion regarding the other patients. In 1922 there was little pus in the nose, he received a double course of peptone injections without benefit to the asthma. In October 1923 and January 1924 he was still in Stobhill Hospital because of asthma. He had delusions of persecution and in 1925 he was admitted to Bothwell Asylum. Dr Buchanan reports that the patient had suspicious delusions, aural and visual hallucinations, severe asthma, chronic bronchitis and dilated heart, no signs of nasal suppuration were noted. Dropsy supervened and death followed in February, 1926. Permission for necropsy was refused.

CASE II

A man aged 35, was admitted to Stobhill Hospital in November, 1924 complaining of dizziness and pain in occiput and root of nose, also of a feeling of depression since the war. (His left antrum had been opened in the Glasgow Royal Infirmary.) There was a pansinusitis, all the cavities were opened intranasally, and the

patient was discharged in March 1925. Because of mental depression he was thereafter admitted to Woodilee Asylum, and again transferred to Stobhill on account of pus coming chiefly from the frontal sinuses. The antral openings were enlarged, the ethmoid was dealt with, and a "Howarth" operation was performed on the right frontal sinus. Pus had practically disappeared from the nose in January, 1928, when, as the patient continued to be depressed and emotional, he was sent back to the asylum.

No doubt the nasal condition in each patient aggravated the mental symptoms, and that is probably the most that can be said. The first was distinctly neurotic before the onset of sinusitis, the second gave the impression of being a "hospital bird." It is perhaps worthy of note that in both cases the frontal sinus was involved.

It is greatly to be desired that the mental symptoms associated with chronic sinusitis, and those associated with frontal lobe abscess, be particularly observed with a view to possible differentiation. In other words, what are the mental symptoms of "toxic psychosis" as distinguished from those of frontal lobe abscess?

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ONYCHIA TREATED WITH VACCINE

THE following account of the successful treatment of a patient with onychia by injections of a sensitized vaccine seems worthy of record.

The patient, a man aged 43, gave a history of having had pneumonia influenza in 1918. He complained of pain round the base of the nail of the left ring finger, and of slight discharge of pus. This condition had been present for four weeks. Examination showed the presence of inflammation round the base of the nail, associated with thin purulent discharge. The diagnosis was onychia due to coccal infection.

Treatment. For three weeks boracic fomentations were tried without any benefit. As it was very important to get a speedy cure, the patient being a medical practitioner, the advisability of removing the nail was considered. Before resorting to this measure the injection of a sensitized vaccine of 1,000 million *Staphylococcus aureus*, 1,000 million *Staphylococcus albus* and 1,000 million streptococci per cubic centimetre was begun. The dose given was 3 minims. The injection was given subcutaneously in the upper arm. Some temporary improvement followed this procedure. At the end of another two weeks the onychia had relapsed and was now as bad as ever. A second injection was then given, subcutaneously close to the base of the nail. The dose was 4 minims. Within a few hours a violent reaction occurred. This persisted for about thirty-six hours and then gradually subsided. At the end of ninety-six hours from the time of injection practically all pain had left the finger and there was no purulent discharge. On the sixth day the finger was normal, and has remained so since that time.

Considering the chronic nature of many cases of onychia and the brilliant result of the treatment adopted in this case, I thought the matter might be of interest to other practitioners.

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FATAL CASE OF ACCIDENTAL POISONING BY BENZOL VAPOUR

THESE cases are so rare that I thought it would be interesting to give the particulars of a fatality which recently came under my notice. Looking through my forensic literature I was only able to find one recorded case (Dixon Mann's *Forensic Medicine*), and in that the patient, unlike the present one, recovered.

A man, aged 26, skilled in his work, descended into a benzol mixture spirit tank to clean it out, taking some swabs with him. The capacity of the tank was 2,000 gallons and it was thought that water had gained access to the spirit. It was entered by a circular manhole, with a diameter of 16 inches. A gas mask was worn, with a wide bore flexible air ingress tube attached, which was of considerable length. This tube was held by an assistant with the inlet near an open window. The man concerned was usually fitted with a life-line to enable him to give signals to his mate above. But after working so equipped all the morning he discarded the line after his dinner and descended without it.

During the morning he kept coming out of the tank frequently for a brief period according to custom, but he never emerged again after his 2 o'clock descent. The attendant upon the air pipe did not note cessation of its movements; he said till after 3 o'clock. An alarm was immediately raised and the fire brigade sent for with pulmotor and all life-saving apparatus. A fireman descended wearing a life-line and having a wet cloth over his mouth and nostrils. The cleaner was seen prostrate at one end of the tank with difficulty he was attached to the line and brought with his would-be rescuer into the air. The latter was

feeling the effects of the gas a good deal. The man in the mask was dead.

On the coroner's order I made a *post mortem* examination twenty-four hours afterwards. Externally nothing abnormal was observed beyond a slight yellowness of the facial death pallor. Some saliva had run from the mouth into the facepieces of the mask. Rigor mortis was present. Internally, beyond old-standing pleural adhesions, the body was healthy, but emitted a strong smell of benzol. The blood was fluid. No clots were found anywhere, not even in the heart, and both ventricles were firmly contracted. In bulk the blood had an unusually dark appearance but in film it was almost cherry red. It left a light coloration upon the smeared costal cartilages and upon the tissues with which it came into contact. The contrast between this body when fully opened and another one in a similar condition on an adjoining table was marked. The smeared appeared to act as a stain, and could not be clearly washed away. The spectroscopic appearances were those of oxyhaemoglobin, and reduction was easily effected by ammonium sulphide.

The meninges and brain showed marked congestion. The brain substance on section was studded with minute red points throughout. The only other finding was pulmonary oedema. The air passages contained thick gelatinous mucus. The lungs were very dark in colour and exuded a frothy liquid on section or pressure. The stomach contained a meal of meat and vegetables, quite undigested. The mucosa was normal and the same may be said of the bowel throughout. The bladder contained clear urine.

I deal with the *post-mortem* findings only, and refrain from offering any opinion as to how the benzol vapour found an entrance to the respiratory passages of this unfortunate man.

Sheffield

GODFREY CARTER, M B, D P H

British Medical Association

CLINICAL AND SCIENTIFIC PROCEEDINGS

LANCASHIRE AND CHESHIRE BRANCH

Treatment of Auricular Fibrillation

A SCIENCE meeting of the Lancashire and Cheshire Branch was held at Bury Infirmary on October 18th, with the president, Dr J H MARSH, in the chair. Dr J CRICHTON BRAMWELL read a paper on the treatment of auricular fibrillation.

Dr Crichton Bramwell commented on the great importance of auricular fibrillation in view of the large number of cases of heart failure attributable to this abnormal rhythm. Twenty years ago Lewis had shown that delirium cordis in man was identical with fibrillation in animals, and that the appearance of heart failure with congestion in these cases was largely due to the excessive ventricular rate. By slowing the ventricle digitalis reduced the work of the heart, and at the same time, by prolonging diastole, it improved the venous filling and increased the coronary blood flow. The excessive dose method, introduced by Eggleston, might be safely used in urgent cases, provided that the patient had not previously been taking digitalis, and that an interval of six hours was allowed to elapse between successive doses. When the symptoms were less urgent 20 minims of the tincture three times a day would usually produce the desired result within a week. Quinidine actually stopped fibrillation in over 50 per cent of the cases treated. Many, however, subsequently relapsed, and if there was much myocardial damage the patient derived little or no benefit from the restoration of normal rhythm. Of twenty-eight rheumatic and fibrotic cases treated with quinidine which Dr Bramwell had followed up, two were still normal five years after their initial course of quinidine, and seven others had remained normal for two years or more. When fibrillation persisted in cases of hyperthyroidism in which the thyroid condition had been successfully treated, quinidine was valuable, but the rheumatic and fibrotic cases showed a greater tendency to relapse. The danger of embolism was another drawback to quinidine therapy.

Radiography of the Gall-bladder

Dr A RICHARDSON, in a paper entitled "Radiography of the gall bladder," recalled the fact that prior to the introduction of the dye method radiological evidence was confined to cases in which gall stones contained sufficient calcium to cast a shadow on the film. X-ray departments were now expected to report on the normal or pathological

condition of the gall-bladder. The oral method of administration of the dye had been proved to be simple, reliable, and safe. Dr Richardson enumerated and discussed five contraindications to its use: obstruction of the common duct, the presence of extensive hepatic destruction, hypertension, cardiac disease, and hyperthyroidism. He stated that the shadow of the gall-bladder appeared between the fifth and the eighth hour, the maximum concentration occurring between the eighth and twenty-fourth hour. The shadow faded completely between the twenty-fourth and forty-eighth hour after administration. The method demonstrated not only the presence or absence of stones, but also the occurrence of pathological conditions of the gall-bladder, even in very early stages of disease. The paper was illustrated by a series of prints.

Plastic Surgery of the Eyelids

Dr J RATCLIFFE showed a case illustrating plastic surgery of the eyelids. He explained that this case was of some interest from three points of view: (1) it was purely a "civil practice case", (2) both lids of the same eye were involved, and (3) the patient was a female. Dr Ratcliffe remarked that during the war most practitioners had encountered many cases which lent themselves to facial plastic surgery, but such cases were rare in civil practice. They seldom met with cases where plastic operations had been performed on both the upper and lower lids of the same eye with any measure of success. Since the patient was a female considerable care was necessary in respect of the resultant cosmetic effect produced by the operation.

On New Year's Eve 1926 the patient was sitting in front of the fire when she was seized with a fainting attack. She fell forward on to the fire and severely burned the left side of her face. This was treated by her own doctor until the early part of March 1927 when the patient was sent to Dr Ratcliffe. He found marked scarring of keloid appearance of the left side of the patient's face, especially in the region of the eyelids. This caused very marked retraction and eversion of both the upper and lower lids making it impossible for them to be brought into contact. As a result of this the left eye was beginning to show definite signs of ulcerative keratitis and the patient's personal appearance was, to say the least, very repulsive, so much so that she was suffering more from the mental worry of her appearance than from the eye condition. It was obvious that something had to be done, first, to save the left eye and secondly for the patient's personal appearance. On March 21st Dr Ratcliffe decided to operate on the lower lid. He resected as much as possible of the scar tissue involving this lid taking care to leave the lid margin with the eyelashes *in situ* and the lacrimal duct. This having been done he chose a suitable site on the left cheek and made an incision in the form of a tennis racket, leaving the base of the handle attached. This flap of skin he dissected off and swung into the position of the lower lid suturing it into the adjoining skin. The raw area on the cheek was about the size of a five-shilling piece. This he filled in by Thiersch skin grafts taken from the inner side of the patient's left thigh. On June 6th he carried out a similar procedure on the upper lid. Both the above operations were performed under rectal anaesthesia, which in his experience was very satisfactory for such cases.

Dr Ratcliffe added that (1) the patient could now bring the lids together, (2) the eye presented a normal appearance, (3) the patient's face was now far removed from being repulsive.

Reports of Societies.

HYPOCHONDRIA

At a meeting of the Section of Medicine of the Royal Society of Medicine on October 23rd, with Dr ROBERT HUTCHISON in the chair, Dr R D GILLESPIE in opening a discussion on hypochondria explained that the work on which his paper was founded had been done as Pilsent-Darwin student of Cambridge University.

Dr Gillespie remarked that "hypochondria" as a medical term had undergone many vicissitudes. Something of its history was revealed in the variety of conditions for which it was taken as a sufficient description at the present day. It had been, and was still, identified with hysteria, melancholia, and neurasthenia. From hysteria, however, he held that it differed quite clearly. The hypochondriac had the conviction that he was suffering from some malady, and rejected reassurance if he asked

for sympathy it was something which did not involve quite that affectionate dependence on the physician which was manifested by the hysterical patient, who was ready to be convinced that what he, or more usually she, suffered from was a delusion. Some of the older psychiatrists distinguished a "hypochondria cum materia" and a "hypochondria sine materia," according as gross organic disease was present or absent. There had been a long standing dispute whether a syndrome (or in psychiatric terminology, a reaction-type) to be called hypochondria existed *per se*, or whether hypochondriacal symptoms occurred only as part of a larger symptom complex. Dr Gillespie's contention was that such a syndrome could usefully be distinguished. Its principal characteristics were a persistent pre-occupation with the bodily health, in excess of what would be justified by any physical disturbance that was present, also an emotional attitude best described as "interest with conviction." Anxiety, in the sense of fearful apprehension of disease, was absent, simply because the idea that disease was present was settled in the patient's mind—it was not apprehended by him. The merely anxious patient feared, but he did not believe, that he suffered from a malady, for the hypochondriac the fancied ailment was real. Other characteristics were inaccessibility to psychotherapy, and the running of a chronic course without intellectual or emotional deterioration. He quoted fourteen cases, of which three were fairly typical examples of hypochondria as above defined. Of the remainder, several illustrated conditions resembling hypochondria in the strict sense, but exhibited various clinical differences, including accessibility to therapy, and a favourable outcome; they were quoted to support a hypothesis of the psychopathological basis of some cases of true hypochondria, and of hypochondriacal complaints in other syndromes. Prognosis in hypochondria depended on the relative importance of exogenous and endogenous factors. The more the condition could be regarded as a reaction to external circumstances—including for this purpose organic disease—the more favourable, on the whole, was the prognosis, the more it was the outgrowth of the patient's personality the more doubtful must be the outlook. Young hypochondriacs were more curable than old. The treatment must include that of any organic disease which might be present, without too much emphasis upon it, also psychotherapeutic treatment of a very ordinary kind (these persons did not lend themselves to much psychological investigation), and the usual common-sense measures with regard to occupation and ordering of habits.

Dr R S ALLISON said that the view that hypochondria might be regarded as a definite entity, and not merely as a variety of some other form of disease, had an attraction for those in general medicine, who were frequently confronted with patients showing no other evidence of mental disorder than this abnormal concentration on the bodily state. He thought that Dr Gillespie's phrase "interest with conviction" was a good description of the emotional attitude of these people. It was not usual for the hypochondriac to complain of definite pain at a certain point—if there were such pain it would raise the suspicion of organic disease—but rather a sense of uneasiness. In dealing with hypochondriacs who had previously had abdominal operations it would often be discovered on careful inquiry that the pain or discomfort complained of was essentially similar to that experienced before the operation. Treatment was undertaken with the faint hope of removing the false impression in the mind, checking harmful tendencies (such as the abuse of aperients, frequent intestinal douching, and the craving for abdominal operations) following such impressions, and the diminution of the sensations complained of in so far as these had any ground in reality.

Dr W R REYNELL considered that Dr Gillespie had established his thesis that there was a definite clinical entity such as he had depicted, but as described and delimited by him it was a rare condition. The condition was persistent and that would exclude manic-depressives and similar people in whom this state of mind was periodic. Dr Gillespie had stated that the preoccupation was in excess of what would be justified by any physical dis-

turbance that might be present, but this was very hard to assess in a case, for example, of marked visceroptosis. The conviction of the hypochondriac really amounted to a delusion, and the cases as defined by Dr Gillespie were inaccessible to psychotherapy, but on a broader definition of hypochondria, including cases which Dr Gillespie would not admit as the prime condition, psychotherapy was far from being futile. He would rather define hypochondria for practical purposes as a morbid preoccupation with health, in the absence of demonstrable organic disease. He believed that very often there was a predisposition to hypochondria in childhood, and that this could be averted. The child of low vitality, low blood pressure, with toxic debility—the atonic type of child—was markedly disposed to hypochondria in later life. He thought that if a wider definition of hypochondria were accepted, treatment by a rational psychotherapy was very satisfactory, the best "drug" in these cases was the spoken word, but it must be spoken in the right way.

Dr T A ROSS said that it was very important to establish which kind of psychoneurosis was likely to benefit from treatment and which was not. The amount of time which it was necessary to spend on any one case made it necessary to endeavour to exclude at the beginning all those cases which were not likely to derive benefit. He believed that there was a class of case, mostly consisting of old men, sometimes old women, which was absolutely inaccessible to treatment. This did not imply that nothing could be done for them, the best thing that the honest doctor could do for them was to prevent them from falling into the hands of quacks. He was doubtful whether Dr Gillespie had made out his case that there was no great difference between hypochondria and hysteria, and Dr Ross differed also with regard to the anxiety patient who, according to Dr Gillespie, only apprehended disease and knew that he had not got it. These patients might be convinced that they had no disease, but they felt that there was "something wrong" with them, they were inclined to suppose that if there was no macroscopic pathology there must be a microscopic one. Dr Gillespie had also said that the hypochondriac had not the "affectionate dependence" on the physician which was shown by the hysteric, but this might well be explained by the fact that the vast majority of hypochondriacs were elderly men, naturally self-contained and obstinate, and in any case less likely to show "affectionate dependence" than the young.

Dr C P SYMONDS agreed that Dr Gillespie had described a very definite clinical picture. Hypochondriacal symptoms appeared in a variety of mental disorders, perhaps most commonly in manic-depressive psychoses, and he believed that this type of hypochondria was missed more often by the general practitioner than he ought to be. These people eventually found their way to the neurologist under the provisional description of neurasthenia, but often by that time they had suffered unnecessary investigations, including perhaps the exploration of the abdomen. A point most often overlooked in simple clinical investigation was the family history. He had found again and again that no definite inquiry had been made into a family history of mental and nervous breakdown. In anxiety conditions hypochondriacal symptoms were associated for the most part with fear, the settled conviction found in other cases was replaced by an agonized expectancy. He quite agreed with Dr Ross that it was possible to find in one and the same patient a fear as to oncoming disease and a settled conviction that disease was present. The true hypochondria, according to the clinical picture which Dr Gillespie had isolated, was somewhat rare. He might appear to be more common to the general practitioner, because a patient with that type of hypochondria probably consulted a new doctor every month. The speaker described one interesting case of a hypochondriac upon whom a number of operations had been performed, but whose obsession remained, until his wife, to whom he was devoted, fell ill, and required an urgent operation. After this the hypochondriac became, if not entirely well, a changed man, and the wife was accustomed to say that the operation upon herself had

done for her husband what his own operations had been unable to effect!

Dr I PARKES WEAVER was astonished that so many different classes of cases should have been referred to as having hypochondriacal symptoms. He would have thought that the term "hypochondriac" ought almost to be restricted to the typical case suggested by Dr Gillespie. A Greek philosopher said with regard to the hedonists, "Call no man happy until he is dead," and perhaps one should say that no man ought to be called a hypochondriac until it could be placed beyond dispute that there was no physical basis for his preoccupation. He described a case of the kind to which, he thought, the term should be limited, and added that much care should be taken before admitting any other kind into the same category—certainly not those cases of women, mostly young or middle-aged, who had had a number of abdominal operations.

Dr JOHN CURSWELL had hoped that the term "hypochondria" would disappear entirely, or be used only for the involuntarily case, which was so strikingly dramatic, sometimes tragic because of its association with suicide. One could not fail to realize how frequently symptoms of a hypochondriacal nature were found in the early stages of mental disorders. He had seen them occur in the early stages of general paralysis, and indeed over the whole range of mental disorders one found a short preliminary period when the patient was preoccupied with his own bodily feelings of a depressing character. Even before the plunge into delirium the patient in delirium tremens was restless and anxious referring to abdominal and other sensations of a hypochondriacal character. He had never seen a person suffering from hypochondriacal symptoms associated with some disturbance of the internal organs, and getting the better of his physical and of his mental condition, who had not taken in hand his own treatment and defied his doctors.

Dr ROBERT HUTCHISON, closing the discussion, said that he had felt himself to some extent in a foreign country. He was not very familiar with the terminology of modern psychiatrists, and a good deal of what had been said was frankly to him as a general physician unintelligible. He saw the hypochondriac as a perfectly ordinary, harmless person usually an elderly gentleman retired from business, collecting symptoms as other people collected postage stamps, and making his health his hobby. It was true that most of the "specimens" he so collected were fakes, but every now and then in his search for symptoms the hypochondriac stumbled upon a genuine example. He believed this kind of person to be entirely incurable. It would be unkind to cure him, for that would be to deprive him of his one interest in life. What might well be discussed was "the psychology of the hobby-horse," the study of the psychology of those people who developed a mania for one particular thing. Just as the hypochondriac collected abdominal or cerebral symptoms so another man would collect porcelain of the Ming dynasty or old Chelsea. He believed that psychologically there was something very similar in both kinds of people. It had been said that the hypochondriac was egocentric, this was not always so, for there was such a thing as vicarious hypochondria, as, for example, the parents who were desperately fussy over their children and imagined them the victims of all kinds of ailments, or the unmarried daughter living with an old parent who imagined him or her to be suffering from all manner of complaints. It was Bishop Butler who asked whether a whole nation could go insane, but it really seemed possible for a whole race to become hypochondriacal. There was an example in the Jews. Thanks to Moses, who laid down a sanitary code, the Jews had devoted far too much attention to the study of personal health and illness. Whether the genuine hypochondriac could be spoken of as a hysteric he would not like to say. The hysterical person seemed to have a more definite purpose to serve or an advantage to gain, whereas the hypochondriac went about collecting symptoms in a purposeless kind of way deriving no benefit at all, except the interest in life afforded by having something to do. Hypochondria had a very small literature, and therefore the discussion had been all the more useful.

Rebuelus.

DIFFERENTIAL DIAGNOSIS

THE appearance of a fourth edition of the *Index of Differential Diagnosis of Main Symptoms*,¹ edited by Dr HERBERT FRENCH, should be received with acclamation, as this monumental work has been out of print for five years. The book has been thoroughly revised and several new articles have been added, but the general principles remain the same as in previous editions. The illustrations have been considerably augmented in number, and a new feature is the incorporation of the coloured figures in the text in place of the series of plates which adorned the earlier editions, thus much facilitating ease of reference. Of those who contributed articles to previous editions death has claimed Sir Malcolm Morris, Sir Frederick Taylor, and Dr F. J. Smith, while several other names no longer appear in the list of collaborators. On the other hand, the names of Dr S. Ernest Dore, Mr W. M. Mollison, and Dr John H. Ryffel appear as contributors for the first time. In this connexion we cannot refrain from noting that some of the articles seem to have changed their authorship without in fact changing so much as a single word of their text. For example, in the third edition the article on abnormalities of gait appeared over the name of the late Dr F. J. Smith, whereas in the fourth edition precisely the same text bears a different signature. In the third edition the article upon insomnia was attributed to Dr A. J. Jex-Blake, yet although he is a contributor to the new edition, the same article, word for word, appears over the name of another contributor. The solution of such puzzles is, however, a comparatively minor point, the essential thing being the quality of the articles, and these we can say without hesitation reach the highest standard of excellence, and must rank among the best of their kind in the English language.

In a work of this nature the index is perhaps the most important section of the whole book. An inadequate or a loosely constructed index could very easily destroy the whole value of the volume as a useful work of reference. In this respect Dr French has once again excelled, and it is doubtful whether a more complete or conveniently arranged list of complex cross references has ever been added to a medical encyclopaedia, it makes consultation a delight instead of an occasion for profanity, as is only too often the case.

The book has been increased by more than 200 pages, and has now just about reached the limit where compression into a single volume is possible. The illustrations throughout, both plain and coloured, have been singularly well chosen, and the reproduction, especially of the radiograms, has been superlatively executed. Both authors and publishers deserve great praise for producing a volume which in substance brings the highest credit to British medicine and in format holds its own with the most lavish of transatlantic productions. As translations into French and Spanish of the earlier editions have already been made the book is assured of a world-wide success.

GLYCOSURIA

Dr MALMIROS directs his *Study of Glycosuria*² to the particular subject of glycosuria discovered by routine examination of the urine without any subjective symptoms in the patients. This is a point of special interest to medical examiners for life insurance and to general practitioners. As the author says, cases of glycosuria are found accidentally "in which the prognosis was apparently favourable while the diagnosis appeared uncertain" (It should be noted in parenthesis that this Swedish physician writes clear and fluent English.) The monograph represents a big piece of work thoroughly and scientifically carried out. Two main problems are attacked the significance of

¹ *An Index of Differential Diagnosis of Main Symptoms*. Edited by Herbert French. C.B.E. M.D. Oxon. F.R.C.P. Lond. Fourth edition. Bristol: J. Wright and Sons Ltd. London: Simpkin Marshall Ltd. 1928. (64 x 10½) pp. xi + 1171. 701 figures. 63s. net.)

² *A Study of Glycosuria with Special Reference to the Interpretation of the Incidental Finding of a Positive Reduction Test*. By Hagvin Malmiros. Acta Medica Scandinavica. Supplementum xxvii. Lund: Berling & 1928. (Med. 8vo pp. 365. 6 plates.)

so-called "alimentary glycosuria" in apparently healthy individuals, and the factors which affect the blood sugar curve in glucose tolerance tests. Dr. Malmros lays great stress on a point which has hitherto not received much attention—namely, that a low carbohydrate intake immediately preceding a glucose tolerance test may give rise to an abnormal hyperglycaemia (quoting Hofmeister's observation made in 1880 that glycosuria, after ingestion of carbohydrates, is more readily produced in starved animals). Therefore he lays down the rule that blood sugar analyses must be made before any dietetic treatment is commenced, or that if carbohydrate restriction has been started the patient should be given ordinary carbohydrate food before any blood sugar tests are undertaken.

Contrary to general opinion, Dr. Malmros holds that emotion, fear, and nervousness before examinations are not causes of glycosuria that need be taken into account. He has records of 141 persons in whom glycosuria was discovered at life insurance examination and who have been kept under observation for considerable periods, some as long as thirty-eight years, none less than four years. In one case diabetes was noted as a contributory cause of death, in two cases subjective symptoms of diabetes appeared later, and in eight cases re-examination established a positive diagnosis of diabetes. It is interesting to notice that accidentally discovered glycosuria is more often associated with a high alimentary blood sugar than with a low threshold value, thus corroborating the general opinion that true "renal diabetes" is rare. Again, these chance discoveries of glycosuria occurring without subjective symptoms of diabetes are made chiefly in competent individuals. The author believes there is such a condition as glycosuria innocens, but he warns us to investigate thoroughly before accepting a case as "innocent," especially because mild diabetes may show normal fasting blood sugar values. His work is a most valuable contribution to the clinical study of diabetic and non-diabetic glycosuria.

OIO RHINO-LARYNGOLOGY

It is evident that the time has come when it is scarcely possible to present a complete textbook of otology, rhinology, and laryngology within the limits of a single manageable volume. In the two books now under notice Dr. John F. Barnhill and Dr. Wendell Phillips have recognized this limitation.

By concentrating on the essentials and chiefly on the surgical aspect of the subject, though the medical side is not neglected, Dr. BARNHILL has, in his *Nose, Throat and Ear*,² continued to produce a well-balanced and magnificently illustrated account of the diseases of these regions and their immediate neighbourhood, as they are likely to present themselves to the practitioner or to the surgeon commencing hospital practice in this special department. The practical side is consequently uppermost, while theoretical considerations and references are excluded. The author has achieved a book which should be highly useful in the field indicated, though it is not one which the specialist is likely to keep for reference. No account of pharyngeal pouches, for example, is to be found, but as an introduction to the surgery of these regions the book is excellent.

Diseases of the Ear, Nose and Throat,⁴ by Dr. WENDELL PHILLIPS, now a standard textbook in America, has reached its seventh edition. Dr. Phillips states deliberately that the section on diseases of the ear is placed first to emphasize the fact that it is a complete work on otology. He has now expanded this with an elaborate consideration of the problem of deafness from the social standpoint, a problem which has in recent years received even more attention in America than in this country. The sections on general disease in relation to special regions and organs and on the nose are excellent, but the first section now overshadows the whole. The sections on the pharynx and larynx and especially the latter, seem to fall away and although it cannot be said that anything is definitely

lacking, they do not give the impression of being the first cure in the mind of the author as do the earlier sections. If all this must be included in one volume, by one writer, then Dr. Phillips's work is as satisfactory as any other large textbook, but it shows that, however successfully laryngology and rhinology and otology may be practised together, it is now extremely difficult to write evenly, and at the same time exhaustively, upon all three subjects.

BIOCHEMISTRY OF THE SKIN

Nearly twenty years ago Professor UNNA wrote a volume on the biochemistry of the skin, and we now have before us in his latest work, *Histochemie der Haut*,⁵ what is in reality a continuation of his researches on the same lines. The topics with which it is mainly concerned are the structure of the cell and the all-important processes of oxidation and reduction. By means of differential stains carefully chosen for their chemical affinities he is able to demonstrate the presence of acid and basic proteins and their relative situations in the cell. For example, the acid nucleo-protein is found near the periphery of the nucleus, while the basic globulin occurs in the centre. As a result of his work Unna has constructed a theory of cell structure, which he calls the "stockwork" theory. This, shortly, is that the cell is built up in three stories, consisting of a foundation of what he calls plastin, a very resistant material insoluble even in 15 per cent hydrochloric acid, a superincumbent story of mesoplastin, and finally of a much more labile substance of acid reaction, which may be either cytoxe, globulin, or nucleo-protein, or all three combined. Oxidation only takes place in the last story, while reduction takes place either in the plastin or mesoplastin, both of which are basic. It is difficult to summarize this matter shortly, and almost impossible to put it into language non-technical enough for easy comprehension, but it undoubtedly deserves the attention of all biochemists as well as dermatologists. This volume is a powerful witness to the evergreen energy and mental capacity of the venerable professor, who has now been at work for nearly sixty years; dermatologists may be proud that he is still reckoned as one of themselves. A word of praise is deserved for the figures (more than sixty in number), which are all coloured and well reproduced.

NOTES ON BOOKS

PROFESSOR TERREIN has completed the fourth of his series of volumes dealing with the symptomatology of ocular diseases, the first three of which dealt with the cornea and sclera, the iris and ciliary body, and the lens and its suspensory ligament. There is no denying the excellence of the series or the wide knowledge and clinical experience of the author. The present volume⁶ deals with the movements of the eyes, orthophoria and heterophoria, concomitant and paralytic strabismus and nystagmus. The last chapter appears somewhat as a surprise in a volume of this sort, and deals with exophthalmos and endophthalmos, which are considered as displacements of the eye as a whole. The subject is well and comprehensively treated, the physiological principles underlying the various clinical conditions are clearly and adequately set out, and the clinical descriptions and therapeutic recommendations are sound and trustworthy.

In a pamphlet entitled a medical excursion into foreign lands,⁷ Dr. HABERLAND, professor of surgery in the University of Cologne, has compressed in a small space his observations on medical matters made during a journey through North and South America, China, Japan, and the Philippines. Dr. Haberland is evidently a keen observer, bent on ascertaining what foreign countries have to teach his countrymen by way of improvement in medical matters. He notes a certain post-war lassitude in his countrymen, and advises foreign travel with a view to stimulating emulation and a determination to place German science in the commanding position it once occupied. Even in the limited space available he has collected a vast number of facts relating to general hygiene, hospitals, medical curricula, nursing arrangements, and research institu-

² *The Nose, Throat and Ear*. By John F. Barnhill, M.D., F.A.C.S. New York and London: D. Appleton and Co. 1928. (Roy. 8vo 11) Pp. xxv + 604. 432 figures. 30s. net.

⁴ *Diseases of the Ear, Nose and Throat*. By Wendell Phillips, M.D. Seventh edition, revised and enlarged. Philadelphia: F. A. Davis Company, 1928. (Med. 8vo 1p) xx + 922. 615 figures. 5 dollars net.

⁵ *Histochemie der Haut*. Von Professor P. G. Unna. Leipzig und Wien: F. Deuticke, 1928. (Sup. roy. 8vo) pp. vi + 163. 69 coloured figures. M.30.

⁶ *Oculologie Oculaire. Statique et Dynamique Oculaire*. Par Félix Terrein. Paris: Masson et Cie, 1928. (6½ x 10) pp. 224. 100 figures. 40 fr. sans majoration.

⁷ *Ein Arztlicher Streifzug durch die Welt*. Von H. F. O. Haberland. Leipzig: G. Thieme, 1928. (5½ x 8½) pp. 134. 33 figures. M.10.

tions, he has also discussed the social position of medical men in the countries visited, and the prospects open to Germans proposing to settle abroad

L'homme impuissant, by the veteran professor of physiology in the University of Paris, CHARLES RICHER has been admirably translated by LLOYD HARVEY, but the title *The Impotence of Man*⁸ is ambiguous, and when submitted to a medical eye even misleading for, apart from one brief reference to sexual matters, it deals with general aspects, it might, indeed, have been better rendered 'Powerless Humanity'. Writing most pleasantly, but with a strain of "all is vanity," Professor Richet begins by showing man to be enslaved by the force of gravity and quite unable to visit the moon, Mars, or Venus, then he shows how little the struggle availeth by describing a library as a necropolis in which the thoughts of the dead repose quite undisturbed in their covers. This might sound like pessimism, but under the heading of "impotence and happiness" he reveals himself as the genial, laughing philosopher, for if we are very little in comparison with Sirius we are immense beside a microbe. In the chapter on physiological impotence Professor Richet writes charmingly as ever, but with a depressing fatalism. In the next chapter, however, on moral impotence, the reader is again a little reassured, and shown how he should deserve merit. In conclusion, Professor Richet returns once more to the relations of happiness and powerlessness, shows that they are not synonymous, and counsels humility and a philosophic outlook in order to be happy.

In his little book on *Infectious Diseases and Aseptic Nursing Technique*⁹ Dr D L RICHARDSON, who is superintendent of Providence City Hospital, Rhode Island, has provided nurses with a clear and concise account of the common infectious diseases, followed by a brief sketch of certain tropical diseases endemic in the United States or liable to be imported at any time, such as malaria, yellow fever, and plague. The work is divided into two unequal parts. The first and larger, consisting of fifteen chapters, contains a preliminary discourse on infection and immunity which is followed by a systematic account of the principal infectious diseases including gonorrhoea, syphilis, and tuberculosis. The second part, which deals with aseptic nursing technique, including methods of disinfection, is based on the methods which have been used with satisfactory results at the Providence City Hospital for several years. The work, which is thoroughly practical, will prove a useful introduction to nurses in their fever course.

In a lecture entitled 'Technique and effects of sympathico-diathermy on the arteries of the genital glands'¹⁰ Dr KARL DOPPLER, who is an assistant of Professor Lorenz at the Vienna Merchants Hospital, gives a description of a treatment which consists in painting the splanchnic nerve tissue with a 5 to 7 per cent solution of phenol. This solution has proved harmless to the surrounding tissue. During the last two years Dr Doppler has treated over 200 patients of both sexes with success, the patients regaining mental and physical health within three or four weeks. The operation is said to be indicated in conditions due to endocrine deficiency, or to hypertonus of the sympathetic, or, lastly, to the not infrequent combination of both factors.

It is a trite remark to say that individual patients require individual attention, and it follows that almost any scheme designed to standardize treatment by means of printed instructions is unlikely to succeed. At the same time some of the 'Instructions for Patients'¹¹ recently produced by Dr T T B. WARSOV have their use. Such therapeutic procedures as the application of hot fomentations or washing out the eyes may well be described in a leaflet to be given to the patient to enforce the spoken word. In the case of other subjects dealt with in this series, such as the treatment of gonorrhoea or exercises for constipation or diet in obesity, it seems to us very doubtful whether printed slips give enough latitude for the individual doctor's opinions or the individual patient's physical and social conditions. So far eight such slips of printed instructions have been issued, and eight more are in preparation. They are printed on separate sheets, with an outside cover bearing on the front the title and inside some remarks intended for the doctor only. The slips for patients are meant to be torn out as required. Within the limits specified above such instructions have some use, and in the present series clarity and simplicity have certainly been attained.

We have received a copy of the *Standard Methods*¹² used in the New York State Department of Health laboratories, of which Dr AUGUSTUS B WADSWORTH is the director. The work is divided into six parts, a description of general laboratory procedures being followed by an account of the methods used in the department for the preparation of media and glassware, in the diagnostic laboratories, in the laboratories for sanitary and analytical chemistry, in the laboratories for antitoxin, serum, and vaccine, in the executive offices, and in the research publications and library departments. A bibliography of 168 references is appended. The work will be invaluable to the research worker, and should form part of the library of every laboratory.

Among the very many medical bridge players there are perhaps some who regard themselves as beginners, and these may like to know of the appearance of a little book entitled *Auction Bridge Lessons for the Uninitiated*,¹³ by MAJOR TENACE, of which a copy has been sent to us for notice.

¹² *Standard Methods of the Division of Laboratories and Research of the New York State Department of Health*. Augustus B Wadsworth M.D. Director. London: Baillière Tindall and Cox, 1927. (Roy. 8vo pp. xx + 704. 34s. net.)

¹³ Longmans Green and Co. Ltd. 1928. (Demy 12mo pp. 125. 3s. 6d. net.)

PREPARATIONS AND APPLIANCES

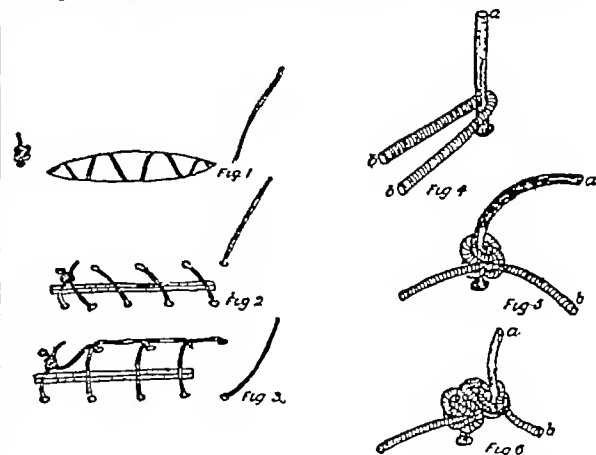
LEAD FOIL STRAPPING

For the prevention of injury to healthy skin surrounding small growths and areas which are being treated by means of x rays or radium, a protective material has been devised by Dr J H TWISTON DAVIES (Brighton), and is supplied by Leshes, Ltd., 104A, High Street, Walthamstow. It consists of a special adhesive strapping backed with lead foil 0.3 mm. thick. If the lesion is outlined in ink and a piece of the strapping applied immediately, the latter will on being removed show an outline of the lesion which can easily be cut out with a sharp knife. Thus the user is provided with an accurately fitting lead shield, which retains itself in position by virtue of the same material which also acts as a screen for the secondary radiations given off by the lead.

A METHOD OF FINISHING SURGICAL SUTURES IN HALSTEAD'S

INTRADERMIC STITCH

Mr Milroy Paul, FRCS (Colombo), describes a method of finishing surgical skin sutures which he has devised. He writes: The method is simple and efficient, and has been found to be satisfactory in practice as a neat way of ending surgical skin sutures. For Halstead's intradermic stitch it is much superior to the method of tying the two ends over a gauze plug placed over the wound, it is considerably better than the procedure of clamping perforated lead shot on to the suture as it emerges from the skin, and is without the disadvantage of



requiring special apparatus. The method consists of passing a suture round the skin suture as it comes through the skin (Fig 4). It is an advantage to have the suture *b* (Fig 4) much thicker than the skin suture *a*, since the resulting knot is thereby sufficiently big to eliminate the risk of its being pulled through the stitch hole. The two ends of the suture *b* are knotted together, as in Fig 5, and then one of the ends of *b* is knotted to the skin suture *a*, as in Fig 6. In Fig 1 is shown a Halstead's intradermic stitch, loosely inserted with the end coming through the skin, where it can be tied off as in Figs 4, 5 and 6. In Fig 2 is illustrated a simple continuous suture. In Fig 3 a mattress suture is depicted with the end coming through the skin and ready to be tied off.

⁸ *The Impotence of Man (L'homme impuissant)*. By Professor Charles Richet. Translated by Lloyd Harvey. London: T. Werner Laurie Ltd. 1928. (Demy 8vo pp. 150. 7s. 6d.)

⁹ *Infectious Diseases and Aseptic Nursing Technique*. By Dennett L. Richardson. M.D. Philadelphia and London: W B Saunders Company. 1927. (Post 8vo pp. x + 185. 22 figures. 7s. 6d. net.)

¹⁰ *Über Technik und Effekte der Sympathikodiathermie (Chemischen in den Keimdrüsenarterien)*. Von Dr Karl Urban und Schwarzenberg. 1928. (Pp. 49.) 1 Co. Price 1s. for 2s. Holders 9s. each.

ROYAL COMMISSION ON LOCAL GOVERNMENT.

THE SECOND REPORT RELATION TO THE REFORM
PROPOSALS

In deciding upon the preparation and issue of their second report the members of the Royal Commission on Local Government of which the Lord of Onslow is chairman, have been actuated by the desire to make public their recommendations on certain outstanding questions which are to be the subject of early legislation. An account of the Government's proposals for the reform of local government was given in the *Journal* last week (p. 765), together with a brief note on the views of the Royal Commission.

It may be recalled that the Commission, which was instituted early in 1923, issued its first report—dealing with the constitution and extension of county boroughs—in August, 1925, and thereafter turned to the second part of its task—to investigate the relations between the various types of local authorities, and to make recommendations as to their constitution, means, and functions. The publication in December, 1925, of the provisional Poor Law reform proposals interfered with the original programme of proceedings, and in April this year the announcement of the Government's intention to execute the reform measures to which we referred last week made it necessary to reconsider once more the task before the Commission. It was decided, after consultation with the Ministry of Health, to concentrate upon certain specific questions on which it seemed desirable that the Commission's conclusions should be known before the introduction of the proposed new legislation. These questions, on which a considerable body of evidence had been heard, related to the reorganization of areas, to measures to assist or to stimulate authorities unable or unwilling to function, to the distribution of functions, and to the appointment of whole time medical officers of health. These matters are the subject of recommendations in the report now under review.

The evidence heard by the Commission was furnished mainly by representatives of associations of local authorities—county councils, municipal corporations, urban district councils, and rural district councils. Sir Arthur Robinson also appeared on behalf of the Ministry of Health on two occasions, dealing on the second with the need for accelerated progress towards the appointment of whole-time medical officers, and with the distribution of health functions among local authorities. A summary of his evidence was given in the *Journal* of September 29th (p. 575). In the *Supplement* of the same date (p. 142) we published a memorandum of evidence on these questions prepared by the British Medical Association for submission to the Royal Commission. Owing, apparently, to the fact, as explained above, that the Government's policy matured into action more speedily than the Commission was able to overtake its task, the Association has had no opportunity of giving oral evidence. Presumably, however, its views received due weight. The report states that the members had the advantage of considering memoranda which have not been the subject of oral evidence, and do not appear in the published minutes of evidence, but have none the less contributed to the solution of the questions before us.

Whole-time Public Health Appointments

Two of the main questions on which the Commission concentrated attention are of considerable importance to the medical profession—the acceleration of progress towards whole time appointments of medical officers of health, and the distribution of functions among local authorities. There was, it appears, general agreement among the representatives of local authorities that whole time service was desirable. This meaning

the appointment of a medical officer who is precluded by the terms of his service from engaging in private practice, and who therefore gives his whole time to public duties, though not necessarily in the service of a single local authority. The Commission agreed that steps should be taken to facilitate the

progressive adoption of such appointments, and expresses the view that an essential means of securing this is to provide that the question of making a whole time appointment should be considered as and when each individual vacancy for a medical officer of health occurs. It is accordingly recommended that statutory provision should be made to require each county council, in consultation with the county district councils, to frame for the whole county a scheme for the appointment of whole time medical officers of health. The Commission also proposes that when a part time appointment for a county district falls vacant, the council, after consultation with the county council and any other district council, should be required to appoint a whole time medical officer, either solely or jointly with the county council or other local authorities. Discretion should, however, be given to the Minister of Health to waive in special circumstances the requirement precluding private practice.

Maternity and Child Welfare

In discussing the distribution of functions between local authorities the Commission takes the view that the chief factors to be considered should be population, area, financial capacity, and efficiency, in which connexion the staffing of the local authority is an important consideration. Attention has been directed in the first instance to the co-ordination of services affecting the welfare of mothers and children. It is recommended that the school medical service should remain in the hands of the local education authorities, as determined by the Education Act, 1902, and that where school medical authorities are not now responsible for maternity and child welfare work, the Minister of Health, on representations from the school medical authorities or the county councils, should be empowered to order the transfer of this service to them. The Commission suggests, further, that the authority responsible for the administration of the Notification of Births Acts should be required to send forthwith a duplicate of every notification to the maternity and child welfare authority of the area. The recommendation is made that a maternity and child welfare authority employing a whole time medical officer of health should be permitted to represent to the Minister that it should be constituted local supervision authority under the Midwives Act, county councils being empowered to apply for the retransfer of this service to them on administrative grounds. Regarding the ascertainment and treatment of ophthalmia neonatorum, it is proposed that this work should be assigned in each area to one authority, that this should be the authority responsible for providing the treatment, and that responsibility for treatment should be placed upon the maternity and child welfare authority.

Hospitals for Infectious Diseases

The Commission considers that county councils should provide and maintain small pox hospitals, adding the proviso that where other arrangements are working satisfactorily they should not be disturbed. In the case of other isolation hospitals it should be the duty of the county council to see that adequate provision exists, to draw up a scheme for the purpose in consultation with the local authorities, and to frame proposals for further provision or reorganization where necessary. Statutory safeguards, on the lines laid down by Parliament in the Public Health (Tuberculosis) Act, 1921, should, it is held, be provided against the failure in future of any responsible local authority to make adequate arrangements for the provision and maintenance of infectious diseases hospitals.

Organization of Areas

The main recommendation of the report in the general field refers to the reorganization of local government areas, in which connexion the Commission suggests the institution of a general review of existing county districts and parishes, involving the preparation by the county councils of proposals for any boundary alterations or unification measures found necessary. Suggestions are also formulated regarding the extension of the local area of charge for certain services, notably water supply and sewerage.

Default Powers

The Commission has given some consideration to the revision of powers of stimulus and default powers, and it suggests that the existing legislation should be amended to provide that it

would rest normally with a county council, in the first instance, to draw the attention of the Minister of Health to the existence of unsanitary conditions, the Minister should be required to consider any such recommendation, and empowered to institute a local inquiry. To meet the case arising if a local inquiry has established the fact that a county district council is not administering a health service up to a reasonable standard, and has not taken satisfactory action within a fixed period, it is proposed that there should be statutory powers for (a) the relinquishment of responsibility by the county district council to the county council by agreement and with the approval of the Minister, (b) the performance of the work by the county council, the district council repaying the cost as a debt, or (c) the transfer of the service by order of the Minister to the county council, either for a stated period or until the revocation of the order.

THE STATE OF THE PUBLIC HEALTH

SIR GEORGE NEWMAN'S REPORT

[SECOND NOTICE *]

Veneral Disease in England and Wales

At the close of 1927 there were 185 veneral disease treatment centres in England and Wales. Only five of these provide all-day facilities, it is hoped to add to their number during the present year. Maternal and child welfare centres arrange treatment for syphilis and gonorrhoea in expectant mothers, and thus help to prevent congenital syphilis and ophthalmia neonatorum. As syphilis is the direct cause of 10 to 15 per cent of the blindness in the country, and ophthalmia neonatorum of 20 to 30 per cent of that in blind schools, the present decrease in the number of blind persons in the age groups up to 21 may be attributed to the work of these centres. The total attendances in 1927 at veneral disease clinics were 46.4 per cent more than in 1920, though the total new cases were 17,049 (16.2 per cent less). This means that defaulting before completion of treatment is less than it used to be. In His Majesty's Forces, where concealment of veneral disease is forbidden, the ratio of new notifications with gonorrhoea to those with syphilis is 6 or 7 to 1. In the centres the ratio is far smaller, especially in the case of female patients, and it is impossible to avoid the conclusion that a considerable proportion of women suffering from gonorrhoea fail to come for treatment. Analysis of the results of treatment of male syphilis at the St Thomas's Hospital centre shows that even in primary cases, in which serum reactions have not yet become positive, less than two courses of ten injections each of "914" and of bismuth results in too high a percentage of relapses, while three such courses are barely sufficient for early cases in which the blood reactions have become positive. These analyses show clearly the great advantage of commencing treatment while the serum reactions are still negative.

Sir George Newman discusses in some detail the question of compulsory notification of veneral disease. The procedure in relation to acute infectious diseases cannot, he holds, guide us in this matter. These diseases are of relatively short duration, and the purpose of notification is to permit health authorities to protect the community by isolating the infectious person and disinfecting his house and clothing. But syphilis and gonorrhoea may pass through various stages of infectivity over a long period, making it impracticable to define the notifiable stage of the disease. Furthermore, medical practitioners are reluctant to notify veneral disease, both on account of the social stigma attaching to it and through fear of inflicting irreparable social harm upon innocent individuals and families. It is also suggested that patients are likely to evade notification by seeking treatment from quacks (promising secrecy) rather than from veneral disease clinics and hospitals. The idea of compulsory treatment is condemned, not only on the general principle of respecting individual liberty, but on

the ground that it will increase the dangerous incentive to concealment. Objection is likewise taken to coercive action in relation to the defaulter—that is, the person who starts but does not continue treatment for venereal disease. Syphilis and gonorrhoea must not be artificially separated from all other diseases, and so long as no coercion is applied to those who begin but do not finish a bottle of medicine, who undergo but do not continue dental treatment or treatment for tuberculosis, it is illogical to suggest that exception must be made in the case of venereal disease. Moreover, the syphilitic defaulter, long before he can be declared completely cured, has often become non-infective.

Cancer

The fallacy of assuming a great increase in cancer incidence from cancer mortality statistics is emphasized. More deaths are attributed to cancer than formerly, owing to the changed age distribution of the population and greatly improved technique of diagnosis. The steady annual increase in the recorded death rate continues, the number in 1927 being 54,078, or 1,376 per million persons living. But the question whether this represents a real increase in cancer remains unanswered. The prevailing fashion of correlating all forms of cancer with some general etiological factor, such as dietary excess or defect, is criticized, and the suggestion is made that it would be better to confine investigation to a single organ at a time, in order to ascertain whether cancer of this organ is increasing or decreasing, and if so for what reason. The possibility of some causal factor of general application—diet, race, climate, etc.—is not ruled out, but regarded as unimportant compared with the local factor affecting the organ concerned and arising during the individual's lifetime. Analyses of results in the treatment of cancer of the cervix uteri indicate that irradiation already has some advantage over surgery, and may have more in the future.

Maternity and Child Welfare

Continued progress is reported in the schemes for maternity and child welfare. The total number of infant welfare centres in 1927 was 2,341, compared with 2,324 in 1926. There were also 847 ante-natal clinics approved by the Ministry of Health. Sir George Newman expresses the view that adequate ante-natal supervision, with the assistance of the municipal clinic or the maternity hospital, is the only sound foundation on which an effective maternity service can be built. He suggests that every ante-natal clinic should be organized in close association with a hospital, to which patients can be referred if necessary. Every pregnant woman should receive a sufficiently thorough examination to ensure detection of complications, and be kept under close observation during the last weeks of pregnancy. Furthermore, vaginal discharges and other sources of sepsis should be investigated and treated, and a routine Wassermann test performed. The importance of notifying all cases of puerperal pyrexia is again emphasized. The origin of such pyrexia is not necessarily sepsis, but the only safe rule is to regard a case as septic until the contrary has been proved.

The Insurance Medical Service

The insurance medical service in England and Wales comprises 14,956 practitioners, dealing with 14,363,000 patients. The average number of persons on a practitioner's list is 928. During 1927 56,527,555 prescriptions for insured persons were dispensed by 9,584 chemists. Much of the increase in the cost per head of medicine and appliances is attributed to lack of due consideration for economy on the part of some practitioners. Medicine is prescribed for a week when enough for two days only is required; costly proprietary preparations are ordered instead of equally effective official remedies. The number of complaints against insurance practitioners investigated in 1927 by the Insurance Committees was 309, as compared with 291 in 1926, 72 cases, in 3 of which there was a successful appeal, were decided against the practitioners. Most of the cases were trivial. Schemes for giving post-graduate instruction to insurance practitioners have been in operation in twenty-five areas. These have provided post-

* The first notice of the Annual Report of the Chief Medical Officer of the Ministry of Health for the year 1927 appeared in the *Journal of October 27th* page 753.

graduate facilities for a hundred practitioners, but more extended provision is being made this year. There has again been an increase in the number of sickness claims, the total expenditure on benefits being £15,089,000, as compared with £14,169,000 in 1926. The steady rise in this expenditure is accounted for by the larger proportion of elderly persons in the insured population, by increased susceptibility to illness following prolonged unemployment, by growing awareness on the part of employed persons of the advantages of the insurance system, by the unrestricted freedom of the insured person to change his doctor, and by changes in the personnel of the insurance medical service.

Nutrition

So many firms now claim that their preparations contain vitamins that, for the protection of the consumer, it is suggested they should obtain an impartial and reliable guarantee of the accuracy of their statements. A margarine containing vitamins A and B is thus tested by the Pharmaceutical Society, and a certificate supplied to the manufacturers is renewed each month on the results of the tests. The consumption of milk per head of population is about 0.4 pint daily. This rate should be at least a pint, but cannot be attained till those behind the "Drink More Milk" campaign support their own efforts by providing a satisfactory and attractive article. The danger of tuberculous infection from milk, and the consequent need to safeguard the health of dairy cattle, to examine milk for tubercle bacilli, and to exercise sanitary control over dairies, is duly emphasized. During 1927 some forty food-poisoning occurrences were reported. It seems likely that minor cases, of the kind too mild to be recorded, are not due to the *Salmonella* group, skilled investigation into their nature is desirable.

Work of the Pathological Laboratory

Work on the serological classification of haemolytic streptococci from the throats of scarlatinal patients has given further evidence in support of the view that these organisms are the cause of scarlet fever. The classification of haemolytic streptococci into five groups, of which Type 2 (found commonly in connexion with scarlet fever) is responsible for most of the cases in which complications occur, and Type 4 produces a mild disease, together with the possibility of successive infections by these types, may help to explain some puzzling features in the clinical diagnosis of scarlet fever and its subsequent course. Work on the etiological significance of the pneumococcal types has been continued. It is very rare to find carriers of Types 1 and 2, except in contacts with disease due to these types, Type 3 is carried with variable frequency, Type 4 commonly.

Liver Extracts in Pernicious Anaemia

In 1921 Whipple and Robscheit-Robbins showed that blood regeneration in dogs is hastened on a diet containing liver and other iron-rich foods. This suggested to Minot and Murphy the treatment of pernicious anaemia by a well-balanced diet, especially rich in liver. They reported favourable results in 45 patients in 1926, and in 60 more in 1927. These results have been confirmed by many observers in this and other countries. So far the evidence as to the effect of the treatment on associated nervous lesions is indecisive. A minority of cases failed to respond, and this suggests that pernicious anaemia may not be a haemolytic condition, but one due to inability of the blood-forming organs to utilize bilirubin. It is not yet known if patients will be able safely to stop the treatment, or, indeed, if they will continue to respond to it for an indefinite time.

Acute Rheumatism

An experimental trial of compulsory notification of rheumatic fever over a definite number of years in selected districts which comply with certain conditions is suggested in the report. These conditions are that the housing and other records of the local authority are accurately kept, that efficient machinery exists for investigating notified

cases, and that institutional treatment is available. Various rheumatic supervisory centres are investigating the etiological significance of housing, damp, environment, heredity, social position, and condition of school life, and the clinical significance of tonsillectomy and institutional treatment, but more extensive work of this kind is urgently called for. The report stresses the need for co-ordinating investigation of this malady and of a systematic attack on it, as a vital measure in the prevention of heart disease and disease of the nervous system. Probably 40 per cent of deaths from heart disease result from acute rheumatism contracted during school age. Recurrent attacks are usual, but the tendency to recurrence may be minimized by three months' institutional treatment during the acute attack, and at least six months' convalescent treatment and after-care to follow. With regard to the chronic rheumatic diseases, which cause nearly one-sixth of the total invalidity covered by insurance benefit, the difficulties in the diagnosis and treatment of this group of diseases are clearly set out, and it is suggested that if they are to be overcome the formation of "arthritis units" is almost indispensable.

Artificial Light Therapy

For the past three years the Ministry of Health has encouraged the provision of artificial light treatment by local authorities. The conditions laid down are, that the treatment shall be under medical supervision, and that those approved to administer it shall be practised in technique and acquainted with the dangers of the procedure. It is pointed out that unskilled technique may be followed by skin burns, cataract, conjunctivitis, etc., and that considerable knowledge is required in the choice of patients for treatment. Set routine in the matter of exposure and number of attendances is deprecated, each case must be treated on its merits and according to the sensitiveness of the patient. In the infant welfare centres the best response is given by (a) flabby, debilitated, underweight, fretful babies, (b) cases of early rickets, (c) cases of malnutrition. Many observers report cases that have been rendered worse by irradiation. After discussing the therapeutic uses of ultra-violet rays in skin disease, rickets, asthma, lupus, surgical tuberculosis, etc., Sir George Newman concludes with the suggestion that this therapeutic method is unlikely to prove more than an adjunct to other forms of treatment, and that for prevention of disease one must look rather to adequate food and housing, open air exercise, fresh air, and natural sunlight.

International Health

The Office International d'Hygiène Publique has entered into an agreement with the Health Committee of the League of Nations to avoid overlapping in work, this and several similar agreements have resulted in the establishment of a world-wide system of immediate intelligence regarding the prevalence of cholera, plague, yellow fever, small-pox, and typhus. Consideration has been given to proposals for unifying quarantine flags and signals, and for establishing an annual international record of the sanitary equipment of seaports, and like matters.

Health Education

Sir George Newman ends his report with a consideration of methods for improving the education of the public in matters of individual and public health. The educational work carried out by voluntary effort is of great value, but this does not absolve local authorities from their responsibility. They should regard education in public health as at least of equal value to any other form of health work they undertake. Among the principal direct methods suggested are the publication of pamphlets, posters, and so forth, the preparation of articles for the press, lectures and educational classes, the use of the cinema, and broadcasting. But the best form of popular education is effective administration of the public health services concerned. The sound practice of the science and art of preventive medicine is the supreme method of instructing the community.

British Medical Journal.

SATURDAY, NOVEMBER 3RD, 1928.

NEUROLOGICAL PROBLEMS OF TO-DAY

ALL neurologists, and many others, will be grateful to Dr Kinnier Wilson for having collected in one volume a number of his recent contributions to the literature of neurology, which have hitherto been available only in the journals in which they were published. His title, *Modern Problems in Neurology*,¹ is justified by the fact that the work embraces in its scope all the questions of importance to which neurological research is at present endeavouring to find answers. The first chapters deal with "the epilepsies," and are followed by a discussion of what he believes to be a closely allied condition—the symptom narcolepsy. Then come six chapters devoted to the symptoms of disorders of the corpus striatum, including the author's Croonian Lectures for 1925. The last three chapters are concerned with pathological laughing and crying, dysaesthesiae—or paraesthesiae, as they are sometimes called—and the Argyll Robertson pupil. To the discussion of these problems Dr Wilson brings a large clinical experience, a philosophical outlook, and a lucidity of style which is unfortunately too rare in medical literature.

Dr Wilson speaks of "the epilepsies" in the belief that epilepsy is a symptom which may be evoked by a variety of pathogenic agencies. The heterogeneity of "epilepsy" has certainly been insufficiently recognized in the past, and may justifiably be emphasized, in a previous reference to Dr Wilson's views (April 7th, p. 601) we agreed that the epilepsies might well be regarded as symptoms. But he tends perhaps, to under-estimate the importance of the underlying constitutional factor, for which there is considerable evidence in some cases. In stressing the local cerebral state responsible for a convulsion the possibility must not be overlooked that metabolic abnormalities may contribute to bring this about. Though neurophysiology has by no means come to the end of its contribution to the study of epilepsy, the biochemical investigation of the conditions regulating the reactivity of the nerve cell is still in its infancy, and is full of promise.

The role of inhibition in neural function is a problem the study of which has lately received an impetus from Pavlov's researches on conditioned reflexes. It has bearings upon many normal and abnormal phenomena. Inhibition appears to play a part in the loss of consciousness which characterizes an epileptic fit and may be an essential element in the "attacks" of narcolepsy and cataplexy. Normal sleep, hypnotic suggestibility, and psychological repression may also be aspects of inhibition. Dr Wilson deals with some of these topics, he regards narcolepsy and cataplexy as closely akin to the epilepsies rather than as pathological forms of sleep. There is much work to be done before clinical neurology can assimilate Pavlov's conceptions concerning inhibition which at present raise more problems than they solve and it will be wise, we think, to suspend judgement on many of these difficult questions.

Dr Wilson's views on the functions of the corpus striatum naturally arouse special interest for his recognition of progressive lenticular degeneration first

focused attention on these mysterious structures. Since then a great diversity of opinion has arisen as to their functions, and many workers, especially on the Continent, have credited the corpus striatum with complex motor activities. Dr Wilson contests this view, and is unable to find any evidence that the striatum is a "centre" for emotional expression, associated movement, muscular synergy, or other such complicated functions. For example, he argues that the apparent reduction or loss of certain types of movement in Parkinsonism is due merely to the hampering effect of the rigidity. The impaired movements such as arm swinging in walking are not performed because, owing to the patient's rigidity, they involve considerable effort. Dr Wilson's conception of the functions of the corpus striatum is a simple one: he believes that this structure has the twofold function of controlling muscle tone and of inhibiting a neuro-muscular rhythm which, when not held in check, manifests itself as tremor. Many neurologists will regard his theory of striatal function as being, like the Parkinsonian patient, hampered by its rigidity. Clinical observation suggests that the relation between loss of movement and hypertonia in striatal disease is by no means as close as he maintains. Weakness, slowness, facial immobility, and loss of arm swinging may all make their appearance in Parkinsonism before the rigidity to which they are attributed. Dr Wilson's chapter on pathological laughing and crying is an admirable analysis of these remarkable disturbances, but it, too, suffers from his conservative view of striatal function, for he attributes the escape of emotional reflexes from voluntary control exclusively to lesions involving cortico pontine and cortico bulbar paths, in spite of the well known fact that pathological laughing and crying may be associated with striatal lesions, as he himself showed in his monograph on progressive lenticular degeneration. His views, then, are critical rather than constructive, but in the current state of neurological theory concerning the corpus striatum destruction is an essential preliminary to sound building. This indirectly constructive work of the critic is seldom appreciated at its true value.

We have outlined above some of the principal problems which confront the neurologist at present. It is natural to conclude with an inquiry as to the direction in which we may look for their solution. Comparative physiology received an immense impetus from the Darwinian emphasis upon man's animal characteristics. The neurologist nowadays however is constantly being reminded of human uniqueness. Man's erect attitude sets a wide gulf between himself and his nearest simian relatives and it is becoming increasingly evident that there are many human neural activities upon which experiment, even though apes and monkeys be the subjects, can throw little or no light. Disease and war are the great experimenters in human physiology, but the size and often the multiplicity of the lesions produced by these blind and careless workers renders the task of drawing physiological deductions from pathological states extremely complex. But the refractoriness of his material merely adds zest to the work of the artist and it is to an element of art in neurological, and indeed in all medical research that we would draw attention in conclusion. Neurology has always proved attractive to minds of philosophical outlook for the neurologist has continually to deal in a practical way with those problems of the relations of body and mind which exercise the philosopher in the rarefied atmosphere of his study. Men of this type, of whom Hughlings Jackson is the supreme example, are constitutionally

¹ *Modern Problems in Neurology*. Dr S. A. Kinnier Wilson, M.D. F.R.C.P. London: E. Arnold, 1928. (Demy 8vo pp vii + 364 56 figures 21s net.)

impelled to seek in the chaotic world of phenomena for the operation of general principles. Havelock Ellis, in his book *The Dance of Life*, has pointed out that his creative element in science and philosophy is as much an art as the creative activity of the artist. While the physiologist, the anatomist, the pathologist, and the clinician have still their parts to play in neurological research, their findings will be of little value in the absence of men who by nature and training are qualified for "the art of thinking."

THE PANEL CONFERENCE

THE proceedings of the Conference of Representatives of Local Medical and Panel Committees, which we report fully in this week's *Supplement*, were less interesting and less important than has usually been the case. This fact is somewhat surprising since, although a number of good reasons may be given for it, the reports which the Insurance Acts Committee presented to the Conference contained full references to matters which may be of the most vital consequence in connexion with insurance administration and with future developments of the national health insurance service. What used to be the annual challenge to the recognition of the Insurance Acts Committee as the authorized mouthpiece of insurance medical practitioners in consultations and negotiations with the Government is no longer forthcoming. The persistent minority which formerly issued this challenge has wisely accepted the position of the Insurance Acts Committee as no longer open to question. Further, there seems no disposition on either side at present to reopen the question of the amount of the capitation fee or the mileage fund in accordance with which the insurance practitioners' remuneration shall be calculated. There has been, too, a certain stabilization of the regulations affecting the ordinary work of insurance practitioners, and an agreement that for a period of years they shall not be altered without consent. Almost all the difficulties and disputed points concerned with day by day practice have been adjusted as experience has shown the need, thanks to the continued exertions of the Insurance Acts Committee and the usually sympathetic consideration of the Ministry of Health. In these circumstances a certain diminution of liveliness at the Annual Panel Conference of 1928 is not a matter for wonder.

Yet there may be some room for disquietude when a broad review of the proceedings leaves as its main impressions a passive rather than an active support of the arduous work of the Insurance Acts Committee throughout the year on the part of the main body of the Representatives, a merely meticulous, even at times querulous, criticism of that work from a section, and a certain sameness and restriction of outlook which contrast, on the whole, unfavourably with that usually shown during discussions in the Insurance Acts Committee itself in the Council of the British Medical Association, and in the Representative Body. It is curious that it was in this atmosphere, and not under more momentous or controversial conditions, that the Conference, for the first time in its history, adopted a resolution which was in form (though not, it seems, in intention) a direct vote of censure on the Insurance Acts Committee for action which it had taken. This resolution certainly produced the best debate of the Conference, but the debate was mainly directed not to the resolution on which the vote was taken, but to a wider problem which the mover of the

resolution himself admitted lay wholly outside the province of the Committee and the Conference. It will be remembered that the Council of the Association submitted to the Representative Body a national arrangement with the Manchester Unity of Oddfellows as to the capitation fee for attendance on juvenile members of that order, and that the Representative Body, as was its prerogative, decided the matter in such a fashion as to forbid the conclusion of such a national agreement but to permit of local agreements of a similar kind. The Council, before deciding on its recommendation, asked the Insurance Acts Committee for its opinion as to the effect of such an arrangement upon the question of the capitation fee for insurance work. There can surely be no dispute that this was a wise precaution to take, and a perfectly proper question for the Committee to answer. What the Conference intended to do, and what it undoubtedly did by a majority, was to express the opinion that the national bargain that had been proposed was an unwise one to enter into—a question which was admittedly not within its province in its wider aspect, and which had already been finally determined by the body whose province it was to decide. Yet what stands on record is the opinion of the Conference that the Committee should not have given its advice to the Council at all, and that its advice on the particular and narrow point submitted to it was wrong, although it is the only body of experts in existence possessing that experience of negotiations which can lend authority to such an opinion. This is manifestly absurd.

The most remarkable fact about this year's Panel Conference, however, is what it did not do. About one third of the report submitted to it by the Insurance Acts Committee was concerned with the administration of additional treatment benefits and the effect of the recent amending Act of Parliament in relation thereto, yet not one word on this subject was said from the beginning to the end of the Conference. Since, owing to the obstruction of the approved societies, the establishment of a consultant, specialist, and pathological service in connexion with the insurance scheme has been relegated to a distant future, it is the policy of the Ministry of Health to extend these services as far as possible by the method of additional benefits. The disadvantages of this are obvious, its dangers, especially to the consultant branch of the profession, are great. The conditions of service to be established during the next few months may have a vital effect on the future of several branches of professional work. Nevertheless the Conference appeared to feel no concern about this matter, and it can scarcely be said that its present membership comprises adequate representation of the interests affected. This is a thing of much importance since, as we have indicated, it is probable that questions relating to these extensions of the insurance service will be more prominently before us in the immediate future than questions relating to the general practitioner service such as have hitherto been the main subjects of consideration. Happily both the Insurance Acts Committee and the Council of the Association are fully alive to the importance of these questions. The Council has already asked the Committee to set up a special subcommittee, with a thoroughly representative personnel, to consider them, and it is to be hoped that by this means the interest of consultants themselves may be more fully aroused, and that more adequate attention may be given to such matters at future Conferences.

THE PREVENTION OF PUERPERAL MORTALITY

A FURTHER step of considerable importance has been taken in the campaign against puerperal morbidity and mortality which was inaugurated by the British Medical Association early in 1925, when it set up a special committee of inquiry. Realizing the many possible factors in the incidence of puerperal sepsis, this committee held a conference with representatives of official bodies directly interested, an interim report was published in the *Supplement* of January 9th, 1926, and the final report appeared as an appendix to the Annual Report of Council, published in the *Supplement* of April 28th, 1928. To grapple with the whole problem the Minister of Health appointed a departmental committee, wholly medical in composition; the names of its members were given in our issue of June 9th, 1928 (p. 998). The departmental committee was invited to draw up a form of inquiry for medical officers of health in their investigations of maternal deaths, and this step has now been taken. The form, which has been issued to maternity and child welfare scheme authorities in England, is accompanied by a circular (No. 934) and an explanatory note by Sir George Newman, chairman of the committee, who suggests that copies of both the form and the note should be sent to every private medical practitioner, inviting his collaboration in an investigation the aim of which is to improve the maternity service of the country. The first point emphasized is that all information recorded on the inquiry form will be treated as strictly confidential, it will only be communicated to the medical officer of health and to the Ministry for public health and scientific purposes. Any such information utilized in a report will be stripped of all identifying details. The procedure amounts, in short, to a consultation between one medical practitioner and another, and is, therefore, of a strictly private nature. Sir George Newman adds that the rules of professional courtesy must be observed, both in the letter and the spirit, and that due care must be taken to avoid any appearance of criticism of those concerned in the professional conduct of any case. In view of the disturbance to a doctor caused by a maternal death in his practice, it is admittedly essential that the attitude of others should be sympathetic and not critical. The inquiry, therefore, is emphatically not judicial, but scientific, and the relationship between the medical practitioners concerned is one of friendly co-operation. To this end it is provided also that the names of doctors and patients need not be included in the reports submitted to the Ministry by medical officers of health. Moreover, it is suggested that, if the medical practitioner in charge of the case so desires, the findings of the medical investigator should be shown to him for his observations before the medical officer of health draws up his final report for the Ministry. The more common causes of death are grouped together in the form, and various questions are placed under each heading with a view to suggesting appropriate lines of inquiry. Much of the information required in any case will be available already from various sources, and the remainder will usually be obtained at an interview between the general practitioner and the medical investigator. When a patient dies in an institution it is hoped that the authorities of it will be willing to furnish the necessary information, but the responsibility for obtaining the history of the case before admission will remain with the medical officer of health. It is further laid down that the medical officer of health concerned should be either that of the local supervising authority, or the maternity and child welfare authority, and should not be engaged in private practice; the inquiry so far as medical data are concerned, should be conducted by himself, either alone or with the assistance of some competent registered medical practitioner. Sir George Newman adds that in areas where

no recognized obstetrical specialist is available to assist the medical officer in such inquiries, it may be desirable to invite the local Division of the British Medical Association to nominate one or more practitioners whose services could be available if necessary. While modifications of the form may be thought desirable by individual local authorities, it will obviously be convenient for the data relating to maternal deaths to be collected in a generally uniform manner, and Sir George Newman hopes that similar arrangements will be made in all parts of the country. If in any case the local authority finds that the proper investigation involves additional expense, the Minister of Health will be prepared to approve reasonable expenditure necessarily incurred for this purpose. With the co-operation of all concerned a mass of information will gradually become available, which may serve as the foundation for a preventive work of the greatest value. If the lines suggested by Sir George Newman's circular and the Committee on Maternal Mortality are followed sympathetically in every area, there can be little doubt that a great step forward will have been taken in a campaign in which both the medical profession and the public are acutely interested.

AWARD OF THE NOBEL PRIZE TO DR CHARLES NICOLLE

THE recent announcement in the daily press that Dr Charles Nicolle, director of the Pasteur Institute of Tunis, has been awarded the Nobel Prize for medicine for 1928 in recognition of his work on typhus fever will be a source of gratification to all interested in the progress of medicine and to epidemiologists in particular. Dr Nicolle's researches on the causation and prophylaxis of typhus, which have been carried on for nearly a quarter of a century, were first undertaken in connexion with an epidemic which occurred in Tunisia in 1906-9, when he was able to show that the chimpanzee could be infected with the typhus virus by the injection of a small amount of blood from a patient in the acute stage of the disease. Subsequently he found that the lower apes could be similarly infected by inoculation of the blood of the chimpanzee, and that the infection could be transmitted from monkey to monkey by the bites of infected body lice. The demonstration of the louse as the agent in transmitting the disease was of far-reaching importance, and, like Dr Nicolle's other investigations, it was confirmed by workers in the United States and in other countries. Dr Nicolle also found that the guinea-pig could be successfully inoculated by injection of typhus blood. Although this animal showed no sign of disease as the result of inoculation except by a rise of temperature, it served a useful purpose in forming a storehouse of the virus for laboratory purposes. Of greater practical importance was Dr Nicolle's discovery that injection of the serum of patients convalescent from typhus was able to confer an immediate though transient immunity to the disease. A similar protective quality in the serum of convalescents he also showed to be present in the case of undulant fever and also in that of measles some years before Degkwitz made the method popular throughout Germany. One of his latest contributions¹ indicates that Dr Nicolle, in collaboration with Drs Sparrow and E. Conseil, is conducting experiments on active immunization against typhus whereby a more permanent immunity can be conferred. In addition to his article on typhus written in conjunction with Dr E. Conseil in the *Nouveau Traité de Médecine* of Roger, Vidal, and Teissier, Dr Nicolle is the author of numerous contributions on infectious diseases, including measles, influenza, chaneroid, and undulant fever.

¹ Arch. Inst. Pasteur de Tunis 1927 xvi p. 1. Also traced in *Bulletin of Hygiene* 1927 ii p. 823.

PARLIAMENT AND STATE MEDICINE

Dr F E FREMANTLE, M P, on taking the chair of the Section of Epidemiology and State Medicine at the house of the Royal Society of Medicine on October 26th, delivered in address on "The authority of Parliament in relation to epidemic disease," but actually he took a much wider range than was suggested in the title. The common idea of Parliament as a godmother, fairy or otherwise, who did everything for her protégés was, said Dr Fremantle, fairly widespread, though it was not one that those familiar with the progress of State medicine would hold. In fact, the development of interest in questions of health, as well as in other questions, had not been from the centre to the localities, but from the localities to the centre. Such control, of a public health kind, as existed in earlier centuries arose gradually under magistrates and borough corporations—witness the regulations governing offensive trades, disposal of street refuse, and pollution of rivers. Enterprises associated more or less directly with health, such as waterworks, were started, not as the result of any central or parliamentary stimulus, but as municipal undertakings, or, as in the case of the bringing of the New River to London by Hugh Myddelton, as the result of private munificence. Parliament in the past had taken very little note of epidemics unless it had happened to be frightened by them. In the fourteenth century Parliament was even prorogued for a time, and later prorogued *sine die*, because the approach to Westminster was too perilous on account of the plague. Many public works which later came to have an important health aspect were originally undertaken for quite other reasons. The first Sewers Commission Act, in the reign of Henry VIII, was passed, not with the object of draining refuse, but as a provision against floods. The presence of decimating disease, or famine, or riot was commonly the spur to parliamentary action. The growth of public health organization the speaker compared to the growth of a tree. It had no mechanical robot-like constitution. It was a living organism, growing upwards, pruned on this side and that, but always showing fresh growth. Legislation had proceeded *ad hoc*, without system. In recent times, for example, the Midwives Act had placed midwives, not under any central health authority, but under the Privy Council. The school health system was handed over to the Board of Education. The National Health Insurance Act, with its great preventive ideal, and its special attack on tuberculosis, was the occasion for setting up completely new machinery, independent of the local sanitary authorities and the county councils. Tuberculosis orders relating to milk were within the province of the Ministry of Agriculture. Research was under the Privy Council. The War Office, Admiralty, and India Office had their medical services apart from the Ministry of Health. The Home Office was concerned with health in factories, the Board of Trade with safety in mines, and innumerable other instances could be cited. This was done deliberately because it was considered more efficient to spread health responsibility over as wide an area as possible. At the same time, an effective liaison was very necessary. Coming to a description of parliamentary procedure, Dr Fremantle reminded the meeting that the House of Lords, or at least the forty or fifty peers who habitually attended, while not a representative body, made an excellent revising chamber, and also initiated useful legislation. The House of Commons, in theory representative, included by chance those who were expert on most subjects. Among its members were thirteen medical men, five of whom were general practitioners. In Parliament they represented, not the profession but their several constituencies, though occasionally the utterances of one or other of them were quoted in the press as the opinion of the profession. With

regard to Government bills, during the drafting stage the Minister was prepared to receive suggestions from many quarters and to meet objections, but after the second reading stage it was very difficult to secure the insertion of any important amendment. The revision in committee, however, was quite a real one. The private member helped to focus opinion inside and outside the House of Commons, but, of course, party discipline was very complete, which meant that criticism was difficult. Occasionally a *measuro* was left to the free vote of the House, as in the case of the recent Edinburgh Corporation Bill dealing with venereal disease, on which the medical members were sharply divided. Most public health bills did not have to run such a gauntlet, their fate was decided in the local legislation committee upstairs. Private members' bills seldom got through, unless they were on small points, owing to the pressure on parliamentary time, but the Government departments were often glad to make use of legislation originally promoted by a private member. Even if the private member's bill did not get far, it was a useful means of ventilating matters which might later be the subject of statutory enactment. The private member had a good deal of influence at question time. Questions in Parliament, said Dr Fremantle, might be asked with the object of obtaining and broadcasting information, of airing grievances, of checking national or local administration, or of advertising the member putting the question. One of the most eminent of civil servants, now retired, had told him that he hated questions, but they were positively the only thing which kept the civil service up to the mark. Finally, Dr Fremantle voiced the need for an authoritative body of medical opinion to which members of Parliament, medical or otherwise, could refer.

RECENT EPIDEMICS OF DENGUE

THE wildfire spread of dengue has long been recognized as one of its characteristic features, and perhaps the most dramatic exhibition on record of this faculty has been presented in Greece this autumn, in Athens alone 239,000 cases occurred in the first month, with over 400 deaths. The outbreak became a news item in the daily press, and is discussed in an article in the League of Nations monthly epidemiological report for September. Dengue was unusually widespread in Colombo and in Durban in 1926, and it seems to be suggested that the disease may have extended from there to Greece. Whether this is so or not, there was no lack of dengue on both sides of the Mediterranean in 1927. Indeed, Greece itself experienced in that year something worse than is conveyed by the sentence in the report: "It appears that dengue has been present in Athens since September, 1927." In actual fact the epidemic of that year in Greece involved 20,000 cases, and was the subject of a report to the Office International d'Hygiène Publique.¹ Tunis was sharply infected in August, 1927, one-fourth of the population being affected by the disease in mild form, there was also a mild but widespread infection in Spain (Andalusia). Cases also occurred in 1927, according to the League's report, in Algiers, Syria, and Palestine. These may have been more numerous than is generally realized, for the Egyptian occurrences in 1927 are dismissed by the report in the words, "there were cases also in Egypt," though Kamal² reported epidemic dengue in Cairo with thirty to forty daily admissions to hospital, "while thousands of patients were attacked in the town." It is noteworthy, too, that many of the Cairo patients were seriously ill. Apparently dengue has been occurring in localized epidemics in French tropical Africa. Legendre³

¹ Copanaris P. Sur le récente épidémie de dengue en Grèce. *Bulletin Office International d'Hygiène Publique* 1928 vol 20 p 899.

² Kamal H. The 1927 Epidemic of Dengue in Egypt. *British Medical Journal* 1928 June 30th p 1104.

³ Legendre J. La dengue ouest africaine. *Presse Médicale* 1926 (2), p 1012.

speaks of dengue as an indigenous disease of French West Africa, "hitherto insufficiently appreciated, not confined to the Haute-Volta district, and breaking out each year in more or less epidemic form according to the number of susceptibles." Schmonilo⁴ confirms this for the French Sudan. Apparently, too, dengue has been occurring in the French Congo, where prominence of the rash and lack of the characteristic pains caused Lefrou⁵ to revive the old name *fièvre rouge*. It is interesting to note that in the Spanish outbreak of 1927 the character of the rash at first suggested some new disease, and in one account of the epidemic the disease is called "colorado," which used to be applied to dengue in Spanish America. The 1928 epidemic in Greece has been characterized by an unusual severity of the clinical features, nervous symptoms have been prominent, and encephalitic and psychical phenomena have occurred. Localized oedema and red patches have signalized local involvement of the peripheral vasomotor system. Jaundice, common in 1927, has been rare in 1928. Many of the more serious features noted in Greece in 1928 seem to have been seen, but less frequently, in the Cairo epidemic of 1927. The deaths in Greece have been mainly among the aged and invalid. As a result of this epidemic far-reaching sanitary measures are being adopted there. It is easy to believe that nothing short of such a dramatic outbreak could bring about such measures in that country, and Greece may count itself fortunate that it was not visited by one of the death-dealing pestilences.

THE AMERICAN COLLEGE OF SURGEONS

We publish elsewhere a short account of the recent meeting in Boston of the American College of Surgeons. In his presidential address on October 12th Dr. Franklin H. Martin of Chicago, one of the founders of the College in 1913, gave an account of its history, aims, and accomplishment. That the American College resembles its British and Irish forebears only in name was brought out by Dr. Martin when he said that after studying the methods of our Colleges he and his friends decided that there was no reason why they "should begin by adapting obsolete plans to a twentieth century programme," as the requirements and tests of the Royal Colleges "were formulated before modern surgery came into existence," and were similar to those applied in America to candidates for resident surgical posts in hospitals. Therefore it was determined to exact the following qualifications for the F.A.C.S. Graduation from an "A Class" medical college, one year's service as intern (house-surgeon), and two as surgical assistant, five to eight years' special training, moral and ethical fitness, specialization (that is, his practice must be 85 per cent surgical in cities of over 50,000 inhabitants and 50 per cent in smaller communities). Not only all these proofs of fitness are required, but the candidate must "file with a committee of competent surgical specialists a sufficient number of case records of major operations which he has performed himself" as a test of his all-round fitness. "These records are carefully scrutinized by a committee of practical surgeons—teachers in the four A Class medical schools of Chicago." From 25 to 51 per cent of the records are not accepted as sufficient. Several features of this institution and its organization will strike the European reader. In the first place they show how far America has departed from the former custom of allowing every man to practise any calling he likes, without test or licence, at his own sweet will. Secondly, it seems to us that there is too much talk of standardization of hospitals and of surgery. The object of the College is stated to be "to standardize the practice of surgery."

Unless the word "standardize" is used in a different sense in the United States from what is generally accepted here, we fear that such standardization is likely to come perilously near to stagnation. Thirdly, these regulations, whether so intended or not, may have a tendency to segregate operating surgeons from the rest of the profession, and to make it impossible for a general practitioner to take up surgery on an equality with the Fellows of the College, who will alone be considered eligible for surgical hospital appointments. As regards the ethical rules and the condemnation of the offence of fee-splitting, to which prominence is given, while wholeheartedly condemning this practice it occurs to us that there is here some overlapping of the field covered by the American Medical Association, which has already done so much to raise professional standards in the United States.

PHYSICAL EDUCATION IN SWEDEN

POLITICAL philosophers from time to time remind us of the great debt the world owes to the smaller nations, and the history of Europe is rich in examples of the way in which they have contributed to the advancement of science, art, philosophy, and civilization generally. It appears that in what may be called the positive side of public health Sweden has much to teach us, as was shown in a public lecture given by Mr. Torben Grut, architect to the Swedish royal family and of the Swedish Royal Office of Public Buildings, under the auspices of the Chadwick Trust, at the Royal Institute of British Architects, on October 25th. Mr. Grut's lecture fell into two main parts—the first relating to the Swedish town-planning law, and the second to the design of buildings for gymnasiums and physical training generally. The town-planning powers exercised by the provincial Governments in Sweden under the law of 1926 are evidently wider than those held by local authorities in this country. Before any area can be used for building purposes a town-planning scheme must be approved by a local board, assisted by professional advisers. Sanction may be refused for the use of unrecuttable ground, while the building regulations govern not only matters of sanitation and construction, but also the disposition and height of buildings in a scheme. Mr. Grut stated that a great improvement had already resulted from these measures, and there is no doubt that the universal application of such a method of control over building would be of considerable value in Great Britain as a means of preventing disorderly development on the fringes of the towns and the desecration of the countryside by indiscriminate building. Whether the adoption of adequate legislation is practical politics or not is another question. The lecturer, after discussing the town-planning law, devoted himself to the question of physical education—a topic which one readily associates with Sweden and with the name of Ling. He explained that the close confinement of school children in winter in an atmosphere overheated by the use of central heating had created a demand for the reform of physical education and for the appointment of highly trained games masters, charged with the supervision of the general welfare of their pupils as well as with the preservation of their health. The old Central Gymnastic Institute, founded by Ling, is accordingly being transformed into a university of physical education, which is to be housed in a new building designed by Mr. Grut. Numerous lantern slides of his plans and drawings for this structure, and for other buildings—gymnasiums, stadiums, covered tennis courts, covered swimming pools, etc.—were shown, and explained by the lecturer. Many of his designs have been prepared as standard patterns to suit the needs of towns of varying size, while all are characterized by fitness to purpose and economical construction. Perhaps the most striking feature of the lecture was not, however, the abundance of details

⁴ Schmonilo S. Au sujet de la dengue au Sudan. *Bulletin de la Société Path. Exot.* 1928, vol. 21, p. 577.
⁵ Lefrou G. Pseudo-dengue ou fièvre rouge congolaise. *ibid.* 1927, vol. 20, p. 779.

of interest in it, but the significance of what it implied. In Great Britain the use of the term "public health buildings" would signify, to most people hospitals, dispensaries, clinics, or, possibly, administrative offices. Mr. Guet took it to mean buildings for physical training and games. There is underlying this difference, perhaps, an unintended criticism of the passive conception of health so common in this country, and so opposed to the "sanitary idea" which inspired the lifework of Sir Edwin Chadwick. If he were alive to-day Chadwick would have found in the Swedish view of public health something positive and creative—a reflection of his own faith—and it is salutary to be reminded that even the most complete system of preventive medicine is only one part of Hygiene whose ultimate aim must be to raise the standard of fitness for the individual and to improve the physique of the community as a whole.

INTRADERMAL TEST FOR TUBERCULOSIS IN CATTLE

THE Tuberculin Committee of the Medical Research Council has recently issued a report¹ on a modified intradermal test devised in 1925 to replace the subcutaneous test, which though subject to fallacies and difficulties of interpretation, has hitherto been generally employed in testing cattle for tuberculosis. This modified test involves two injections of tuberculin—a "sensitizing" dose and a "reacting" dose—on different occasions, and subsequent observation of the size and certain clinical features of the resultant swelling. Professor J. Basil Buxton, F.R.C.V.S., and Dr. A. Salusbury MacNalty, the authors of the report, were appointed in 1927 to collect the views and experience of those veterinary surgeons who were known to be using the test in various parts of Great Britain. They accordingly sent a detailed questionnaire to one hundred veterinary surgeons, and the report consists mainly of a critical analysis of the replies (seventy-seven in number) they received. The general conclusion is that the vast majority of veterinary surgeons who have experience of the double intradermal test regard it as much more trustworthy in its results and much easier to conduct than the subcutaneous test. They find that the test can be readily performed under farm conditions, that its technique is easily acquired, that it has little or no effect upon milk yield, and that it may be applied without risk to pregnant cows and to young animals. This view as to its value has been repeatedly confirmed by necropsy. The general opinion, moreover, is that the ophthalmic test is unreliable, and the Tuberculin Committee suggests, therefore, that its use in conjunction with the double intradermal test should no longer be prescribed but left to the discretion of the veterinary surgeon. The report concludes with a detailed account of the method of carrying out the double intradermal test and an appendix on the potency of tuberculin.

DYSPEPSIA IN CHILDHOOD

THE dyspepsias after the age of infancy are notoriously difficult to diagnose, often masquerading as other diseases. At a meeting of the Children's Section of the Royal Society of Medicine on October 26th, Professor Jules Taillens of Lausanne dealt with this subject, of which he has made a special study for the past ten years. He pointed out that children do not complain of symptoms of indigestion until about 10 years of age, so that dyspepsia might pass almost unnoticed unless observers were on the look out for it. Dyspepsia especially in its severe forms, was apt to be very misleading for emaciation, general poor condition, fever and often cough were frequently present and led

to the erroneous diagnosis of tuberculosis. Dyspepsia in childhood was also a purely functional complaint without any serious organic lesion, and hence complete cure was much easier than in the case of adults as long as a correct diagnosis was made and the proper treatment carried out. Professor Taillens emphasized that although the digestive processes consisted of several separate actions, yet they were dependent on each other, and hence most digestive troubles begin with disorders in the stomach. Examination of over 200 recent cases showed that three-quarters of them had hyperchlorhydria. For the investigation of this Professor Taillens used a simple test meal, the ingredients of which varied with the age of the child, but were always as like a normal meal as possible. This was withdrawn about one to one and a half hours after the meal, and the free and combined hydrochloric acid were estimated. Long experience had shown him that the total hydrochloric acid in normal children was never more than 0.2 per cent, but in some of the cases of dyspepsia he found figures as high as 0.5 or even 0.6 per cent. In the treatment of these cases attention to diet was important. Professor Taillens allowed a "white diet," consisting of milk, farinaceous food, egg, white meat after the age of 5, biscuits, but no bread. The child was made to rest, with the application of heat to the abdomen. Alkalis were administered in the form of sodium bicarbonate after meals, and in bad cases a special preparation of aluminium hydrate was given before meals. Under this treatment rapid improvement could be expected with a big gain in weight, and a stay of only a few weeks in hospital would produce a cure, as evidenced by repeated regular examinations afterwards.

BRITISH COMMITTEE ON RHEUMATISM

SINCE its formation some three years ago the British Committee on Rheumatism has been a committee of the International Society of Medical Hydrology. We are informed that a meeting to consider the reorganization of this committee on a wider and more permanent basis, and as an independent body, will be held at the house of the Royal Society of Medicine, 1, Wimpole Street, W.1, on Wednesday next, November 7th, at 5 p.m. It is hoped in this manner to correlate and to guide with greater success the various efforts now being made in the campaign against rheumatism, especially as regards methods of investigation and methods of treatment and the selection and classification of cases. Any member of the medical profession who is interested in this proposal is invited to attend the meeting.

ENCROACHMENTS ON PRIVATE PRACTICE

THE opening pages of the *Supplement* this week contain the full text of a report on encroachments upon the sphere of private practice by the activities of local authorities. This important document is submitted to the Divisions, by order of the Council of the British Medical Association, in the hope that they will give it early and careful study, and forward their comments by January 5th next. The report will be considered by the Council in the light of these comments at its February meeting, and as then amended will be presented to the Annual Representative Meeting at Manchester in July. The long appendix to this memorandum will repay careful study. It consists of an account by the Medical Secretary, Dr. Alfred Cox, of his investigation at first hand into the working of maternity and child welfare centres and school clinics in certain areas.

WE much regret to announce the death in the hunting field of Dr. Louis Cassidy, Master of the Coombe Hospital and gynaecologist to the Royal City of Dublin Hospital.

¹ Special Report Series No. 122. H.M.S. Stationery Office or through any bookseller. Price 1s. 6d.

Proba et Vetera.

DR BENJAMIN RUSH

At a time when the medical profession has been paying a special tribute to the memory of John Hunter it is meet and just to call to mind what manner of men were his contemporaries. Giants there were, though of lesser stature than the master himself, and as not least among them should be reckoned Dr Benjamin Rush of Philadelphia.

Benjamin Rush was born in 1745 on a farm a few miles from that city, and was educated at Princeton, where he graduated A.B. in 1769. He then commenced the study of medicine, being apprenticed to Dr John Redman of Philadelphia, with whom he worked during the following six years. In 1766 he went to Edinburgh to complete his education, and received the M.D. degree there in 1768. He returned home next year, and though only 24 years of age was at once appointed professor of chemistry in the university of his native city. During the War of Independence he served as surgeon-general of the Middle Department of the Continental Army, and was one of the signatories of the Declaration of Independence. In 1791 he was elected to the chair of the Institutes of Medicine, and six years later attended Washington during his last illness. Rush himself died in 1813. He had a very extensive practice, being credited with attending and prescribing for one hundred patients in a single day.

Rush's lectures attracted large numbers of students, and he managed to find time to write on a variety of subjects connected with medicine and the allied sciences. Most of his original papers were collected into four volumes, entitled *Medical Enquiries and Observations*. There is quite a modern flavour about the titles of some, such as

"An account of the cure of several diseases by the extraction of decayed teeth," and "An account of the influenza as it appeared in Philadelphia in the autumn of 1789, in the spring of 1790, and in the winter of 1791." "An enquiry into the cause and cure of sore legs" is peculiarly topical in view of the investigation into varicose ulceration recently set on foot by the Science Committee of the British Medical Association. In an essay on "The cause of animal life" there occurs the following observation: "The effusions even of the imagination of such men as Mr Hunter are entitled to respect. They often become the germs of future discoveries." This is a striking testimony to the wisdom of the author, while, incidentally, it shows how closely the master's work was being followed in America even in those days of strained political relations.

From the point of view of general interest an address delivered in February, 1789, entitled "Observations on the duties of a physician and the methods of improving medicine," illustrates best both the character and outlook of this wise physician. The subject no less than the author's method of dealing with it is sufficient excuse for recalling it in some detail. He begins by advising such of his audience as intend to settle in the country to establish themselves on farms for the following reasons:

It will reconcile the country people to the liberality and dignity of your profession by showing them that you assume no superiority over them from your education. This will prevent envy and render you acceptable to your patients as men as well as physicians.

The resources of a farm will create such an independence as will enable you to practise with more dignity and at the same time screen you from the trouble of performing unnecessary services to your patients and will prevent your cherishing for a moment an impious wish for the prevalence of sickness in your neighbourhood. Avoid singularities of every kind in your manners, dress and general conduct. The profane and indecate combination of extravagant ideas improperly called Wit, and the formal and pompous manner should be all avoided as incompatible with the simplicity of science and the real dignity of physic.

Let me advise you in your visits to the sick never to appear in a hurry nor to talk of indifferent matters before you have made the necessary enquiries into the symptoms of your patient's disease. Avoid making light of any case; this consideration should make you anxious and punctual in your attendance upon every acute disease and keep you from risking your reputation by an improper or hasty prognosis. Do not condemn or oppose unnecessarily the simple prescriptions of your patients. Yield to them

in matters of little consequence but maintain an inflexible authority over them in matters that are essential to life.

Preserve upon all occasions a composed or cheerful countenance in the room of your patients, and inspire as much hope of a recovery as you can, consistent with the truth, especially in acute diseases. The extent of the influence of the will over the human body has not yet been fully ascertained. Make it a rule never to be angry at anything a sick man says or does to you. Sickness often adds to the natural irritability of the temper.

You will find it difficult to attach your patients to you by the obligations of friendship or gratitude. You will sometimes have the mortification of being deserted by those patients who owe most to your skill and humanity.

We should make our charges as moderate as possible and conform them to the following state of things. Avoid measuring your services by scruples, drachms, and ounces. It is an illiberal mode of charging. On the contrary, let the number and time of your visits, the nature of your patient's disease, and his rank in family or society determine the figures in your accounts. It is just to demand more for risking your life by visiting a patient in a contagious fever than for curing a pleurisy. If a rich man demand more frequent visits than are necessary and if he impose the restraints of keeping to hours, by calling in other physicians to consult with you upon every trifling occasion, it will be just to make him pay accordingly for it. I shall only remark further upon this subject that the sooner you send in your accounts after your patients recover the better.

Give me leave to recommend you to open all the dead bodies you can without doing violence to the feelings of your patients or the prejudices of the common people. Permit me to recommend to you further the study of the Anatomy (if I may be allowed the expression) of the human mind called metaphysics.

Let me remind you that improvement in medicine is not to be derived only from colleges and universities, those facts which constitute real knowledge are to be met with in every walk of life. Let me advise you to converse with nurses and old women. They will often suggest facts in the history and cure of diseases which have escaped the most sagacious observers of nature. There is yet one more means of information in medicine which should not be neglected, and that is to converse with persons who have recovered from indispositions without the aid of physicians. Examine the strength and exertions of nature in these cases and mark the plain and home-made remedy to which they ascribe their recovery.

Steady simplicity in the preparation of your medicines by using medicines in a simple state you will obtain an exact knowledge of their virtues and doses and thereby be able to decide upon the numerous and contradictory accounts which exist in our books of the character of the same medicines. Avoid sacrificing too much to the taste of your patients in the preparation of your medicines.

With a few amendments here and there to bring it into line with present-day knowledge and practice this address by Dr Benjamin Rush in 1789 would serve equally well at a prize-giving in 1929.

ROYAL MEDICAL BENEVOLENT FUND

SUBSCRIBERS and donors to the Royal Medical Benevolent Fund are asked to forward their subscriptions for the current year before December 31st, any subscription received after that date will not appear in the yearbook of 1928, but will be included in the accounts for 1929.

At the last meeting of the committee fifty applications for grants were considered and £839 was voted to forty-seven cases. Not only the activities of the Fund, but the amount of help given, has to be restricted according to the subscriptions received. In view of the many sad cases where help is greatly needed, particularly during the winter months, an urgent appeal is made for contributions. Cheques should be sent to the Honorary Treasurer, 11, Chandos Street, Cavendish Square, W.1. The following short notes on three of the cases assisted at the last meeting show how great is the need of help.

M.B. aged 75. Following an operation had a cerebral haemorrhage and has been bedridden for 6 years. His sister is entirely dependent on him. Some of his rooms have been let and it is hoped will bring in an income of £120 a year if the tenants remain. Voted £40 to help over the present time of difficulty.

L.R.C.P. aged 79 married. Owing to age had to retire in 1922. Capital in now exhausted. His wife worked as a visiting nurse to make a living for both her earnings being the only income. She is now suffering from tuberculosis and is unable to support her husband. Voted £40.

Widow aged 59 of L.R.C.P. Completely destitute. She struggled for an existence doing envelope addressing but has now completely broken down. Her eyesight is affected and she is unable to do anything. Fund granted £25 and the Guild £25.

The Royal Medical Benevolent Fund Guild still receives many applications for clothing, especially for coats and skirts for ladies and girls holding secretarial posts and suits for working boys. The Guild appeals for second hand clothes and household articles. The gifts should be sent to the Secretary of the Guild, 58, Great Marlborough Street, W.1.

THE MATERNITY SERVICE AND LOCAL AUTHORITIES

ADDRESS BY THE MINISTER OF HEALTH

MANY hundreds of women, representing societies and municipal organizations concerned with work amongst mothers and infants, assembled at the Central Hall, Westminster, on October 30th, for a conference on maternal mortality. The meeting was a sequel to a similar conference held on February 28th last (*British Medical Journal*, March 3rd, p 368), at which a resolution was carried recommending certain lines of investigation and action with a view to reducing the high death rate of mothers in childbirth. This further conference was called principally with the object of reporting on the steps taken in this direction during the interval. The body summoning the conference was the Maternal Mortality Committee, a voluntary organization (not to be confused with the departmental committee), of which Mrs H J Tennant is chairman, and Miss Gertrude Tuokwell honorary secretary.

Mr NEVILLE CHAMBERLAIN, the Minister of Health, who was accompanied by Sir George Newman, attended, and delivered an address. After some general observations on the melancholy fact that the lives of 3,000 women every year in this country should be sacrificed in childbirth, he exhorted the gathering to "patience and courage"—a phrase which evoked some sharp comments from his feminine critics afterwards—in view of the inquiries now proceeding. The attack on this problem, he said, presented two aspects. It was necessary, first of all, to stimulate local authorities and others responsible in order that the necessary assistance might be available for these women, and then to educate public opinion so that those who needed assistance might take timely advantage of it. He expressed the indebtedness of his department to the British Medical Association for its assistance in the inquiry into maternal deaths and all cases of puerperal fever—an inquiry which local authorities have recently been urged to make. The information obtained in this inquiry, which was being considered by the departmental committee on maternal mortality, over which Sir George Newman presided, was being kept entirely private, neither the name of the patient nor of the doctor or midwife in any case being divulged. Further inquiry was also being made, again by a departmental committee, presided over by Sir Robert Belam, into the training of midwives and the conditions of the midwifery service. Mr Chamberlain then invited the criticism of his audience in a reference to the action of the Ministry with regard to the supply of milk for maternity and child welfare centres. He explained that all that he had done was to intimate to certain authorities—distressed areas excepted—that the Exchequer contribution for this purpose must not exceed a certain amount. If more milk was needed there was no reason why it should not be provided out of the ordinary local revenue, but after the prolonged industrial disturbance of 1926, which seriously reduced the national revenue, some reduction must be made even in such useful expenditures. Passing on to the suggestion that the Insurance Act should be amended so as to provide for mothers medical assistance and midwifery service before and after childbirth, he said that he thought there was general agreement that the present system, under which maternity benefit was given in a lump sum in cash, was not the best that could be devised. But the problem was difficult, as the Royal Commission realized, and for the moment he thought the only chance of progress was for some of the societies with better-off members to devise a scheme of their own. Mr Chamberlain closed with a word of reassurance about the effect on voluntary associations, particularly those dealing with the unmarried mother, of impending local government legislation. While these associations would be supervised by the councils of counties and county boroughs, nobody need be afraid that the contributions were going to be stinted or that the hold of the Ministry would be relaxed.

Dr C E S FLEMING addressed the conference on the causes for the maintenance of the high mortality rate. He was inclined to think that there was not much wrong anywhere in midwifery practice, but that there was something

wrong everywhere. Mortality and morbidity attending childbirth had been for too long taken for granted. Many patients demanded intervention with a view to quick and easy labour, and it was difficult for the doctor—more difficult for him than for the midwife—to resist such importunities. Sufficient attention had not been paid to the fact that the labour was only one phase of the process, and ante-natal and post-natal care was necessary. There had also been an inadequate appreciation of the value and position of the midwife in the service. The division of work between doctor and midwife was not quite so easy as it might appear, and until there was a sufficient supply of thoroughly qualified midwives there would have to be some system of supervision by the medical man in ante-natal work, but care must be taken that such supervision did not interfere with the responsibility of the midwife, because that might react on her carefulness.

Dr MARION PHILLIPS presented a report on the action taken since the last conference in February. The most interesting part of this report was the result of an inquiry into the adequacy of the maternity services in the areas of the local authorities. Out of 48 counties, returns had been received from 42, and out of 79 county boroughs, from 74. Although some of the returns are indefinite and certain assumptions have had to be made, the results may be usefully set out in tabular form.

	County Councils (42)	County Borough Councils (74)
Employ health visitors	All	All
Have ante-natal clinics	32	68
Provide subsidies to enable midwives to practise in districts which otherwise could not support them	13	4
Pay part-fees to midwives when patients cannot afford full fees	9	Not ascertained
Provide beds for patients whose home circumstances are unsuitable	31	68
Reserve beds for ante-natal observation	14	48
Reserve beds for treatment of puerperal sepsis	22	57 (9)
Provide milk or food during part of pregnancy and lactation	23	72
Pay fees of doctors called in emergency	All	All
Pay consultants fees in complicated cases or puerperal infection	16	37
Provide skilled nursing for patients confined at home	17	32
Provide convalescent home treatment after confinement	12	Indefinite
Assist unmarried mothers	19	22

Roughly it appeared, said Dr Phillips, that about 16 county councils and 45 county borough councils were aiding the maternity service of the district by putting into force half or more of the provisions for which a grant in aid could be obtained. It was noteworthy that it was not the richest areas which were, in general, doing most.

When the meeting was thrown open for general discussion, many speakers, including several who were described as women aldermen or councillors, criticized the Minister for his action in connexion with the milk supply, and also, as they alleged, for holding up schemes for clinics or maternity homes. The question of birth control also raised its head, and Mrs BERTRAND RUSSELL gave some figures as to the increase of the miscarriage rate in Germany (where miscarriages were notifiable) from 5-10 per cent of all pregnancies in 1909 to 40-50 per cent in 1926. She said that it was impossible to believe other than that this was in response to the practice of artificial abortion by desperate women. No inquiry into the whole question of maternal mortality could be blind to the alternatives either of legalizing abortion or of providing proper contraceptive measures at clinics—a statement which was received with loud applause from a section of the conference and no audible dissent.

A resolution was carried welcoming the appointment of the two departmental committees and the co-operation of the British Medical Association in these steps and its interest in the better training of medical students in midwifery, noting also with regret the inadequacy of the maternity services in many parts of the country.

EIGHTEENTH ANNUAL CONGRESS OF THE AMERICAN COLLEGE OF SURGEONS

[FROM A CORRESPONDENT]

THE eighteenth annual congress of the American College of Surgeons took place in Boston, Massachusetts, from October 8th to 12th. As usual, it was well attended, there being present 2,500 delegates and several prominent foreign guests. This meeting was especially worthy of note for the reason that its chief founder and director-general, Dr. Franklin H. Martin of Chicago, was its president for the ensuing year.

At the opening meeting, held on the evening of October 8th, an address of welcome was given by Dr. Fredric J. Cotton (Boston), chairman of the Committee on Arrangements. Dr. George D. Stewart (New York), the retiring president, gave an address, after which the foreign guests were introduced. These were Dr. Daniel J. Cranwell (Buenos Aires), Sir Charles P. B. Clubbe and Sir George A. Syme (Australia), Sir Charles Ballance, Mr. T. P. Dunhill, Sir Squire Sprigge, Mr. George E. Waugh (London), Dr. Percy T. Hughes (Bromsgrove, Worcestershire), Dr. T. de Martel (Paris), the late Dr. Louis Cassidy and Dr. Charles J. McAuley (Dublin), Professor Vittorio Putti (Bologna), Drs. Rafael Reygadas and Ulises Valdes (Mexico City), Mr. Charles G. F. Morice (New Zealand), Dr. Farquhar Macrae and Professor Archibald Young (Glasgow), and Sir John Lynn Thomas (Llechryd, Wales). In his inaugural address as president, on "The evolution of clinical medicine and surgery in relation to the preservation of health and life," Dr. Franklin H. Martin indicated that the next step in the direction of preserving health would be a campaign against the degenerative diseases. Problems of disease, one after another, had been and were being conquered, and not only the trained physician had this knowledge, but the educated layman too was prepared to accept preventive and curative scientific medicine as the recognized authority, and to submit himself to periodical medical examination.

The John B. Murphy Oration, on "Malignant bone tumours," was given by Dr. Vittorio Putti of Bologna, who began by remarking that surgical intervention was still the sheet anchor in treatment of malignant bone tumours. Uncertainty in diagnosis, hesitation on the part of the patient, reluctance of the surgeon to undertake a mutilating operation, inevitable and almost always useless attempts to make a conservative cure, were the causes of loss of precious time, and took from the radical operation most of its chances of success. Dr. Putti insisted that the crux of the problem was the difficulty in differentiating between the malignant and benign bone tumour in the stage early enough for operation to be effective. He expressed the hope that the treatment of bone sarcoma by x-rays had not yet reached its limit.

On this evening of October 8th Sir Squire Sprigge delivered the Huntean Oration, entitled "Grand curiosity, before a very large audience." He suggested that John Hunter's lack of education as a boy, with an intensive training as a young man, was the best he could have received in view of the work that he was to do. The ruling passion of his life was a curiosity which would not be satisfied until he had probed as deeply as possible into every problem. The orator drew an interesting comparison between the lifework of John Hunter and Harvey and between that of Lister and Hunter, and the leading theme that ran throughout the address was that John Hunter's obsession of insatiable curiosity, directed by a master mind, was the driving force which made of him the greatest and most original conformational anatomist the world had ever seen. On the same evening a symposium on arterial transplantation was held. Dr. Robert C. Coffey (Portland, Oregon), the pioneer of the method, read a paper on transplantation of arteries into the large bowel. Dr. Arthur H. Curtis (Chicago) discussed the same subject, and Dr. Charles H. Mayo (Rochester, Minnesota) spoke on contributing causes of genito-urinary anomalies.

On the evening of October 10th a special meeting of the Boston Surgical Society was held for the purpose of presenting the Henry James Bigelow medal to Dr. Chevalier Jackson of Philadelphia. This medal is given in recognition of great proficiency in surgery. Dr. William P. Graves, vice president of the society, gave an introductory address, and Dr. Harvey Cushing presented the medal. Before the medal was awarded Dr. Jackson gave an illustrated lecture on bronchoscopy, its history, methods, and benefits to mankind. A long series of pictures were shown in which were depicted the extraordinary range of articles capable of being inspired the commonest object in the case of infants being the safety pin. Dr. Jackson described how the bronchoscope could now be introduced as far as the diaphragm and manipulated dexterously, so that the

operator could often draw out the impacted or entangled safety pin, piece of jewellery, or what not. Especial attention was directed to the danger of infants swallowing peanuts, which have a peculiarly irritating action upon the mucosa, exciting violent inflammation, with a very considerable rise of temperature. Prohibition had had a significant effect upon the practice of bronchoscopy. When drunkenness was much more prevalent than at the present time it was no infrequent occurrence for an inebriated person to bolt large lumps of food requiring instant removal by mechanical means. The address and demonstrations left no doubt of the great value in skilled hands of bronchoscopic methods for removing foreign bodies introduced by way of the mouth. The speaker claimed that bronchoscopy was a useful aid to diagnosis in the detection of malignant diseases in certain situations.

On the evening of October 11th papers were read by Professor Archibald Young on sacro-coccygeal chordoma, by Sir Charles Ballance, on the International Cancer Conference and British Empire Cancer Campaign, by Dr. George Crile on the adrenaline factor in hyperthyroidism, while Sir John Lynn Thomas showed motion pictures on orthopaedic subjects.

On the evening of October 12th the convocation ceremonies took place. First, honorary Fellowships were conferred upon Sir Charles Ballance, Sir John Lynn Thomas, Sir Squire Sprigge, and Sir George Syme. The candidates for Fellowship, nearly seven hundred in number, were presented, and Fellowships were conferred. The president, Dr. Franklin H. Martin, gave the presidential address, and Dr. William J. Mayo (Rochester, Minnesota) the Fellowship address.

In regard to the clinical activities of the Congress it must suffice to say that at the numerous hospitals of Boston and neighbourhood, and at the Harvard Medical School, a large programme was carried through successfully. Many symposiums were held on special surgical subjects, industrial surgery, and other matters concerned with surgery. This brief notice would, however, be incomplete without some reference to the outstanding problem which the American College of Surgeons has grappled with of late—namely, the standardization of hospitals. The College has set up a minimum standard for hospitals, and those hospitals which, in the opinion of its inspectors, do not reach this standard are not approved. At the present time it is the aim of every hospital in the United States to be approved by the College, and it has come to be regarded as a stigma on any institution for the treatment and care of the sick and injured if it fails to satisfy the College inspectors. Already, it is said, this hospital policy of the College has resulted in raising greatly the efficiency of North American hospitals, and this hope is expressed that future results will be even more satisfactory.

Surgeon General Meade W. Ireland of Washington has been elected president of this College to succeed Dr. Martin next year, and Drs. William E. Pearson (Iowa) and Perry G. Goldsmith (Toronto) have been elected vice presidents. It only remains to add that the hospitality of the members of the medical profession of Boston to their visiting brethren was unbounded, and that the organization of this meeting left nothing to be desired.

AN INTERNATIONAL INQUIRY INTO SYPHILIS

UNDER the auspices of the Health Organization of the League of Nations a meeting of experts on syphilis and cognate subjects was held at Geneva from October 8th to the 10th. The following were present: Professor Jadassohn, director of the University Skin Clinic, Breslau (chairman), Dr. T. Madsen, director of the State Serum Institute, Copenhagen, Colonel L. W. Harrison of the British Ministry of Health, London, Dr. Louis Quérat, president of the Ligue nationale française contre le Péri venérien, Paris, Dr. J. H. Stokes, professor of dermatology and syphilology in the University of Pennsylvania, Philadelphia, and chairman of the Scientific Committee on Research in Syphilis, New York.

The chairman referred to preliminary discussions between Dr. Madsen, Colonel Harrison, Professor Jadassohn, and Professor Rasch, director of the State Hospital, Copenhagen, which were held at Copenhagen on June 6th and 7th and also to matters which had been the subject of correspondence between the experts. At his proposal the following agenda was adopted:

1. Variations in the prevalence of syphilis. Methods of determining the underlying causes.

2. Prevention of syphilis. Comparative study of the experience gained by the public health agencies concerned in various countries. Proposed plan of inquiry into the effectiveness of the treatment of syphilis in selected clinics and dispensaries of several countries.

3 Miscellaneous Methods of teaching medical students the modern treatment of syphilis in the medical schools Standardization of drugs used in treatment of syphilis (work of the Permanent Standards Commission)

After discussion of these points the conclusions were summed up in the following terms

INQUIRY INTO SYPHILIS TREATMENT

The experts have been struck by the fact that, in the fight against syphilis, the results obtained have not been such as the almost universally recognized progress of syphilis therapy would give reason to expect. The explanation which suggested itself, and which has indeed been confirmed by various authorities, is that new discoveries in the matter of syphilis diagnosis and therapy are not exploited everywhere in the right way and with such promptness as would be desirable, and that a uniform generally recognized method of treatment does not exist as yet. The experts therefore considered whether a statistical compilation regarding the various methods of treatment in clinics, dispensaries, etc., would not enable a better general idea to be gained of the efficacy of these methods.

The material available at individual clinics is large enough, and has usually been treated by one, or at most, a very few methods. The attempt must therefore be made to bring together as much material as possible from different clinics in different countries to enable the various methods to be compared on the broadest possible basis. In this connexion it appeared desirable to keep in view the two purposes to which every treatment of syphilis should be directed—namely, the suppression of contagiousness as quickly and as effectively as possible, and the protection of the patient from the severe late effects of syphilis.

The experts recommend that the work be organized on the following lines. The material from the various clinics which are ready to participate would be sent to the health section acting as central bureau of this inquiry on cards relating to individual patients ('individual case record'). On the basis of the material thus received the bureau would then work up the various questions which arise in connexion with the treatment of syphilis and its results. For this purpose a large number of cards, giving as accurate particulars as possible, will be required. Directors of clinics would therefore be requested to work up their cases for a given period of years to be determined by them, and would include all cases of primary, secondary, and tertiary syphilis which have been under observation in their clinics for more than six months, and all the older cases for which adequate medical histories are available. Beyond this, however, no further selection of cases would be made. In addition to the cards, which will be filled in under his supervision, the director of each institute will also be asked to prepare a general statement of the principles which he employs, or of the various principles which he has applied at different times.

Apart from this retrospective statistical compilation, it should be suggested to those clinics which are prepared to place their material at the disposal of the Health Organization in this form, that they should start at a given date, recording all newly arriving cases of (fresh or old) syphilis on the lines of these individual cards, in order that, a few years hence, they may be in possession of records which will lend themselves without further modification to these statistical uses. It would be desirable that in the larger centres those agencies which are concerned with this matter—for instance, insurance funds, private institutions, and dispensaries—should combine for the purposes of this investigation.

PROPERTIES OF DRUGS USED IN TREATMENT OF SYPHILIS

The Committee is of opinion that it is highly regrettable that bismuth preparations which do not correspond to the manufacturers' indications should be placed on the market in various countries. It suggests that the practice, already adopted by certain countries, of official chemical testing of bismuth preparations should be made widely known, perhaps through the machinery of the Health Organization.

The Health Committee may wish to suggest to the sanitary administrations of the countries following this practice that they communicate periodically the results of the observations made to the secretariat of the League. In the view of the Committee the national studies on the biological and chemical composition of various bismuth compounds will have to be continued in the different countries before the question of an international co-ordination of any such studies may be taken into consideration.

METHODS OF TEACHING THE MODERN TREATMENT OF SYPHILIS

The Committee considers that, in view of the prophylactic importance of modern methods for the diagnosis and treatment of syphilis, no national plan of preventive measures against syphilis is complete which does not provide for theoretical and practical training of medical students in syphilology, followed by the sanction of official examination.

In the Committee's opinion the authorities should also facilitate in every way continuation courses in syphilology for general practitioners and medical officers.

In view of the complexity of the question of variations in the prevalence of syphilis the experts decided to adjourn discussion on this point to a later date.

Canada.

[FROM OUR CORRESPONDENT IN MONTREAL]

Visit of the British Medical Association in 1930

THE Annual Meeting of the British Medical Association to be held in Winnipeg in the summer of 1930 is looked forward to with great cordiality. While the Western Provinces will be the more immediate hosts, it is hoped that at least some of our visitors will take the opportunity to see something of the maritime provinces. Without this their knowledge of Canada will be, let us say, incomplete. There is an East, as well as a West, in Canada. They meet, it is true, frequently and harmoniously, but they have, and probably always will have, their distinctive features.

Resignations and Appointments.

There have been many changes in the teaching staffs of the various Canadian universities recently. The resignation of Professor A. B. Macallum from the chair of biochemistry at McGill University, after a long and brilliant career in teaching and research, has already been referred to. Professor R. F. Rutan has retired from active teaching work, after having been associated since 1886 with the teaching of chemistry at McGill, where he eventually became dean of the faculty of graduate studies. The appointment of Professor J. J. Macleod to the regius professorship of physiology in the University of Aberdeen causes a vacancy in the staff at Toronto University and his departure is keenly felt by a very wide circle. Professor H. M. Torr, who has been president of Alberta University since its foundation, has resigned to become president of the National Research Council of Canada. Professor J. B. Collip, also of Alberta University, whose name has been associated with such brilliant research on the parathyroids, has accepted the chair of biochemistry at McGill University.

A new appointment has been made in the McGill Medical Faculty in the person of Dr. Wilder Penfield, who is to take up the clinical professorship of neurological surgery. Dr. Penfield is a graduate of Princeton and Johns Hopkins, and was Beit Memorial Fellow at the National Hospital, Queen Square. Later he was assistant professor of surgery at Columbia University and attending neurologist at the Vanderbilt Clinic.

The Teaching of Medicine in British Columbia

The first stirrings of a movement for the development of a medical faculty in the University of British Columbia are making themselves felt. An editorial in the Vancouver Medical Association Bulletin asks why the medical profession in the province is allowing so many of its sons and daughters to go for their medical education to centres in Eastern Canada and the United States, and suggests that a beginning might be made by establishing a chair in some such subject as anatomy in the University of British Columbia, which could give a course fulfilling the requirements of the first two academic years in universities such as McGill and Toronto. That no opportunity may be lost to pierce the word in season another passing reference is made in a later article reviewing Dr. Hengert's recent book *Four Centuries of Medical History in Canada*. The second volume of this work deals with the origin and growth of medical education in every province in Canada except British Columbia, it is remarked that "British Columbia

is significantly blank." If, however, that province has not yet built up a medical school it is certainly not for lack of wishing to keep abreast of medical advance. The Summer School of the Vancouver Medical Association had this year the largest attendance yet recorded, there being 200 present. As teachers there were clinicians and lecturers from Montreal, Toronto, Winnipeg, and Johns Hopkins, while due attention was given to entertainment and relaxation. It would be hard to conceive a better plan for what really is a short post-graduate course. This was the eighth annual summer school, and there seems to be little doubt that others equally successful will be held in future years.

Union of South Africa.

[FROM OUR CORRESPONDENT IN CAPETOWN.]

University of Capetown New Medical School

THE second of the two blocks constituting the Wernher-Reit Laboratories of the Medical Department of the University of Capetown has recently been completed and is now in active occupation. In its main architectural features it is similar to the first block (a description of which appeared in the *British Medical Journal* of September 17th, 1927, p. 500). It lies adjacent to, and parallel with, the first block at its south-western extremity, it consists of three floors, and in shape resembles the letter E. In it are housed the departments of anatomy, physiology, and physiological chemistry.

The Department of Anatomy

The department of anatomy is in the charge of Professor V. R. Drennan, who is assisted by a staff of lecturers and technical assistants. It occupies the entire south-western half (or right wing) of the new building, comprising all three floors, which are connected by the main stairway and a large electrically driven lift. The receiving room, a commodious apartment provided with three fixed post-mortem tables and with large slate chests and earthenware troughs for the storage of wet teaching preparations, is situated on the ground floor. Adjoining the receiving room is a spacious workshop equipped with the appropriate appliances, and with a large and a small band saw for cutting sections of the hardened body. These saws and the other machinery are electrically driven by means of pulley belts operated from overhead shafts. In the receiving room the bodies are hardened, injected and prepared for dissection. Opening from the opposite end of the receiving room is the tank room, containing three large built-in slate-lined storage tanks in which the bodies are stored in the dry state. The capacity of these tanks is some fifty bodies—a more than ample supply. By a special Anatomy Act the medical school is allowed the use of bodies for six months at the expiration of which they must be coffined for burial. Material is derived from unclaimed corpses, which, in a country of immense distances like South Africa, with an overwhelming preponderance of native population are particularly numerous. So ample is the supply of material that each student is expected to dissect the human body at least twice. On the ground floor also is a dark room fitted with two fixed projection microscopes of the Edinger type for the reconstruction of models from microscopic specimens or sections, and adjacent are two photographic dark rooms suitably equipped. The remaining apartment on this floor consists of a technical assistant's room, with adjoining bone depository or library. The latter contains a series of some five hundred built-in wooden boxes for the reception of osseous specimens, each box being provided with an index card that greatly facilitates reference to particular specimens.

Dissecting Room Features

On the first floor is situated the main dissecting room for students containing sixteen marble-topped teak tables. Each table is provided with four teak stools with leather-thonged seats and is lighted by two overhead electric lamps. There are also central flood lights fixed to the ceiling. The floor is cemented and built with a camber to facilitate flushing the water being carried off by a drain at one end. A large electric geyser ensures a plentiful supply of hot water. Lockers for students are provided in the corridor just outside the dissecting room. A separate dissecting room for women students contains four tables arranged much as in the men's dissecting room, although the sexes are separated in the dissecting room both attend the same lectures and demonstrations. On the first floor there is also a laboratory for embryological research and

a room for the study of surface anatomy, this latter room is furnished with weighing scales, height measuring devices, and other anthropometric appliances. Two cubicles are provided where students may disrobe and study surface markings on each other. A locker room and a retiring room for lecturers complete the accommodation on this floor.

Anatomical Museum

The top floor contains the lecture theatre, accommodating about 120 students in ascending tiers of seats built in a semi-circular amphitheatre. Ten windows at the back and sides of the apartment provide adequate lighting. An Edinger projector for microscopic specimens is installed, and an epidiascope is to be provided later. Just outside the two entrances to the theatre are recesses, one of which contains a large chest with sliding drawers in which diagrams and charts can be filed on the flat, while the other contains storage space for bones, models, and other specimens used to illustrate the lectures. The spacious anatomy museum, also on the top floor, contains eight glass showcases centrally arranged, as well as two large glass wall cases containing anatomical models and embryological and anthropological preparations. The museum is also fitted along one side with thirty glass-topped cabinets with protecting wooden lids for the demonstration of delicate specimens without risk of damage. A card descriptive of each specimen is fixed to the inside of the wooden lid and is available for speedy reference. Adjoining the museum is a large laboratory for the study of physical anthropology, equipped with a dioptraph and other instruments for the exact measurement of specimens. Further along the corridor are two research rooms for private study, and another apartment, fitted with metal shelving for the storage of glass jar preparations. The professor's retiring room is comfortably furnished, and, with a private laboratory, completes the accommodation of this department.

The left wing of the new block is occupied by the departments of physiology and physiological chemistry. In charge of the department of physiology is Professor W. A. Jolly, dean of the medical faculty of the university, while Dr. E. Bosman is lecturer in charge of the department of physiological chemistry.

Physiological Equipment

On the ground floor of the new block are the retiring room of the professor of physiology and his private laboratory. The electro-physiology room opposite is equipped for investigating the electro-physical properties of the two strong galvanometers working on the principle of the possible to record graphically the responses of two separate organs simultaneously. The physiology museum contains large cases in which are displayed instruments used in experimental physiology and models of organs. On this floor is also a large workshop fitted with the tools necessary for the upkeep of the instruments used by the department. Here, too, new apparatus is constructed and instruments are copied. Adjoining the workshop is the battery room, containing a motor transformer for converting alternating current from the mains to direct current. Leading from the corridor is the students' histology room accommodating from forty to fifty students. It is equipped with four rows of benches, each student being furnished with a microscope, an illuminating lamp, and complete sets of reagents. Adjoining this room is a preparation room where specimens used in connexion with the class are prepared. On the ground floor is also a large laboratory or histology preparation room fitted with a fume chamber and electric and gas incubators. A plethysmograph room and a photographic dark room complete the accommodation on the ground floor.

Provision for Research

The first floor, like the ground floor, is occupied by the department of physiology, here is situated the lecture theatre, accommodating about 120 students. Armchairs replace the usual benches in order to obviate bending forward over a desk and interference with natural respiration. The right hand arm of each chair ends in a broad expansion on which the student may write while sitting erect. On this floor there is also a large experimental laboratory for students fitted with a fume chamber, an apparatus for smoking record paper, and working benches. Each student is provided with the most up-to-date type of revolving drum driven by means of overhead shafting operated by electricity. A separate experimental laboratory for advanced students contains a large kymograph and adjoins a preparation room. In addition there is a large research laboratory.

Physiological Chemistry

The top floor is occupied by the department of physiological chemistry and contains a students laboratory accommodating forty students and fitted with the necessary apparatus and reagents. A small demonstration theatre adjoins it. The dark room contains up-to-date polarimeters and calorimeters and is otherwise equipped for the work of the department. Opposite

is a research room used at present for the clinical work derived from the General Hospital. The remainder of this floor consists of a lecturers' room and private laboratory, a pathological chemistry room, a low temperature room, and a store room.

England and Wales.

The Cardiff Meeting of 1928

Winding up Reception

On the evening of October 23rd a reception and dance was held in the City Hall, Cardiff, to mark the winding up of the affairs of the Annual Meeting of the British Medical Association held in Cardiff in July last. Upwards of three hundred members and friends were present, and the official guests included the Lord Mayor and Lady Mayoress of Cardiff, Sir D. R. Llewellyn, Bt., and Lady Llewellyn, Mr. and Mrs. Allcock, and a number of others who had contributed to the success of the Cardiff meeting. The President, Sir Ewen Maclean, and Miss Maclean received the guests at 9 p.m., and dancing went on until 2 a.m. At 10.30 p.m. there was an interval, during which the company assembled in the Council Chamber and certain presentations were made to those who were particularly associated with the central organization of the work of the meeting. The Lord Mayor said that not only had it been an honour to the Association to be entertained by Cardiff, but it had been an equal honour to Cardiff to be visited by the Association, and that he and the City Council had been delighted to contribute to the success of the proceedings. Dr. W. E. Thomas, vice-chairman of the General Committee, then presented to Miss Maclean a gold bangle set in diamonds. He spoke of the appreciative accounts of the Cardiff meeting which he had heard on all sides, and pointed out that such success could not have been achieved but for the great work of the Ladies' Committee and of Miss Maclean, its chairman. Miss Maclean, in reply, expressed her great appreciation of the presentation, and paid a tribute to the work of her secretaries, Mrs. Cresswell and Mrs. Strachan, and to the officers of her various committees. Sir Ewen Maclean then presented the secretary of the Ladies' Committee, Mrs. F. P. S. Cresswell, with a jewelled wrist watch, and the general secretary, Dr. G. I. Strachan, with a gold wrist watch and a silver lamp. He referred in glowing terms to the work put in by both these officers in connexion with the Cardiff meeting, and Mrs. Cresswell and Dr. Strachan replied appropriately. The final presentation was to Mr. John Allcock, the city treasurer, who had acted as honorary treasurer of the meeting. This also was made by the President, and consisted of a clock and two bronzes. Mr. Allcock's great services as honorary treasurer were acknowledged, and in his reply Mr. Allcock said that it had been a great pleasure to assist the Association in this way. A most enjoyable evening was spent, and the function was in every way a great success.

St. Thomas's Hospital Dinner

The old students' dinner of St. Thomas's Hospital has always been a very agreeable and well attended function, and especially so on the last two occasions, when past and present members of the staff and medical school held their annual gathering in St. Thomas's House, the admirable new residential club building in Lambeth Palace Road. At this year's dinner, on October 26th, the chair was taken by Mr. E. F. White of Crowborough, past-president of the South-West London Medical Society. The large company included Sir George Makins, Sir Cuthbert Wallace, Dr. A. E. Russell, Dr. H. G. Turner, Sir Percy Sargent, Professor H. R. Dean, Mr. Samuel Osborn, Dr. J. S. Fairbairn, Dr. F. F. Caiger, Professor F. G. Parsons, and Professor Hugh MacLean. After the King's health had been honoured the chairman proposed the toast of "Prosperity to the Hospital and its Medical School," and in a reminiscent speech expressed the affection and loyalty felt for St. Thomas's by all old students. The toast was responded to by the almoner, Mr. George Roberts, on behalf of the governing body of the hospital, and by the

dean, Professor L. S. Dudgeon, on behalf of the medical school. Mr. Roberts conveyed a message of regret from the treasurer, Sir Arthur Stanley, at his enforced absence, and welcomed very cordially the recent appointment of Colonel R. J. C. Thompson, a distinguished old St. Thomas's student, as medical secretary of the school, and of Mr. A. P. B. Irwin as secretary of the hospital in succession to Mr. G. Q. Roberts. Professor Dudgeon began with a warm tribute to the enormous services rendered to the hospital and school by his predecessor in the office of dean, Sir Cuthbert Wallace. He congratulated Sir Percy Sargent on his knighthood at the New Year, and mentioned with regret the deaths of Sir Bryan Donkin, Dr. J. J. Perkins, and other prominent old students. Among the events of the past year had been the holding for the first time of a post-graduate course for old students at the close of the long vacation, and the establishment of a chair of dietetics. As in previous years, a short toast list was followed by the informal reunions which distinguish such evenings from those spent wholly in ceremonial feasting.

Care of the Feeble-minded

In an address entitled "Yesterday and to-day in mental hygiene," delivered at the Royal Albert Institution, Lancaster, on the occasion of its twelfth quinquennial festival, Sir Robert Armstrong-Jones, Lord Chancellor's Visitor in Lunacy, gave an account of the history of the movement for the care of the mentally defective in this country. The movement, he considered, began with Dr. Samuel Gaskell, who, in the course of three articles in 1847 in what was then called Chambers's *Edinburgh Journal*, gave an account of the work carried on at the Bicêtre Hospital, Paris, on behalf of the feeble-minded. These articles inspired Dr. Andrew Reed, father of Sir Charles Reed, first chairman of the London School Board, to found Park House, Highgate, one of the first homes for mental defectives in this country. This was followed in 1850 by the opening of Essex Hall, Colchester—now the Eastern Counties Institution—and of Earlswood in 1853. The wisdom and sympathy of Dr. Andrew Reed, stimulating like feelings in various eminent northern citizens, inspired the foundation of the Royal Albert Institution in Lancaster. To-day, said Sir Robert Armstrong-Jones, the supporters of the Royal Albert Institution were still animated by the spirit of Andrew Reed. They were devoting themselves to the study of human nature in its most humiliating forms, so that they might help to alleviate the distress of parents and kindle in them a hope of improvement in their afflicted children. The Royal Albert Institution, by tact, skill, and kindness, educated the untaught, the undisciplined, and the uncared-for to be helpful to themselves and to others. He believed that the transformation of character achieved in the sullen and self-willed was a testimony to the patience, interest, and skill of the medical superintendent and his staff. The outcome of the inquiries into the problem of the feeble-minded by the Royal Commission of 1904-8 was the enactment for England and Scotland of the Mental Deficiency Act of 1913, amended in 1927. This Act made three authorities—the county and borough councils, the educational authorities, and the Poor Law guardians—responsible for the feeble-minded. Sir Robert Armstrong-Jones made a plea for the continuance of the work of these authorities. This would ensure control of the feeble-minded after the age of 16, a period when they most needed and could profit from such control. He concluded by paying a warm tribute of respect and admiration to the enthusiasm of the voluntary workers who had given so much of their time to looking after those who had left school and were otherwise not cared for. Local voluntary mental welfare associations who befriended and visited mental defectives, in his view, did a great service not only to their country, but to all humanity.

Pathological Research in Leeds

In the annual report for 1927 of the department of pathology and bacteriology of Leeds University, Dr. M. J. Stewart, professor of pathology, and Dr. J. W. McLeod, Brotherton professor of bacteriology, give a gratifying account of research work completed and in progress. One

outstanding feature is the elaboration of a practical application of the oxidase reaction to bacteriological technique. This has greatly facilitated the recognition of the gonococcus, meningococcus, cholera vibrio, and other bacteria in mixed culture, and has already been brought into extensive use in the diagnosis of gonorrhoea by cultural methods. The time required for the examination is reduced by more than half, and the operation has gained considerably in accuracy. Certain theoretical aspects of the bacterial oxidase are now being explored. Study of the morbid anatomy of the stomach and intestine is continuing, two papers on tuberculosis in this region have been published, and an extensive account of gastric and duodenal ulcer is being prepared in collaboration with Dr A. F. Hurst. A large series of patients who have undergone partial gastrectomy is being followed up and a report is being prepared. Other investigations in progress relate to the determination of the presence of bile salts, the etiology of gall bladder infection, pulmonary asbestosis, tuberculosis of the tracheo-bronchial lymphatic glands and the male genito-urinary tract, myeloid epulis of the jaw, the antigenic components of *Salmonella* strains, and the diagnostic value of the fractional test meal in diseases of the stomach. The routine work of the department has considerably increased and some addition to the staff is contemplated. Plans for a new pathological institute have been prepared, and work has already begun on the extension of the main medical school buildings, which will temporarily accommodate the bacteriological section during the erection of its future home. At the request of the Leeds Board of Guardians, Professor Stewart drew up a scheme for pathological work at St. James's Hospital, and a new and well-equipped laboratory has now been opened. In addition to routine and research work a short post-graduate course in surgical pathology was given during the autumn term of 1927, and officers of the department collaborated in a post-graduate course of instruction for general practitioners. An experimental firm has been acquired by the department of experimental pathology and cancer research of which Professor R. D. Passer is director. The work in this department during the past year has included a study of the effect of physico-chemical changes on the growth of cells. As the result of an inquiry it is reported that there appears to have been no real increase recently in lung cancer and that, when due allowance has been made for the increase in the number of necropsies and the number of patients admitted to the Leeds General Infirmary, where the investigation was conducted, cancer in general does not appear to be a more frequent finding than it was thirty-five years ago.

Tuberculosis in Lancashire

The tuberculosis death rate in Lancashire has been consistently lower than that for England and Wales, and a still further decrease is announced by Dr G. Lissant Cox, central tuberculosis officer of the Lancashire County Council, in his report for the year 1927. It is noteworthy that the decline in the death rate has occurred in spite of the serious amount of unemployment in the staple industries in this county during the last five years, but Dr Cox is doubtful whether it will continue in 1928 with the industrial condition almost unchanged. The factors which appear to be concerned in this abatement of tuberculosis call for some consideration. They include special measures dealing with the disease, supervision of the home conditions of patients, with education in hygiene, isolation in hospitals, and the destruction of cows suffering from active tuberculosis. That such local measures have played a definite part is indicated by the fact that the fall in the death rate in 1927 coincided with a rise in the general death rate from all causes in Lancashire by as much as 6 per cent above that in 1926. Dr Cox discusses these measures under three headings—namely, the dispensary unit with which is included the notification of cases, the institutional unit, and the after-care of patients. He reiterates his belief that the dispensary unit should operate over an area with a population of 350,000 in urban centres, or of 250,000 in the case of rural districts, he is convinced that smaller areas tend to inefficiency. Such a unit can, he finds, be staffed adequately by one consultant

and two assistant tuberculosis officers. Moreover, it is urged again that the dispensary tuberculosis officer should have beds at his disposal; this has been arranged in the case of four out of five of the Lancashire dispensary areas. Sparsely populated rural districts may be linked to sanatoriums, in this way the medical superintendents of these institutions are prevented from being isolated and can take part in dispensary work. It is advised that sanatoriums should be kept small, 150 beds being the maximum. The value of after-care committees is emphasized, nineteen of these are at work in Lancashire. This county has paid particular attention to leprotherapy. The results of light treatment in non-pulmonary tuberculosis were very satisfactory in 1927, especially in dealing with lupus and adenitis with abscess formation and skin involvement. Research is being continued as in previous years, an annual sum of £200 being received from the Lancashire County Council for this purpose. Various forms of treatment are investigated and study is being made of the fate of young children in tuberculous households, the circumstances attending non-notification and late notification, the proportion of cases diagnosed in the first place by radiological examination and subsequently confirmed clinically, and the high prevalence of tuberculosis in the Fimess sub-area. Although silicosis is not an acute problem in Lancashire it has received attention, and evidence has been obtained that the inhalation of silica dust helps to increase the death rate from tuberculosis. Cordial co-operation of tuberculosis officers with general medical practitioners is emphasized by Dr Cox as being an essential feature of a properly co-ordinated scheme. The large majority of new patients examined by tuberculosis officers were referred in the first place by general practitioners as being suspected cases, the remainder were the result of notification. The systematic use of x-rays in the county dispensaries provides a valuable additional diagnostic procedure. Routine medical treatment which can be provided by private practitioners is not arranged at the dispensaries. Doctors commencing or taking over practices are informed by the tuberculosis officer of the address of the nearest dispensary and the facilities existing for special lines of treatment. With a view to intensifying the interest and efficiency of the staff, short post-graduate courses for tuberculosis officers and nurses are arranged so as to enable them to keep abreast of modern discoveries. As in previous years, Dr Cox's report presents a comprehensive survey of the whole problem of prevention and treatment of tuberculosis, and the immense amount of information with regard to details of treatment commends it to the consideration of all interested in any side of the campaign against this disease.

Birkenhead General Hospital Centenary

The *Birkenhead Advertiser* published on October 27th a special supplement marking the attainment of the centenary of the Birkenhead General Hospital, and containing an interesting historical sketch of the evolution of that institution since 1828. In that year, when the population of the town was under 3,000, a dispensary was instituted by John Laird, son of the founder of the famous Mersey shipbuilding firm of Cammell Laird and Company, who built or purchased a suitable building and equipped it for the purpose. It was originally intended only for out-patients, but within the first year four beds were added. Seventeen years later a larger building, known as the Birkenhead Hospital and Dispensary and built on a site given by Mr Laird, was opened, with increased accommodation for in-patients. Between then and 1862 the town grew rapidly, the population rising from 24,000 to 57,000, and the need for increased hospital facilities became urgent. When an appeal for public support failed to yield the necessary funds Mr Laird again came forward and offered to provide a suitable building himself. This institution contained 50 beds, with other accommodation on an appropriate scale and was opened in 1864 as the Borough Hospital. Since that time the institution has grown steadily, in spite of financial and other difficulties, and now contains 156 beds. Two years ago the name was changed to the Birkenhead General Hospital. The most pressing need to-day is for funds to cover the cost of the

new out-patients' department, which it is hoped to open free of debt at an early date. Towards the sum of £20,000 required a certain amount has been received, and a special centenary appeal has been made for subscriptions to make up the balance. The *Advertiser's* supplement contains much interesting matter, including photographs and sketches of old and new buildings, reprints of old reports, and reproductions of a dietary list issued in 1870, and of an appeal made in 1862. A statistical summary shows some striking comparisons between conditions in 1864 and those prevailing in 1927, the number of in-patients increased from 351 to 1,707, and out-patients from 4,590 to 15,672, rates rose from £2 12s 6d to £49 12s 3d, the cost of drugs, bandages, and surgical instruments was under £232 in 1864 and over £2,648 last year, when salaries and wages absorbed £5,850, against £286 in the earlier year.

East Suffolk and Ipswich Hospital

Princess Mary opened the new pathological department of the East Suffolk and Ipswich Hospital on October 20th. In connexion with this ceremony a descriptive booklet was published containing a short account of the events which led up to the establishment of the laboratory, particulars of its building and equipment, and a short history of the hospital. At the birth of the Ipswich Hospital in 1836 it was described as "an Asylum for the Halt, the Lame, and the Blind", developments and expansion gradually followed, the most important of which was the opening of the war memorial wing in 1924 by the Duke of Connaught. This wing comprised separate surgical and medical wards and open air balconies, gynaecological and maternity departments, an operating theatre, a large lecture room, and accommodation for uro-genital and special cases. Three-fourths of the existing property and equipment of the hospital has been added during the last twenty years. The new laboratory, which has been erected as a separate building at the north-east corner of the hospital, includes a waiting room for patients as well as the biochemical and pathological departments, leading out of the chemical laboratory is a dark room for photographic work in connexion with pathological specimens. Part of the general laboratory on the first floor is partitioned off by plate glass to form a vaccine preparation room, and in close connexion with it are rooms for section cutting, sterilization, and autoclaves. The whole building is lighted throughout by electricity, the totally enclosed type of shadowless lamp having been installed, the switches and other fittings are constructed with non-metallic substances. The equipment of the laboratory is fully up to date, and it is believed that the building will provide adequately for the pathological work of the hospital and the surrounding district for many years to come.

Ultra-violet Ray Treatment at Massage Establishments

The Public Control Committee of the London County Council is proposing that in all licences to carry on massage or special treatment establishments at which the administration of ultra-violet ray treatment is authorized the following condition shall be inserted: "That ultra-violet ray treatment be administered only in accordance with directions given by a registered medical practitioner with reference to each person to whom such treatment is given, and only by such persons as may be approved in that regard by the Council." It is stated that recently applications have been submitted for consent to give ultra-violet ray treatment at certain massage establishments already subject to general conditions attaching to licences, and it is felt desirable that the regulations should embody a condition designed to secure adequate medical guidance in the use of the new treatment.

Harrogate Infirmary Contributory Scheme

At a half-yearly meeting in connexion with the Harrogate Infirmary contributory scheme held recently, it was announced that as a result of an agreement reached between representatives of the Infirmary and the Knaresborough board of guardians, contributors could now be admitted to the institution infirmary at Stockwell Road, and paid for out of the funds of the contributory scheme.

Mr J R Whiteloy, presenting the report of the executive committee, said that the vast majority of the large business concerns in the town were working the scheme, but many small ones had not yet joined. The most satisfactory method of obtaining subscriptions was by the co-operation of employers and employed. There had been some discussion owing to the fact that it was necessary to obtain a medical certificate as well as a voucher for admittance to the Infirmary. No certificate was required in urgent cases, but a certificate was thought necessary in a general way to prevent trivial cases being brought forward. A proposal for the formation of ward committees was adopted, it was felt that the introduction of such a scheme would popularize the whole movement. The chairman, Mr Herbert Frankling, mentioned that the general committee had decided that maternity treatment should not be a benefit under the contributory scheme. Such treatment in special cases was already provided for both by the municipality and by the county council. If the treatment were placed under the contributory scheme there might be some question whether the municipality would go on paying.

Scotland.

Hospital Services in Scotland

SIR JOHN GILMOUR, Secretary of State for Scotland, on October 25th opened a bazaar at Falkirk in aid of the Falkirk and District New Infirmary Appeal Fund, the object of the bazaar was to raise £5,000 to complete the sum of £100,000 necessary to erect the new buildings. Sir John Gilmour said that as the Minister responsible meantime for the health of Scotland, he observed the work in Falkirk with satisfaction. There were coming more and more to recognize that the great institutions of medical services must direct their attention not so much to curing disease as to taking preventive measures. Fortunately science and teaching were showing the way, and in Falkirk something was being done which would enable science and the devotion of doctors and surgeons, as well as nursing staffs, to put into effect the teaching of science. In the co-operation of voluntary effort it was necessary to link up with all the local authorities around them. One of his efforts in the reforms he was now proposing was to make more and more certain of that co-operation. He was happy to think that in Falkirk recognition both by the workers and by the authorities had led to combination in dealing with the problem of maternity and child welfare. Housing was another aspect of the problem and the clean houses in which people could live with a greater amount of fresh air than in the past were going to be of vital assistance to doctors and sanitary authorities throughout the country. These were examples of the things in which a combination of effort was necessary and essential.

Congested Areas in Edinburgh

Dr William Robertson, medical officer of health for Edinburgh, in an address given under the auspices of the Edinburgh Women Citizens' Association on October 23rd said that it was too late to blame anyone for the apathy that prevailed in the matter of slum clearance schemes. The situation, however, must be faced, and a systematic campaign conducted for rehousing people who required alternative accommodation on account of insanitary conditions. At present in Edinburgh the sanitary inspector had on his books 5,035 individual houses which were considered unfit for human habitation, and in time some of these would be included in slum clearance schemes. There were, however, many isolated properties scattered over the municipal area which could not be embraced by the improvement schemes. It was necessary, therefore, that municipalities should provide houses for persons whose dwellings were insanitary but did not fall within improvement schemes, as well as for those whose houses were situated in slum clearance areas. At present an anomaly existed in the fact that a householder was entitled to a comparatively cheap municipal house if he had been dispossessed as the result of a slum clearance scheme, while

the unfortunate tenant who had been living in an insanitary dwelling had to pay a dearer rent because his condemned house did not happen to be included in such a scheme. This led to much disappointment. The speaker believed that in the course of ten or twelve years they could break the back of the housing needs of the necessitous with an annual contribution of 500 new dwellings, but of these a certain number should be set aside for people who lived in condemned dwellings not included in improvement schemes. Probably fifteen or even twenty years would elapse before slums became rare sights in the city.

The Doctor and the State

A lecture was delivered in Edinburgh by Dr Chalmers Watson on October 24th, under the auspices of the Combe Trust on "The doctor, the individual, and the State." Sir John R. Findlay, who presided, in introducing the lecturer drew attention to the aims of the founder, who, he said, held that man's happiness and prosperity in life depended to a large extent upon his knowledge of the laws of nature. George Combe had written his disposition in 1843, but the principle was as true to-day as when the lectures were founded. The lecturer said that the mean duration of life had increased 50 per cent in the past fifty years and during this period great departments of public health had been evolved dealing with national health insurance, maternity and child welfare, tuberculosis services, laboratory services, and so on. The activities of these bodies had centred largely on questions of general hygiene, and their success had been due mainly to their influence on the external environment of individuals. In the matter of personal hygiene, however, the position had, unfortunately, been otherwise. Except in the matter of excessive use of alcohol, the generation now in the vigour of life committed the same indiscretions as their grandfathers with the result that several common diseases—such as rheumatism, arthritis, high blood pressure, and cancer—showed no diminution in frequency or deadliness. An increasing body of medical opinion was convinced that, whatever the ultimate cause of these conditions might be, the most important cause was the lowered resistance induced by persistent neglect of laws of health. Bacteria played an important part in the causation of disease, but these were for the most part normally present in the digestive tract or other tissues, and were, during health, innocuous. It was essential to recognize that the sudden death from heart disease of a man aged 60, the sudden onset of apoplexy in a man at his desk, and the crippled joints of rheumatoid arthritis were merely terminal incidents in a slow premature degenerative change due, for the most part, to preventable causes. Death was inevitable, but physiological old age and death was one of the rarest occurrences. The life of a man comprised three epochs—an ascent up to 20, a plateau from 21 to 45 or thereby, and a descent. Under modern conditions the period of ascent was disturbed by many incidents or diseases, arising from neglect of nature's laws, but the diseases from which they died were essentially labels attached to the end-products of disease, and the names gave no indication as to the cause. The cure of these conditions lay in prevention. The spread of knowledge would reveal that disease and premature death were the logical outcome of causes which man could himself control, while no miracle could deliver him from the result so long as he persisted in cultivating the causes. The smooth working of the alimentary system was one of the most important factors in man's continued existence, and the ignorance which prevailed on the subject of dietetics was responsible for much preventable illness and many premature deaths. The theory that the role of the doctor was to enable society to go on without suffering was still too much in vogue, and students were taught not how disease might be prevented and cured by a rational system of living, but how its symptoms might be relieved by synthetically prepared drugs. Disease never attacked a healthy organ, and there was too much persistence of ancient superstition and of the belief in "the bottle" which had been referred to as characteristic of many millions of their countrymen. The natural extension of the admirable preventive work carried out recently by public health authorities should involve a satisfactory

linking up of the services of the family practitioner, and would also involve a reform in medical education. The development of a campaign for health would bring the numerous campaigns against disease—cancer, rheumatism, tuberculosis, heart disease, etc.—into a truer and wiser perspective.

Municipal Scheme for Artificial Sunlight.

The Corporation of Edinburgh has decided to take steps to make ultra-violet radiation available for purposes of treatment to the citizens generally. An installation at the Portobello Baths was inspected on October 23rd by members of the town council, when it was explained that this was intended in the main for healthy persons who were run down and in need of a tonic, although special cases, medically certified as suitable for applications of the mercury vapour lamp would be taken. Dr Robertson, medical officer of health, said that the installation of two open arc lamps and a mercury vapour lamp had been made on account of the fact that similar establishments in England had proved a success. The human being might suffer considerably if continuously deprived of sunlight, and, for example, rickets might develop among children which could be cured by a course of artificial sunlight treatment. This new form of medication had got into the hands of people who exploited it as a money-making scheme. Artificial sunlight was not a cure for all diseases by any means, and its scope was limited to the treatment of a few conditions, quackery must be guarded against by the general public, and therefore medical supervision would be strictly exercised in the use of these lamps, the mercury vapour lamp would be used only upon the advice of a doctor. The new service will be reserved three days a week for women and three days for men, at a moderate charge.

Ireland.

School Medical Services in the Free State

GENERAL R. MULCAHY, Minister for Local Government and Public Health in the Free State, in a recent address on school medical services, said that the organizing of these services must be regarded as fitting the keystone in their modern health system. It provided public health authorities with a vantage point of enormous value, not only for the direct prevention and treatment of disease, but for the education of the individual. In addition, it would provide very valuable localized statistical material, which would help very considerably in dealing with problems of environment. The modern public health movement, which began in the early part of the nineteenth century, reached its third phase in recent legislation dealing with personal hygiene. Its first stage was principally characterized by the development of waterworks and sewage disposal systems, and its second by more effective control over contagious diseases. The importance of personal hygiene was, however, recognized from the very start, the delay in its case was due to the fact that in respect of this phase of public health reform, more than of any other, popular education for the acceptance of its principles was required. School medical inspection was introduced in Great Britain in 1907, but it was not until 1919 that the Public Health Medical Treatment of Children (Ireland) Act devolved this duty on county and county borough councils. Describing the system now prevailing in Dublin, he stated that the child in the primary schools would be subjected to inspection at three ordinary periods of the school life—on entrance, at the age of 8, and on leaving. In addition, any child who came under notice for defects might be specially examined. The system, General Mulcahy said, had been instituted only this year, and up to the present, out of a total of 173 schools, 56 had been examined. There was splendid co-operation in spite of some great difficulties, on the part of the school authorities. The facts brought to light by the examination had been in many ways a source of satisfaction. Among 10,752 children examined in Dublin there were only 42 cases of non-pulmonary tuberculosis, 20 cases of definite pulmonary tuberculosis and 18 cases of suspected pulmonary tuberculosis, this being less than 0.8 per cent of the children

inspected Rickets appeared to be almost non-existent where, because of poverty and other causes, many cases might have been expected. So also was personal uncleanliness. The principal defects were shown to be dental caries (5,336 cases, or 46 per cent of the children inspected), tonsils, adenoids, etc (2,248 cases, or 21 per cent), eye defects (2,609 cases, or 24 per cent), malnutrition (594 cases, or 5.5 per cent). Where treatment was necessary arrangements were made for it either at the hospitals or at a special clinic. It was estimated that the total cost for next year in Dublin would be about £5,000, half of which would be contributed from central funds. All close students of the economics of public health finance were satisfied that no other activity on the preventive side gave a more direct return than the early diagnosis and treatment of children's ailments. The cost per child was trivial, but it purchased an increase of health, happiness, and efficiency for the individual, and, therefore, in a wider degree, for the community at large, and saved many a permanent incapacity. The staff of the school medical service for Dublin consisted of two school medical officers, two school nurses, and clerical assistants. In Cork City, where a scheme had been in operation for four years, the arrangements were fully developed. During 1927 the following received treatment: (1) at Eye, Ear, and Throat Hospital and by private practitioners—(a) operative treatment, 187, (b) refraction, 499, (c) glasses prescribed, 483, (2) at school clinic—minor ailments, 412, (3) at Dental Hospital and by own dentist, 1,277. In Limerick county borough arrangements for the appointment of an assistant medical officer of health, to whom will be assigned the duty of school medical inspection, and of a whole-time nurse have been sanctioned. Waterford, alone of the county boroughs, had not moved in the matter. In Clonmel a scheme worked by a part-time staff was giving satisfaction. In counties where county medical officers of health had been appointed schemes were being formulated and officers appointed. In Offaly two school medical officers, with the assistance of a temporary staff of nurses, had begun the preliminary survey of the children, permanent nurses were to be appointed. In addition to the county medical officer of health, an assistant had been appointed in Kildare at a salary of £600 for school inspection. The Cork staff consisted of one chief school medical officer and the county medical officer of health, three school medical officers were recommended for appointment, and six school nurses were sanctioned, but the appointments had not yet been made. In Louth two whole-time nurses would be appointed without delay, and meanwhile the county officer of health would start the preliminary survey with the aid of a temporary nurse who was undergoing a course of training in Dublin. The Minister, in conclusion, said that they had started fairly systematically on the work, and already, in the case of thousands of children in the country, defects had been remedied at very early stages. They were quite satisfied that, although the work had only begun, they had ensured much greater happiness, health, and efficiency to a fairly large number of the population.

Correspondence.

TROPICAL AUSTRALIA

SIR,—Dr Andrew Balfour, in the *British Medical Journal* for May 19th (p. 875), put to me a definite question. May I point out that I live 1,500 miles from the cane fields, and also that the precise answer to his question cannot be given till the census of 1931. In the meantime, however, Dr Cilento, director of the Division of Tropical Hygiene in the Commonwealth Medical Service, has furnished me with information, which is as follows:

The Italians in Queensland come mostly from north Italy. In 1921 there were in the whole of Queensland only 1,838 Italians, including women and children. In the tropical coastal belt the population was 103,000, of which Italians were less than 1 per cent—that is, between 850 and 900. It was at this juncture that Dr Cilento wrote "The white man in the tropics—that is, before the Italian immigration. With American restriction the tide set in

to Australia, and whilst in all Australia there were in 1921 4,903 Italians, by 1927 there were 23,120 additional, of these approximately 7,000 went to tropical Queensland, giving a total population in that part of Australia of about 8,500 in a population of 120,000—that is, about 7 per cent."

Sugar growing in Queensland dates from 1905, and up to 1921 was conducted by Anglo-Saxon labour almost exclusively. In certain limited areas on the cane fields the Italians constitute a large proportion, one-half, and in one instance more than one-half of the population, but the condition is only of five years' duration. On sugar production, as a whole, there are 30,250 men employed, and of these the Italians number 2,700, or about 9 per cent. The unions assert that the Italians take two hours longer to do a day's work, and consequently upset awards of the court. On the other hand, they are easier people to handle from the employers' point of view, and consequently this statement and grievance must be left for proof and further investigation. As regards Dr Balfour's previous question, there are no fourth generation people in tropical Queensland, because the country is not old enough.

Dr Cilento adds that, as to areas where Queenslanders of the second and third (resident) and second (born) generation do the manual labour, any part of northern Queensland may be cited. The condition is very general.

In conclusion, I only wish it were possible for friends like Dr Balfour to visit tropical Queensland and examine the problem personally, we should warmly welcome them. If they then moved to the mandated territories nearby they would see within a few days what damage an infected native population can do. Australia is most fortunate that she does not harbour so destructive a factor.

The medical services in the mandated islands are doing their best and making an honest attempt to control disease amongst the natives, but only those like Dr Balfour, or perhaps the writer, who have tried to do such work, appreciate the magnitude and complexity of so colossal a medical problem—I am, etc.,

Melbourne Sept. 7th.

JAMES W. BARRETT

FAMILIAL GLIOMA RETINAE

SIR,—The glioma family described by Mr Letchworth in your issue of October 13th (p. 656) brings to my mind a not dissimilar family history.

A baby boy (aged 9 months, I believe) was operated upon by the late Dr Argyll Robertson for glioma of the left retina. He recovered and grew up, he married, and had four children. Of these the first was described to me as stillborn, I do not know the cause of death of the foetus. The second child (first living birth) and the following, a girl and a boy, both died of double glioma at the age of approximately 4 years. The father absolutely refused to allow operation, although without operation he would never himself have grown up—but perhaps from the racial, if not from the individual, point of view he may have been wiser than we were. The fourth child, when last I saw her as a little girl of 3, was apparently quite healthy. She was a posthumous child, for in the meantime the father who had been serving in France in the army, was sent home ill and died of multiple intracranial new growths.

It seems more than strange that an infant rescued from death by glioma should have grown up to procreate four children, of whom two at least died of that disease, and that he himself should then have died of it at the age of 27. With the commentary in Mr Letchworth's last paragraph one must sadly agree—I am, etc.,

WILLIAM GEORGE SIM, M.D., F.R.C.S. Ed.

Edinburgh Oct. 22nd

SANOCRY SIN, SUNLIGHT, AND THE SKIN

SIR,—All workers in tuberculosis will have read with great interest the authoritative article by Dr L. S. T. Burrell on the value of the heavy metals in pulmonary tuberculosis in your issue of October 27th (p. 737).

There is one very important complication of sanocrysin to which I have not found reference in the literature, and that is the effect of sunlight on the skin. One of my patients, who had received sanocrysin returned from Switzerland with a blue-coloured pigmentation of the face

and neck, only those parts being affected which had been exposed to the sun. Thus the forehead shaded by the hair was quite white. The colour was noticeable to the patient and her friends, and made her appear as if blue from cold even on a hot day. I have subsequently heard of two similar cases, and in one, I understand, a section of a portion of the skin showed a deposit of gold there.

This noteworthy complication serves as a warning that no patient who has had a course of sanocrysin treatment should expose himself to bright sunlight. Whether injections of sodium thiosulphate would be a safe therapeutic measure and likely to afford relief is a point on which information would be welcomed—I am, etc.,

London, 11 Oct 27th

G E BEAUMONT

QUININE BLINDNESS AFTER INJECTION OF VARICOSE VEINS

SIR,—In Mr G H Colt's article on the modern treatment of varicose veins, published on September 22nd, the following words appear at page 526

'We must also remember that quinine sometimes produces blindness. The risk is said to be about 1 in 1,600

"If it were so it was a grievous fault," and so great a risk should be an absolute contraindication to the use of quinine in view of the fact that all "efforts to combat the blindness have had but one uniform result—complete and absolute failure" (Smith, *Trans Ophthal Soc*, 1919, xxxix, p 316), but is it so?

On looking up Mr Colt's reference (loc cit, p 315) I find that the following is stated

Dosage—Blindness occurred with doses varying from 35 gr to 90 gr administered during the preceding twelve hours. In the case where only 35 gr proved toxic 20 gr were administered intramuscularly. The average toxic dose for the others was 65 gr. Four cases had oral quinine alone, one intramuscular alone, and the remainder had both oral and intramuscular. No relation could thus be established between the degree of toxicity and the method of exhibition of the drug. (My italics)

The minimum dose was 35 grains

In injecting varicose veins with Douthwaite's solution of quinine-urethane, 2 c cm contain 4 grains. If we are very reckless and give 3 c cm the dose is 6 grains, or about one-sixth of the minimum toxic dose in Smith's series. Are we to understand that the intravenous administration of 6 grains of quinine is in any way comparable with the 35 grains in Smith's series—especially in view of the fact that the dose is only repeated once or twice a week? Unless this is proved to be so, the risk of quinine blindness—like that of pulmonary embolism following injection treatment—should be relegated to the limbo of exploded bugbears—I am, etc.,

Hove Oct 23rd.

ST GEORGE B DELISLE CRAV

SAFETY IN ANAESTHESIA

SIR,—Among the recent letters written on the subject of anaesthetics for tonsillectomy I have not noticed any reference to the use of a chloroform and ether mixture given in a Clover's inhaler without a bag—that is, an open method. For many years past I have largely used this method of anaesthesia, and have found it to give consistently good results.

To induce anaesthesia six fluid drachms of chloroform and twelve fluid drachms of ether are freshly mixed in a conical measuring glass, and are then poured into the Clover's inhaler. The latter is next warmed by holding it under a hot-water tap for a few seconds. No bag is used, so there is no re-breathing. The mask being applied to the patient's face, the cylinder is very slowly rotated until, in the case of adults, full strength of vapour is being inhaled. As soon as complete anaesthesia is obtained the cylinder is slowly rotated back to the extent that is found by experience to be necessary for the maintenance of the anaesthesia.

It is important that the mask should never be removed from the face for a single moment during the operation. More anaesthetic can be added from time to time without the need for this. The anaesthesia obtained is remarkably quiet and there is a complete absence of stertor and of salivation. Morphine or atropine, or a combination of both, can be given or not beforehand as desired.

The chief danger in the administration of chloroform or of ether and chloroform mixtures lies in the risk of an overdose from the heavy chloroform vapour which is given off from a more or less saturated mask of lint or gauze. This risk is entirely obviated in the method that I have described, as in this a uniform proportion of anaesthetic is inhaled with each breath. In the case of long operations it is as well to change to "open ether" at the end of about an hour.

I do not recommend the method for men of a burly type, though anaesthesia can be obtained with them if occasional re-breathing into a bag is practised at the beginning of the induction. For obstetric work—especially if single-handed—I find the method invaluable, as after anaesthetizing the patient one has only to rotate the cylinder to a perfectly safe position and then give it to an assistant to hold in place—I am, etc.,

Guildford Oct 22nd

H F PARKER

ANAESTHESIA FOR TONSILLECTOMY AND REMOVAL OF ADENOIDS

SIR,—Your correspondent Dr W R Somerset (October 20th, p 726) invites comments on his letter. The question whether the children who have tonsils and adenoids removed are cured concerns the surgeon rather than the anaesthetist. It is certainly an important point, and no doubt in some cases there is sinus infection.

To explore these cases thoroughly it is not necessary to give ether as Dr Somerset suggests, it can be easily accomplished with nitrous oxide and oxygen—a more transient anaesthetic agent than even ethyl chloride. This last week I saw Dr de Caux give nitrous oxide and oxygen with a McKesson machine through an intratracheal catheter for four operations for the removal of enlarged tonsils. The operations were performed by Mr Abel at the Woolwich War Memorial Hospital. He dissected out the tonsils and took plenty of time to see that the cavities left by the removal of the tonsils were quite free from oozing before the patients left the operating table. The surgeon said that he was quite satisfied with the anaesthetic.

My own method for the nasal, antral, and sinus operations is to anaesthetize the patient with nitrous oxide or ethylene and to introduce quickly a Kuhn's tube into the larynx, the pharynx is then packed off with gauze, and the gas supply is continued through the tube by means of a fitting which was made for me by Messrs Pegler Brothers, brass founders, Doncaster.

There is no limit to the length of time the anaesthetic may be continued in this way—the longest I have experienced up to the present is about one hour, and the anaesthesia has been satisfactory so far. The patients have made a very speedy recovery.

If I may make an observation on anaesthetics for general work apart from the tonsil and adenoid operation I would like to say that in my opinion it is unkind—to say the least of it—to give ether or more dangerous anaesthetics to patients when nitrous oxide and oxygen will suffice. I know that some surgeons say they cannot operate with it but then there are some surgeons who put into an abdominal wound a retractor about the size of a fire shovel and say "pull on this sister!" Believe me, it takes some anaesthetic to stand it—I am, etc.,

Doncaster Oct 22nd.

E J CHAMBERS

SIR,—I have seen the above letter written by Dr E J Chambers on the question of nitrous oxide anaesthesia through a Kuhn's tube with a McKesson machine. He has given a number of anaesthetics by this method for me, and I am satisfied that any operation on the nose and pharynx can be satisfactorily performed with it.

As to laryngeal or oesophageal work with gas and oxygen, I have not had sufficient experience with it yet, except that I have dealt with a case of an impacted denture in the oesophagus with an oesophagoscope, using gas and oxygen anaesthesia. The anaesthetic was satisfactory, and did not hinder my work.

All the patients made better and much quicker recoveries from this anaesthetic than with ether, but in my

opinion the success of the administration of the nitrous oxide gas and oxygen depends entirely on the McKesson machine and efficient handling—I am, etc.,

Doncaster Oct 22nd

HUGH M PETTY

SINUS DISEASE IN CHILDREN

SIR,—Whilst somewhat irrelevant to the subject, Dr Somerset's tilt on October 20th (p 726) at the laryngologist opens up a question which merits the close attention of all concerned. Every experienced laryngologist will admit that the operation, as such, has its limitations, and that there exists a very definite percentage of children who derive little or no benefit. If he is inclined to the opinion that Dr Somerset overestimates this percentage, it may be that the very nature of his work as a consultant prevents him from following up what must constitute a big percentage of his cases. I think, however, having tried the procedure, and with a long experience of the work, that the routine exploration of the nasal sinuses, while ideal in theory, will be found to be an impracticable proposition, at least in the routine work in hospital.

The important point is the recognition, however tardily, of the fact that sinus disease is a concomitant affection in a small but definite percentage of children suffering from respiratory ill health, and that a failure to obtain relief by the removal of the more obvious cause necessitates the subsequent exploration and eventual drainage of the affected nasal sinus or sinuses.

A mutual recognition of the probabilities and of the possibilities of each case should obviate the difficulties to which Dr Somerset has rightly drawn attention, or at least help to solve them—I am, etc.,

October 29th. J B HOROAN, M.B., Ch.B., D.L.O.,
Honorary Laryngologist North Infirmary, Cork.

TRAUMATIC SEPARATION OF AN INTESTINAL LOOP

SIR,—I have noted the memorandum under this heading on page 611 of the *British Medical Journal* for October 6th. It may interest the writers of the memorandum and others to refer to the *Journal* for Mar 29th, 1909, where on page 1290 I have recorded the case of a man, aged 40, who received a blow on the abdomen from a piece of iron. At operation a piece of small intestine four inches long, with mesentery, was found loose in the abdominal cavity—I am, etc.,

Cardiff Oct 24th

A W SHEEN

FUNCTION AND POSTURE

SIR,—With reference to Dr Peter Macdonald's letter in your issue of October 20th (p 725), I should like to add my testimony to the value of the work being done by Mr F Matthias Alexander. I have undergone some preliminary education at his hands, and as a result I am convinced that the importance of the last paragraph of Dr Macdonald's letter cannot be over-emphasized.

If there is any possibility of Mr Alexander so crystallizing his technique that it can be transmitted and taught practically in medical schools I believe the next generation would see the biggest advance, not only in preventive medicine, but also in constructive civilization, that has ever been noted in so short a time.

The difficulty of bringing this work practically before the profession lies largely in the obstacle that Dr Macdonald mentions—that of using words to convey the meaning of a sensory appreciation, but we have all met this problem, and solved it to the point of practical use, in trying to learn something of percussion, auscultation, and other matters of our daily work, we have arrived at this working solution by a combination of words, demonstration, and experience.

I believe that a team of competent anatomists, physiologists and psychologists, with Mr Alexander, could arrive at a formulation of technique that would at least provide a starting-point from which the profession could adopt it, and develop it in use, till the idea of treating the human organism as a whole would become an actual fact and not merely a pious hope—I am, etc.,

Manchester Oct. 23rd.

R G MCGOWAN

SIR,—If I may be permitted to do so, I would wish to endorse, in the strongest manner possible, the remarks of my friend Dr Peter Macdonald in your issue of October 20th. I have known Mr Matthias Alexander for some years, and have not only closely watched his methods, but have put myself and others into his hands with incalculable benefit. The improvement in every case which he has undertaken with my personal knowledge has been very marked, and I consider that, in his teachings and technique, our profession, if it will but shake itself free from the trammels of tradition, has an aid to treatment of the utmost value.

There is no need to speak further upon Mr Alexander's work, as Dr Macdonald has said all that is necessary, but I would urge, with him, the grave necessity of preventing such an important teaching from being lost to us. Steps should be taken without delay for the training of selected pupils under Mr Alexander's personal supervision in order that his great work may be carried on, especially among children—I am, etc.,

London W 1 Oct 23rd.

MACLEOD YEARSLIE

INTESTINAL AMOEBIASIS IN BRITAIN

SIR,—The cases quoted by Dr Venables in the *British Medical Journal* of October 27th (p 775) of miligenous amoebic dysentery in this country are of considerable interest.

As regards diagnosis it is a common occurrence for the stools to be negative to free forms of *E. histolytica* in cases of relapse in amoebic dysentery, though cyst forms may sometimes be found.

It has been for some years the practice in this hospital to use the sigmoidoscope on all doubtful cases, and the lesions which may be found are well shown in a series of excellent water-colour paintings by Dr P H Manson-Bahr, executed at sigmoidoscopies in the theatre of this hospital, and now exhibited in the museum of the London School of Hygiene and Tropical Medicine.

It is the experience here that swabbing a lesion is insufficient to obtain *E. histolytica* in many cases, but the taking of a scrapings with a long-handled spoon via the sigmoidoscope is usually successful. Sigmoidoscopy, once before and once after treatment, should be enough, and beyond subjecting the patient to a great deal of unnecessary discomfort little is to be gained from repeated examinations.

Treatment with emetine injections is not, in my experience, nearly as successful as the "combined treatment" of emetine bismuth iodide by mouth and yateren lavage per rectum. The combined treatment is noteworthy for the absence of relapses, whereas it is not uncommon for cases which have had repeated injections with emetine to show improvement for a while and then relapse. A cure with 9 grains of emetine would be exceptional and improbable.

The "combined treatment" used is as follows. Emetine bismuth iodide 1 gram, increasing on the second night to 2 grains, on the third night to 3 grains, and continued in doses of 3 grains for ten nights. The drug is given at 10 p.m. in capsules, the patient being in bed and lying flat without pillows, to prevent vomiting.

Daily, each morning, lavage with a 2½ per cent solution of yateren is given, and the wash-out is retained for as long as possible. Most patients can retain this for six to eight hours, and many for eighteen hours or longer. If well tolerated the solution is given in 5 per cent strength on the fifth day. The lavage is employed for ten days in all. The total duration of treatment is twelve days, after which the patient is discharged, with instructions to take two yateren pills daily for a month. I understand that in this hospital during the last two and a half years there have been no relapses even in the most resistant and chronic cases of intestinal amoebiasis.

For the general practitioner it is a matter of comparative simplicity to have a stool sent for examination; a minute quantity only is needed. Sigmoidoscopy cannot be classed as a simple procedure, few medical men possess a sigmoidoscope in the first place, and I venture to suggest still fewer would know what to expect to see with it, or even how to use it properly, unless they had adequate instruction.

Stool examination is so frequently successful, especially when repeated daily three or four times, and in particular in first attacks, that every encouragement should be given to this mode of diagnosis, provided the examination is in the hands of an expert pathologist and protozoologist. The sigmoidoscope must remain for a while an instrument for a specialist—I am, etc.,

HUGH WILLOUGHBY, M R C S, L R C P,
Hospital for Tropical Diseases, D T M and H
London W C 1 Oct 25th

TESTING FOR COLOUR-BLINDNESS

SIR,—I have been greatly annoyed to find my name on caricatures of my lantern. One lantern had actually a yellow glass labelled purple. All authorized lanterns are accompanied by a certificate signed by me stating that they are correct.

I understand that a number of unauthorized "Edridge-Green" lanterns are being used in India, and I hope Indian newspapers will take note of this disclaimer—I am, etc.,
London W 2 Oct 28th F W ENRHOE GREEN

THE DEFINITION OF DRUNKENNESS

SIR,—The interesting letter in the *Journal* of October 20th by Dr Sidney Matthews raises a question of serious importance to the general public. No doubt the decision by the chairman of the quarter sessions was good law, but it certainly indicates the need for the law to be changed. I believe that many motor accidents are due to the effects of alcohol without the motorist himself or anyone else having the least idea that this is the case.

The general public do not realize the fact that even a small amount of alcohol has a definite effect in lessening the ability of an individual to control his actions. The carefully conducted experiments by Professor Kraepelin have proved beyond doubt that quite small doses of alcohol have these effects: (1) the rapidity of cerebral action is delayed, (2) the power of judgement is lessened, (3) the individual develops an illusion that both the rapidity of his actions and his power of judgement are enhanced. So, owing to the illusive influence of alcohol, he acquires a condition of over-confidence which may lead him to take risks which at another time he would avoid, and this just at the time when his powers, both of judgement and of rapid co-ordinated action, are diminished. A delay of the fraction of a second may make all the difference between safety and disaster, for let it be remembered that a motor car going at quite an ordinary speed may travel 15 yards in a second.

The public require instruction in this matter. Then perhaps a change might be made in the law of such a nature that a medical certificate, like the very appropriate one given by Dr Sidney Matthews, would have the effect that it deserves—I am, etc.,
Leamington Spa Oct. 27th

R T BOWDEN

ULTRA-VIOLET RAY THERAPY

SIR,—I have read with interest the papers by Dr W E Dixon and Dr C B Heald in your issue of October 13th, and I consider that they prove in a very able manner that it is highly dangerous for artificial sunlight to be given by non-medical persons, and the proposed register should be of great value.

The subject is largely a new one, and I quite agree that most absurd statements have been made by some persons as to ultra violet rays being a cure for all manner of diseases yet, as with other treatments in the past we are finding certain conditions in which we are obtaining very successful results and in several of these cases Dr Dixon's comments were hardly encouraging.

He states that physicians are generally agreed that radiation by ultra-violet light is contraindicated in nervous and neurotic people. I had such a case sent to me for this treatment by a distinguished nerve specialist. The patient, a young adult, had received very extensive treatment elsewhere, and was still in a highly neurotic condition. Her response to small doses from the carbon arc lamp was excellent in every respect, I agree that excessive doses would be

likely to aggravate the condition, but in general I have found the effects beneficial if the treatment is proficiently carried out. The effect is probably obtained by action of the rays on the phosphorus and calcium metabolism. The Commissioners of the Board of Control, in their report for 1925, comment favourably on the results obtained by treating neurasthenic patients with ultra-violet rays.

Dr Dixon states that the carbon arc light is not only the best substitute for sunshine on technical grounds, but gives the best therapeutic results. I quite agree with this so far as general treatment is concerned, but he makes no reference to local treatments, unless he is thinking of those when he suggests that many of the metabolic effects are obtained just as well with, "say, a mustard plaster." Certain local skin infections respond in an extremely favourable manner to first or second stage erythema doses given with a mercury vapour lamp. I will illustrate this by recalling a case of herpes zoster in which severe pain had persisted for seven weeks without being alleviated by ordinary methods. The patient's pain and discomfort were considerably relieved even after the first exposure, and at the end of six treatments the symptoms had almost completely disappeared.

I quite realize that Dr Dixon has brought forward his instances in order to point out the great dangers that may arise from treatment given by unqualified persons, and I agree very heartily with his observations on this subject. I feel, however, that his paper will be read by a large number of practitioners who have had little opportunity themselves of seeing the effects of treatment, and that certain observations which I have attempted to draw attention to might cause an unfavourable impression which I think Dr Dixon had no intention of conveying—I am, etc.,

C H C DALTON, M D, D M R E Camb,
Medical Officer in charge X rays and Electro-Therapy
Department East Suffolk and Ipswich Hospital
Ipswich Oct. 25th

SIR,—The tirade by Dr Whatoly Davidson (October 13th, p 676) seems to me rather uncalled for. What has he against the "Sun-ray" Company, anyway? First, apparently, that a company should dare to make money out of physiotherapy. Does he not make money out of medicine? Do we not all try to earn a living? Then he states that "Wherever there is a supply of electricity there is now a doctor who is conversant with the recent literature on this subject and prepared to give ultra-violet ray treatment." Prepared, maybe, but is he capable? Has he the necessary apparatus and appliances, which are numerous and costly, or the time and experience? A general practitioner would not dream of trespassing on—for example—the eye specialist's preserves, even if he had read the latest literature on the subject, so why should he on those of the actinotherapist, which are just as specialized?

Dr Davidson speaks of the company "telling the world," and the whole-time doctor being denied a free hand and tempted to treat anyone who likes to come along. He cannot have read very closely the circular letter, which states that "the board would prefer to receive patients who have been referred to them by their medical attendants, who will, if they desire them, receive reports of treatments." Why should he assume that the companies' activities will not be kept "within the recognized limits of medical etiquette and ethics"?

Surely a clinic run professionally with a financial backing can give far better and more varied treatments to the largest number of patients than a general practitioner with limited capital and time, and surely a big company working in conjunction with members of the profession is the best enemy of quacks—I am, etc.,

Bristol Oct 15th

ARTHUR T SPOON

VITAMIN A AND VITAMIN D

SIR—Green and Mellanby, in their paper in your issue of October 20th (p 691), conclude that while vitamin A has marked effect in increasing the resistance of animals to infection, vitamin D has no such effect. This is so completely at variance with the conclusions of Pfaffenstiel (*Lancet*, October 20th, 1928) that some explanation seems

necessary. I need only quote the following passages from Pfaffenstiël's paper:

The effects of deficiency of vitamin D on the full-grown animal organism have been investigated by W. Eichholtz and H. Kreitzmar. Their results showed an obvious lowering of resistance to infectious diseases in rats and mice which had received a diet free from vitamin D.

While the vitamins A, D, B and C contained in foodstuffs exercised by themselves no definite influence, an increase in the bactericidal capacity of the serum was successfully obtained, in young healthy rabbits, by the daily administration of very small doses of vitamin D.

It would thus seem that further work is necessary to clear up this complete discrepancy, and it is to be hoped that this will be forthcoming, since it would be unfortunate if the effects of vitamin D on the human organism came to be prematurely discounted at a time when supplies are so readily available to the profession.—I am, etc.,

London N.W.1 Oct. 23rd

H. JERROTT, M.Sc.

INTERDIGITAL RINGWORM

SIR,—Interdigital ringworm of the feet, which was mentioned in Dr. J. M. H. MacLeod's paper published on April 21st (p. 656), has been a very common condition in Santa Cruz. This island has a tropical climate, with a very high rainfall all the year round, and the disease occurs mainly in white men who are timber-getting and have to do a great deal of work in deep mud or wading in salt water. The first signs are a pitting and softening of the skin of the sole, followed by redness and vesication between the toes, with cracking and sometimes extension on to the dorsum. There is intense irritation, aggravated by heat and damp. I could find no reference to the cause of this condition, but I detected a ringworm fungus, apparently the common *Tinea imbricata*. I tried various parasitocides, but most proved to be too irritating, causing pain and cracking. Eventually I found a 5 per cent ointment of copper oleate most satisfactory. Scales and thick softened skin are best detached by scrubbing with fairly strong lye. In the most obstinate cases a little chrysophanic acid may be used, but this is seldom necessary, and is irritating. The feet must be kept dry, and I strongly disagree with Dr. MacLeod's recommendation to soak them, or wade in salt water. This aggravates the disease and prevents cure.—I am, etc.,

C. MERYVA DELAND, M.B.,

Santa Cruz Group, British Solomon Islands, August 22nd

B.S. Adelaide

SECURITY OF TENURE IN PUBLIC POSTS

SIR,—I have read with interest the letter by "A.M.O." on this subject in your issue of October 20th (p. 728). As an assistant medical officer of one of the smaller county mental hospitals for some years I should like to offer a few observations. Dr. W. M. Fraser, in a letter in the *Journal* of October 13th (p. 677), dealt with the security of tenure in public posts and, unless definite evidence to the contrary be forthcoming, I think one may agree that "in practice the danger of dismissal is extremely small." His remarks apply more directly to public health appointments but, so far as I am aware, they apply also to mental hospital posts. It is the remainder of "A.M.O.'s" letter, however, which induces me to reply.

During my service here I have served under two superintendents, and no attempt has ever been made "to prevent as far as possible" any contact with the committee, and both have repeatedly made inquiries with regard to food and general management of the A.M.O.'s quarters and any reasonable suggestion has always been considered and adopted if at all possible. I admit that the junior A.M.O. may not marry, but to say that, in the majority of cases, "if he decides to remain in the service, he must take what amounts to a vow of celibacy" is surely a gross exaggeration. Were all our medical superintendents deputy superintendents, and senior medical officers never junior medical officers? And is it the case that the junior medical officer's chance of promotion, without influence, is almost nil?

With regard to hours of duty, does "A.M.O." want a "clock" arrangement of some kind? I have never had

difficulty in obtaining a morning off if I wanted it, or any other reasonable time. My superintendent was granted study leave some years ago. I obtained it last year, and my colleague has been granted it this year. Yet "A.M.O." says arrangements for post-graduate study are "never made."

Again, almost from my earliest days here efforts were made by the superintendent to instruct me in administrative routine. Thus, by the way, is learned not only in the superintendent's office, but also in the clerk's office, stores, and the other departments of the hospital. In my experience the various officers have always supplied any information asked for, and have also taken considerable trouble to explain the routine work of their departments. The work is not mostly drudgery of a very uninteresting nature. In a small institution, where one has charge of one side, it is varied and interesting. Of course, to a large extent, it is what one makes it.

To compare the position of a junior medical officer with that of a general practitioner is not a fair comparison. Compare it with that of an assistant to a general practitioner, and the advantages of the latter position, so far as I am aware, are doubtful. I have never heard of such an assistant with whom I would care to change places.

Perhaps I am one of the few instances of an A.M.O. working under an "enlightened administration." In any case, the above represents my own experiences, and it applies equally to the time when I was junior A.M.O.—I am, etc.,

Wells, Somerset Oct. 20th

ARTHUR DARLINGTON

SIR,—Your correspondent "A.M.O." in the *Journal* of October 20th (p. 728), has stated the case of the assistant medical officer at an asylum in a manner which deserves attention. May I suggest that the points he ventilates apply equally to an assistant medical officer at a county sanatorium?

In most cases the appointment of an assistant medical officer at a sanatorium is limited to a period of one year, although this period may be extended by reappointment. This is unsatisfactory in so far as it seems to be an attempt to evade the minimum scale of salaries for assistant medical officers in the public health service, as laid down by the British Medical Association. The advertisement for these posts often incorporates the phrase, "no previous professional experience necessary"; this, again, seems to be a deliberate attempt to minimize the value of the services required.

The salary offered for an appointment of this nature is, at the most, £250 with board and lodging, and there is no prospect of any increase. The vow of celibacy as described by "A.M.O." is apparently expected by the authorities, and of necessity taken by the medical officer. Furthermore, the title—assistant resident medical officer—is in some cases almost a misrepresentation of the actual status of the officer holding the appointment, as, although there is ostensibly a staff of three medical officers at some institutions—namely, a medical superintendent, a resident medical officer, and an assistant resident medical officer—the two former may also hold the appointment of county tuberculosis officer and assistant county tuberculosis officer respectively. In this capacity their work will necessitate their absence from the institution for the greater part of each day, so that the onus of all the routine work falls to the lot of the assistant resident medical officer. Such routine work calls for adequate off-duty time, and this should be accepted as a right and not as a favour to be granted by the medical superintendent.

I have pointed out in a previous letter (October 20th, p. 727) the necessity for taking certain precautions before accepting an appointment at a sanatorium. May I now add that it is time the authorities concerned realized that the remuneration and amenities offered are inadequate in view of the risk (and it is a very real one) that is taken? I therefore endorse the recommendation of "A.M.O." that the British Medical Association, which has done so much in the past for those holding public posts, should take up the case of the assistant medical officer.—I am, etc.,

Devon Oct. 22nd.

ALAN J. McMILLAN

Obituary.

SIR CHARLES TOMES, LL D, FRS, FRCS,
Consulting Dental Surgeon Royal Dental Hospital Trustee and
formerly Treasurer of the General Medical Council

WE have to announce with much regret the death, in his eighty-third year, of Sir Charles Tames, which took place on October 23rd at his home, Mannington Hall, Aylsham, Norfolk. The present position of odontology among the medical sciences is largely due to the work and character of two men, John and Charles Tames.

Charles Sissmore Tames, the eldest son of Sir John Tames, FRS, FRCS, was born on June 6th, 1846. Of his father it has been said by Sir D'Arcy Power, in the *Dictionary of National Biography*, that he "began to practise dentistry when it was a trade, and he left it a well equipped profession. The change was in great part due to his personal exertions but he did even more than this, for he showed that a dentist was capable of the highest kind of scientific work—that of original observation." It was through the efforts of John Tames that the Royal College of Surgeons of England instituted a licence in dental surgery in 1858. He was one of the chief founders of the Odontological Society, and of the Royal Dental Hospital, where he was the first to give systematic clinical demonstrations. He was also largely instrumental in obtaining the Dentists Act of 1878. In the last year of his life the John Tames Prize was founded by members of the dental profession to commemorate his services in promoting the study of dental surgery and improving the status of its practitioners. It was most appropriate that the first award, by the Council of the Royal College of Surgeons in 1894, should have been made to his son Charles, who, as recorded below, so worthily followed the same path.

From Radley College Charles Tames went to Christ Church, Oxford, where he distinguished himself as an oarsman, and in 1866 was placed by himself in the first class in the School of Natural Science. He then entered as a medical student at the Middlesex Hospital, where his father had also studied and was then on the staff as surgeon dentist. He obtained the diplomas of MRCS Eng and LDS in 1869, and graduated MA Oxon in 1872. In 1878, largely in recognition of his original studies on the structure and development of the teeth, he was elected FRS at the early age of 32, and twenty years later his pioneer work in dental research was recognized by election to the Fellowship of the Royal College of Surgeons of England. In 1909 the University of Birmingham conferred upon him the honorary degree of LL D, and in 1919 he received the honour of knighthood.

In the earlier part of his professional life Charles Tames practised in his father's house in Cavendish Square, and served as lecturer and assistant dental surgeon to the Royal Dental Hospital. From 1881 to 1895 he was examiner in dental surgery for the LDS of the Royal College of Surgeons. From 1888 to 1920 he was a Crown nominee on the General Medical Council, and for the last sixteen of those years held office as treasurer. In 1910 he was appointed a trustee of the English Branch Council, and nine years later trustee of the General Council, these

offices he held until his death. For a short time, about the year 1895, he had acted as inspector of dental examinations on behalf of the Council, and he served later as chairman of its Dental Education and Examination Committee. He was one of the members of the Commission appointed by the Lord President of Council ten years ago to inquire into the extent and gravity of the evils of dental practice by persons not qualified under the Dentists Act of 1878, and when the Dental Board of the United Kingdom was constituted in 1921, under the Dentists Act of that year, he was appointed a trustee of the Dental Fund.

Apart from his series of important papers on the structure and development of the teeth, and in particular on dentine and the enamel organ, published between 1875 and 1890 in the *Philosophical Transactions* and the *Quarterly Journal of the Microscopical Society*, Charles Tames edited the last four editions of Tames's *Dental Surgery*, and was the author of a *Manual of Dental*

Anatomy, Human and Comparative, which reached its sixth edition in 1904. For many years he was an occasional contributor of unsigned articles on various subjects to the *British Medical Journal*, and often gave valuable help to the Editor on matters relating to dentistry and the proceedings of the General Medical Council, thus the friendship between John Tames and Ernest Hart was continued between Charles Tames and Dawson Williams.

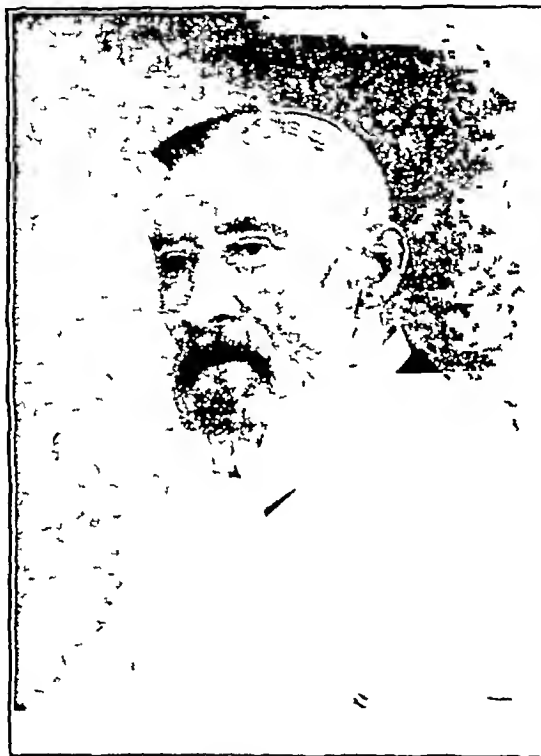
Sir Charles Tames was an old member of the British Medical Association, and served on its Central Council from 1900 to 1904. During the war he became chairman of the Norfolk and Norwich Hospital, and acted as inspector for the Norfolk Red Cross. He had been a vice-president of the Zoological Society of London, and was an honorary member of the American Dental Association.

Mr J G TURNER, FRCS, dental surgeon to the Royal Dental Hospital, sends this personal tribute.

The dental profession throughout the world will be profoundly moved by the death of Sir Charles Tames, and will turn in personal sympathy to Lady Tames in her grief. To most of us the loss is of a great intellect which has guided our thoughts and spurred us to seek knowledge with scrupulous care, but to some, perhaps now not many, the loss is more intimate. We remember the tall, spare, handsome figure, the somewhat shy greeting, the happy smile of recognition, the ready appreciation of a point well proved, and the glow of pride that Tames had agreed. Some of us have pictures of his painting (he exhibited at the Royal Academy under his Christian names, Charles Sissmore), some of us fished, and some of us shot with him and talked dogs. We all loved him as master and friend, and now we are the happier for a precious memory.

We are indebted to Dr CLIFFORD BEALE, consulting physician to the Royal Northern Hospital, for the following appreciation.

Of the large circle of friends prominent in medicine, art, and science, with whom the late Sir Charles Tames was associated in earlier life, but few are left. While others have borne witness to his services in the many undertakings in which he was interested, it may be



SIR CHARLES S. TOMES

permitted to a friend of over forty years' standing to recall some of the more personal charms of a many-sided character.

After his retirement from active practice in Cavendish Square he settled in Park Crescent, where he and Lady Tomes enjoyed, for many years, the pleasure of entertaining his numerous appreciative friends—professional, musical, and artistic—who delighted to discuss, if they did not always agree, with him the prominent subjects of the day. His scientific trend of thought, tempered by a strong vein of common sense, often proved valuable in counsel as well as interesting in social life. Himself a fine water-colour artist, he was always willing to listen to criticism of his own or others' work, even from the point of view of the man in the street. To those privileged to share his holidays in the North and elsewhere his keenness for sport with gun and fishing-rod was infectious, but for him there were no "off days." When others were inclined to rest from their self-imposed labours he would be away in search of a good subject for his next sketch.

His artistic provision led him in later years to seek out a home which should be a fit setting for the wealth of fine furniture, china, pictures, and other works of art which he had, from various sources, accumulated. Such a setting he found in Norfolk in the old moated house known as Mannington Hall, near Aylsham. There for many years he was able to entertain friends, to enjoy and constantly to enrich the fine old garden, to join in the sport for which the country is famous, becoming a keen shot himself, although his skill had been acquired only late in life, and employing spare time in a research into the history of Mannington Hall and its previous owners and occupants, of which he published an interesting account in pamphlet form. Upon the introduction of wireless telephony he at once entered into the study of its phenomena, and made countless experiments of his own with a view to improve reception until his failing powers during the last few weeks brought them to an end. An indefatigable worker, whether in science or in sport, he will always be remembered and honoured by those who knew him best as a modest leader, a sympathetic colleague, and a staunch friend.

[The photograph reproduced is by Elliott and Fry, London.]

W. M. BEAUMONT, M.R.C.S.,

Late Honorary Ophthalmic Surgeon, Bath War Hospital and to the Bath Eve Infirmary.

WE much regret to announce the sudden death in his consulting room while examining a patient at Bath, on October 18th, of Mr. W. M. Beaumont for many years a leading ophthalmic surgeon in the West of England.

William Mardon Beaumont was born in 1851, and studied at the Middlesex Hospital, in Aberdeen, and in Paris. He obtained the L.S.A. in 1874 and the diploma of M.R.C.S. Eng. in the following year. Subsequently he held resident appointments at the Middlesex Hospital as acting house-surgeon to the late Mr. J. W. Hulke and obstetric physician assistant for six months to the late Dr. A. W. Edis. He began his work in Bath as acting resident medical officer to the Royal Mineral Water Hospital, and subsequently devoted himself to ophthalmology. From 1888 to 1908 he served as honorary surgeon to the Bath Eve Infirmary, and during that time he built up a large private practice, and held office as vice-president of the Ophthalmological Society of the United Kingdom and of the South Western Ophthalmological Society. In 1896, when the British Medical Association met at Carlisle, he was honorary secretary of the Section of Ophthalmology, he was vice-president of the same Section at Leicester in 1905 and president when the Association met at Bath in 1925. He was for many years honorary secretary of the Bath and Bristol Branch of the Association and was appointed a member of the Railway Servants' Eyesight Committee at its formation in 1891.

During the war Mr. Beaumont's work as honorary surgeon to the Bath War Hospital took up nearly half his time. Throughout his career Mr. Beaumont contributed numerous papers on ophthalmic subjects to the medical press, several of which were published in our

columns. He devoted his spare time to antiquarian research and was a keen collector of pottery, brass, and old oak furniture. His collection of Brighthelm "blue dash" chargers is probably the finest in existence, and his antique furniture is of great interest.

The sudden nature of his death is undoubtedly what he desired, for amongst his papers has been found the following in his writing: "The one object of doctors seems to be to make a competence and then retire, after which they sit patiently on the platform and wait for the train to bear them to eternity. When my time comes may I rush to the station without time to think about the ticket or where I am going to and jump into the express as it is on the move."

Dr. SYLVSTER RICHMOND, whose death occurred at Greenhithe on May 21st in his eighty-eighth year, had only retired at the end of March from the post of medical officer of health for the Dartford rural district. He was probably at that time the oldest medical officer of health in England, and had completed fifty-eight years of service in that capacity. Dr. Richmond was born in Hampstead, and began his medical education at King's College, London, proceeding later to Edinburgh and Paris. In 1863 he obtained the diploma M.R.C.S. Eng., and two years later graduated M.D. Edin. His association with the public health service began in 1869, when he was appointed part-time medical officer to the Northallerton urban district and rural district councils, he remained there until 1885, when he accepted a similar position under the Dartford rural district council, and removed to that area, where he spent the remainder of his life. In 1912, when it was decided to place the work of the entire district under the control of a whole-time medical officer, Dr. Richmond was selected to fill the appointment. In the course of his long career at Dartford he witnessed a remarkable development in health matters, in housing, and in sanitation, and at the time of his retirement warm tributes to his services in this connection were made by the local authorities concerned. Until only two or three years ago he was a familiar figure throughout the extensive area under his charge, as he maintained his custom of visiting every district almost daily, travelling by cycle. He was also surgeon to the Dartford Cottage Hospital. Throughout his life he took a keen interest in the progress of medical science, he was a member of the Royal Medical Society of Edinburgh. At the funeral at Swanscombe many representatives of the local authorities and of various organizations were present.

We regret to announce the death of Dr. CHARLES WILLIAM SMEETON of Hovingham, Yorkshire, which occurred on October 13th, after a prolonged illness, in his sixty-fourth year. He received his medical education in Leeds, and obtained the diplomas M.R.C.S., L.R.C.P. in 1888. After holding a resident post at the Leeds General Infirmary he was associated for a time with the Leeds Dispensary, he subsequently removed to the Hovingham district some thirty years ago, and soon built up an extensive practice. At the outbreak of war in 1914 he volunteered for service abroad, but his offer was rejected on medical grounds, and he therefore undertook the task of commandant of the Red Cross Hospital at Hovingham Hall, conducting this institution single-handed and at the same time maintaining without assistance the work of his practice. In early life he had been, for ten years an officer in the Volunteer force, and during the war in addition to his hospital work he took command of a company of volunteers. Dr. Smeeton was a man of wide interests, and kept abreast of advances in various branches of science and general literature. He was a member of the British Association and of the British Medical Association. He married, in 1899, Ethel Isaacs, daughter of the late William Kendrell of Ness Hall, who survives him together with two sons and a daughter. The funeral at Hovingham on October 17th, was attended by almost every resident of the village and by a large number of representatives of the surrounding districts, a detachment from his

old Volunteer company acted as bearers Dr Noel O Lonsyth represented the York Medical Society and the British Medical Association A colleague writes Dr Smeeton represented the finest type of general practitioner He endeared himself to all, both rich and poor, by his kindness and devotion, not only as a physician, but both as friend and counsellor He was devoted to the people of the district and to the countryside, and he took great pleasure in all that the country has to offer He was a great example of the family doctor

Dr IAN DONALD MACKAY, who died suddenly on October 14th at his residence at Knaresborough, in his 67th year, had been in practice in that district for thirty-five years He received his medical education at the University of Edinburgh, graduating M.B., C.M. in 1886 After spending a few years in practice at Hornby, Lancashire, he removed to Knaresborough, where he became medical officer of health to the urban district council, he was also associated with the Poor Law service, and acted as medical officer to the Harrogate and Knaresborough Joint Isolation Hospital During the war he was on the staff of the Knaresborough Auxiliary Hospital Dr Mackay took a keen interest in medical affairs, and was a leading figure in the Harrogate Division of the British Medical Association From 1905 to 1923 he served upon the executive committee, in 1924-25 he was chairman of the Division, and in 1926 representative in the Representative Body of the Association He was for many years an office-bearer in the Knaresborough Parish Church Dr Mackay is survived by his wife and six daughters

The Services

TERRITORIAL DECORATION

THE Territorial Decoration has been conferred upon the following officers of the R.A.M.C. (T.F.) Majors A. J. Gibson and Hugh Forrest

No 14 STATIONARY HOSPITAL

THE ninth annual dinner of the medical officers of No 14 Stationary Hospital will be held on Friday, December 7th, at the Trocadero Restaurant, at 7.45 p.m., with Colonel C. R. Evans, D.S.O., in the chair

DEATHS IN THE SERVICES

Surgeon General Alexander Ferris Churchill, A.M.S. (ret.), died at Brentwood, Essex, on October 10th, aged 89 He was born in Dublin on June 14th, 1839, and was educated at Trinity College, Dublin, where he graduated as A.B. in 1860 and as M.B. in 1861, and in the school of the Irish College of Surgeons, whose licence he also took in 1861 Entering the army as assistant surgeon on March 31st, 1862, in the following year he was appointed to the 109th Foot, one of the East India Company's European regiments, which had just been taken over by the Crown, after the Mutiny The battalion subsequently, in 1881, became the 2nd battalion of the Prince of Wales's Leinster regiment, or Royal Canadians, and was disbanded after the great war In 1866 he was transferred to the 31st Foot, now the 1st battalion of the East Surrey regiment He reached administrative rank, as surgeon colonel, on October 27th, 1892, with thirty years service, became surgeon major general on May 7th 1896, and retired on June 14th, 1899 He served in the Sudan campaign of 1884-85, when he was in charge of Wady Halfa hospital, and received the Egyptian medal with a clasp, and the Khedive's bronze star

Flight Lieutenant Brien Lamburn Edwards, R.A.F.M.S., died in the British Military Hospital, Peshawar, India, on September 30th as the result of injuries sustained in a motor cycle accident, aged 25 He was born on July 13th, 1903, at Woolwich, Kent, the youngest (twin) son of Mr and Mrs Herbert Edwards, the family moved to Belfast in 1913 Flight Lieutenant Edwards received his medical education at the Queen's University, Belfast, where he graduated M.B., B.Ch., B.A.O. in June 1925 After temporary duties in Southport Infirmary and the East Suffolk Hospital, Ipswich, he joined the R.A.F.M.S. as a flying officer in October, 1925, and spent a year at Halton, Bucks In September, 1926, he left England for Iraq, where he served at Basrah, Kirkuk, and Hinaidi At Basrah he was sanitary officer for the whole area, also medical officer to an Indian regiment, and to the station headquarters and prison In October, 1927, he was promoted flight lieutenant, and shortly afterwards took a permanent commission in the

service Last summer he volunteered for service in India, and accordingly left Iraq in September He was posted to Peshawar, on the North West Frontier, and had been there only ten days when the accident which caused his death occurred He was buried with full military honours on the following evening in Tankie cemetery His untimely death is deplored by all who knew him, and his loss to the profession and the service is great He was a member of the Mesopotamia Branch of the British Medical Association

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

THE Faculty Board of Medicine has appointed Sir T. Gowland Hopkins, Dr Louis Cobbett and Mr Arthur Cook to be members of the M.D. Degree Committee until September next

Mr C. Warburton has been reappointed demonstrator in medical entomology

At a congregation held on October 27th the following medical degrees were conferred

M.D.—H. Wachter II F. Brewer
M.B. B.Ch.—H. M. Gilchrist W. R. Ashby J. W. Monro

Plusent Darwin Studentship in Mental Pathology

This studentship was founded in 1924 by the bequest of Mrs Plusent and Sir Horace and Lady Darwin for the promotion of research into any problem which may have a bearing on mental defects, diseases or disorders The studentship is of the annual value of about £200 and is tenable for three years in the first instance The student who may be of either sex and need not be a member of the University of Cambridge must engage in original research in Cambridge or elsewhere but may subject to the consent of the managers carry on educational or other work concurrently Further particulars may be obtained from the Registry of the University, and applications for appointment to the studentship should be sent before December 1st 1928 to the Secretary Plusent Darwin Studentship Psychological Laboratory, Cambridge Applicants should state their age and qualifications and the general nature of the problems in which they are interested and should give the date at which they would be prepared to begin work if appointed No testimonials are required but applicants should give the names of not more than three referees

UNIVERSITY OF LONDON

THE Senate has accepted with thanks the generous offer of Mr Geoffrey E. Dyson to make a further donation for the travelling studentship in oto-rhino-laryngology Regulations for the award of the studentship have been adopted

The Laura de Saliceto Studentship of £150 has been awarded to Dr A. P. Watson M.Sc. for the purpose of continuing investigations into the dietetic and other factors contributing to the genesis and development of experimentally induced tumours in animals

Sir Holburt Waring has been elected chairman of the Brown Animal Sanatory Institution Committee for 1928-29

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL

Three lectures in the history of medicine dealing with diphtheria, small pox and plague will be delivered by Dr Charles Sluiter at University College Hospital Medical School on Monday, November 12th 19th and 26th at 4.15 p.m. The lectures which will be illustrated by lantern slides, are open to all medical students of the University of London

UNIVERSITY OF MANCHESTER

THE Council have accepted the resignation of Dr W. M. Roberts lecturer in medicine and director of the Laboratory of Clinical Investigations and of Dr C. E. Branton demonstrator in human physiology

Mr F. W. Twillog, M.R.C.S. Eng., L.R.C.P. Lond., D.M.R.E. Camb., has been appointed lecturer in radiology

NATIONAL UNIVERSITY OF IRELAND

THE Dr Henry Hutchinson Stewart Medical Scholarships have been awarded to D. P. Kennedy (anatomy) and W. F. Whelton (physiology)

The following appointments have been made—At University College Cork Dr John C. Saunders professor of hygiene and public health At University College Galway Dr Edward N. MacDermott professor of therapeutics materia medica, and pharmacology, Dr Deula V. Morris, professor of midwifery and gynecology

The Dr Henry Hutchinson Stewart Scholarships in arts in medicine, and in mental and nervous diseases will be offered for competition in 1929

UNIVERSITY COLLEGE, DUBLIN

The following candidates have been approved at the examinations indicated

M.D.—F. J. Burke F. J. Murray Mental Diseases J. F. Smyth
M.B.—Ophthalmology K. B. McAreevy
M.B. B.Ch. B.A.O.—C. J. Shortall * J. Ryan * J. M. J. Maughan
* J. J. Keane * J. O'Connor * J. J. Deery * J. J. Brosnan D. J. Cavanagh J. Denis J. M. Cronin Catherine E. Cunningham
M. P. Delaney W. Donnelly J. Healy J. L. Healy P. Keane
P. G. Liddy B. McKeon T. J. Morris Florence J. O'Driscoll
J. O'Gorman C. O'Leary P. Power M. J. Shelly T. A. Tierney

* First-class honours † Second-class honours

ROYAL COLLEGE OF PHYSICIANS OF LONDON

An ordinary meeting of the College was held on October 25th, when the President, Sir John Rose Bradford, was in the chair.

Fellowship

Dr William Willis Dalziel Thomson was admitted to the Fellowship *in absentia*.

Membership

The following candidates were elected Members of the College

Mahomed Abdul Hamid M B Ullahabad Samuel Berman M B Lond
L R C I Sir Brian Bhatia M D Lucknow Harold Livingston
Conlhard M D Glasg Richard Desmond Orrman M B Camb
L R C P Wilfred Evans M C M B Sydney Thomas Norman
Fisher M B Mauch Wilfrid Fletcher Galsford M B Lond
L R C P Hugh Walker Gordon L R C P Bruce Atlee Hunt
M D Melb Samuel Levy-Simpson M B Ounb L R C P John Kirk
Patrick Monro M B Camb L R C P Oswald Ellis Joseph Murphy
M B Sydney Frank Bett Parsons M B Oamb L R C P Alan
Meredith Richards M B Lond L R C P Thomas Frederick
McNair Scott L R C P Frederick Horace Smitr M D Manch
Allan William Spence M B Camb Bernard Olivo Tate L R C P
William Rayner Thrower M B Lond L R C P Harold Frederick
Wilson M B Sydney

also the following candidate, who satisfied the Censors' Board in January 1928

William Hofmeyr Oralt M B Camb

Licences

Licences were granted to the following

A G Adrain W H Allan V E N Allen T O Baker G N Beaton
W A Bellamy G Bollman W L M Bigby J B Blackley
C V Bloom A C Blyth B J Bonché M T Brookman J D Cam
brook F E Camps M S Chafey B Olmbelmann H A Clarke
A M Clarkson L L Cohen S M Cohen "Elizabeth Cooper
R A S Cory W W Craner T V L Croshaw H W D Crook
S H Croot T M Davie "Evelyn M Davies H S Davies O O
Davis D O L Derry P C O DeSilva J S Dinsdale "Marjorie M
Dobson A Dodd F T Doleman R M Dowdswell R Doyle
F C Duffett T T Dunkerton F W Earle E L Edmondson
"Dorothy E Eglington H F Ellis M M El Tonbl C N Evans
"Geraldine W Everett J S S Fairley W B Fiddian-Greco
R L Flett H T Flint "Agnes R Franklyn G H V Froggatt
M Gairbairn J H P Games I K Gayld W N O George R Glan
vill F W H Granger "V P Gnarcken H W Guinness F R
Gusterson "Lillian A Hamar W F L Hannay W G Harvey
C L Haskard W E Herbert H P Himsforth B Hoffenberg
I H Hopper S Howard C F Howes M Hurwitz "Esmé L Hyam
J Ives L A Joelsson O H Johnson D T Jones G R Jones
J G Jones H Joourne P G S Kennedy "Esther M Nillick
S Min R W Knowlton T O Kohler "Marie Krestin L R Lalwani
A L Light T A S Lyle R G Macbeth A L MacFarlane
O M MacGeoch W McO MacGregor K L Malthandra C E Martin
E R R Mellon W T Mills J Millice A D Morton L H Mottet
F C Murphy J R Murray "Elith G Niven E Oaden O R E
Orme C G Paine V E Palmer "Karen L Parkes G F D Perrott
F R S Phillips W P Plohering P H L Playfair T R Plummer
D P Prebble N Preerolt H Richards H G G Robertson
D D Robinson S Robinson "Margaret O Resser H W Round
J L Rubin D J Sagar G H Sanderson R V Sanzgiri
J F Schuolder S A Scorer "Elizabeth H Scarfield "Mary O
Seward R R Shapland S Spone M Silverstone J E Snow
E Sontasekhar V Srinivasan B Stewart J O Terry P R Thambin
gala A R Thomas C P K Toland "E A Utting H D Vasey
R G L Waller D Wardrop J Wasserkewig "Oliver O Watkin
O E W Wheaton A T D Whitfield L V Williams L K Willis
A Wilson J Winter F W J Wood Margaret D Wright
J M Wrigley N Yacoubian H S T Young

* Under the Medical Acts 1875.

The Strentfield Research Scholarship was awarded to Dr R A Hickling and the Jenks Memorial Scholarship to Hugh Donald Fleming, late of Epsom College.

Appointments

The appointment of Dr J A Glover to the Milroy Lectureship for 1930 was announced and Mr W A Greene K C was elected Senior Standing Counsel to the College.

The following were elected as Councilors Dr C R Box Dr J H Thirsheld Dr Charles Bolton Sir Charlton Briscoe, and Dr J A Arkwright.

Sir Francis Champneys was re-elected to represent the College on the Central Midwives Board.

Dr Raymond Crawford was re-elected a member of the Committee of Management.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated

SURGERY—G N Beaton J M Connor L P Gregory H H Jackson

E J Johnson A A Leibovitch K R Lundberg D F Michael

MEDICINE—A R D Abreu E A Johnstone T K S Lyle C P Madden

A F Quarumby A E Vawser

FORENSIC MEDICINE—G E Bent J M Connor A R D Abreu

A I Gibbs E A Johnstone T K S Lyle M R Rashwan

R W Scanlon

MIDWIFERY—J M Connor "Das W S Ghal M Hurwitz F A Lipkin

E O C Parsons A F Quarumby R W Scanlon A W B Wiggins

The diploma of the Society has been granted to Messrs. A. R

D Abreu A E Gibbs M Hurwitz H H Jackson A A Leibovitch C P Madden A I Quarumby and A L Vawser

The following candidates have been approved at the examination indicated

MASTERY OF MIDWIFERY—G D Feeles R K Ford J A Lee

F P N Parsons H T D Smythe

Medical News.

THE annual dinner of past and present students of the School of Medicine, Leeds, will take place on Friday, November 9th, at the Hotel Metropole, Leeds, under the presidency of Dr C W Vining.

THE annual autumn dinner of the Glasgow University Club, London, will be held at the Froccadero Restaurant, Piccadilly, on Friday, November 23rd, at 7.30 p.m. The chair will be taken by Mr James Bonar, M.A., LL.D. Any Glasgow University men who, though not members of the club, desire to attend are requested to communicate with the hon. secretaries, 62, Harley House, N.W.1.

THE fifty second anniversary dinner of the Cambridge Graduates' Club of St Bartholomew's Hospital will be held on Wednesday, November 21st, at 7.30 p.m., at the May Fair Hotel, with Mr Frank Rose in the chair.

THE Lloyd Roberts Lecture on Faraday's Diary will be delivered by Sir William Bragg in the Barnes Hall of the Royal Society of Medicine, 1, Wimpole Street, on Thursday, November 29th, at 9.15 p.m. The president of the Society, Lord Dawson of Penn, will receive Fellows of the Society and guests at 8.30 p.m. The library will be open and a number of exhibits will be on view. Admission will be by ticket only, and applications should be addressed to the secretary of the Society.

At the meeting of the Hunterian Society, to be held at the Cutlers' Hall, Warwick Lane, E.C., on Monday, November 5th, at 9 p.m., there will be a discussion on "The Doctor on the Stage." The following have promised to take part: Dame Madge Kendall, Sir St. Clair Thomson, Lady Simson (Miss Lena Ashwell), Dr Harold Dearden, and Mr Ivor Back. Fellows of the Society may bring non-medical guests (including ladies) to the meeting.

DR E. P. CUMBERBATOR, medical officer in charge of the Electrical Department of St Bartholomew's Hospital will give two Chadwick public lectures on physiotherapy with special reference to medical electricity. The first lecture will be delivered at the house of the Medical Society of London, 11, Chandos Street, W.1, on Wednesday, November 21st, at 5.15 p.m., when Sir William Collins will preside. The second lecture will be given in the Guildhall, Bath, on November 22nd, at 8 p.m.

THE lecture courses arranged by the Royal Institution of Great Britain for the present session include two lectures on November 22nd and 29th by Dr E. D. Adrian, F.R.S., on the mechanism of the nerves, and two on December 6th and 13th by Sir Richard Paget, Bt., on human speech. The lectures will be given at 5.15 p.m. at 21, Albemarle Street, W.

At the meeting of the Pharmaceutical Society of Great Britain, to be held in the Lecture Theatre of the Society's House, 17, Bloomsbury Square, W.C. on Tuesday, November 13th, an address will be given by Mr C. J. S. Thompson, formerly curator of the Wellcome Historical Medical Museum, upon the apothecary and some curious materia medica of the seventeenth century, illustrated by specimens from the new additions to the society's museum. The president will take the chair at 8 p.m. and refreshments will be served after the meeting.

PRINCESS ARTHUR OF CONNAUGHT will open the new children's wing of the Wimbledon Hospital on Wednesday, November 21st, at 3 p.m.

The new Torbay Hospital will be opened on Saturday, November 17th, at 2.30 p.m. by Lord Midway of Flete, Lord Lieutenant of the County of Devon.

THE Joint Tuberculosis Council has arranged a post-graduate series of lectures and demonstrations on the pathology of tuberculosis and allied chest diseases. These will be held at the City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, from Monday, November 26th to December 1st, including both mornings and afternoons, with the exception of the Saturday afternoon. The syllabus includes genito-urinary tuberculosis in the male, syphilis and tuberculosis, the investigation of the pre-tuberculous child, sputum examination, the early development of pulmonary tuberculosis, bronchiectasis and the various radiological and pathological investigations. The wards and various special departments of the hospital will be open to those taking part in the course. The fee is three guineas, and an application has been made to the Minister of Health to allow the course to rank for a grant. Further information may be obtained from Dr William Braud, The Larches, Farnham Royal Bucks.

THE Fellowship of Medicine and Post Graduate Medical Association announces that on Monday, November 5th, Mr Aleck Bourne will deliver a lecture entitled "When is the retroverted uterus a cause of symptoms?" at the Medical

Society, 11, Chandos Street, Cavendish Square, at 5 p.m. On the following Wednesday, at 2 p.m., Dr. Edward Williams will give a gynaecological clinical demonstration at Charing Cross Hospital, and on the same afternoon Dr. G. Carmichael Low will give a demonstration on "Recent work on blood diseases" at the Wellcome Museum of Modern Science, 33, Gordon Street, W.C.1, at 4 p.m. On Friday, November 9th, at 3 p.m., Mr. E. Gillespie will give a clinical demonstration in general surgery at the Prince of Wales's Hospital, Tottenham. Admission to these meetings is free. On Monday, November 5th, an afternoon course of clinical demonstrations in venereal disease, continuing for four weeks, will begin at the London Lock Hospital, Dean Street. Copies of syllabuses and information on all post-graduate work in London may be obtained from the secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1. The list of special courses for 1929 is now being printed; copies will be sent on application.

An exhibition of water colours of Italy, Spain, Holland, and Belgium, by Miss Mabel Spanton, daughter of the late Mr. W. D. Spanton, F.R.C.S., is now being held at Walker's Galleries, 118, New Bond Street, London, W.

DR. CORDELY BRADFORD, J.P., and Mrs. Bradford were honoured at a reception given on October 26th at Acoc's Green, Birmingham, to commemorate their golden wedding on June 4th, 1928. They were the recipients of an illuminated address, a gold salver, and a silver ten urn from many old friends among whom they had lived and worked for 43 years.

At the annual meeting of the National Council of Women, held at York last month, the following resolution about hospitals and women medical students was adopted: "That this council deprecates the proposal of certain London hospitals to discontinue the training of medical women, and urges that in the interests of the community a concerted demand should be made for women students both graduate and post-graduate, to have facilities for training as adequate and as efficient as are those that are open to men, including their appointment to paid and honorary posts in hospitals."

In celebration of the centenary of the *Spectator* a dinner was held at Claridge's Hotel on October 30th, and a commemorative number is to be published to day, November 3rd. A book, entitled *The Story of the Spectator, 1828-1928*, by Sir William Beach Thomas, which was published on October 25th, contains an interesting record of the history of the *Spectator*, and also sidelights on many events of the past 100 years.

The Council of the Royal Sanitary Institute has accepted the invitation of the Sheffield City Council to hold its fortieth Congress and Health Exhibition at Sheffield from July 13th to 20th, 1929. Earl Fitzwilliam will preside.

The Water Pollution Research Board of the Department of Scientific and Industrial Research issues periodically, in typescript, a summary of current literature bearing directly or indirectly on its activities. The issue for October consists of an author index to the first volume of these fasciculi. It may be consulted at the library of the British Medical Association.

In connexion with the celebration of the centenary of the Faculty of Medicine in the University of Cairo, arrangements have been made for a tour in the Mediterranean for medical practitioners, leaving Marseilles on December 1st and returning thither on January 5th. The places to be visited include Corsica, Sicily, Naples, Alexandria, Jerusalem (spending Christmas night at Bethlehem), Constantinople, Athens, Malta, Tunis, Constantine and Algiers. Further information may be obtained from Dr. Veillet, 43, Boulevard Raspail, Paris.

At the sixth International Congress of Historical Sciences recently held at Oslo, and presided over by Professor Halldan Koht, who is president of the Historical Society of Norway, the following papers of medical interest were read: medical considerations in favour of Glozel by Dr. Tricot-Royer of Antwerp, the observations of Pinel and his pupils on some abnormal personalities in the French Revolution by Drs. Laignel-Lavastine and J. Vinobon, medical instruction in the Middle Ages by Professor Karl Sndboff of Leipzig, social life of the leper in the old Duchy of Brabant by Dr. Tricot-Royer, and scientific medicine in Norway after the Middle Ages by Dr. Frederik Grøn of Oslo. The next congress will be held at Warsaw in 1933.

The tenth international medical post-graduate course was held at Carlsbad under the presidency of Dr. Edgar Ganz from September 23rd to 29th when the following papers, among others, were read: the treatment of gastric and duodenal ulcer by large doses of alkalis by Professor H. MnoBean of London, the relations of the female sexual functions to the liver by Professor H. Gngglsberg of Berne, changes in the liver of the constitution by Professor Sigerist of Leipzig, treatment of perniciosa anaemia by Professor G. Becker of Helsingfors, the cause of diminution of sugar tolerance in diabetes by Dr. G. Graham of London, eye

diseases and diabetes by Professor A. Elschuig of Prague, the treatment of obesity by Professor K. Glaessner of Vienna, failures in the surgical treatment of gall stones by Professor A. Jurasz of Posen, the pathology of puberty by Professor R. Neurath of Vienna, Wolf's disease and yellow fever by Professor Schiffrer of Amsterdam, and the treatment of tabes by Professor Wagner Jauregg of Vienna.

An account of the agitation in favour of wholemeal bread during the past fifty years has been published (Jarrold and Sons, Ltd., London and Norwich, price 6d.) by the Bread and Food Reform League under the title *Bread of Olden Days*. Miss May Yates, who founded the league in 1880, became an advocate of brown bread following her observation of the great strength of the Sicilian and Egyptian peasants, who subsisted chiefly on this diet. The author invokes the wisdom of Hippocrates, the endurance of the Spartans, and the success of the Romans as evidence of the virtue of brown bread, and describes white bread as an "impoverished, anemic product." There can thus be little doubt as to which side she takes in this controversy.

THE 1928 issue of the West African Medical Staff List shows a total personnel of 233, including 11 women. The list, as usual, contains three sections, giving the personnel for each grade and colony, and particulars of the qualifications and services of individual officers. Two issues of similar lists for the other colonies or groups of colonies which have medical services of sufficient numerical strength to warrant such a publication has long been overdue.

ACCORDING to a recent writer in the *Cronica Medico Quirurgical de la Habana* all Cuban children under 2 years of age in the rural population and 70 per cent. of those living in towns are infested with intestinal parasites.

As a memorial to her late husband, Dr. F. Melandri, who was for thirty-five years a member of the hospital staff, Mrs. Melandri has given £1,000 to the Italian Hospital, Queen Square, London, to provide a new x-ray installation.

Dr. LEREBoullet has been nominated successor of Professor Marfan in the chair of infantile hygiene, and Dr. Gougeon has succeeded Professor Jeannel in the chair of skin diseases and syphilis in the University of Paris.

THE third part (M-Q) of the Sale Catalogue published by L'Art Ancien, Lugano, of early books on medicine, material sciences, and alchemy has recently appeared. Each entry is accompanied by an explanatory note in English, and the text is freely interspersed with contemporary woodcuts.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1**.

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The address of the Irish Office of the British Medical Association is 16 South Frederick Street, Dublin (telegrams **Bacillus Dublin** telephone 62550 Dublin) and of the Scottish Office, 7 Drumshagh Gardens, Edinburgh (telegrams **Associate, Edinburgh** telephone 14361 Edinburgh).

QUERIES AND ANSWERS

ADMINISTRATION OF LIVER EXTRACT

"ANÆMIA" writes. In answer to W. (October 27th p. 777) may I say as an sufferer from pernicious anaemia, that in my opinion his patient will have to continue taking liver extract for the rest of his life? I have, by way of experiment reduced the daily dose of liver always with the same result—a reduction in the number of red cells. I think it is better to take too much liver than too little. Farther, I find I must stick to the

hydrochloric acid, dil., I take half a drachm three times a day. If this is left off the intestinal contents become very offensive. In addition, I take 15 grains of bismuth subnitrate three times a day as an intestinal antiseptic. I have tried many of the so-called intestinal antiseptics, I believe the bulk of them to be useless. "W." patient has a low proportion of haemoglobin, these should be about 80 to 85 per cent at least. I think more liver extract should be taken. I have a blood count every month, the information afforded is useful. A most important point in the examination is the size and shape of the red cells. There are two processes going on at the same time: the haemolysis and the defective manufacture of cells. If the red cells are large it may be safely presumed the blood factory is not in good working order. At the times when I have suffered a relapse, and have slipped back to say, 2 million "reds" this has been very noticeable. "W." does not say what preparation of liver extract his patient is taking. I have tried three or four, but prefer Armour's concentrated liquid liver extract, and I take nearly 1 oz each day. At my last blood count this month I had 5,220,000 reds, 85 per cent haemoglobin, index 0.82.

SEBORRHOEA OF THE SCALP

DR. I. B. McCANN (London, E.) writes: In seborrhoea of the scalp, with much dandruff I have been in the habit of prescribing an ointment of 10 grains each of sulphur and salicylic acid in 1 oz of soft paraffin. Though the results are satisfactory many patients after prolonged use find it greasy and too sticky for comfort. Can these two drugs (sulphur and salicylic acid) be put up in a more elegant fashion for use on the scalp even if more expensively? I prefer, if possible, to use sulphur and salicylic acid rather than a spirit lotion of hydrarg. perchlor and salicylic acid which is recommended as an alternative in most textbooks. Suggestions for an alternative treatment would also be welcome.

DELAYED MENSTRUATION

"A.E." writes: I have a patient, a girl clerk, aged 25 years who has never menstruated or, at the most, has only seen a slight stain. She has a good deal of adipose tissue especially on the legs and arms, and otherwise she is quite plump. She is in perfect health. She has been seen by very distinguished doctors. I can find nothing abnormal physically. Up to the time I saw her she has been three years on thyroid extract, eight months on hormotone and eight months on ovarian extract. Obviously it is no use doing what other people have done. Can any reader suggest some line of treatment or some further examination?

LETTERS, NOTES, ETC.

BLIND-DEAF CHILDREN

MR. A. J. STORY, general secretary National Institute for the Deaf (2 Bloomsbury Street, New Oxford Street, W.C.1), writes: This Institute is now considering the question of the early training of children who were born or have become, both blind and deaf. It is obvious that unless such unfortunate children are specially and entirely cared for from very early life their lapse into physical and mental incompetence is almost unavoidable. At the present time no distinctive provisions are available for the care of such young children. Single type institutions either for the blind or deaf, cannot receive them. We are anxious to get to know of the numbers of those doubly afflicted children who do not generally come under the notice of public authorities until an age at which the retardation due to silence and sightlessness, has become of grave importance and difficulty. It has been suggested that an appeal to doctors, nurses and those concerned with hospitals, baby welfare clinics, and other organizations dealing with childhood would be likely to help in tracing these blind and deaf children. May we therefore crave the assistance of your columns to request those of your readers who may know of cases of children of any age up to 8 years who are both blind and deaf, to help us by sending us full particulars of them?

"GREENED" POTATOES

DR. L. HARRIS LISTON (Middleton St. George Durham) writes with reference to the green colouring which appears on potatoes when exposed to light for a few days, and which is said to indicate the presence of a poisonous substance. He is informed by the Keeper of Botany at the Natural History Museum, South Kensington, that the poisonous element in the potato plant is the alkaloid solanine, which is present in all parts of the plant, though only to a very minute extent in the flesh of the tuber, there being more in the skin and the green parts. Dr. Harris Liston writes: Some persons cannot eat potatoes, being hypersensitive to very small quantities of this alkaloid. I and my servants have frequently eaten without ill effects, greened potatoes which have been skinned and boiled, and I have given such potatoes to pigs after boiling without any apparent bad symptoms. On the other hand the haulm of the plant, the seeds and sprouting and greened potatoes have caused serious symptoms and even deaths in live stock fed on such. During the war some soldiers in Berlin fed on such potatoes were badly affected with acute gastro-enteritis, their symptoms being pyrexia, headache, colic, diarrhoea, occasionally vomiting, and in several cases fainting while one had convulsions, most were drowsy and apathetic, but all recovered. I should be interested to hear if any readers of the *Journal* have observed such symptoms in people who have eaten these greened potatoes.

DEMENTIA PRAECOX AMONG PARSEES

DR. ARTHUR J. BROOK (North Queensberry) again joins issue with Lieut. Colonel Jagoe Shaw on the subject of dementia praecox among Parsees. In the course of a letter he states that "the Parsees seem not only to be afflicted with Westernization, but to have got it extra badly. Their schools appear modelled on strictly Western lines and one would naturally expect them to suffer from the chief diseases affecting Western civilization. Of these, early or precocious dementia is one of the most outstanding. Lieut. Colonel Jagoe Shaw tells us that the Parsees are particularly prone to this, and next to them the educated Hindus and Mohammedans; or rather, the boys of these two groups who have undergone the system of intensive cramming known to the Western world as education. Only the Parsees go in for consanguineous mating, whereas all of them go in for Western cramming methods. We Westerners are being decimated by dementia praecox, and there is no question of our marrying 'cousins,' except very rarely. Why not look for a factor existent in all groups, instead of only in ours?"

ACTINIC SKYSHINE MIRRORS

DR. E. C. MADDOX (Bournemouth) writes: Those who install "vita" glass windows in children's hospitals especially in the "rickets ward," might be glad to know how to render them most effective. Much of the actinic light which streams through a window is lost on the floor and furniture. The ceiling is the ideal receptive surface both for preserving the ultra violet radiation and for scattering it over the room. Without lessening the direct stream of light into the room an actinic mirror can be hinged to the foot of the window outside approximately horizontal, so as to cast additional skylight on to the ceiling. By an actinic mirror I mean one that reflects ultra violet radiation without any material loss. That is not the case of course, with ordinary glass which absorbs actinic light especially as the light has to pass twice through the substance of a mirror to reach the silvering and escape again. The suggestion is to silver "vita" glass and use it as a mirror with its edges and back painted with liquid celluloid or the like to preserve it from the weather. Metallic or even perhaps enamelled, mirrors would serve the same purpose. At night the mirror can be folded up

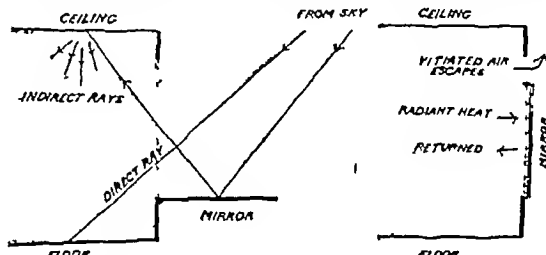


FIG 1.—Day

FIG 2.—Night.

against the lower part of the window, if desired to contribute to the warmth of the room by reflecting the escaping heat radiation back again. For simplicity's sake one direct and one reflected ray only are shown in the diagram. Inquiries about such glass mirrors can be made from the "Vita" Glass Marketing Board, Aldwyb House, W.C.2, and about metallic mirrors from Messrs. John Watts, 18 Soho Square, W.1. An inside mirror projecting horizontally from the foot of the window into a room or even a movable mirror table stood in the window would be better than none but besides occupying space it darkens some of the floor. The difference is this: that an inside mirror does not increase the amount of light entering the room but only diverts some of it, whereas the whole of the light contributed by an outside mirror is additional. Should a maximum effect be required both inside and outside mirrors could be employed. One word of caution may be advisable. Valuable though actinic mirrors would be in many children's nurseries their use for other ill-lit rooms in the house should be a matter of judgement depending on the inmates, for some weak eyes especially in elderly people and invalids, are not so tolerant of increased ultra violet radiation as normal eyes.

A WARNING

"M.D." sends a word of warning to fellow practitioners engaging dispenser bookkeepers. I have recently (he says) parted with a lady who came to me with excellent references and who turned out most unsatisfactorily. She has finally gone in circumstances which can, to say the least of it, only leave grave doubts as to her idea of mine and mine. It would seem that a little delay for the purpose of investigating references might prove time well spent.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 48, 49, 50, 51, 54, 55, and 56 of our advertisement columns and advertisements as to partnerships, assistantships, and locum tenencies at pages 52 and 53.

A short summary of vacant posts notified in the advertisement columns appears in the Supplement at page 20.

Observations

ON

THE DIFFERENTIAL DIAGNOSIS AND TREATMENT OF CEREBRAL STATES CONSEQUENT UPON HEAD INJURIES *

BY

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THE subject of head injuries is treated, as a rule, in the textbooks of surgery rather than of medicine. It might seem, therefore, that in choosing it for our discussion we were encroaching upon surgical preserves. In practice, however, the proportion of cases of head injury which require immediate operative intervention is very small, and is limited to those in which a compound fracture calls for the obvious surgical toilet, or the rupture of a meningeal artery threatens life from cerebral compression. In so far as the latter is a cerebral state consequent upon head injury it might be included within the limits of our title, but in order that we may proceed to other and numerically more important aspects of our subject I shall propose to refer to it only in passing.

The various cranial nerve palsies which may result from fractures of the base are necessarily excluded as forming no part of a cerebral condition. Apart from the immediate surgical risks to which I have referred and the rare condition of subdural haematoma which I shall mention later, the severity of any injury to the head varies with the nature and amount of damage suffered by the brain at the moment of injury. Such damage may in itself prove fatal. When it does not there will result symptoms of cerebral disorder whose differential diagnosis and treatment may properly be considered as topics for neurological discussion. In attempting a brief description of these cerebral states I shall find it necessary to draw certain arbitrary lines of distinction.

CONCUSSION

I shall define concussion as a condition of subtotal cessation of cerebral function following immediately upon the injury, and lasting only a few moments, with subsequent complete recovery within twenty-four hours. During the initial stage the patient is completely unconscious and in a state of flaccid paralysis. In a severe case the respiratory and cardiac functions may hardly continue. In a few minutes recovery begins, the visceral reflexes are the first to return, and vomiting is common at this stage. The other cerebral functions recover more gradually, and there may be a phase of some hours during which consciousness is clouded. Following this again there may be complaint of headache and giddiness, but at the end of twenty-four hours in an uncomplicated case of concussion recovery should be complete and permanent.

The simplest explanation of concussion is that given by Trotter. The skull being in relation to traumatic force semi-clastic is deated or compressed by the blow, its contents being momentarily squeezed dry. The loss of consciousness and paralysis are due to sudden transient cerebral anaemia. The symptoms of the recovery stage are those of a gradual return of function in physiological sequence from the medullary centres upwards. The whole clinical syndrome being due to a temporary vascular embarrassment and independent of any structural lesion, recovery is complete and permanent.

CEREBRAL CONTUSION

Distinct from concussion, though often associated with it, is the condition of cerebral contusion. A fair idea of what is meant by this term may be obtained by anyone who will visualize the picture of cerebral damage in a case of fatal head injury. Apart from any direct laceration of the brain from compound fracture there is almost always to be seen in such a case diffuse bruising and

petechial haemorrhage, often with maximal intensity at the point of contrecoup. In such a case death has probably been due to direct or indirect damage to the medulla. In patients who recover with symptoms of cerebral damage we may reasonably suppose that some lesser degree of such bruising is present.

The symptoms of cerebral contusion depend upon two factors: first, the effect upon the intracranial pressure, and secondly, the precise situation of the lesion. To take the latter first, it is clear that the presence of paralysis, loss of sensation, or altered reflexes in a case of cerebral contusion must be an accident of localization. If the lesion involves the pyramidal cells or fibres an extensor plantar response will result, and so on. The focal signs of cerebral contusion, therefore, are those of cerebral disease generally. It may, however, be remarked at once that such focal signs are rarely to be detected, possibly because it is only in the relatively slight cases of contusion that recovery is possible. The effect upon the intracranial pressure, and hence upon the intracerebral circulation, will depend upon the amount of haemorrhage and exudation.

For purposes of clinical description I propose here to distinguish between a major and a minor degree of cerebral contusion, taking as the distinguishing feature of major contusion clouding of consciousness or stupor.

The General Symptoms of Major Contusion

The injury will almost always have been of such a nature and degree as to have caused concussion. The patient, having been completely unconscious for a few moments, partially regains his senses and passes into the state of stupor already described as a part of the clinical picture of severe concussion. Subsequently, instead of making that rapid progress towards a normal mental state which is characteristic of simple concussion, he remains stuporous, restless, and irritable. During the daytime, if left to himself, he is usually drowsy, lies curled up on his side, and resents interference. At night he is frequently noisy, hallucinated, and violent. The temperature and pulse rate, at first subnormal, are often raised.

This condition may persist for days or weeks, the tendency being towards gradual improvement, first manifested in the form of brief intervals of lucidity during the daytime, when the patient may ask where he is and for a few minutes behave and talk in a rational manner. On regaining his senses he is found to have an amnesia for the period of clouded consciousness. Such patients are often said to have been unconscious during this whole period, but it is important to distinguish between complete unconsciousness or coma and the condition of stupor or clouded consciousness which is characteristic of major contusion.

It has already been assumed that the general symptoms of cerebral contusion are due to increased intracranial pressure from capillary haemorrhage and transudation. Direct proof of this may be obtained by lumbar puncture, a manometer being employed to register the spinal fluid pressure. This is usually found to be well above the normal limit, and the fluid is often blood-stained, indicating the rupture of surface capillaries.

The effects of increased intracranial pressure upon cerebral function are well known, and there is no doubt that they are brought about by embarrassment of the intracerebral circulation. Here we have to consider three groups of blood vessels: the arteries with a high internal pressure, the capillaries with a much lower pressure, and the veins in which the pressure is lowest. It is clear, therefore, that when there is any increase of intracranial pressure, sufficient to embarrass the cerebral circulation, its first effect will be to compress and narrow the veins. Oozing from the capillaries may cause such venous compression, for the pressure in the capillaries is normally higher than that in the veins. But oozing from the capillaries cannot result in compression of the capillaries themselves—that is to say, the increased intracranial pressure due to cerebral contusion may be sufficient to embarrass the venous outflow and so cause a state of relative cerebral anaemia, but cannot reach the point of compressing the capillaries and

Made in opening a discussion in the Section of Mental Diseases and Neurology of the Annual Meeting of the British Medical Association in Cardiff 1928.

causing a state of cerebral anaemia. The symptoms of cerebral anaemia are coma and paralysis, of cerebral vaso-anaemia, stupor, irritability, and confusion. These latter constitute the true clinical picture of major contusion. The development of coma or paralysis must indicate some other and more formidable source of compression, such as arterial haemorrhage or subdural haematoma.

Having regained his full senses the patient, under the terms of our definition, passes out of the category of major contusion, and his further symptoms are those of minor contusion.

The General Symptoms of Minor Contusion

The injury may, or may not, have been such as to have caused concussion. It is possible for a glancing blow to bruise the brain, sometimes severely, without any loss of consciousness at the moment of injury.

The symptoms to be described may follow directly upon the injury, but more commonly develop after a latent interval of some hours, a day or two, or in certain cases after several weeks. Thus a patient who has been concussed may seem to have made a complete recovery from his concussion and yet later develop disabling symptoms. The three symptoms almost constantly complained of are headache, giddiness, and mental disability.

The headache is described in terms of pain rather than discomfort. Throbbing, shooting, splitting, are the words usually employed. At its worst it may be continuous with exacerbations. More commonly it is intermittent. If it has any fixed situation this is likely to be related to the site of the injury. One of the most characteristic features of this headache is a relation to alterations of posture. In most cases it is worse when the patient lies down. Thus it is experienced on going to bed, and may keep him awake during the early part of the night, and it is commonly present when he wakes in the morning. Often the patient will discover that one position in particular, lying with chin upward, to the right or to the left, is especially likely to cause or aggravate the headache. It may also be brought on or intensified by coughing, sneezing, and quick alterations of posture, as in stooping, or rising from the stooping posture. The other aggravating factors in order of their frequency and importance are mental stress, physical exertion, noise, bright light, a stuffy atmosphere, and thundery weather.

The giddiness is usually described as a general transient sense of unsteadiness. It is particularly related to sudden change of posture, so that the patient is, for instance, unable to stoop to lace his boots, or, if he does so, stoops and rises slowly and with caution. The changes from vertical to horizontal posture and vice versa occasioned by going to bed and rising are also apt to induce this symptom.

The mental complaints are of inability to concentrate, defective memory, indecision, loss of emotional control, and rapid fatigability of the mental processes. In severe cases this is associated with insomnia and nocturnal restlessness. There may be some clouding of consciousness at night time, the condition then approximating to that of major contusion.

The Focal Signs of Cerebral Contusion

As has already been stated, these are rarely encountered, and are to be regarded rather as accidents of localization than as of primary clinical importance. Their occasional presence, however, provides additional proof that the symptoms which have already been described have their origin in organic cerebral damage. As a reminder the association is of all the more value when it occurs in a case of minor contusion. I shall therefore quote briefly a single example.

In June 1924 a labourer, aged 39 presented himself with the characteristic complaints of minor contusion. The story was that six weeks previously, while he was at work a piece of steam piping fell on to the top of his head. He lost his sense of reckoning for a second but did not fall and saw the pipe dancing on the floor. He kept at his work and experienced no symptoms of importance until a week later when he commenced to have severe and disabling headaches. On examination he was found to have no physical signs with the important exception of an extensor

plantar reflex on the right side. The blow, which had been of a glancing nature, had been on the left side of his head near the vertex, and as nearly as could be judged over the upper end of the left precentral gyrus. He was treated over a period of three months and then returned to his work. At that time the right plantar response was flexor, but obtained less easily than on the left. He writes that at the present time he is well save for occasional headaches which occur at times of mental or physical strain or in thundery weather.

Apart from objective physical signs, there are certain symptoms which must be related to focal damage, amongst which permanent mental change and epilepsy are of importance.

Permanent mental deterioration to the point of necessitating institutional care would appear to be rare. Lesser degrees of impairment are by no means uncommon, especially after a history of major contusion. Thus in a series of 80 cases of head injury severe enough to necessitate hospital treatment, 18 patients interrogated one or more years after the injury complained of memory defect. Six of these had suffered from major contusion, in the terms of our definition.

Epileptic attacks may occur in the early stages of a major contusion and are usually of the Jacksonian variety. They are probably due to subarachnoid haemorrhage, and do not always portend a permanent liability to attacks. Of more serious significance are the attacks which develop after a latent interval of months or years. These are usually generalized seizures of major or minor character, and quite commonly persist. The frequency of epilepsy as a sequel of head injury is apt to be under-estimated through neglect of the latent interval. In a series of 20 cases (7 gunshot wounds, 13 civil accident) in which a family history of epilepsy could be excluded and there was a clear history of serious head injury preceding the first attack, the interval between the accident and the first attack was in 13 cases longer than two years. In 19 of the 20 cases the attacks were of a general nature. In 18 of the 20 cases in which the history of the earlier stages was adequate, the story was of a major cerebral contusion.

Cerebral abscess following a compound fracture and chronic subdural haematoma are two sequels of head injury which are likely to come within the view of the neurologist. Both are rare. The story of subdural haematoma is commonly that of a fall or blow upon the back or front of the head, with or without concussion. After a latent interval, usually of several weeks, the patient begins to complain of headaches and gradually develops other symptoms of increased intracranial pressure. Symptoms of mental disorder are often a prominent feature of this stage. Later stupor develops, and the final stage of coma and paralysis supervenes rather suddenly and proceeds rapidly to a fatal issue unless relieved.

Owing to the long latent interval and the trivial nature of the injury the diagnosis is sometimes missed because it has never been considered. Examination of the spinal fluid may be of value in a doubtful case, for this sometimes contains altered blood pigment and flakes of fibrin.

Finally, there is a considerable group of cases in which the disability which follows head injury is partly or entirely neurotic, based usually upon the problem of compensation. The symptom picture in these cases of so-called traumatic neurasthenia differs in no respect from that of any other anxiety neurosis, save that the patient's concern is chiefly with his head, and anxiety may be focused upon the question of damage to his brain.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis of the several conditions I have described can best be reviewed by considering the problem as it may be encountered at varying intervals after the accident.

1 During the First Twenty-four Hours.—If the patient has been concussed it is impossible to make any comprehensive diagnosis of his condition at this period. The state of concussion masks what lies behind it. If after complete or partial recovery of consciousness the patient sinks again into a true coma or definite paralytic signs

develop, arterial haemorrhage is almost certainly present. If recovery is progressive and the patient is apparently normal at the end of twenty-four hours, major contusion may be excluded, but the symptoms of minor contusion may supervene. The absence of concussion does not exclude the possibility of the symptoms of minor contusion or subdural haematoma developing at a later stage.

2 After the first Twenty-four Hours.—If at this stage there is any clouding of consciousness, something more than simple concussion has occurred. A condition of stupor and irritability which persists, or shows a tendency towards improvement, indicates the presence of minor cerebral contusion. A lapse into coma or the development under observation of paralytic signs will provide evidence of an increase of intracranial pressure greater than can be accounted for by contusion alone, and should immediately arouse the suspicion either of a late arterial haemorrhage or the formation of a subdural haematoma. The patient who, at the end of twenty-four hours, has apparently recovered may yet develop symptoms of minor contusion, and the latent interval may amount to several weeks. It is especially likely to happen if the patient has been rested completely during these weeks and returns abruptly to his ordinary way of life. I have seen one or two striking examples in cases of multiple injury in which the contusion symptoms have developed only on the patient's discharge from hospital.

The symptoms of minor contusion are as a rule unassociated with any physical signs. They may need, therefore, to be distinguished from those of an anxiety neurosis. If they have developed from those of a major contusion—that is to say, if the patient has been stuporose for more than twenty-four hours after his injury—this fact should have considerable weight in favour of an organic basis. More difficult may be these cases in which the onset has been delayed.

The symptoms of true minor contusion, however, vary so little from one case to another that any physician who takes the trouble to elicit a full history will discover for himself a series of touchstones for the truth. Of particular importance are the character of the headaches and their relation to posture. The neurotic, as a rule, will describe his headache in terms of discomfort rather than of pain, it is continuous rather than intermittent, has no relation to posture, and is aggravated only by mental stress. The association of true contusion headache with giddiness also related to posture is a valuable point.

The mental symptoms are more difficult to evaluate, especially for one who has not known the patient before. It should be a rule in such cases to inquire for a family history of mental instability and to ascertain the patient's previous biographical record, with especial reference to nervous breakdowns. A patient who was sent to me for an insurance report with mental symptoms following a head injury admitted having had a similar nervous illness some years previously after he had accidentally swallowed his false teeth. Of the several physicians and surgeons who had examined him before none had elicited this important fact.

Retardation of the intellectual processes and a defective memory, especially for recent events, are valuable signs of organic cerebral damage, and would probably be discovered more often in these cases if formal tests for memory and retention were generally employed.

My impression is that the frequency of traumatic neuroses following head injury is a good deal exaggerated and that the minor mental symptoms so often encountered are mainly due to organic damage. They are, in fact, the mental symptoms of major contusion spread thin. The argument to the contrary, that such symptoms are commoner amongst workmen, is to my mind of no great weight. Mental stress is an important aggravating factor in the symptoms of true contusion, and one can hardly imagine a greater mental strain than that of a lawsuit far compensation hanging over a man who has nothing to show as evidence of his disability besides his own word.

In this connexion I would urge the importance of teaching the legal profession that the brain may be seriously damaged without any fracture of the skull,

without any objective physical signs, and occasionally in the absence of any history of concussion, and, conversely, that a fractured skull is in itself no proof of cerebral damage.

It would seem even that a fracture of the skull, if not fatal, may carry with it some degree of immunity from disabling after-effects. In the series of 80 cases to which I have already referred, the presence or absence of fracture was determined by x rays and clinical evidence in 72. Ten of these had fractures. At the time the inquiry was made—that is to say, one or more years after the accident—not one of these 10 was completely disabled, 7 were able to do full work and the remaining 3 light work. By comparison, of 61 cases without fracture, 7 were completely disabled, 28 were able to do light work only, and 26 full work. These figures suggest that, in so far as the traumatic force is expended in fracturing the skull, there is less available for lacerating the brain.

Of all the sequels of head injury, the differential diagnosis of subdural haematoma is the most difficult. My personal experience has been of 5 cases.

In one of these the diagnosis at first sight appeared to be that of a cerebral tumour. The patient was a young man with benign papilloedema and an extensor plantar response on one side. There was a story of a fall on the back of the head four months previously. The presence of xanthochromia and fibrin flakes in the spinal fluid led to a correct diagnosis.

In another case also presenting the signs of a cerebral tumour the correct diagnosis was made only at necropsy and no history of injury was ever obtained.

A third patient was admitted to hospital with hemiplegia under the diagnosis of cerebral thrombosis. The fact that the hemiplegia had taken several days to develop excited suspicion a history was obtained of a fall on the back of the head three months previously with slight concussion, and this led to a correct diagnosis.

In a fourth case increasingly severe headaches in a man with frontal sinus disease led to an operation for cerebral abscess. *Post mortem* a bilateral subdural haematoma was discovered, and the history of injury six weeks previously was obtained only after death.

The fifth case was that of a magistrate who was knocked down by a motor car, sustaining a black eye and contusions to his body and limbs. After ten days rest he returned to his work. Subsequently it was noticed that his judgement was faulty, he became irritable and was obsessed in a manner unlike himself about the question of compensation for his accident. He was thought to be suffering from traumatic neuroasthenia. It was not until two months after the injury that he somewhat suddenly became drowsy and developed the signs of a double hemiplegia. Exploratory craniotomy revealed a bilateral subdural haematoma.

TREATMENT

I shall not dwell upon the treatment of concussion further than to remark again that the indication for surgical intervention during the first twenty-four hours is a lapse into coma after a lucid interval or the development under observation of paralytic symptoms. At the end of this period, in a case of simple concussion, recovery will be complete. Minor contusion, however, may be latent at this stage. In every case of concussion, therefore, the patient or his friends should be warned of the liability to subsequent headaches, and he should be advised to return gradually to his normal mode of living. If headaches should develop he should be treated as a case of minor contusion.

In the treatment of a case of major contusion the first principle to be observed is that of complete rest, and in securing this expert nursing is essential. The patient should be disturbed and handled as little as possible. Food should be light and easily assimilable. Sedatives will often be necessary at night—paraldehyde in full doses is effective if the patient will take it, drugs of the medinal group are less satisfactory in that, given in sufficient doses to induce sleep, they sometimes tend to increase confusion on the following day. A similar objection applies to hyosine, which may sometimes be necessary in the management of a violent or noisy patient.

There are two means by which relief of intracranial pressure may be obtained during this stage, sometimes with excellent results. One is lumbar puncture. A manometer should be used, and the fluid—usually blood stained—

run off until the pressure is subnormal. If the procedure gives relief it may be repeated as necessary. The other measure which may be employed is the intravenous injection of hypertonic saline—50 to 100 c.c. of a 15 per cent solution is the dose usually given. The effect is to shrink the brain by absorption into the blood stream of its extravascular fluid contents. This effect is temporary, and the procedure may have to be repeated at intervals of two days. An alternative and simpler method of obtaining a similar result is to give a saturated solution of magnesium sulphate, 3 oz. in 6 oz. of water, by the rectum. This needs to be retained for half an hour if it is to be effective. In the later stages the treatment is the same as for minor contusion.

The symptoms of minor contusion should be treated in the first place by rest in bed. The position of choice should be decided by experiment. In most cases the patient is most comfortable when sitting propped up, and, if so, should be enabled to sleep in this position. Cases will be found, however, in which the patient will discover for himself some other position which is the optimum, and he should be encouraged to persist in it. He should be protected from bright light and noise, visitors should be excluded or strictly limited. An ordinary light diet may be given, but alcohol should be forbidden. A sufficient dose of magnesium sulphate should be given daily to secure a fluid evacuation. If the patient is at all inclined to be restless by day a bromide mixture should be given. Aspirin, 10 grains at need, may be administered for relief of headache, and chloral or medinal at night for sleeplessness. This regime should be maintained until the patient has been free from symptoms for a day or two. He should then get up for an hour or two each day and have more latitude in regard to visitors. In this way he should be permitted to return step by step to an ordinary quiet mode of living, being put back a stage should there be any tendency to relapse with increasing activity. When he is able to live in the ordinary way without symptoms he should be encouraged to subject himself to more stress by means of physical and mental exertion, in order that he may test his capacity for a fully active life. This is especially important in the case of a manual worker.

Treated by these means the majority of patients suffering from symptoms of minor contusion make complete recoveries. The outlook is not so good in cases where the only story has been that of major contusion.

I have notes of a series of 80 patients who have been under my care with symptoms of cerebral contusion and have replied to a recent inquiry as to their present state. This inquiry was limited to cases in which at least one year had elapsed since the accident. All were cases referred to me, either in hospital or private practice, on account of symptoms which had persisted despite the simpler methods of treatment. They represent, therefore, a group from which the mild and quickly recovering cases of minor contusion have been excluded.

Of these 80 patients, 18, or 22.5 per cent, stated that they had made a complete recovery.

Of 71 who were dependent for their livelihood on regular employment

- 33 (46.5 per cent) were able to return to full work
- 31 (43.5 per cent) were able to return to light work
- 7 (10.0 per cent) were totally incapacitated

These patients may be divided into those with major and those with minor contusion.

- Of 54 with minor contusion
 - 28 (52 per cent) were able to return to full work
 - 24 (44 per cent) were able to return to light work
 - 2 (4 per cent) were totally incapacitated

- Of 17 with major contusion
 - 5 (29.5 per cent) were able to return to full work
 - 7 (41 per cent) were able to return to light work
 - 5 (29.5 per cent) were totally incapacitated

These figures show that in the case of a major contusion the chances of the patient being able to return to his full work are less than one in three, and there is the same chance of total incapacity.

In cases of lesser injury, there is an even chance of the patient being able to return to full work, and a very small risk of total incapacity.

For purposes of obtaining these figures, the criterion taken for a diagnosis of major contusion was that the patient should have been in a state of unconsciousness, or partial unconsciousness, for more than twenty-four hours following the injury.

In cases of persistent contusion headache unreheved by medical treatment, surgical decompression has been advocated. I have seen this in one or two cases attended with considerable success, in others with none. The result may possibly depend upon a choice of the correct moment at which the procedure should be undertaken. I shall hope to hear more of this method of treatment from others with greater experience of it.

THE EFFECTS OF IRRADIATED ERGOSTEROL IN LARGE DOSES

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It is established that the presence of accessory food substances, or vitamins, is essential in the perfect diet. Observations are accumulating to show that when certain substances in a food are extracted and administered to animals in amounts out of proportion to the other constituents in that food poisonous symptoms may occur.¹ This has also been said to be true for the so-called vitamins. Excess of irradiated ergosterol—for example, when administered orally to rabbits and other animals—causes sickness and pathological changes.^{2,3} Mice died within twenty days after the administration of 1 mg. daily, rats and rabbits died within ten days with 10 mg. daily, and guinea-pigs died within thirty-six days after the administration of 50 mg. daily, whilst hens were immune. In those animals which died the characteristic *post-mortem* findings were an atrophic spleen, and extensive calcium deposits in the arterial walls, heart muscle, stomach walls, lungs, kidneys, and intercostal muscles, associated with secondary sclerosis of greater or less severity. It is obvious that changes of this character produced in so short a time are of a different order from the well-known arterio-sclerosis that can be produced in rabbits after feeding them with cholesterol for five to six months, or with non-irradiated ergosterol for two to three months.

The difference found by these workers between the therapeutic and toxic doses is considerable and leaves a wide margin of safety. It is important, however, to remember that their observations apply only to normal animals. We are still in the dark as to how far this ratio applies to man, and how far it may be modified in sickness or in initial vitamin deficiencies. The present observations were made to determine the effects of large doses of irradiated ergosterol on rats fed with a normal diet including an ample supply of vitamins A, B, and C. They demonstrate that grossly excessive amounts interfere with calcium metabolism to the extent that all the treated rats form calcium phosphate concretions in the urinary tract.

Experiment 1

Four litters each of four young rats weighing about 70 grams, were divided into four groups so that each group of four consisted of a pair from each of two litters. After ten days control observation on a bread and milk diet the ergosterol was given daily in addition. Group A received 2 mg. of irradiated ergosterol in 2 c.c. of arachis oil, and their litter mates in Group B 2 c.c. of the oil alone. Group C and Group D received 1 mg. of irradiated ergosterol in 1 c.c. of arachis oil, and 1 c.c. of the oil alone, respectively. The administration was oral by pipette, and was continued for forty days. All the rats remained in perfect condition.

Fig 1 shows the graphs of the average weights of the rats in the four groups, two experimental and two control. There is no significant difference between the curves for the control and experimental animals, the latter never lost weight at any time during the experiment. This does not conform with the findings of Kreitmair and Moll, who report a "slight loss of weight" in rats receiving 1 mg of

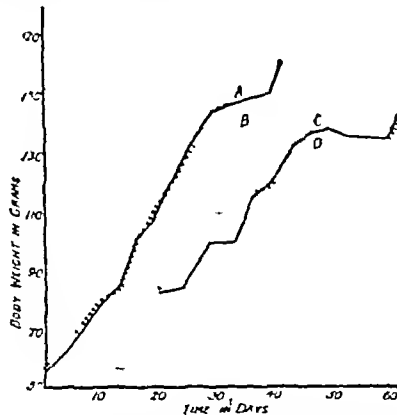


FIG 1.—Weight curves of the four groups of rats in Experiment 1. Group A—2 mg irradiated ergosterol and Group C—1 mg irradiated ergosterol daily for forty days. Groups B and D are the respective controls.

irradiated ergosterol daily. They found no pathological changes at *post-mortem* examination, however, and in this we agree, as we failed to detect abnormal naked-eye or microscopical changes in any tissue.

Experiment 2

This was devised to determine the effects of larger doses. Four groups each of four half-grown male albino rats of approximately similar weight were placed on a basal synthetic diet* modified for each group as shown in the following table.

TABLE I

	Group E	Group F	Group G	Group H
Basal diet ..	80	80	90	90
Cacao butter with 1% irradiated ergosterol†	20	—	10	—
Cacao butter† ..	—	20	—	10

Each rat was given, for a period of forty-five days, 15 grams daily of the mixed diet for its group. The rats were kept in separate wire cages raised from the floor, and the droppings collected every two days, so that any food lost through the floor of the cage could be separated from faeces and weighed, together with any left in the cage. In this way the exact quantity of food eaten and the dose of irradiated ergosterol taken daily could be calculated. Throughout the experiment all the animals were kept in one room under the same diurnal temperature changes. Weights were recorded twice weekly.

Fig 2 shows the weight curves of the four groups of animals, each curve representing the average weight of the rats in that group. One of the controls in Group H died on the twenty-eighth day of the experiment from intercurrent disease, and the weight curve for this group has therefore been based upon the average for the remaining three rats.

* The basal diet consisted of vitamin-free casein 23 per cent, potato starch 40 per cent, sugar 17 per cent, purified palm kernel oil 15 per cent, and salt mixture 5 per cent. The salt mixture was a modification of McCollum's containing in addition to the usual constituents 0.1 per cent KI and traces of NaF and MnSO₄. Every rat was given daily 0.3 c.c.m. of cod liver oil previously standardized for vitamin A, 0.5 c.c.m. of marmite extract and 0.2 c.c.m. of orange juice. Distilled water was supplied for drinking.

† These and the arachis oils used in the previous experiment were kindly supplied by the British Drug Houses Ltd. The ergosterol was irradiated with a mercury vapour lamp under exact control. The irradiation was effected in oily solution in the absence of oxygen for a period a little less than that required to give the maximum anti-rachitic property.

The rats of Group G, receiving an average daily dose of 11 mg of irradiated ergosterol, showed a steady increase in weight approximating to the controls in Group H. At no time, except to a slight extent during the first ten days, was any loss in weight noted. On the other hand, the animals in Group E, receiving 17 mg daily, showed a definite failure to gain weight at the same rate as the controls in Group F, indeed, except during the last few days of the experiment, their weights remained almost stationary. The average gain during the experimental period in Group D was 23 grams per rat, and in the controls in Group F 60.5 grams.

No definite symptoms were observed in the experimental rats, except occasional haematuria during the latter half of the experiment.

In Table II the *post-mortem* findings and the weight of the spleen and liver are given for each rat. None of the controls showed any pathological naked-eye lesions. The spleen and liver weights were similar except for the rats in Group E, in which the average spleen weight was some 20 per cent less than that of the controls. No pathological lesions were observed in any of the experimental rats except in the urinary tract. In every animal, with one exception, calculi were found in the bladder, ureters, or renal pelves, sometimes in all these situations. These calculi were yellowish in colour, of an irregularly rounded shape, and varied from a pin-point up to 4 mm in diameter. Details of the number found and their situation in individual rats are given in the table. Chemical examination showed them to be composed of calcium phosphate. Tests for oxalate, carbonate, triple phosphates, urates, xanthine, and cystin were negative.

In several cases the situation of the calculi had led to dilatation of the ureters and hydronephrosis on one or both sides. In two rats this was marked. Associated inflammatory changes were not present, the fluid above the obstruction was clear, and no pyelitis or cystitis was present in any instance. Where there was no considerable degree of hydronephrosis the kidneys on section showed a more or less well-marked yellow zone at the cortico-medullary junction. In the hydronephrotic kidneys the compression of the tissue masked this appearance.

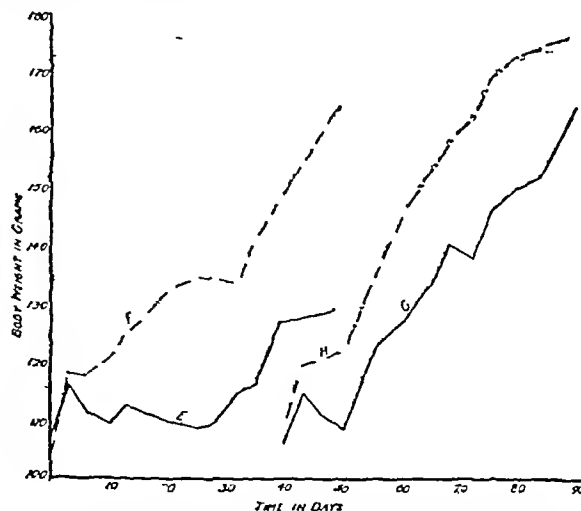


FIG 2.—Weight curves of the four groups of rats in Experiment 2. Group E—17 mg irradiated ergosterol and Group G—11 mg irradiated ergosterol daily for forty-five days. Groups F and H are the respective controls.

Microscopical sections of the thoracic and abdominal aorta, heart muscle, lungs, stomach, liver, and spleen stained with haematoxylin and eosin, showed no pathological changes. Sections of the kidneys showed the typical appearances secondary to hydronephrosis when that condition was present—that is, dilatation of the tubules and capsular space of the glomeruli with atrophy of the lining cells and some proliferation of the interstitial tissue. When hydronephrosis was not present no such changes were found, the tissues in the zone of yellowish discoloration at the cortico-

TABLE II.—Showing the Weights of the Spleen and Liver and Post mortem Findings in Rats given Large Doses of Irradiated Ergosterol Daily for Forty-five Days

Groups	Average Daily Dose of Irradiated Ergosterol	Post mortem Findings			
		Weight of Spleen	Weight of Liver	No. of Calculi found and their Situation	Naked-eye Changes in Kidneys
GROUP E					
Rat 17	18.3	0.55	7.3	Four minute calculi in left renal pelvis	Right hydro-ureter and hydronephrosis
Rat 18	17.5	0.55	6.4	One in right ureter and few small ones in left renal pelvis	Right hydronephrosis and hydro-ureter yellow discoloration at cortico-medullary junction in left kidney
Rat 19	15.8	0.52	5.3	One in bladder and one in right ureter	Slight dilatation right ureter and renal pelvis, yellowish cortico-medullary zone in both kidneys
Rat 20	17.7	0.59	4.5	One in each ureter and several in both renal pelvis	Bilateral hydro-ureter
Average	17.3	0.55	5.9	—	—
GROUP F *					
Rat 21	—	0.64	6.1	Nil	Nil
Rat 22	—	0.51	5.5	Nil	Nil
Rat 23	—	0.82	5.7	Nil	Nil
Rat 24	—	0.88	6.4	Nil	Nil
Average	—	0.71	5.9	—	—
GROUP G					
Rat 25	9.2	0.74	5.4	Three in bladder four in right renal pelvis	Cortico-medullary zone yellow in both kidneys slight hydro-ureter
Rat 26	12.4	0.71	5.9	One in bladder one in right ureter and one in left renal pelvis	Slight right hydro-ureter cortico-medullary zone both kidneys yellow
Rat 27	12.8	0.59	7.5	None found	Slight cortico-medullary discoloration in both kidneys
Rat 28	9.5	0.50	4.8	One in right renal pelvis	Cortico-medullary discoloration in both kidneys especially the right
Average	11.0	0.64	5.9	—	—
GROUP H *					
Rat 29	—	0.70	4.6	Nil	Nil
Rat 31	—	0.65	6.3	Nil	Nil
Rat 32	—	0.85	5.8	Nil	Nil
Average	—	0.74	5.6	—	—

* Control groups

medullary junction showed swollen cells, desquamated epithelium, and irregularly stained nuclei. No fatty changes were demonstrated. Frozen sections stained with Sudan III, or observed with the polarizing microscope, gave negative results. In all the animals sections of the organs were stained for insoluble phosphates and carbonates by Klotz's modification of von Kossa's method, using a 5 per cent aqueous solution of AgNO_3 , and staining for four hours. No evidence of calcium deposition was found. In one case the sections had included a small calculus lying in the renal papilla.

DISCUSSION

Several observers have described the occurrence of urinary calculi in rats which were fed on defective diets (refs. 4 to 9) but from the evidence available it is difficult to assess with confidence the precise cause of the condition. In most of the experiments no details of diets are given. In McCarrison's work⁹ the diet was defective in several ways, so that the formation of calculi cannot be ascribed to any one constituent. In all the observations, however, one constant feature was a lack of fat-soluble vitamins. Much evidence has accumulated to show that animals fed on a diet defective in vitamin A are particularly susceptible to low-grade infections such as xerophthalmia and respiratory disorders (refs. 10 to 14). Calcium deposits are a frequent sequel to chronic infections, especially those which cause the death of tissues such as tuberculosis. This is especially the case in the urinary tract, where infection readily leads to urolithiasis. Osborne and Mendel suggested that the calculi formation in their experiments was due to infection following deficiency of vitamin A. In several of the subsequent papers on calculi formation the authors

do not state whether infection of the urinary tract was found or not, in others the writers state that though occurring in a majority of instances it was absent in others.

In the present experiments lack of vitamin A was certainly not the explanation of the calculi formation. All the animals were given a correct diet, with an adequate allowance of vitamins A, B, C, and D. The control animals were in every way normal, and infection of the urinary tract was present in no case, control or experimental. In these experiments the origin of the stones must be entirely different from that of those previously described, in that it must be due to excess of irradiated ergosterol. It is known that this substance influences the reaction of the intestinal contents (refs. 15 to 17), and direct evidence exists to show that the reaction is a controlling factor in the absorption of calcium and phosphate from the gut.^{21, 22} In this way it is probable that irradiated ergosterol facilitates the absorption of these substances. All this evidence suggests that calculi formation may accrue by the excretion from the kidney of large amounts of calcium and phosphate than can be held in solution by the urine, and this we believe is the explanation of the present observations.

The amounts of irradiated ergosterol necessary to cause urinary calculi were so large that the condition has obviously little clinical importance. The German observers, however, obtained much more marked changes with smaller doses, and if their experiments are valid then an excess of vitamin D may not be without clinical interest. The diets used by the German workers for their rats are not given, and some irregularity here may have exaggerated the differences in the results, although they do not describe

Further work on the urinary excretion of calcium and phosphate is in progress.

the presence of calculi Green and Mellanby³ have recently substantiated the frequent occurrence of calculi in rats on diets deficient in vitamin A, and have shown that when ergot, which is rich in vitamin D, is given along with this diet the incidence of calculi rises. In other words, with a satisfactory diet containing ample accessory factors, stone formation is difficult to produce with a very large excess of irradiated ergosterol, whereas when the diet is defective stone formation is relatively easy to produce, and it may well be that a dose of irradiated ergosterol which is without effect on a well-nourished animal may give rise to urinary calculi in one which is badly nourished. The natives of certain tropical countries are known to live on diets which are often defective in several ways, particularly in regard to vitamins, and it is suggested that they must manufacture large amounts of active ergosterol in their widely exposed epidermis, since the solar rays have high actinic value. The two factors, perhaps, are sufficient to cause the phosphatic concretions in the urinary tract which are known to occur with great frequency among such populations.²⁴

The results found by the German workers have a much more serious significance than those recorded here. The Germans claim their results to be a "hypervitaminosis." It is evident, however, that our failure to confirm their work throws doubt on this assumption, and suggests that some independent toxic factor complicated their experiments. They do not state any details about their method of irradiating ergosterol. This may well be a crucial factor, particularly as regards the solvent used during irradiation, and there is evidence to show that when irradiated in alcohol the product is toxic.

CONCLUSIONS

1 Irradiated ergosterol administered by the mouth in very large doses causes the formation of urinary calculi.

2 It is suggested that this is dependent upon an increased absorption of calcium and phosphate from the gut and their excretion by the kidneys.

3 No confirmation has been obtained of the pathological changes found to occur with similar doses by certain German observers.

The present work was done during the tenure by one of us (J. C. H.) of the Ernest Hart Memorial Scholarship of the British Medical Association.

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An Address

OF

THE INFLUENCE OF INDUSTRIAL POISONS UPON THE DIFFERENT ORGANS *

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To describe with exactitude the influence of industrial poisons upon the human body is a difficult task, for much depends upon the length of the exposure to the poison and its quantity, the state of health of the workers at the time, and their individual susceptibility. Nor can I do more than cover four or five of the industrial poisons.

LEAD

Taking lead compounds as an illustration, there is the fact that some workmen acquire a degree of immunity to them, while others are liable to become affected only at certain periods. Much depends upon the rate of absorption of the poison into the system. Again, there is the question of age, experience having shown that young adults are more liable to become affected. There is, too, a personal and familial idiosyncrasy towards such a metal as lead. Before the interdict in Great Britain of female labour in the dangerous processes of white lead manufacture I frequently found members of certain families peculiarly liable to become affected, while those of other families escaped, and, if anything, that females were more readily adversely influenced by lead than males. In some instances so great was the personal idiosyncrasy that on one occasion a healthy girl, 18 years of age, after working in a white lead factory for six weeks, died from saturnine encephalopathy.

Notwithstanding the circumstances I have alluded to, there are facts of a general character which can be applied in such a manner as the title of this address suggests. When a poison has been absorbed and has circulated in the blood it might be expected that the whole body would more or less suffer simultaneously, but experience shows that certain organs and tissues exercise a selective influence

upon some poisons and not upon others. A distinction must be made between acute and chronic forms of industrial poisoning. There is the opinion that those tissues of the body which are the last to be developed, and therefore the more delicately organized, are less resistant, hence the rapidity of the effects of alcohol upon the higher nerve centres in the brain. While the nervous system is not free from the harmful influences of lead, many recent research workers regard the blood and the haemopoietic system as the anatomical elements earliest affected by lead—those bodily units, in fact, which are formed and function in the early stages of embryonic development, and which, therefore, ought to be the most stable. It is an interesting circumstance that while the blood and blood-making organs are readily influenced by lead, yet in the blood very little of the metal is found, even while the internal organs may contain it in considerable quantity. Although the blood may show physical and chemical changes due to the influence of lead, it has only slight retentive power upon the metal, possibly, because the blood is ever changing and therefore rejuvenating itself, its corpuscles are short-lived, also that it is constantly eliminating the poison, while in the tissues generally physico-chemical changes are less rapid, and there is therefore greater opportunity for the metal to become more firmly linked to the cellular constituents.

The types of industrial poisoning which have the greatest interest for us are those where the amount of toxin received daily into the system is small, where elimination falls short of absorption, and where, therefore, poisoning is slowly induced. In many of these cases symptoms of toxic action may not arise for several years—so slowly, in fact, do the symptoms appear that the individual is not aware of his condition until some change occurs in his metabolism or he is attacked by some minor ailment.

It is now several years since I remarked upon the storage of lead in a rather insoluble form in the body, also to the absence of symptoms until there have occurred chemical changes in the liquor sanguinis and in the fluids bathing the tissues whereby the deposited lead becomes soluble, thus favouring its reabsorption into the circulation. To this subject, and the early harmful effects of lead upon the blood, Anst and his co-workers in Harvard University have given close attention, as also have Kehoe and Thannmann of the University of Cincinnati, and P. Schmidt of Halle, who hold, like many other physicians, that by a microscopical

* Delivered before the Fifth International Congress for Industrial Accidents and Occupations, Budapest, September 3rd, 1928.

examination of the blood of lead workers plumbism may be detected before the symptoms develop, and when, therefore, it is possible for further trouble to be averted. The relation of the blood to poisons passing through it are of a twofold character: the blood may be little affected by them, or physico-chemical changes may be induced in it which affect its efficiency as an oxygenating and nutritive medium.

So far I have dealt mainly with lead, principally because, apart from iron and steel, lead is the metal which is most widely used in the industries, also, because it has been the occasion of much ill health among the workers. Most of its salts, too, have the power of precipitating proteins, as observed on mucous membranes, thereby exercising a protective influence compared with the corrosive effects produced by several other industrial poisons. Absorption of the metal is slow, so that time and opportunity are given for lengthened reaction to take place between the poison and the animal tissues.

Industrially, lead poisoning is seldom acute. When large doses of lead acetate have been swallowed by a healthy person the symptoms which follow are less the result of absorption of the metal than of the local effects of the lead compound upon the stomach and intestine. The intravenous injection of a neutral lead salt precipitates the proteins of the blood and may cause embolism. Harnack found, in injecting lead-triethyl into the veins of animals, that it became decomposed in the tissues and gave rise to symptoms of plumbism. Lead intravenously introduced into dogs causes pæsis and paralysis, diarrhoea, colic, tremors, and convulsions. Harnack considered the diarrhoea to be the result of violent contraction of the intestinal wall, and that this persisted even when no peristaltic wave was passing. In my own experiments I found after death discontinuous portions of the small intestine, over lengths of three or four inches, so firmly contracted as to have obliterated the intestinal canal, and which appeared to me to have been rather the cause and explanation of the colic.

In order to ascertain the effects of lead upon the heart and blood pressure Sir Robert Bolam and I carried out a series of experiments in which we introduced a solution of a lead salt directly into the blood stream. Lead is a protoplasmic poison, it acts specially upon highly developed tissues, such as muscle and nerve, and also upon the blood. Without entering into details too closely, we found that the injection of 5 c.c. of a 1 per cent solution of lead nitrate was followed shortly afterwards by a fall of blood pressure, the same result was observed after the injection of 5 c.c. of a 2 per cent solution of lead nitrate, but in each instance the fall of blood pressure was quickly recovered from. The injection of 10 c.c. of a 10 per cent solution caused a marked fall of blood pressure, and on repeating the injection shortly afterwards there occurred a rapid declension of the blood pressure and stoppage of the beat of the heart, respiration meanwhile continuing. After an interval of a few minutes the heart recovered its beats, feebly at first, then, becoming stronger, they gradually reached the normal. With a further injection of half the quantity both the heart's beat and respiration gradually ceased. At the necropsy twenty-four hours afterwards the urine was found to be free from albumin, the wall of the heart, especially the right ventricle, was soft, the lungs were healthy, the abdominal veins tense and full. The kidneys appeared to be congested, the liver was dark, and the surface of the brain congested, although the internal tissue was pale. Other experiments, whether upon a dog or rabbit, gave similar results—namely, a general fall of the blood pressure. The effect of lead salts carried directly into the blood stream was apparently mainly upon the heart and vasomotor centre. Respiration was not directly affected by lead; it apparently became indirectly affected through the fall of blood pressure.

There is a general opinion that workers in the lead industries in course of time develop structural changes in their arteries and have a high blood pressure. The numerous deaths among them from cerebral hæmorrhage lend weight to the supposition, but as the kidneys are prone to become diseased, inefficiency of these organs as a contributory cause cannot be ignored. We cannot quite place patients in whom symptoms of plumbism appear early in the same

category along with those who are the subjects of chronic plumbism, for, in the latter, structural changes have probably developed in the internal organs. A single dose of lead hardly ever gives rise to symptoms, but if small quantities are repeatedly passed into the system through the alimentary canal or the lungs chronic plumbism develops, indicating that absorption has taken place, and that possibly some of the lead may have become locked up in the tissues, from which it will be only slowly eliminated. The internal organs in which after death the metal is found are the liver, kidneys, brain, and bones. Lead is eliminated by the kidneys, the intestinal epithelium, the mammary secretion, and the saliva. Any effect, therefore, produced by lead is not so much due to the amount of poison circulating in the blood at a particular time, nor to its deposition in the tissues, but, as Stannb suggested, to the summation of the injuries inflicted by its recurrent presence in the blood in infinitesimal quantities.

ARSENIC

In Great Britain, since harmless pigments have replaced Scheele's green (arsenite of copper), also Schweinfurth's green (arsenite and acetate of copper), in wall papers and paints, industrial arsenical poisoning has considerably declined. In 1900 there were reported to the Home Office 22 cases of industrial poisoning due to arsenic with 3 deaths, in 1926 5 cases with 3 deaths, and in 1927 3 cases with one death. Pure arsenic is insoluble in water, so that if swallowed it passes through the gastro-intestinal canal practically unchanged, although very minute portions might be converted into arsenious acid in the stomach and intestines. The symptoms caused by its compounds are less due to the metal itself than to the ions of arsenious acid, which if swallowed in fairly large doses cause violent abdominal pain, vomiting and watery diarrhoea, muscular cramp, collapse, feeble pulse, coma, and death. It matters little the channel by which arsenic gains entrance into the body, for the same gastro-intestinal events arise, showing that the mucous membrane of the alimentary tract is the medium whereby it is eliminated, although the metal may be found in the hair and also be a cause of pigmentation of the skin, as has been observed in chorea patients treated by increasing doses of liquor arsenicalis. Taken in medium doses over a varying length of time it produces peripheral neuritis, as occurred in epidemic form in England a few years ago in beer-drinkers whose liquor contained the poison, which was traced to the required glucose having been obtained by sulphuric acid methods from iron pyrites containing arsenic. Yet, even to such a dangerous metal as arsenic, tolerance can be established by taking graduated quantities, as was shown a few years ago by the arsenic-eating peasantry of Styria and Tyrol. These hillmen, swallowing arsenic in small but increasing doses, stated that it enabled them to climb the mountains with less effort, and that it improved their respiratory powers, while their womenfolk believed that it improved their complexion. The practice did not appear to exercise any harmful influence upon these country people, for they lived to a great age without exhibiting any signs of disease or of ill health.

The worst effects of arsenic as an industrial poison which I have seen have been not so much upon the internal organs as upon the skin. This was especially so upon the hands and fingers, also upon the external reproductive organs, of men engaged in mixing colours, of which Scheele's green formed a large constituent. The skin of the fingers and hands was ulcerated, often down to the bone, the ulcers were angry looking and painful.

The presence of arsenic in soot is regarded as the cause of chimney-sweep's cancer, also of malignant growths upon the hands of gardeners who use soot for potting and other purposes. Combined with hydrogen, a dangerous and subtle form of poison is produced. Arseniuretted hydrogen when inhaled rapidly induces sickness and vomiting, followed several hours afterwards by jaundice and hæmoglobinuria or hæmaturia. The breaking down of the red blood corpuscles is so complete that the hæmoglobin becomes incapable of carrying on its respiratory function while the liver and kidneys are severely taxed in regard to the elimination of the disintegrated products.

MERCURY

In the industries subacute and chronic forms of mercurial poisoning may be met with. Of the organs primarily affected in the less acute forms of poisoning the salivary glands call for mention. They are stimulated to great activity, the gums are swollen, the teeth become loose, the breath fetid, and on the buccal mucous membrane small ulcers may be observed. The submaxillary glands become enlarged, mastication is difficult and painful, there are diarrhoea and loss of appetite, followed by pains in joints and limbs. In addition to the inordinate flow of saliva there are muscular tremors, at first mainly of the muscles of the face and hands, but if the individual continues to follow his occupation the tremors become general and render him helpless. In the company of Dr. Ghiglioli of Turin I had the opportunity a few years ago of visiting the mercury mines on Mont Amata in Italy, and of witnessing unusual signs and symptoms which are probably confined to smelters alone. Several of the men were so much affected through inhaling the fumes of the metal that if, during the act of walking—and this generally with a staggering gait—they were called upon suddenly to stop, they could not immediately arrest their progress. In attempting to do so they were either precipitated forwards, or swayed excitedly forward and backwards. There might be no tremor observable when the body was at rest but tremors soon showed themselves equal in range to those observed in disseminated sclerosis when slight effort was made. These movements were very pronounced, as when, for example, a glass containing liquid was given them from which to drink. So violent may the movements subsequently become, or so extreme the muscular paresis or paralysis, that many of the affected smelters are ultimately rendered completely helpless—they can neither feed nor dress themselves. Workers in mercurial compounds not infrequently have albuminuria.

PHOSPHORUS

It is not inappropriate that here in the capital of Hungary I should allude to industrial phosphorus poisoning for it was in this country a few years ago that its Government and members of the medical profession gave me opportunities of studying problems of phosphorus necrosis in lucifer-match makers. Here, as in all progressive countries, there is no longer industrial phosphorus poisoning. As far back as 1870 the sufferings of lucifer-match makers had attracted public attention. In 1872 Finland, in 1874 Denmark, in 1887 France, in 1898 Switzerland and in 1901 the Netherlands, had prohibited the use of white phosphorus, but the regulations had not the desired effect, nor was any united and organized effort made to secure this object until Switzerland, in 1906, invited the various countries to attend a meeting in Berne, known as the Berne Convention, at which the countries represented unanimously agreed to the prohibition of the dangerous metalloids. French chemists had found in phosphorus sesquisulphide a safe substitute for the dangerous form, and where or it has been used phosphorus necrosis has disappeared as an industrial disease. To France therefore, belongs the credit of having made possible the replacement of a harmful by a harmless chemical agent in this important industry. It was not, however, until 1919 that India and Japan joined the Convention, but even as late as 1923 China still remained outside the Convention and so in China years after other countries had shown how the manufacture of lucifer matches could be made a harmless industry, workers in the factories of the far Orient were still the subjects of phosphorus necrosis and of the ill health attendant thereupon. At the date just referred to there were at least twenty-eight match factories in China which were known to be using white phosphorus. My thanks are due to the Commissioner of Public Health Shanghai Municipal Council, and to Dr. Noel Davis and Dr. Martland for the opportunity of knowing that in China until the last three years there were still cases of phosphorus necrosis occurring among the workers, long after the malady had ceased in other countries. In 1925 according to the *China Journal of Science and Arts* of February and March of that year, there were 15,000 persons employed

in lucifer-match factories using white phosphorus. During the previous five years there had occurred from 20 to 30 cases of phosphorus necrosis, but there were many more than these. Even in 1924, while China was discussing the advisability of prohibiting white phosphorus, three patients with necrosis of the jawbone were admitted into St. Luke's Hospital, and during the previous three years 5 cases were treated in the Pekin Hospital. In January, 1925, China definitely prohibited the use of the harmful material, so that with her entrance into the Berne Convention there is now the probability of the disappearance of a painful occupational malady in the Far East.

RADIO-ACTIVE SUBSTANCES AND THE HEALTH OF THE WORKERS

Three years ago my attention was drawn by Dr. Frederick L. Hoffman, the well-known American statistician, to the occurrence of necrosis of the jawbone and of aplastic anaemia in young women engaged in painting numerals on illuminated match and clock dials. There had occurred 6 deaths, and there had been reported 7 cases of serious disease. Radium salts formed the basis of the luminous material, but one of the manufacturing firms used mesothorium, a substance which ranks next to radium, and, being an isotope of radium, it is chemically identical with and even slightly more active than it, although mesothorium decays 250 times more rapidly than radium. When zinc sulphide is added to the paste used for painting the dials it is rendered luminous by the radio-active substances present, and as mesothorium is cheaper than radium, and its luminosity greater, it found great acceptance by employers as a substitute. In one factory wherein there had occurred among the workers cases of necrosis of the jawbone, the luminous paint contained zinc sulphide rendered luminous by activation with 20 per cent of radium and 80 per cent of mesothorium, in another factory the luminous powder contained radium bromide and zinc sulphide. The powder is mixed with gum arabic dissolved in water, glycerin, and a small quantity of formaldehyde, or it may be simply mixed with oil. In painting the numerals on the dials the girls were in the habit of pointing with their lips the camel-hair brushes, and although each of the workers was given a bottle of distilled water* in which to wash the brush before putting it between the lips, they disregarded the hygienic provision. The girls had followed the occupation for three years or more. Exposure to large amounts of radio-active material is followed by changes in the blood of the workers, microscopical examination revealing a distinct reduction in the number of polymorphonuclear and lymphatic corpuscles. The leucopenia is pronounced. There is also a degree of anaemia suggesting a diminished output of red blood corpuscles from the bone marrow. The colour index however, remains high. Many of the women in this occupation complained of headache, malaise, tiredness and a sense of the need of more sleep, nervous irritability, and disordered menstruation, but the morbid condition which specially attracted attention was necrosis of the jawbone in five women of whom three died. For information of these cases we are indebted to a report furnished by Dr. Cecil K. Dinker, Dr. Martland, and others.

The necrosis differs from the infective processes of the jawbone following extraction of teeth, or that due to tuberculosis, it closely resembles the diseased bone found in phosphorus poisoning. By the time Hoffman studied the subject from the technical point of view five girls had died. An interesting point in regard to exposure to radio-active compounds is that the disease which develops may be latent for a few years before showing its destructive effects upon the teeth and jawbone. From the onset these agents affect the blood and blood-making organs, in small doses they temporarily increase the numbers of red and white corpuscles of the blood, followed subsequently, if the exposure continues by a destruction of the white and by a diminished production of the red corpuscles, hence the consequent anaemia.

In September of last year it was my privilege when in the United States, to examine with Dr. Hoffman five young

* *Monthly Labour Review* U.S. Department of Labour May 1925 p. 20

women dial painters who were suffering from the effects of radiation. One of the women had lost a sister, aged 21, from necrosis of the jawbone, while another had lost her companion from the same cause. Three of the five women could hardly walk, nor could they sit properly on a chair except in a slanting position with their limbs fully extended. There were osteitis and strong adhesive fibrositis of the hip-joints, so that the limbs could not be abducted. In three of the women there could be seen and felt small areas of exposed portions of the lower jawbone. Not one of the women was in good health, so that thus at a comparatively early age they were crippled for life.

THE BLOOD IN INDUSTRIAL POISONING

This subject is discussed in an interesting and exhaustive paper by Professor P. Schmidt of Halle*. He has so completely covered the field of inquiry, and brought to bear upon it experience gained by careful research, that the paper may be regarded as one of the fullest expositions of this important subject, as also of the intricate problems to which it gives rise. I can add nothing to what he has written, but gratefully acknowledge the value of the views he has expressed. Opinions are still divided as to the form some metallic poisons assume when, after absorption, they circulate in the blood and become deposited in the tissues. Taking lead as an illustration, it was formerly believed that it was deposited as albuminate. It may possibly be in a colloidal state combined with the albumin or acids, either as a salt of a fatty acid or of phosphoric acid. As regards the action of lead upon blood plasma, Kobert maintains that there is "a displacement of the fractions of albumin towards the side of greater dispersion with an increase of fibrinogen." The haemolytic processes allow of these displacements, so that the "free haemoglobin becomes changed in the liver to globulin."

In the haemolysis induced by poisons the destruction of the red corpuscles may probably depend on the reaction of the poison with "the lipoids of the supporting substance of the cell stroma," hence the presence within the red blood corpuscles of minute spherical masses of haemoglobin, the so-called "internal haemoglobinaemic bodies" of Ehrlich and Lindenthal. As Schmidt properly reminds us, some metallic poisons, while causing a discharge of haemoglobin from the stroma of the red blood corpuscles, also change the oxyhaemoglobin into methaemoglobin, whereby the haemoglobin loses its respiratory function. The blood in these circumstances may assume a dark brown colour, the lips of the individual may become cyanosed and the urine brown. So far as lead is concerned, Aub and his fellow workers take the view that the haemolysis is due to a change in the elasticity of the red blood corpuscle as a result of the formation of lead phosphato and acid phosphate.

It is impossible to have haemolytic changes on a large scale occurring in the blood without the formation of pigment and the storing up of iron in the liver, kidneys, and bone marrow, also of the cells of such of the internal organs as the liver and kidneys and the muscular fibres of the heart undergoing fatty degeneration. In addition, as the affected organs and tissues become hyperaemic, and structural changes occur in the capillaries, minute haemorrhages become possible. The bone marrow may recover fairly rapidly, so that newly formed blood corpuscles, such as normoblasts, and basophilic and polychromatic red cells, are found, which are regarded by some pathologists as signs of regeneration. Normoblasts may temporarily come under this designation, but I do not see how basophilic red corpuscles comply with the statement. The value of the research rests in the fact that early on in metallic poisoning the blood with its corpuscles is readily attacked, and with it the bone marrow. The reticulo-endothelial system also becomes involved, for Biondi showed that, after adding lead to the artificial culture of tissues, the connective tissue increased. Schmidt, Schrotter, and other writers draw attention to the early presence of polychromatic and basophilic corpuscles in plumbism. In a young female patient whom I saw treated by colloidal lead for intraperitoneal cancer, secondary to malignant disease of the ovaries, baso-

philia of a scanty nature developed, one or two corpuscles being observable in a field, and that usually not until fourteen days after an injection of colloidal lead. Blair Bell, who introduced this line of treatment, states that basophilia in these cases develops straight away, but such is not my experience, for occasionally basophilia did not appear at all after an injection, nor did nucleated red corpuscles. It is scarcely fair, however, to draw conclusions regarding the occurrence of basophilia in those cases where cancer is present at the same time, and whose toxins exercise a harmful influence upon the blood-making organs. It is only natural to expect that lead circulating in the blood in a colloidal state would adversely influence the erythrocytes, and that structural changes induced in them would be carried further by the cells of the reticulo-endothelial system. Schmidt offers an attractive explanation of the formation of the granules in polychromasia. With the breaking up of the nucleus of the cell, elements of the nuclear substance pass out of the membrane, and, mingling with the contents of the cell, the coarse granules become the basophilic particles. His opinion, therefore, is that lead acts primarily upon the haemopoietic cells of the bone marrow. Upon this and kindred points, however, the last word has not yet been spoken.

THE EARLY RECOGNITION AND TREATMENT OF CANCER OF THE STOMACH*

BY

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In former days it was difficult to make an early diagnosis of cancer of the stomach because there was no means of recognizing the presence of organic disease until nutrition was impaired or a tumour could be felt.

Nowadays, by x-rays and chemical tests, the presence and nature of the lesion can be recognized at an early stage. But the prevalence of these and other scientific aids brings a new danger—namely, the danger of giving less time and attention to clinical inquiry. For if cancer of the stomach is to be diagnosed soon enough to give a reasonable chance of removing it, the first suspicion must arise from a study of the earliest symptoms.

In every series of cases the observer is struck by the length of time that has been allowed to pass between the beginning of the complaint and an adequate examination of the stomach. In my own series¹ the average time lost was about a year, the longest interval being two years. Thaysen² mentioned that, in hospital, cases have usually been treated six months or more. Eusterman³ reports that in 32 per cent of the inoperable cases at the Mayo Clinic the symptoms had extended over sixteen months.

We may ask how it is that in patient after patient symptoms of indigestion have been overlooked, or treated with a bottle of medicine or some alteration of diet for months or years. The answer is, of course, that there are a large number of people who have indigestion which is not due to cancer, and who do not develop that disease. Many of these treat themselves, but in many others the doctor is tempted or persuaded to treat the case for some months without having made a diagnosis. Indigestion is not a diagnosis, it includes several diseases, some almost harmless, others lethal. It may be due to errors of eating, drinking, smoking, to bad teeth, or to overwork and other strains with resulting functional dyspepsia. The symptoms of these conditions differ, as a rule, from those of cancer, in that, though often more severe, they are not so persistent, but pass off with appropriate treatment. Further, apart from the above causes, cases of chronic indigestion from organic disease, such as gastric or duodenal ulcer, appendicitis, or disease of the gall-bladder, may go on intermittently over long periods of time.

Experience does not enable the doctor to foresee the probable onset, and, excepting those cases with antecedent ulcers, the study of conditions predisposing to

* Health Series of papers published by the International Labour Office Geneva 1928.

* A contribution (abbreviated) to the discussion on July 20th at the International Congress on Cancer.

cancer of the stomach is so far barren as regards clinical value. Symptoms are not, as a rule, complained of before the growth is already there. Neither has the so-called biological diagnosis a practical outcome as yet.

EARLY SYMPTOMS

The early symptoms are generally regarded as vague and indeterminate, but they give, nevertheless, an impression of their own which should arouse suspicion earlier than it does—the impression of a disturbance of digestive health which, though not severe, does not pass away.

In making an analysis of symptoms in a series, patients seen casually or merely in consultation were excluded, 38 consecutive cases were taken, in all of which the clinical study was able to be combined with radiological, chemical, and, in some, operative examinations. There were 27 men, of an average age of 63, and 11 women, of an average age of 55.

The symptoms complained of in order of frequency were discomfort or pain in abdomen, lack of appetite, dislike of food, nausea, loss of weight, vomiting, flatulence or distension, heartburn and eructation, weakness, dysphagia or inability to take solids, constipation, haematemesis, diarrhoea, tumour.

It will be seen that the more frequent symptoms are those usually described—namely, pain, lack of appetite, vomiting, and loss of weight. These, with tumour, are the cardinal symptoms of cancer of the stomach, but they do not help us to make a diagnosis soon enough. Indeed, it is clear from the pathology that wasting and tumour are late results, and, from a clinical knowledge, that pain is so variable that no sound conclusion can be drawn from its absence. But to aid in making an early diagnosis we want to know much more than a numerical summary gives us. We want detail about the forms and variations of the individual symptoms, and about the order in which they are likely to appear, so that the earliest sign may draw attention.

When we put the symptoms in these patients, not in the order of frequency, but in the average order in which they first appeared, the following list was obtained: (1) discomfort or pain in abdomen not related to food, (2) loss of appetite or dislike of food, and nausea, (3) pain or discomfort after food, (4) heartburn and eructation, (5) flatulence, (6) vomiting, (7) regurgitation of mucus, (8) weakness and constipation, (9) loss of weight, (10) dysphagia or inability to take solids, (11) tumour. In three cases haematemesis was the first indication of the disease, and in two diarrhoea. The association of the symptoms with growths of different parts of the stomach has been described more fully elsewhere.¹

LABORATORY TESTS

No boundary should be recognized between the use of the hand, the stethoscope, and the test tube, or between the unaided eye and the extra and more penetrating means of vision that we have in x rays. Indeed when we see the arrest of a wave in the stomach we are observing a clinical sign just as truly as when a tumour is palpated at the bedside, and with much more chance of helping the patient.

Occult blood, as detected by the benzidine test, was absent in five cases, two of the cardiac end, two of the body, and one of the pylorus. Carson says blood is present in 75 per cent of these cases. Repeated examinations are desirable and the more frequently the test is made the more likely are positive results to increase. Occult blood is evidence of ulceration, or at the least of a lesion of a blood vessel over the tumour, and would not be expected to occur at the earliest stage.

A disadvantage of the usual benzidine test is that it is over-sensitive for clinical use, giving a positive reaction with traces of blood which are too small to be significant.

Since July 1927 my colleague A. J. Leigh has used Gregersen's modification of the test as described by Ogilvie,⁴ the technique being as follows: 45 mg of a mixture of benzidine 1 part and barium peroxide 8 parts (which mixture keeps well in a tightly stoppered bottle) are placed in a tube and 1 c.c. 50 per cent nitric acid added, making a 0.5 per cent solution of benzidine. (By using a marked tube weighings are avoided.) A fragment of faeces and a few drops of the solution freshly prepared are stirred on a glass slide. It is claimed that occult blood is present irrespective of diet if a definite blue colour appears within thirty seconds.

This method has proved of more value to us than the former one in which a boiled faecal emulsion and a saturated solution of benzidine in acetic acid were used. Thus of 200 different samples of faeces tested by both methods 43 per cent gave positive, 27 per cent negative, and 30 per cent doubtful results with the older method, whereas with Gregersen's technique 15 per cent only gave positive and the rest (85 per cent) negative results.

Achlorhydria is strong presumption of growth if any mechanical deformity is present. In this series test meals were given as a rule only in cases of doubt. Of 17 such meals, in 7 there was no free HCl, and in 6 others a trace only—that is, in 13 out of the 17 there was complete, or almost complete, achlorhydria.

It should be noted that cases with free HCl are often those in which the growth is removable.

X-RAY TESTS

As regards the detection of small tumours there are two schools of radiology—one which advocates the strine meal with screening chiefly, and the other the full barium meal. Any exclusive technique is to be avoided, and my colleague Mr O. A. Marver finds both methods valuable, but only with the full barium meal can the earliest evidence of gross lesion be obtained. It also shows, in favourable positions, what is the full extent of relaxation of the stomach.

Three radiological signs of a growth are: (1) an alteration of the strine picture, (2) a filling defect, showing that a solid lump is projecting into the lumen of the viscous—such defects are at first concave recessions in the shadows, known as finger-prints, (3) a very early sign is a local arrest of the normal peristaltic wave in a relaxed stomach wall. This sign is, of course, also found in ulcer, scarring, or fixation from firm adhesion. It is likely that the sign in cases of cancer precedes as a rule any clinical symptom. This arrest of a wave is not shown on an ordinary photograph; it can often be seen on the screen by a skilled observer, but the only way in which it can be demonstrated to others is by a series of films taken at short intervals, as with a slow cinematograph camera. Such an instrument has been devised by Mr Marver. The tracings from successive films when superimposed coincide at the area of growth, which is immobile, and there is usually but little movement for some distance above. This suggests that induration extends up a good deal, and shows during life what is found post mortem—namely, that infiltration of the submucosa on the cardiac side of a malignant growth is usually in advance of the apparent growing edge. There is not always enough peristalsis to give such definite tracings, but there is always more movement in the healthy part of the wall than appears to the naked eye. The statement of McVicar and Daly⁵ that there is an overwhelmingly greater chance of making a diagnosis by x rays than by any other method is in accordance with my experience.

Out of about 3,400 x-ray examinations of the stomach, of eight cases in which Mr Marver and I have been in doubt, one case has been lost sight of, two were growth, one was probably a tuberculous stomach, and four patients became well. If the radiological appearances are uncertain a second examination should be made after a month's interval. In some cases an arrest of peristalsis or a small deformity may cause grave suspicion. In such, if confirmed, it is best and safest to explore. The risk is small, 3 per cent or less, whereas the mortality of an untreated growth is 100 per cent.

DISCUSSION

It is clear on examining the analysis that there is no symptom that is always present and none that may not be absent. The same may be said of the signs with the exception of one—arrest of peristalsis at the site of the lesion, as shown by x rays.

The series confirms the main conclusion reached by students of this disease. Cancer of the stomach must always be kept in mind if a mild indigestion arises for the first time in middle age, and especially in a male over the age of 50. We may include here cases also in which, although there may have been indigestion years before, there has been a definite and considerable interval of freedom. Taking the two classes together, there were 29 out of 38 in whom a new indigestion had arisen within two years. But whilst absence of symptoms before the

illness is significant—being recorded in most of the patients—no reliance can be put upon a previous history of indigestion as excluding the probability of cancer in an elderly person. The chronic dyspepsia may become the subject of growth. Further, in every doubtful and unexplained case of loss of appetite or failing strength, early and rapid steps should be taken to exclude cancer of the stomach without waiting for anaemia and cachexia.

On reading and re-reading the histories, the conviction arises that in most of the patients more clinical care could lead to earlier diagnosis, and that a larger number of these patients with growths of the body or pylorus might have been treated surgically with success. The onset is generally appreciable, though it may be noted by others rather than by the patient himself. The fact comes out, and has been already mentioned, that in this series nearly a year was lost on the average. Most of this wasted time could be saved.

If we look at the problem as a whole it is clear that the biggest part of it is outside our consulting rooms, our clinics, laboratories, and our operating theatres. The hiatus, the leak, the reason for the continued enormous mortality, is at an earlier stage. It is therefore more important at the present time to direct the attention of the profession and the public to that stage. For not only do we doctors need to be stimulated in this respect. Many patients in this series had wasted time in going from one remedy to another and had not given their family doctor a fair chance. The public should know that it is more important to find out the cause of a chronic dyspepsia than to relieve it. We may go further, and say that it is wrong to treat indigestion in a middle-aged person without taking steps to exclude cancer, it is wrong to put cancer out of mind as long as possible, it is wrong to "watch the case." A patient with malignant growth may gain weight under dietetic treatment, a sense of security then arises which is false, for all the while his chance of cure is slipping away. Who can number the lives lost through treating an indigestion of unascertained nature or waiting for typical symptoms?

We should try in every case to form a diagnosis on the clinical evidence, but should lose no time in applying all other means at our disposal, and especially radiology. Early cancer can be recognized in the clinic, and the disease can be extirpated in a large number of early cases. It is possible, and we all hope, that better methods of detection may come to our aid in the future. But it is certain that much more can be done with the methods we have.

CONCLUSIONS

The study of the early symptoms in a series of patients with cancer of the stomach shows that the onset of the disease was appreciable in most cases.

In two-thirds of the patients the symptoms dated back more than nine months, on the average an interval of a year or more having elapsed before a full investigation was made.

An analysis of the symptoms in order of frequency, and of the order in which they arose, shows that the most important early symptoms are fullness, discomfort or pain, not severe or continuous but recurring persistently, and arising in a middle-aged or elderly person. The next symptoms in order of frequency and importance are lack of appetite, dislike of food, or nausea, with resulting loss of weight. Haemorrhage may be a first symptom.

The pain or discomfort is often relieved by food in cancer of the pylorus and of the body of the stomach.

Of the cardinal symptoms of cancer, wasting and tumour are late results, and pain is so variable that no security can be assumed from its absence. Anaemia is usual, though, in exceptional cases, the blood may be normal up to a short time before death.

When cancer arises in the subject of ulcer or other forms of dyspepsia there is often a recognizable change in the symptoms.

The earliest objective sign of cancer is probably local arrest of the wave in the stomach as shown by x rays.

This is demonstrated by the superposition of serial films taken at such an angle that the lesion is in profile. The sign is common to cancer, ulcer, and fixation by adhesion. A filling defect, or much induration, as shown by bending over of the shadow at the edge of an ulcer, is, as a rule, significant of cancer. The tests for achylia and occult blood are of great value.

It is wrong to treat indigestion for any length of time in a middle-aged person without taking steps to exclude cancer, indigestion is not a diagnosis.

If there is clinical and radiological suspicion of cancer, the risk of operation to make sure is much smaller than the risk of watching the case.

The fight against cancer is a fight for early diagnosis. If the delay between the onset of symptoms and investigation could be avoided, life could be saved or prolonged in a good proportion of cases. Further progress depends at present upon the profession and the public becoming alive to the fact that earlier diagnosis can and should be made.

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THE DERMATOLOGICAL INDICATIONS FOR SOUTTAR'S CAUTERY

BY

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A TECHNICAL description of the apparatus and the principles which underlie the application of heat at an approximate temperature of 100°C were published by Mr H. S. Souttar in the *Lancet* of April 17th, 1927.

I have used the apparatus both in hospital and private work for over two years, and am convinced that in dermatology it is much to be preferred to diathermy, which I have entirely abandoned, for the following reasons. There is little to be feared from breakdowns, in my experience so frequent with the electrical instrument, which furthermore requires the assistance and control of an expert in the theatre. With the steam-heated cautery the penetration of heat is relatively slow (about one inch per minute), while that of the diathermy plant, which depends on the electrical resistance of tissues and the strength of current, is correspondingly variable, and almost impossible to estimate. The diathermy coagulum is tough and leathery in consistence, while the other, although firm, can easily be removed with a sharp spoon. This is a great advantage, for we are thereby enabled to determine when the unhealthy tissues have been destroyed and normal planes reached. In two cases of epithelioma—one on the cheek, in x-ray burn following the treatment of lupus, the other on the oral cavity—I was enabled to avoid the disaster of complete penetration through mucous membrane in the one, and cartilage in the other, by keeping my finger on the distal side of the tissues exposed, and withdrawing the applicator when I began to feel the heat. Such a procedure would, of course, have been quite impossible with diathermy, with which I was once unfortunate enough to produce a permanent hole in a man's ear. In this case the epithelioma recurred, and was finally cured with Souttar's cautery and the sharp spoon.

The source of heat is a solid fuel, meta, which is cheap, and much safer than methylated spirit. The apparatus is therefore portable and quite independent of a lighting circuit. It must never be forgotten, however, that where there is a naked flame there is always the risk of a fire or an explosion, and other precautions should therefore be avoided whenever possible.

I have found local anaesthesia ideal in most cases, but where this is impracticable chloroform or intratracheal

A paper read in the Section of Dermatology at the Annual Meeting of the British Medical Association Cardiff 1928.

ether is perfectly safe, provided the boiler is placed two or three feet from the operating and anaesthetic tables. The disaster that overtook a case of malignant disease in the mouth, in which ether was exploded by the spark from a diathermy apparatus, will be fresh in your minds.

The only trouble I have experienced was a temporary blocking of the jet inside the applicator by chalky deposits from the tap-water used in the boiler. This might have been avoided by the substitution of distilled water or by inserting a small length of wire through the steam channels before lighting the meta. I would emphasize this precaution for although the risk of an explosion is nullified by rubber connexions, which are immediately blown off when the pressure becomes excessive, this contingency is not appreciated by the anaesthetist or the onlookers. Care must be taken to see that the water does not boil away during use, and I would advocate the fitting of a water gauge when new models are designed. The constancy of the temperature—about 100° C—is well maintained, and there is never any charring, although the applicators are usually blackened by a very adherent crust of altered blood, which creates that impression and considerably reduces the heat conductivity. The efficiency of the apparatus in coagulating tissue and arresting haemorrhage is thereby reduced, and I have found it necessary to scrub off the crusts in a 1 in 40 carbolic solution from time to time during the operation. This crusting does not occur with diathermy, because the heat is actually generated in the tissues themselves, and is, in my opinion, the only advantage which that procedure can claim over Souttar's instrument, as applied to the skin.

The arrest of haemorrhage has already been mentioned, and although I must have opened into arteries the size of the facial on more than one occasion, there has never been any difficulty in controlling bleeding as long as the applicators are kept free from crusts. Secondary haemorrhage occurred very slightly in the case of the buccal epithelioma above mentioned after separation of the sloughs, but it must be discounted by the fact that the growth was not eradicated, and rapidly recurred *in situ*. It has since recurred again after radical surgical excision (July 9th, 1928).

One of the most striking features of the method is the complete absence in every case of consecutive pain. Not even when sloughs separated from a tongue which had been treated for leucoplakia and papillomata was it a disturbing factor, and the patient was on a liquid diet for a day or two only.

The outstanding indication for the treatment, in my experience is epithelioma of all types, wherever it is accessible and irrespective of its situation. I have notes of fourteen such cases in my hospital and private practice. They include localizations on the pinna, the nose, the cheeks, the orbital angles and upper lid, the frontal bone, and the elbow. The diagnosis was confirmed in every case by the excision, just prior to the operation, of a small fragment for the microscope.

In the majority of these cases the cartilage was involved, thus rendering the application of x rays or radium relatively futile. In all these cases it has been my practice to combine the coagulation with the vigorous use of the sharp spoon, and to still the oozing thus engendered with renewed applications of the cautery, until the depth and appearance of the tissue exposed made it reasonably certain that a healthy plane had been reached, and that a recurrence was most unlikely.

My conjectures in this particular have been fortunate, for in only one case—advanced squamous epithelioma of the buccal mucous membrane, with large secondary sub-maxillary glands (referred to me by a surgical colleague as inoperable)—has a recurrence been brought to my notice. Since the above was written there has been a second case of recurrence. The patient in this case—a woman of 62—had a large rodent ulcer of perforating type involving the right maxilla and orbital regions. The zygoma was found fractured at the operation. After rapid healing the scar broke down and a recurrence became evident, from the region of the zygoma.

The method has proved extremely useful for lupus

verrucosus. In three such cases on the hands I previously macerated the horny materials with strong salicylic plasters for a few days, for the applicators had no effect whatever until this had been done, so complete is the heat-resisting property of keratin, it was then found easy to coagulate it, and I was much interested to note how the heat blackens the tuberculous nodule—probably by reason of its relative vascularity—and thus makes it stand out conspicuously against the white background of the scar tissue in which it lies. With the additional aid of a sharp spoon I was enabled to eradicate the nodules with such success and ease that up to late (about eighteen months) the first case so treated has not relapsed.

As might be expected from the poor resistance of the infecting organisms to heat, soft chancre and chancroids are exceedingly amenable to treatment by this means. In our venereal disease department at the Royal Northern Hospital we have cut short the extension of ulceration in two such cases, using only a local anaesthetic. For such cases I believe the cautery will ultimately prove the method of choice, for the bacillus of Dugrey is notoriously susceptible to the effects of heat, which is a more local and a cleaner method of attack than the liquid caustics hitherto recommended.

Granuloma pyogenium is another condition which is easily dealt with. The characteristic tendency to haemorrhage is immediately checked. I have cured one case of the intractable papillomatous type of leucoplakia of the tongue, which had been unsuccessfully treated with salvarsan and bismuth etc. for a period of over five years. This case was published in the *Lancet* of October 8th, 1927. Another such case was improved, and in yet a third, in which the process had recurred time and again after operation on the mucous membrane of the vulva, eventually becoming carcinomatous, I was able to relieve the patient of most of her distressing symptoms.

In summarizing the type of case in which my experience has so far taught me to expect good results I would emphasize that the pathological tissue to be destroyed must be soft in character and free from a covering of horny or keratinized material. This excludes the common wart and verrucous tumours generally from the indications, unless previously macerated by plasters. The coagulability of the tissue is of prime importance, and for this reason it will be found exceedingly difficult to destroy fibromata and moles of a fibrous structure, which should be surgically excised.

In addition to the conditions I have already specified there are some which I have had no opportunity of submitting to the treatment, but which I believe would be amenable. These include the malignant pustule of anthrax, Delli's case, and any condition in which a destructive with a simultaneous sterilizing action is required.

The after-treatment of the coagulum is exceedingly simple. In all cases an endeavour should be made to keep the wound dry until the slough separates. For this purpose the bismuth-formic-iodide powder (Mulford) and a sterile gauze dressing will be found useful, and when the second stage is reached and the raw surface is exposed I prefer ambrue to the use of boric or other ointments. If granulations are slow in appearing or of poor quality an occasional application of red lotion or pellidol (scarlet red) ointment is usually sufficient. On the whole there is very little trouble from complications, and so far I have met with only one case in which there was a tendency to a keloidal scar.

Conclusions

The steam heated cautery, especially when it is combined with the judicious use of the sharp spoon, is a most valuable destructive agent in dermatology. It introduces the new principle of coagulation at a constant temperature under conditions which are easily controlled. By its use the risks of haemorrhage and sepsis are greatly reduced, and the important factor of post-operative pain is entirely eliminated. These advantages, and the relative simplicity of construction and manipulation, render it the instrument of choice in the eradication of all malignant neoplasms and in many of the more intractable types of cutaneous granulomata.

THE THERAPEUTIC VALUE OF VALERIAN *

BY

J S MANSON, M D, D P H

THE newer claims of the various forms of psychotherapy for the treatment of the neuroses are likely to cause the older methods to fall into disuse, even into contempt. Like Macbeth, the psychotherapist would "throw physic to the dogs," and it is with the view of saying something in favour of valerian therapy—perhaps the oldest of all the methods of treating the neuroses—that I venture to contribute this short paper.

In 1904 when a student in the materia medica class at Edinburgh University I remember that Sir Thomas Fraser stated that the therapeutic value of valerian lay chiefly in its smell, and that any other effect was due to its carminative action. On starting in general practice, in which I did my own dispensing, I used valerian very sparingly at first because its valuable characteristic (smell) might have repelled patients rather than attracted them. When I did use the drug it was only in those cases where there seemed to be some functional disturbance for which no other drug was indicated. In such cases valerian was given to reinforce suggestion treatment through the olfactory sense.

In spite of a few mistakes in administering the drug I was greatly impressed with the success of valerian therapy in a large number of cases of the minor neuroses. The drug was given in the form of the ammoniated tincture of valerian combined with 10-grain doses of potassium bromide. I soon found that the bromide, while adjuvant, was not the essential part of the therapeutic value of the mixture, for if the bromide was given without the valerian the result was less successful or was even a failure. I attributed the action of the valerian to its effect in reinforcing optimistic suggestion through the sense of smell—a psychic rather than a physical or chemical action. Dr Dan McKenzie, in his book on "aromatics," shows how important is the sense of smell in awakening dormant memories of past experience, and Mr John H. Kenneth of Edinburgh University had an interesting note in the *British Medical Journal* June 3rd, 1922 (p. 804), on "osmics and psychoanalysis." Mr Kenneth thought that osmics—the science of smell—might be of use in psychotherapeutic practice. He wrote:

'In the course of experiments on olfactory fatigue and on associations and effects evoked by different smells, the remarkable visual and (to a lesser degree) auditory recollections of scenes and events, in some cases of more than twenty years ago hitherto forming part of unconscious memory, were extremely vivid as expected. The same olfactory stimulus may, of course release varied associations or groups of associations in minute detail. An emotional disturbance may be produced and in the presence of a complex a marked resistance is noticeable the smell stimulus being quite as potent as a word stimulus. Of the odorous substances experimented with musk otto of roses, tonka bean (cumarin) and cedar wood oil gave the most vivid results while resistances were encountered in certain cases with musk clove oil, and asafoetida.'

These observations of Mr Kenneth rather confirmed me in the view that the action of valerian was chiefly psychic. It produced an olfactory stimulus, which in time caused a break-up—if I may use the term—of complexes associated with fear and anxiety of external circumstances, or of apprehension of the functional working of the organs of the body—in other words, hypochondriasis.

Further experience in the use of valerian, especially the constant good results obtained when given in the type of case for which it seemed indicated, made me think that valerian had a more definite action due to some chemical factor rather than to an indirect psychical stimulus.

Let me give in general terms the type of case in which I think valerian is indicated. The symptoms usually described are palpitation, something rising in the throat, flatulent eructations, rumbling of the bowels, sense of pressure on the vertex, desire to be alone, and lack of interest in home and social surroundings, fear of something going to happen, restless sleep accompanied by disturbing dreams, lack of mental concentration, and general depression, so marked at times that thoughts of suicide creep into the mind—in other words, the first stage of melancholia.

Women are more affected than men, but I will give an illustrative case which occurred recently in my own practice.

The patient a man aged 54 was organically sound he was a confidential clerk in an important firm of solicitors dealing with the administration of large estates. He had nearly all the symptoms described above, and became totally unfit for his work. His firm, appreciative of the value of his services, sent him to a leading consultant who after a thorough overhaul advised a two months' holiday at the seaside, and prescribed glycerophosphates and other so-called nerve tonics to be taken regularly. On his return from his holiday by the seaside he found himself as bad as ever and could not concentrate on his work.

When he came to see me he described the misery of the seaside holiday. Each vacant day was succeeded by another one allowing him time to brood over his troubles. I advised him to continue at work, but only to do such work as to maintain his interest, and to avoid the mental fatigue involved in calculations. I gave him the ammoniated tincture of valerian in half-dram doses and 7½ grains of potassium bromide. In three weeks his confidence had returned and after six weeks he could undertake full work involving intense mental concentration in complicated problems of finance. During that period he had taken 12 oz. of the ammoniated tincture of valerian. He has had one or two tendencies to relapse since, but he returns for his smelly mixture to keep him up to the mark.

Similar cases could be cited, but they would be wearisome, suffice it to say that I am convinced that there is enough evidence to show that valerian does contain some definite property which has a decided and specific beneficial action on the higher levels—and perhaps also on the lower—of the central nervous system.

Continental pharmacologists have given more attention to valerian than their British colleagues, but even on the Continent research has been very limited, and the literature, such as it is, is not of recent date. The best account I have been able to find is an article in the *Pharmaceutical Journal* of November 19th, 1921 (p. 402), by Dr N. Smolaka of the Ministry of Health, Belgrade, entitled "The history and therapeutic properties of valerian." In this article Dr Smolaka described three experiments on frogs carried out by Professor Wicki at the Pharmacological Institute at Geneva. The frogs were immersed in 1 per cent, 2 per cent, and 3 per cent solutions of the liquid extract of valerian, and observations made of their behaviour. Dr Smolaka concludes that his experiments prove that the extract prepared and made by him was of high physiological activity and paralysed the brain of the frog in small concentration. He described the drug as an antispasmodic, because it depressed psychical action.

These experiments on the frog do not help us very much to understand the action of valerian on the human subject, all they do is to show that valerian has a definite action on the nervous system of the frog due to some chemical factor in the drug. It is stated by Cushny that valerian contains borneol, or Borneo camphor, and numerous esters of acetic, formic, and valeric acids. Is it possible that this borneol is the important active principle in valerian?

The action of camphor in depressing the brain and spinal cord is well known, but whether the allied borneol is the valuable active agent is a question to be determined by pharmacologists. All I have tried to show is that valerian is a very valuable drug in general practice, capable of restoring mental efficiency and alleviating mental misery. It has also the advantage of having no deleterious properties such as are associated with the habit-forming narcotic series of drugs. It seems to be a drug well worthy of further research into its properties and action on the nervous system.

A CASE OF FRACTURE-DISLOCATION OF THE ODONTOID PROCESS

BY

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THE increasing number of motor accidents, many occurring in country districts, creates a corresponding demand for a fuller knowledge of injuries, especially of bones and joints, from all practitioners.

Fractures or fracture-dislocations of the neck are more frequently seen nowadays, even allowing for more accurate diagnosis. On general grounds I fear they may be expected to occur more frequently in the future, and I submit the following record as an illustrative case.

On June 20th 1928 the patient, a middle-aged woman, was sitting on the off side in the rear seat of a touring car. As the result of a collision at a cross-roads the car was turned over on to its rear side and the patient was thrown out the left side of her head striking a wall which bordered the foot path. Her husband after extricating himself from the driving seat found his wife lying in a huddled up position. She did not lose consciousness and complained immediately of pain in her neck. With the help of two other men she was carried into a neighbouring cottage her husband lifting her head and shoulders. He says that her coat was rucked up about the neck and thinks that it prevented any further displacement of the head.

Dr L. Hutchinson of Huyton who attended almost at once diagnosed a fracture of the neck fixed it temporarily and sent her to the Royal Infirmary by ambulance.

On admission she was suffering from shock. There was a scalp wound in the left fronto-parietal region but no signs of fracture of the skull. She complained of pain in the neck and on examina-

tion marked prominence of the upper cervical vertebrae could be felt with a depression above them. The head and neck were held rigidly on the trunk and the neck appeared unusually short, probably the effect of the contracted innates. Signs of injury to the spinal cord or cervical nerves were absent.

A temporary splint was applied, she was radiographed and treated for shock. The radiogram (Fig. 1) showed fracture of the odontoid process with considerable displacement forwards of the atlas and odontoid fragment.

The next day the arm and leg reflexes were increased and she had some retention of urine otherwise there was nothing to report. The following day the reflexes were normal and I reduced the dislocation under anaesthesia. Two assistants maintained steady traction on the head and neck by means of two traction loops, one beneath the chin and one behind and beneath the external occipital protuberance crossing one another at the vertex of the skull. I then grasped the neck firmly from the front with my fingers on the vertebrae posteriorly and my thumbs and index fingers along either side of the mandible. With a steady pressure of the vertebrae forwards and a tilting of the head backwards I reduced the dislocation with a slight but quite definite click. While the extension was maintained a plaster of Paris bandage was applied to immobilize the head and neck. Except for a mild cystitis and a little respiratory discomfort on one occasion due to the bandage her convalescence was tranquil and she was discharged from the hospital on June 30th under the care of Dr. Halton.



FIG. 1.



FIG. 2.

wire collar support fitted. A radiogram taken the next day is shown in Fig. 2, it reveals slight over-reduction if anything but this may be due partly to the position of extension of the cervical vertebrae in this radiogram as compared with the first.

Since September 1st the collar has been left off gradually and the range of movement has steadily increased. At the present time (September 22nd) nodding movements are free but tilting of the head from side to side is limited to 50 per cent of the full range.

I am indebted to Dr. R. E. Roberts for the first radiogram, and to Dr. J. H. Mather for the second.

TREATMENT OF NON SPECIFIC DIARRHOEA IN THE TROPICS

BY

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BOMBAY

THE common occurrence of diarrhoea in children and adults in the tropics without any traceable cause is one of the main thorns in the flesh of the general practitioner. Very often his reputation will be made or marred by his success or failure to treat what is to the public a simple disease, but which in reality is a most complex condition.

In consequence of the innate conservatism of the profession the same old mixtures are copied religiously from textbook to textbook. Every mail brings pamphlets of new and futile proprietary drugs, drugs which are only equalled in their general inefficacy by their numbers. The four main types of tropical diarrhoeas are (1) the dysenteries, (2) sprue, (3) tuberculous or syphilitic, (4) diarrhoea not caused by any of the above.

The patient's history will generally serve to allocate the diarrhoea to one of these groups. Thus, in the case of dysentery there will be a history of pain and tenesmus; fever is a common accompaniment, and, of course, blood and mucus will be present in the stools. Here let me strike

a note of warning—never be satisfied with the patient's assertion that he has looked for these two phenomena—make sure for yourself.

Sprue is generally easy to diagnose. The patient seldom comes in the very early stages of the disease, and by the time the doctor sees him there are the typical signs of emaciation, putty-colored stools, and most probably the tell-tale sores in the mouth. Moreover, if you inquire closely, you will elicit a story of long-continued "indigestion" and flatulence.

Tuberculous and syphilitic diarrhoea are more difficult to diagnose. The former frequently shows signs elsewhere, or there is a history of an old pleurisy or some other lung complaint. The physical findings in the abdomen often help. As regards syphilis, if the possibility of this disease in all obscure cases of diarrhoea is borne in mind, and a careful history taken together with a blood examination, a mistake ought not to be made.

It is the fourth group that we are specially concerned with, and here the history of the case is nearly always the same. There is no pain, no change in the colour of the stools, which are liquid but otherwise normal in appearance. The striking fact is that ingestion of food causes an immediate evacuation, or, as the patients express it, "the food runs through them." Examination of the stools reveals nothing of note. The presence of undigested food,

and possibly an increase in the number of streptococci, will be the pathologist's report, from which the doctor may gather what comfort he may.

The duration has generally been about a week, this being the period adopted by most patients as being suitable for playing with advertised cures and sampling such old mixtures as their friends have been able to take up from their medicine cupboards.

The recent work of Scott and others tends to show that true spina is a deficiency disease in that the calcium content of the blood is below the normal, and also that some substance produced by the liver and as yet unidentified is diminished in quantity. This substance, which is probably of the nature of a hormone, is apparently responsible for the proper functioning of the intestines, and regulates the output of their digestive juices, and also the rhythm of their muscular contractions. Any interference with the production of this hormone results in the immediate non-digestion of food and the undue hurrying through of the bowel contents. Whether or not this is the case is only surmise, but all the latest work on the subject goes to prove the truth of this theory.

The treatment, then, of these cases of diarrhoea would appear simple, and so it is. First and foremost, purgatives have no place in the schedule at all. The patient must be put to bed for at least three days, preferably longer. All solid food must be stopped and only citrated milk or milk that has been peptonized given. Further, the milk must not be given in a large quantity at any one feed. A cupful of it should be administered every two hours. Bailey-water is allowed without restriction.

The mainstay, however, of the treatment is extract of liver, and this can conveniently be given as soup or in the powder form. In case this latter cannot be procured a short recipe for making the soup may not be out of place.

Take half a sheep's liver and mince it finely. Add four breakfastcupfuls of cold water and such spices as the patient may like. Boil down to two cupfuls, strain, allowing small particles of liver substance to come through, and give one cup in the morning and one in the evening.

In furtherance of the calcium deficiency theory, 15 grains of calcium lactate may be given thrice daily. The success of this treatment in these cases of non-specific diarrhoea is most striking, and any case which does not respond favourably in a few days should be regarded from a serious standpoint.

I have not mentioned two other common causes of acute diarrhoea in the tropics—namely, cholera and food poisoning. These are too obvious in their symptoms to allow of any such protracted treatment, and do not therefore come within the scope of this article.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL

A FOREIGN BODY OF UNUSUAL CHARACTER IN THE LUNG

THE following case seems of sufficient interest to warrant publication.

On June 11th 1928 a little girl aged 8 years, was brought to Dr Loughlin of Woolston because for the past few weeks she had been making a peculiar 'rattling noise' in her chest. He found that she was in good general health, that there were no symptoms beyond a low pitched expiratory stridor and no signs beyond rhonchi at the left base of the lung. He suspected a foreign body in the lung but the child's mother could give no history pointing towards this. He treated the child as suffering from bronchitis.

On June 15th the child was seen again and seemed in good health with the stridor somewhat diminished. Again the question of foreign body was raised and this time the child's grandmother gave the following history. Seven weeks ago the child was playing with some beads and had one in her mouth when she sat down to her dinner. She choked over the first mouthful of food, and to her dinner. She choked over the first mouthful of food, and when asked what was wrong said 'Oh it is all right the bead has gone'. (The beads are about half an inch in diameter and belong to a game called Gloria mosaic.)

In view of this history Dr Loughlin sent the child to the Royal South Hants Hospital where she was referred to me and I saw her on June 18th. There was then no stridor, she looked well but she complained of pain in the left side of the chest and her temperature was 100° F.

She was sent to the x-ray department but neither by screen nor on a plate could a foreign body be seen. The plate showed

dullness at the left base. As a bead identical with the one alleged to have been inspired was sent with the child, we had this strapped to her chest wall, and it showed up perfectly on screening. The radiographer was now convinced that there was no bead in the lung and the mother tried to help us by saying that the child had coughed it up. I was mystified and sent the child to the medical ward under Dr Fisher for observation.

During the next week the child looked ill, her temperature fluctuated, rising to 102°, she suffered from cough and asthmatic attacks, and the left lung exhibited varying physical signs. No diagnosis could be made except that of foreign body in the lung but we were puzzled by the x-ray findings. She was x-rayed again when a plate typical of an obstructed lung was obtained. The left lung was entirely dark and the mediastinum was drawn towards the same side. There was still no sign of the cause of the trouble.

Next day bronchoscopy was performed. On reaching the bifurcation of the trachea nothing could be seen because of the quantity of mucus present. On aspirating some mucus came away and then the tube became blocked. On removing it slightly it cleared and more mucus came but again the tube was blocked. As the child looked rather blue I removed the bronchoscope, with the aspirating tube inside, bringing with it a putty-like mass. I passed the bronchoscope again, but could see nothing as the trachea was full of mucus. The child was sent back to bed. She was very much better the next day, and within a week was sent home perfectly well.

I had one of the beads examined, and found that it was simply a mass of dried clay which, when soaked in water, became soft and putty-like and did not show a shadow to x-rays.

This case is not published as a successful bronchoscopic effort, as I never saw the foreign body until it appeared in the child's mouth. Its interest lies in the difficulty in obtaining a history and in the peculiar character of the foreign body, which was opaque to x-rays until it was inspired into the lung, and then it became non-opaque.

One wonders how many cases such as this remain undiagnosed, because had it not been for Dr Loughlin's shrewd suspicion and persistency this case would almost certainly not have come in for treatment.

Southampton.

W STEWART

HAEMOPHILIA IN THE TROPICS

DR HUGH THURSFIELD, in the *Tenth Book of the Practice of Medicine*, edited by F. W. Price, states that haemophilia is a disease of the temperate zone, nearly all the reported cases being of English, American, or German origin. The occurrence of haemophilia in the southern Punjab is therefore, I think, of some interest, and the following clinical details may be worth recording.

In 1923, when I was a student, I saw two brothers who suffered from this disease, and on inquiry it was found that all the maternal uncles of the children had died of bleeding in their childhood. The mother of the children had no sister, and no further information regarding bleeders in the family could be traced. The cases were not seen again or heard of.

In April 1927 a child aged about 3 years was brought from a distance of about eleven miles bleeding from a contused wound in the head. The father of the child showed great anxiety about the wound, which was not at all large and I immediately dressed the wound from which an aseptic discharge was coming. On inquiry it was found that the wound was about four days old. An elder brother of the child had died from uncontrolled bleeding hence the anxiety of the father. The child's mother had one sister who had no issue and her brothers had died from bleeding.

Since blood oozed later from the dressing I opened the wound and redressed it with a piece of lint soaked in normal horse serum. On removing the dressings after twenty-four hours a large clot was found in the wound but no oozing. The wound was dressed again with normal horse serum and subsequently ordinary aseptic dressings were applied daily to the wound which healed without further bleeding. During the treatment of the wound I gave hypodermic injections of normal horse serum, beginning with 1 c.c.m. and increasing the dose by 1 c.c.m. each time. I gave six injections at intervals of six days. While the injections were being given the child became weak and anaemic.

Six months after the course of injections the child was again strong and healthy but some peculiar abscesses were said to have developed. These were not seen by any medical man but it was stated that about a dozen small hard tumours appeared successively deep on the side of the neck came to the surface, burst with a whitish discharge and healed without treatment.

I saw the child again in June, 1928. There was no mark left by the abscesses or cysts. The child was quite healthy and though it had been scratched badly by a monkey, the bleeding stopped as in a non-haemophilic child.

The disease is rare and I cannot gather many instances, but I think the child did benefit by a course of injections with normal horse serum.

Kuruli Ambala

BRAGWAN RATTAN, M.B., B.S.

ACUTE GASTRIC DILATATION AFTER DOUBLE EXTRAUTERINE PREGNANCY

CASES of tubal gestation occurring on one side and followed some time afterwards by gestation on the opposite side are by no means rare. Extrauterine gestation on both sides at the same time is much rarer, but several cases have been recorded recently. I think the following case is sufficiently interesting to justify publication.

A married woman aged 31 with no children and no history of miscarriages was taken suddenly ill with acute abdominal pain on the evening of December 15th 1926. She was admitted to the Mansfield and District General Hospital several hours afterwards under the care of Dr S Kingsley Poole who operated upon her the same night. There was about a pint of blood and blood clot in the peritoneal cavity and a ruptured right ovarian pregnancy of about two months duration was found and removed. It was after removal of the blood present that an unruptured left tubal gestation was found this was of about one month's duration. The left tube was therefore removed. Ether anaesthesia was administered by Dr Archibald Macmillan.

The patient made very satisfactory progress indeed until December 19th three days afterwards when she vomited several times. The following day at 2 p.m. she suddenly became very ill. I found her collapsed, cyanosed and with epigastric distension. She was vomiting large quantities of offensive brownish fluid and she complained of abdominal pain. It was thought that she was suffering from acute dilatation of the stomach so pituitrin 0.5 c.cm was given intramuscularly and a stomach tube was passed and the stomach washed out. Large quantities of gas escaped from the tube. In a few minutes her condition improved which confirmed the diagnosis. A similar but less severe attack occurred once on each of the two following days and the same treatment was given.

For several days afterwards she appeared quite well. However on December 29th she vomited several times and on January 2nd she was again taken very ill with abdominal pain epigastric distension collapse and vomiting. The stomach was washed out as before and pituitrin 0.5 c.cm given with the same successful result. After this she rapidly improved and was discharged from hospital on January 15th 1927. An x-ray examination following an opaque meal showed no evidence of pyloric obstruction.

The case is of special interest as regards the attacks of vomiting. On three of the occasions mentioned she was extremely ill, and it seemed that unless something were done at once she would certainly die. And yet, following the treatment adopted, she responded surprisingly well and has since made a good recovery.

I am indebted to Dr S Kingsley Poole assistant honorary surgeon to the Mansfield and District General Hospital for permission to publish this case.

NEVILLE J FAIRBAIRN F.R.C.S.D.,
Late Senior House-Surgeon Mansfield
and District General Hospital

Reports of Societies.

GENITO URINARY FISTULA IN THE FEMALE

At a meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on October 19th, with Dr J S FAIRBAIRN, the president, in the chair, Dr DOUGAL BISSELL of New York read a paper on genito urinary fistula in the female.

Dr Bissell recounted the early life of J Marion Sims, enumerating the difficulties he overcame and described how later in conjunction with Emmet, at the Woman's Hospital in New York, he gradually built up his world-wide reputation. Dr Bissell reviewed the work of this hospital, and compared the number of cases of vesico-vaginal and urethrovaginal fistulae operated on by Emmet between 1856 and 1866—namely, 275—with the number of cases operated upon in the last ten years—namely 58. He concluded that this difference must be attributed to the improvement in obstetrical management. In spite of this improvement however he believed that cases were still bound to occur for many years to tax the ingenuity of the surgeon. In a review of various operative measures for genito-urinary fistula employed prior to the work of Sims Dr Bissell mentioned Hayward's procedure, commenced in 1839 that of Mettner in 1847, and, in Europe the work of Lallemand in France in 1825, and Gosset in London in 1834. He then dealt in detail with his own methods of operation for this condition, and reported seven cases selected because they were unusual in type and origin, and served to demonstrate the value of Sims's technique when complications

were present. He added that Sims's achievement was something more than a stepping-stone, and that, while other forms of treatment could be applied in special cases, that of Sims was universally employable. Dr Bissell hoped, therefore, that interest would be aroused again in it, and that it would be re-established in the armamentarium of the gynaecologist.

The President remarked that, though he believed that in Sims's day silver wire was the most suitable suture material, at present, with the advance of asepsis and antiseptics other suture material, such as catgut, was more applicable.

Carcinoma of the Vagina

Mr J B BRIGHT BANTISTER, in the absence of Mr A C PALMER showed a specimen of carcinoma of the vagina in a patient aged 24, who had been married just over two years, but had not been pregnant. She complained of dyspareunia, and a blood-stained discharge for two months. Although she had been under treatment for syphilis for six years she still had a positive Wassermann reaction. On examination an ulcer with a hard everted edge had been found on the posterior vaginal wall, the surface of this bled easily. The diagnosis lay between chronic septic ulceration, gumma, and primary carcinoma. Microscopical examination proved the last of these to be the correct diagnosis, and the ulcer was therefore excised. About a fortnight later both sets of inguinal glands were removed, but they showed no evidence of growth. Ten weeks later the patient was again examined, owing to there being severe social pain accompanying defaecation, and was found to have a large ulcer on the anterior rectal wall. In spite of radium treatment the growth continued to increase, and the patient died five and a half months after the first operation.

ENDOTRACHEAL ANAESTHESIA

At a meeting of the Anaesthetic Section of the Royal Society of Medicine held on November 2nd, a paper on endotracheal anaesthesia was read by Dr I W MAGILL.

After briefly referring to the history of the method, Dr Magill summarized its advantages. These he classified under six headings: (1) The anaesthetist had complete control over the patient's airway under most conditions. (2) The anaesthetist was able to keep himself and his apparatus clear of the field of operation, and consequently did not impede the surgeon or interfere with his aseptic technique. (3) The surgeon could be protected from the anaesthetic-laden expirations of the patient. (4) The patient was protected against the possible entry of blood into the trachea. (5) There was, or should be, no tax upon the respiratory mechanism of the patient. (6) The method was dosimetric. The two main disadvantages of the method, which arose chiefly in private practice, were the variety and bulk of the apparatus required, and the necessary delay incurred in setting up the apparatus prior to operation. It would seem at first that the method was indicated in all operations on the head and neck not involving the vocal cords, and in all operations in which control of the airway was difficult or in which the surgical manipulations might cause respiratory embarrassment. There were exceptions, however. Cases of cataract were best treated under local anaesthesia or under nitrous oxide and oxygen. Intubation should not be employed, as it might lead to coughing. In exophthalmic and toxic goitre a combination of local anaesthesia with nitrous oxide and oxygen ensured the best after-results to the patient. Operations on the thorax gave better results when nitrous oxide or ethylene and oxygen were administered by means of a face-piece, and apparatus was provided for positive ventilation. Again, many operations were so trivial that, even if they caused some inconvenience to the surgeon and anaesthetist by reason of their situation they could be satisfactorily dealt with by simple methods. As regards the technique of endotracheal anaesthesia atropine was given in all cases and morphine where indicated. In the nervous and in children, excellent results were obtained with paraldehyde given per rectum an hour before operation. Cocainization of the larynx and fauces with minimal doses of 20 per cent cocaine solution from a nebulizer gave many advantages, of which perhaps the greatest was that

the vocal cords were at rest and muscular relaxation could be obtained with comparatively light anaesthesia. Induction of anaesthesia followed the usual lines. Intubation could be effected through the mouth or nose, and the latter was often the easier method. Free egress for expiration had to be provided. A pharyngeal airway might be all that was required, but in some cases the double tube method might be necessary. The latter had several advantages, and one disadvantage—namely, that the return flow from the trachea was no longer available for driving blood from the larynx. This could be overcome by suitable packing off of the larynx. Free respiration could also be secured by the use of one large tube. Intubation through the mouth with an efficient speculum and the introduction of a rubber expiratory tube was a simple matter. Double-channel tubes as so far produced were unsatisfactory. Intubation through the nose could be performed with a special forceps used through a direct vision laryngoscope, or, blindly, with the aid of a curved stylet. A rubber expiratory tube could then be passed without a stylet, and if there were no nasal deformity it would also enter the trachea. Objection had been made to this method on the score of the possibility of carrying infected material into the lungs with the catheter, but micro-organisms present in the nose were already present in the trachea, and, moreover, the author had so far never come across a case in which this complication had arisen. Maintenance of anaesthesia was effected by connecting the catheter to an apparatus capable of delivering air or nitrous oxide and oxygen under sufficient pressure, with whatever regulated quantity of ether might be necessary. The heating of the anaesthetic, despite the opinion of some authorities, was advantageous, especially when nitrous oxide and oxygen were used to vaporize ether without rebreathing. At the present time a combination of nitrous oxide, oxygen, and ether best satisfied surgical requirements, and the smaller the quantity of ether used the better the condition of the patient.

There were certain disadvantages in the use of nitrous oxide-oxygen without ether, such as heavy preliminary medication, the narrow margin between anaesthesia and recovery, and the difficulty of obtaining sufficient muscular relaxation. Chloroform had its advantages in dealing with robust or alcoholic individuals of the labourer type. In abdominal operations sufficiently quiet respiration of natural amplitude could usually be secured by open methods, and it was unnecessary to use actual apnoea produced by endotracheal insufflation. Where difficulty arose in controlling the airway a wide rubber tube permitting of to-and-fro respiration gave better results when passed into the trachea than did a catheter. The routine use of endotracheal methods in hospital was a decided disadvantage to the teaching of students. If these were equipped with no knowledge other than the control of the patient with the help of elaborate apparatus, they would be at a loss when called upon to anaesthetize a patient with a piece of lint and a bottle of chloroform. The author then summarized his conclusions as follows:

- 1 With certain exceptions endotracheal anaesthesia is the best method for operations on the head and neck and for any other operation in which there may be a difficulty in controlling the patient's airway.

- 2 Expiration should be provided for in endotracheal anaesthesia, either by means of a second tube or by a tube of sufficiently large calibre to permit of to-and-fro respiration.

- 3 Cocainization of the upper air passages has decided advantages in endotracheal anaesthesia.

- 4 The practice of blind intubation through the nose renders the method possible in cases where it is impossible to use a speculum.

- 5 The insufflation method is not specially indicated in abdominal surgery.

- 6 The routine use of endotracheal anaesthesia in teaching hospitals for every class of case is detrimental to the production of sound anaesthetic knowledge in students who are likely to become general practitioners.

In the discussion which followed, Mr H E G BOYLE criticized the use of paraldehyde as a preliminary narcotic, on the score of its nauseous qualities. He thought cocaine useful. He also questioned the use of a wide tube through the nose on the score of possible damage to the nose and

vocal cords. He liked endotracheal anaesthesia for abdominal operations, but agreed that it was not a necessity. Dr F L SURWAY thought that two catheters were unnecessary in most cases. Dr LANGTON HEWEN did not agree with the warming of anaesthetic vapours, especially as they frequently caused the patient to sweat. He liked endotracheal anaesthesia for operations on the upper abdomen. Dr H P FAIRLIE inquired as to the complications which might follow endotracheal anaesthesia. He himself had tried this method in many cases, and had had in all four deaths after its use from pulmonary complications. Dr F T EVANS questioned the use of a second tube owing to the possibility of damage to the larynx. He also was against warming the vapour. He preferred to give young children warmed port by the mouth instead of paraldehyde per rectum. Dr C H M HUGHES thought the double-tube method excellent. It allowed of adequate plugging of the pharynx. He inquired whether a pressure-gauge was necessary when the double tube was used. Dr Z MENNELL said that endotracheal anaesthesia had found a place in surgery. It was, however, unnecessary in tonsil and adenoid operations, and in those on the upper abdomen. He thought the double catheter unnecessary, for an airway would give equally good results. He liked warm vapour. Dr L POWELL agreed with the last speaker, as well as with the reader of the paper, as to warmed vapour. Dr S COFFIN wondered why the catheter tended to enter the larynx rather than the oesophagus when the nasal route was employed. Dr ASHLEY DALY liked to use the endotracheal method in goitre cases other than exophthalmic ones. He found warmed ether less irritating than cold.

After Dr I W MACILL had replied seriatim to these criticisms and queries the meeting terminated.

TESTS AND CLASSIFICATIONS OF HEARING

A MEETING of the Section of Otology of the Royal Society of Medicine was held on November 2nd, when the new president, Mr SOMERVILLE HASTINGS, took the chair and delivered an address.

Mr Somerville Hastings said that if the progress of otology during the past twenty-five or thirty years were reviewed he did not think there would be complete satisfaction with the results achieved. The prevention of affections of the middle ear had certainly to some extent been attained, and there had been an improvement in the technique of treatment, also it was possible now to arrest the progress of deafness resulting from sepsis of the nose and throat. But it had to be admitted that a good deal of middle-ear deafness, by whatever name it was called, with which otologists had to deal was but little influenced by treatment, nor were otologists yet agreed as to its exact pathology, what was true of middle-ear deafness was even more true of deafness due to trouble in the internal ear. He could not help thinking that the comparative ignorance concerning both the pathology and treatment of so much deafness of the middle and also the internal ear was due in part to the methods of examination employed in the past. It would be admitted by everyone that the methods of estimating hearing capacity by the distance at which a whisper, a conversational voice, or a watch could be heard, although of value clinically, was quite useless for scientific purposes. There should at least be a relatively pure source of sound, such as was produced by a tuning-fork or wireless valve. What he wanted to know before he could form a correct mental picture of a given case of deafness was the percentage of normal hearing which remained for every pure note between the upper and lower limits of audition. Then, if the degrees of cochlear and cerebral function were also estimated in percentages, it should be possible to say to what extent the deafness was due to changes in the conducting apparatus and to what extent to changes in the perceptive. He was convinced that, from the point of view of scientific advance, arbitrary units of hearing must be given up, and an attempt must be made to discover what percentage of normal power of conduction and of normal power of perception was present for pure sounds. In considering the principles involved in the estimation of the perceptive function, Mr Hastings went on to say that it was evident to all that the ordinary

methods of estimating bone conduction by means of a vibrating tuning-fork placed on the mastoid contained very many fallacies, since the more complete the interference with conduction through changes in the external or middle ear the longer would the sound of the tuning-fork be heard. The oft-repeated statement that in otosclerosis bone conduction was increased was obviously a misstatement if it applied to absolute bone conduction, but if it related to the application of the tuning-fork to the mastoid with the meatus open then it was perfectly true that in otosclerosis bone conduction was increased, as also in every affection of the middle and external ear. Indeed, in the most advanced cases of otosclerosis that it was possible to conceive there could not be a greater increase of bone conduction than was present when the meatus was fully plugged by a large piece of wax. Turning to the assessment of the total hearing capacity, Mr Hastings illustrated the method which he himself favoured of estimating hearing by means of a tuning-fork at a fixed distance, and immediately comparing the time for which it was heard by the patient with the time for which it was heard by a normal person, usually the examiner himself. In conclusion, he said that the investigations regarding otosclerosis would never really prosper until there was standardization of the methods of testing hearing capacity, the time had come for the Section to make another attempt to solve this important problem.

Dr J KERN LOVE submitted an educational classification of deafness based on the effects of this infirmity on efficiency in early life. For educational purposes whispered speech heard at a distance of 20 ft was taken as normal. In the first class were deaf mutes, congenitally defective, in the second class came the muted or semi-muted, totally deaf because of disease (chiefly nerve deafness) occurring shortly after birth, the third class consisted of the speaking deaf, persons deaf from disease occurring after two years of age and the fourth class—by far the largest—contained the partially deaf or hard of hearing suffering chiefly from middle-ear disease. The first two classes of children had to go to special schools for deaf mutes, the third to special schools for the deaf, while for the fourth the educational provision might be a front seat, or a small class in a hearing school. Hearing tests, and also treatment, were useless in the first three classes; in the fourth class not only was hearing present, but it might be improved. With regard to the association of syphilis with congenital deafness the speaker gave some figures from Glasgow which showed that only 2.6 per cent of the congenitally deaf children had a positive Wassermann reaction. He urged intensive study of otosclerosis with a view to its prevention.

Dr T A CLARKE spoke of some work on hearing tests at the Lereux Institute of Otolaryngology at Middlesex Hospital, to which the remarks of the president had already furnished an introduction. He emphasized the necessity for a consideration of the hearing tests at present in use. In the testing of tonal limits the present tests were accepted as satisfactory, but he drew attention to the anomalous results of comparison of perception of the monochord by air and bone conduction, and criticized the Rinne, Schwabach, Gelle, and other tests. The "absolute bone conduction" test afforded an absolute index of the perceptive component of hearing (nerve function). For the quantitative determination of hearing power the results expressed on a distance basis, and in comparison with a normal, were to be preferred; these results were the simplest to obtain, and had the advantage of being intelligible to the untrained mind. For distance tests a watch was useful, but the instrument known as the electrical audiometer, while valuable for research, was, he considered, impossible for ordinary clinical use, owing to its complication and lack of portability. Tuning-forks yielded accurate results, and he described some of the mathematical considerations underlying their use. He showed tables indicating how in a routine method of testing with tuning-forks relative efficiencies were determined and expressed.

Mr O O PORRER said that the president and Dr Clarke had both spoken of a tuning-fork being held at a constant distance from the ear. He wondered how that distance was maintained in view of movements of the patient, also how the normal was constituted with which the patient's hearing was compared. The Gelle, Schwabach, and Rinne tests

were not actual hearing tests *per se*, they were designed to show that conduction was hyper- or hypo-functional. The disadvantage of the tuning-fork was that no two identical sets of tuning-forks could be devised, there was also the possibility of error in regard to supposedly constant distance and supposedly normal standard for comparison. He had found the audiometer portable and simple to use.

Sir J DUNDIE GRANT expressed himself as disturbed by the iconoclastic remarks of the two previous speakers. He thought that tests for hearing were apt to be taken too seriously, when they were reduced to figures and multiples, many almost innumerable factors connected with deafness were likely to be neglected. No doubt the too heavy tuning-fork would not give any very satisfactory results. A tuning-fork which sounded for about twice as long opposite the meatus as it did upon the mastoid would be about right.

Mr A R TWEEDIE criticized Dr Kerr Love's standard of whispered speech heard at 20 ft distance being taken as the normal. This was a purely arbitrary division between cases of children requiring special treatment and cases suitable for education in ordinary schools. Mr G J JENKINS pointed out the difficulty of placing tuning-forks in exactly the same position and at the right angle in each case, no matter how carefully the examiner might educate himself in their employment. Mr A J STONY (secretary, National Institute for the Deaf) said that the National College of Teachers wished to establish a properly classified system of education for the deaf in this country, at the moment there was practically no classification at all, and children with varying degrees of deafness were placed together in the same school, and often in the same class. Obviously this was unscientific and unsuited to the children's best interests. The College was desirous, as a preliminary piece of work, of devising a terminology of deafness based on history and degree such as would be intelligible to the ordinary teacher, and also to the general practitioner who might not know very much about deafness. Mr A D SMITH pointed out that there was another class in addition to those which Dr Kerr Love had described—a small class of hearing mutes, who understood what was said to them, but were unable to speak. He also said that in applying tuning-fork tests he had discovered in some cases a "blind spot" interval, the person would say that the vibrations had ceased, and then after two or three seconds discover that he heard them again.

Dr T A CLARKE, in reply, said that a little practice enabled one to maintain a fairly constant and accurate position for the fork. As for comparison with the normal, and the question of what was normal hearing, he was content to accept his own normality until he was proved abnormal.

FIBROSIS OF THE LUNG

At a meeting of the Section for the Study of Disease in Children of the Royal Society of Medicine on November 5th, with Dr F J Poynton in the chair, Dr L S T BURRELL opened a discussion on fibrosis of the lung.

Dr Burrell said that since many chronic pulmonary diseases started in childhood it was important to recognize and treat the various catarrhal conditions which occurred. Except as part of a general infection pulmonary tuberculosis was not common in infants. During the first few years of life the mortality was high, but thereafter it rapidly fell, so that between 7 and 16 there was a very small mortality from tuberculosis. After 16, however, the mortality rose to a maximum at about the age of 50; the figure varied in different countries. Tuberculosis of the glands at the root of the lung was frequently present in children, but it was most exceptional for the lung tissue to be subsequently infected. Dr Wingfield had examined 150 hardened specimens of the thoracic contents of children who had died from various diseases, and found naked-eye evidence of tuberculosis in the glands at the root of the lung in 17.5 per cent; this was confirmed afterwards by microscopical examination. In the early case and in the late stages where fibrosis existed there were frequently no tubercle bacilli in the sputum, unless the patient had a cold or a catarrhal attack. In the adult with signs at the lung apex a tuberculous origin was assumed, generally rightly; this was not so in early life, and in the child with an acute apical lesion the prognosis

was better than for a similar condition in the adult. In the majority of cases of children with apical or other lesions which cleared up, the disease was non-tuberculous. But tuberculosis played a great part in producing fibrosis, and the catarrhal conditions in childhood were very important from the point of view of the individual child and of other children associating with it, many of these cases went on to bronchiectasis. The chief cause of catarrh in children was measles, and next influenza and whooping-cough. In 1925 there were over 94,000 deaths in England and Wales of children under the age of 15, more than 20,000 were caused by non-tuberculous respiratory diseases, some 1,500 being due to pulmonary tuberculosis and 5,000 to other forms of tubercle. The importance of non-tuberculous respiratory diseases in children should be recognized. In lobar pneumonia the exudation became completely absorbed and the patient recovered in most cases, but in the broncho-pneumonia after influenza and measles there was destruction of the bronchial membrane and lung tissue, and the damage remained. Cases of unresolved pneumonia were of this nature, and therefore it was the broncho-pneumonia type of trouble which led on to the fibrotic cases. A child would return to hospital time after time, at intervals of a month or two, and always with the same part of the lung affected, which could not be a coincidence, meanwhile fibrosis was probably occurring and leading to bronchiectasis.

Dr MARLAND JONES agreed that tuberculosis was a somewhat rare cause of fibrosis of the lung in children, a condition sometimes discussed was epituberculosis.

Dr HILDA STÖESINGER had been following up consecutive cases of lobar pneumonia and broncho-pneumonia at the Royal Free Hospital to try to note the early stages of pulmonary catarrh and pulmonary fibrosis. She had repeatedly found cases with just a localized pulmonary catarrh occurring every two or three weeks, and many patients who had been diagnosed and treated as cases of lobar pneumonia showed catarrh. In both lobar pneumonia and broncho-pneumonia many patients had been in contact with respiratory disease, or had had recurrent attacks of bronchitis and pneumonia, but in many cases of repeated local catarrh and early fibrosis there was no x-ray evidence of disease. On the other hand, certain cases with generalized bronchitis and emphysema were found radiologically to have local fibrosis, though there were no clinical localizing signs. Syphilitic induration of the lung in young infants might, perhaps, cause some of the rarer types of pulmonary fibrosis. Dr C D S AGASSIZ said that tuberculosis of the pulmonary kind was not uncommon in children, judging by the appearance of tubercle bacilli in two sputum. In fibrosis of lung the signs were most marked at the base, sometimes at both bases, the condition cleared up quickly, and then the patient returned.

Dr H C A BOLDERO paid a tribute to the good done by child welfare agencies in catarrhal conditions in children, but thought little was done by them for gastro-intestinal states. He advocated preventive inoculation. Dr A G PHEAR agreed that lung fibrosis and bronchiectasis in children were fairly common, and, since they were relatively rare in adults, perhaps most of these patients died, but he had observed cases in which a child had such definite signs which, a few years later, had disappeared. Cases of slowly resolving pneumonia might be diagnosed as fibrosis and bronchiectasis, in other words, a changing condition might be regarded as a permanent one. Dr G A SUTHERLAND held that bronchiectasis was an exceptional termination of fibroid lung. Broncho-pneumonia could be clearly distinguished from lobar pneumonia, since the clinical course was so different, probably lobar pneumonia never led to fibroid lung. It was very necessary to distinguish pulmonary tuberculosis from chronic fibroid lung. A large number of patients with fibroid lung recovered. Dr PARKES WEBER doubted whether cases of slight recurrent attacks of pneumonia clinically led to fibrosis.

The PRESIDENT expressed surprise at the manner in which some of these patients recovered, even though the condition had been so severe as to cause displacement of the heart. He agreed that the infant welfare centres prevented many of the respiratory troubles. The surgical treatment of emphysema was an important question. He was not in favour of vaccines for these children.

INJECTION TREATMENT OF VARICOSE VEINS

A MEETING of the Brighton and Sussex Medico-Chirurgical Society was held on November 1st, with the President, Mr GEOFFREY BATE, in the chair. Mr ST GEORGE B DEFLEBLE GRAY read a paper entitled "The injection treatment of varicose veins: anatomical, physiological, and practical considerations," and Dr H M GALT showed three microscopical slides illustrating changes in the vessels.

Mr Gray first of all outlined the anatomy of the superficial veins of the lower limb, and stated that the anatomical factors making for varicosity were (1) height of column of blood—average length of great saphenous is 85 cm, (2) thinness of its walls and lack of muscular support, (3) possible variations in the anatomical course of the small saphenous and its anastomotic channels. He then gave a short historical summary. The first intravenous injections of drugs were made in the year 1657, at the suggestion of Sir Christopher Wren, but intravenous therapy was impracticable until the invention of the Pravaz syringe in 1851. Shortly after this date experiments were made with the injection of solutions of ferric chloride into varicose veins. There were many successes, but also many failures due to septic sequelae, embolism, etc. During subsequent years various solutions were used for injections. There were many successful cases, although some caused great pain to the patients, whilst other patients had trouble from sloughing, scarring, and recurrence. He found that sodium salicylate caused severe pain, though the results were excellent. He now used quinine and urethane, and always injected the patients standing up. After detailing his method of giving an injection, he said he did not see the reason for injecting slowly, as it must surely militate against the success of the injection if the fluid becomes diluted. In female patients it was important to exclude pregnancy as a cause or a concomitant of varicose veins, as the injection of quinine might possibly lead to abortion. The majority of solutions used in the injection treatment of varicose veins were self-stealing. He recalled that in the recent discussion at the Royal Society of Medicine only one speaker was definitely opposed to injection of varicose veins, on the ground that it led to pulmonary embolism, and the solution he used was concentrated glucose. Mr Gray very briefly referred to the treatment of haemorrhoids, for which he used a 20 per cent solution of carbolic acid, and suggested that similar fluids might be injected into subcutaneous naevi as into piles. He suggested that varicocele also might be amenable to treatment by injection. He concluded by giving his reasons for believing the risk of quinine blindness after injection of quinine to be negligible.

After the paper, which was illustrated by diagrams, Mr Gray showed a table designed by himself for the patient to stand on, and demonstrated two cases treated by him.

At a meeting of the Royal Society on November 8th Dr J A MUNRAI communicated a paper by Mr R J Ludford and Dr W Cramer on the mechanism of the secretion of the thyroid gland. The authors reported that the cells of the thyroid gland discharged their secretion into the lumen of the vesicle and thence into the blood stream. There was no alteration in the direction of the discharge during prolonged increased functional activity, there was also no evidence that the cells secreted normally direct into the capillaries. In exophthalmic goitre in both the mouse and man there was enlargement of mitochondria and of the Golgi apparatus—a condition characteristic of intense secretory activity, the polarity of the Golgi apparatus was frequently reversed. The secretion droplets, formed in association with such a reverse process, in the case of the mouse were discharged directly into the capillaries. Thyroid secretion in exophthalmic goitre differed therefore, from that in the normally active gland in respect of the direction in which the specific secretions discharged. Whereas normally the secretion passed first into the lumen of the vesicle, in exophthalmic goitre it entered the capillaries. The authors explained the pathological condition on the basis of this difference in the mechanism of the secretion.

Reviews.

RADIOLOGICAL DIAGNOSIS

UNDER the title of *Röntgenology The Borderlands of the Normal and Early Pathological in the Stigram*¹ we find a translation from the German by Dr ARTHUR TURNBULL of the well known and indeed celebrated work of ALBAN KOHLER of Wiesbaden, which has already run through several editions. This English translation is from the fifth and last edition. There can be no doubt that this book is a radiological classic, and the translator has rendered a great service to those interested in the subject who do not read German. Possibly it may be a too literal translation, and this occasionally renders passages somewhat obscure and difficult to understand, on the other hand, this method of translation is perhaps the best, inasmuch as it gives a better insight into the author's own ideas and practice.

There is no book on radiological diagnosis written on the same lines as Kohler's, and it has filled in gaps which exist in most of the other works. Practically all the illustrations are line drawings from the original radiographs, and as it often happens that very slight alterations from the normal are being discussed, these can be made clear on drawings where they would be lost in attempting to reproduce the radiographs themselves. That part which is given to bone conditions is a remarkable piece of work, full of detailed observations on mainly small things—many of them, however, of the greatest radiological importance—which have never been brought together before. The cross references are a great help, and Alban Kohler has left his own stamp on practically every page. It is interesting to note that apparently the author does not use the stereoscopic method for his examination of bone and joint conditions. Certainly he makes no reference to the great advantage of stereoscopic views of the shoulder-joint. A number of difficulties alluded to, which give rise to the remark that "the judging of shoulder radiographs is one of the most difficult tasks even for the skilled worker," entirely disappear when stereoscopic views are examined.

While considerably more than one-half of the book is given up to the consideration of bone conditions, there are separate sections on the lungs and pleurae, the diaphragm, the heart, the aortic arch and associated vessels, the oesophagus, the liver, the kidneys, and finally the stomach, duodenum, and bowel. There is a good index, and footnotes on almost every page serve as fingerposts to important literature. Many English references not present in the German edition have been added.

The translator is to be congratulated on his work, and the excellent manner in which the book is presented to English speaking readers should give pleasure to the author. Professor John Fraser, Dr J. M. W. Morison, and Professor James T. Case have written short prefaces, and we can unhesitatingly agree with Dr Morison when he writes that this book is a necessity for the student who is studying with a view to a diploma in radiology. We can go further than this, however. It is indispensable to all radiologists and orthopaedic surgeons, and many others should find it of great use.

ABNORMAL PSYCHOLOGY

PROFESSOR EDMUND CONKLIN regards the study of the psychology of the abnormal as indispensable to the practice of medicine, but his *Principles of Abnormal Psychology*² has been written for the student of psychology rather than for the medical practitioner. The author's point of view is strictly psychological throughout, and therefore no space is devoted to the consideration of the various therapeutic measures which are generally employed for the

alleviation of the disorders described. This work is none the less one which should attract many medical readers. It deals with psycho-pathological phenomena with which medical men have first-hand acquaintance, and it affords a comprehensive survey of the many problems which these phenomena present. The order of presentation of these phenomena differs considerably from that which is generally followed in the majority of textbooks. The author has preferred to place quite early in his work chapters dealing with the psychoses proper, so that the reader may later approach the study of borderland phenomena (hypnotism, suggestibility, spiritism, etc.) as so much clinical material to be studied in the light of the knowledge which he has previously gained of the psychoses. It is not clear what advantage is derived from this plan, as the outline of the psychoses given seems to afford scanty enough material for the elucidation of these other problems, but at any rate it is the method which Professor Conklin's teaching experience has convinced him to be the best.

The description of the various psychoses is necessarily brief, and might with advantage have included an account of the delirious states which are cursorily mentioned in the chapter on dreams. The problems underlying the production of illusions and hallucinations are discussed in the light of the rival "central" and "peripheral" theories of their origin. The psychological aspects of memory abnormalities are clearly portrayed. The author's presentation of psycho-analytic doctrine is singularly free from bias, and his attitude scientific and non-committal. The chapter on dreams is good, though the author's allusion to the evidence that dreams are to some extent dependent upon endocrine balance appears to be beside the mark in a psychological treatise. In the very excellent bibliographical references appended to this chapter, as to others, we should have liked to see mention made of Freud's *Introductory Lectures*, more serviceable perhaps in this respect than *The Interpretation of Dreams*.

Hysteria and the other psychoneuroses are skilfully presented. The commotional and emotional disturbances occurring in "shell shock" are fully described. In a brief chapter on multiple personality, Professor Coulin has managed to compress much information and to dispel many misconceptions. He makes essentially clear, what many writers fail to do, the distinction between a true condition of multiple personality and the many dissociated states which are often mistaken for it, and his reintegration of the views of Janet and of Freud is suggestive. Subjects discussed in other chapters are sleep and its abnormalities, the mental effect of drugs, feeble-mindedness and genius, and in a "biographical background" are briefly sketched the contributions of the leading workers in psycho-pathological problems, from Plato to Freud.

POSTURE

SIX authors have contributed to a small book on special gymnastics and other means of attaining bodily soundness.³ Among these is the well-known orthopaedic surgeon Professor FRITZ LANGE of Munich, who not only has edited it and written the introduction, but has also contributed the article on posture defects and bodily exercises.

Professor Eugen Matthias writes of the physiology of exercise and the pathology of faulty posture in a philosophical manner, stressing not only the effects of proper exercise on the bodily health but also on the mind, which is so inextricably connected with the nervous and muscular systems. Dr L. Gebhardt discusses camps of exercise for young persons and schoolchildren, such as one to which, in 1926, the Munich surgical clinic sent eighty pupils. Professor Trumpp has written the article on problems of nutrition, in which he discusses at some length questions of metabolism and diet in their relationship to health and disease. It is rather refreshing to find in such a scientifically written article "improvement of the constitution" set forth as a principal object. That shadowy entity had, we thought, long been relegated to the shades of popular hygiene.

¹ *Röntgenology The Borderlands of the Normal and Early Pathological in the Stigram*. By Alban Kohler. Translated by Dr Arthur Turnbull. B.Sc., M.D., Ch.B. Glas. London: Baillière Tindall and Cox, 1928. (10 x 7 pp. xviii + 656. 324 figures, 42s. net postage 9d.)

² *Principles of Abnormal Psychology*. By Edmund S. Conklin. Professor of Psychology, University of Oregon. London: G. Allen and Unwin Ltd., 1928. (Demy 8vo pp. vii + 457. 15s. net.)

³ *Das Menschenen Sonderheiten und andere Wege zur Körperlichen Erhaltung*. Herausgegeben von Dr. Fritz Lange. München: J. F. Lehmann, 1928. (6 1/2 x 9 pp. 106. 78 figures. 3M.4.0.)

In this country it would be difficult to write an article on faults of posture and bodily exercises without reference to the work of Goldthwait and his colleagues in the United States, where that distinguished orthopaedic surgeon has for so long advocated posture culture. In Germany Professor Lango achieves this feat with ease perhaps by ignoring the merits of Boston in this connexion he is trying to neutralize his error in 1926 when, as we noted in our review of his work on the treatment of fractures, he credited the Americans with the introduction of the Thomas splint in war surgery (*British Medical Journal*, March 6th, 1926, p. 428). But one error does not atone for another. Were it not for this, we should commend the essay, which is well illustrated. Professor Lange remarks, as English writers have done some time ago, on the exaggerated sacro-iliac angle shown in nude figures of the great age in Greece. An interesting observation of his is that in a blind asylum he was able to pick out those girls who had been blind from infancy by their deplorably bad posture. The cause which he assigns for this fault may or may not be the true one, and further investigation seems necessary.

The most practical article in the book is that by Dr Aubry on special gymnastics. This should be valuable to those in Germany who have to deal with this matter. It is freely illustrated. The last article is that on scoliosis and the forms of the thoracic cage, and contains as much on this difficult subject as can be compressed into less than eleven pages. Like most German medical works this handbook is well got up.

ELECTROCARDIOGRAPHY

WE have to announce the receipt of new editions of two books dealing with the subject of electrocardiography. That entitled *Clinical Electrocardiography* by Sir THOMAS LEWIS has now reached its fourth edition, and is so well known and so highly valued that it requires scarcely more than a notice of its appearance. There is little change from the previous edition, which appeared five years ago, with the exception of a few pages dealing with thrombosis of the coronary artery. The improvement in the paper is warranted by the greater clearness of the illustrations.

Dr HAROLD E. B. PARDEE's book on *Clinical Aspects of the Electrocardiogram*,⁵ now in its second edition, is more pictorial and covers ground not aimed at in the work just noted. The types of apparatus described make it perhaps more suited for the American reader. It contains numerous records and much valuable information.

LOW BLOOD PRESSURE

Dr HALLS DALLY has supplemented his book on *High Blood Pressure*, now in a second edition, by a companion work on *Low Blood Pressure Its Causes and Significance*⁶—a subject which, though without the same clinical appeal, deserves proper consideration and investigation as to its possible bearings in a wider direction than is to-day realized. It is therefore useful to have a full survey of the present position, such as Dr A. Friedlander's monograph on hypotension, which appeared last year. Dr Dally has gone over the literature thoroughly, and presents the opinions of other writers in a manner which will prove useful to the reader anxious to obtain this information. In addition he gives his own views, for example, that in individual with hypoplasia—a word which (dutifully following the late Sir Clifford Allbutt) he prefers to 'the truly dreadful hybrid hypotension'—is never normal, whether the condition of low arterial pressure be congenital or acquired, for in what is described as "the author's biological law of low arterial pressure" it is always to be regarded as an expression of low vitality. What level should be regarded as the limit of low blood pressure is discussed in the light of various

estimates, and the author finally concludes that the upper limit is 110 mm Hg for men and 105 mm Hg for women for the systolic pressure, and 66 and 62 mm Hg in the two sexes for the diastolic pressure. The occurrence of hypoplasia in various diseases is considered systematically, and thirty pages are devoted to the subject of treatment. Dr Dally takes an optimistic view about the influence of organotherapy, and his experience of ephedrine, the alkaloid of Ma Huang which has been extensively used in China for more than 5,000 years, is most favourable.

CIVILIAN EYE INJURIES

PROFESSOR SCHNEICHLER has written a monograph⁷ annotating his experience and observations on a large series of 2,300 eye injuries met with in civil life. The highest incidence occurred in the trades dealing with stone and building, although during the war years a greater increase of accidents in metal workers was apparent. It appears that his task has been rendered difficult by a lack of co-operation between the consultant and the medical attendant who first came into contact with the cases, but, even so, he has reached some interesting conclusions. His statistics show that the percentage of those claiming disability from injury who have previously incurred disease of the eye is high, and that stimulation of eye injuries is common. This may be so misleading to the ophthalmological examiner as to present a homonymous hemianopia. The assessment of disability should properly be determined by the ability to resume earning capacity, but in ocular injuries an unbiased judgement is difficult to form, because of the prevalence of a functional element persisting after the accident. To differentiate functional and organic consequences required much conscientious study. Intra-ocular tumours, irido-cyclitis, retinal detachment, pneumocystic keratitis, glaucoma, and cataract were frequently found in association with injury, but in 80 per cent of the cases a decision was come to that these were quite independent of the accident, while only in 20 per cent could any relationship—and that a very doubtful one—be conceded.

NOTES ON BOOKS

IN the third, and much enlarged, edition of their book entitled *Ultra Violet Radiation and Actinotherapy*⁸ Drs ELEANOR and W. KERR RUSSELL issue a timely warning against the wave of quackery in relation to actinotherapy that is sweeping the country. They emphasize the fact that it is almost as perilous for anyone to use ultra violet radiation without skilled knowledge and training as it is for a layman to prescribe and administer some virulent poison, or to endeavour to perform a surgical operation⁹, and they quote with approval the British Medical Association's Memorandum on Treatment by Radiation and Electricity, published in the *Supplement* to our issue of April 28th, 1928 (p. 149). On the other hand, when remarking that the setting up of special physical treatment institutions, where patients may be treated at a moderate charge by teams of qualified practitioners, is full of promise for the future, they might well have added a word about the risk of commercialization that attaches to such enterprises. The book on the whole is good and well written. It embodies the results of a great deal of personal experience and of wide reading.

We welcome the appearance of the first volume (Abdominal typhus Balneologie) of the new German dictionary of practical medicine,¹⁰ edited by Professors GEORG and FELIX KLEMPERER assisted by 120 collaborators whose names are well known to students of German medicine. The work embraces the whole field of medicine in the widest sense of the term, but, as the subtitle implies, it is mainly concerned with internal medicine, pediatrics, and cognate subjects. The principle articles discussed in the present volume besides the two already mentioned are abortion by Professor W. Zangemeister of Königsberg abscess by Professor Klapp of Marburg, achylia gastrica by Professor I. Boas of Berlin acidosis by Professor H. Straub

⁵ *Begutachtung von Augenverletzungen*. Von Professor Dr. Lud Schmeichler. Mit einem Begleitwort von Professor Dr. J. Müller. Berlin: S. Karger. (Sup. roy. 8vo pp. 128. 16 s.)

⁶ *Ultra Violet Radiation and Actinotherapy*. By Eleanor H. Russell M.D. B.S. and W. Kerr Russell M.D. B.S. Third edition. With a foreword by Sir Oliver Lodge. F.R.S. D.Sc. F.R.D. and Sydney Waller O.B.E. Edinburgh: E. and S. Livingstone. 1928. (Demy 8vo pp. 648. 28 s. figures 21 s. net.)

⁷ *Neue Deutsche Klinik*. Handwörterbuch der praktischen Medizin. Erster Band. Berlin und Wien: Urban und Schwarzenberg, 1928. (Sup. roy. 8vo pp. viii + 783. 143 figures. Payer, 14.33 bound, 14.49.)

¹ *Clinical Electrocardiography*. By Sir Thomas Lewis M.D. F.R.S. D.Sc. F.R.C. C.B.E. Fourth edition. London: Shaw and Son. Ltd. 1928. (Demy 8vo pp. viii + 128. 107 figures. 8. 6d. net.)

² *Clinical Aspects of the Electrocardiogram*. By Harold E. B. Pardee M.D. Second edition. Revised. London: William Heinemann (Medical Books) Ltd. 1928. (Med. 8vo pp. xviii + 242. 60 figures. 25 s. net.)

³ *Low Blood Pressure Its Causes and Significance*. By J. F. Halls Dally M.D. B.Chir Cantab. M.R.C.P. London: William Heinemann (Medical Books) Ltd. 1928. (Demy 8vo pp. xix + 257. 15 figures. 15 s. net.)

of Creifswald acne by Professor A Buschke and Dr A Joseph of Berlin, Addison's disease by Professor H Zondek of Berlin, adeuoids by Professor G Funder of Berlin, diseases of the adnexa by Professor F Kirstein of Bremen, alcoholism by Professor G Binswanger of Kreuzlingen, allergy and anaphylaxis by Professor F Hansen of Heidelberg, diseases of old age by Professor H Curschmann of Rostock, anaemia by Professors P Morawitz and Carl Seifarth of Leipzig, angina pectoris and arterio sclerosis by Professor Ernst Neisser of Stettin, apoplexy by Professor G Klemperer and E Haase, arrhythmia by Professor Winterberg of Vienna, ataxia by Professor Frenkel Heiden of Berlin, ophthalmology in general practice by W Meisner, and the autonomous nervous system by F Claser. The text is freely interspersed with illustrations, some in colour. The articles, which are of a thoroughly practical and up to date character, angur vell for the success of the work.

In a little book entitled *Rheumatic Diseases*¹⁰ Dr M B Ray has succeeded in presenting us with an admirable survey of rheumatism. Like all other authorities on the subject he finds difficulty in finding a satisfactory classification, but his insistence on the wide variety of factors responsible for all these conditions does much to explain this difficulty. No one etiological factor is explanatory of their pathogenesis, therefore no one form of treatment can be effective, and the reader is especially warned against a too slavish belief in the efficacy of the removal of a septic focus.

Among the innumerable new societies for the promotion of health there is perhaps better justification for the formation of the Health and Cleanliness Council than for many of the others. This council concerns itself with the work of propaganda for a clean population believing that good health would follow. There is much to be said for the belief. Certainly there could be no difficulty arising in the teaching of hygiene in schools if it concerned itself with cleanliness. The council, with this intent, has issued a book¹¹ containing a series of outlines for lectures to be given by teachers in the elementary schools to their pupils. It has a foreword by Dr George Buchanan, medical officer of health for Willesden, chairman of the advisory board of the council, the authors of the book are Dr W A Muir, medical officer of health for Gillingham and Mr G H Green, lecturer in education in University College, Wales. They have done their work well. Their lessons are simple, sensible, and useful. A limited number of copies of this little book will be issued, on application to the society, free of charge.

The second volume of the twenty seventh edition of the late Professor STRUPPELL's textbook of pathology and therapeutics¹² has now appeared, and includes an index to the first volume, which we reviewed on September 22nd (p 532). The value of this textbook needs little reiteration in view of the well deserved popularity it has gained in previous years. The subject matter is comprehensive and attractively set out, the illustrations are clear and useful, and there is an appendix of therapeutical prescriptions.

One of the most suitable books on bacteriology for nurses and laboratory assistants is Dr EISENBERG's *Principles of Bacteriology*¹³. This book, the fourth edition of which we have before us, gives special attention to practical questions of applied bacteriology, and contains a brief description of the chief pathogenic bacteria. Besides minor alterations we notice that the chief changes made in the present edition are a new chapter on scarlet fever with information about the Dick test, a new chapter on tularaemia, and reference to recent work on measles.

COLE'S *Practical Physiological Chemistry*¹⁴ has now reached its eighth edition. The whole work has evidently been subjected to careful revision with a view to bringing the information well up to date. This is particularly the case with regard to the carbohydrates and the blood pigments and a description of a new potentiometer has been inserted. The practical value of this book is undoubted, and the new edition can be confidently commended to the notice of teachers and students.

¹⁰ *Rheumatic Diseases*. By Matthew Burrow Ray DSO MD. Laviche Miniatures Medical Series No 3. London: Kegan Paul Trench Trubner and Co Ltd. (Post 8vo pp 91. 2s 6d net.)
¹¹ *Health and Cleanliness: A Textbook for Teachers*. By W A Muir MD, DPH, and George H Green BSc Lond PhD. London: Health and Cleanliness Council, 5 Tavistock Square W.C.1. 1928. (Demy 8vo pp vii + 63, illustrated.)

¹² *Struppell-Seifarth Lehrbuch der Speziellen Pathologie und Therapie der inneren Krankheiten*. Siebenundzwanzigste völlig neu bearbeitete Auflage von Dr med et Phil Carl Seifarth. Zweiter Band. Leipzig: F C W Vogel 1928. (6½ x 9½ pp xii + 889. 212 figures 6 plates 2s 6d.)

¹³ *Principles of Bacteriology*. By Arthur A Eisenberg AB MD. Fourth edition. London: H. Kimpton 1928. (Post 8vo pp 228. 40 figures 10s 6d net.)

¹⁴ *Practical Physiological Chemistry*. By Sydney W Cole MA. Eighth edition. Cambridge: Heffer and Sons Ltd. 1928. (Demy 8vo pp xii + 479. 66 figures 16s net.)

PREPARATIONS AND APPLIANCES

THE ROTUNDA COT

DR BETHEL SOLOMONS, Master of the Rotunda Hospital, Dublin, sends a description of a special type of bed which has been devised by the pediatrician of the hospital, Dr Brian Crichton for use in the new infant ward. The accompanying illustrations give a general idea of the construction of this cot.



FIG 1.

and in Fig 1 the dimensions are indicated. In Fig 2, while the side A and the end B are shown up, A1 and B1 are let down half way, where they are supported by two iron bars which fold under the cot. These sides and ends can be

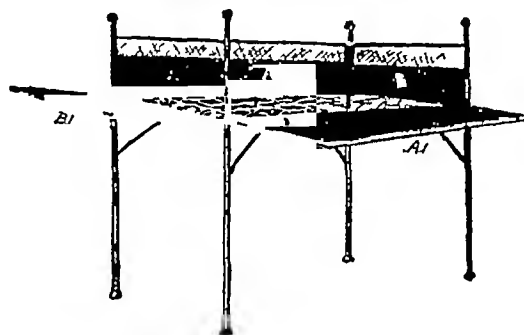


FIG 2.

lowered completely to lie parallel with the legs of the cot if required. The mattress, with an infant on it, can be drawn out on to a side or end, and an examination be made with ease. The infant need not be taken out of its cot for an examination, no stooping is involved, and no part is inaccessible for examination.

LIVER EXTRACT

The curative action of liver feeding in pernicious anaemia is one of the most remarkable advances made in therapeutics in the present century. One natural consequence of this discovery has been the production of numerous proprietary preparations of liver extract. The present situation is that methods of concentrating the active principle have been discovered but its chemical composition is unknown. The activity of liver concentrates can therefore only be estimated by prolonged clinical trials. It is consequently difficult to estimate the relative merits of the numerous extracts that are offered to the medical profession.

The latest extract we have received is termed hepatopson and it has been prepared by the Promonta Company Ltd, in collaboration with the medical clinic of Geheimrat Professor Dr Fr von Mueller of Munich. The makers claim that they have obtained a concentrate of which 1.25 grams are equal to a kilo of fresh liver. This claim represents a concentration considerably greater than that achieved by various firms of repute who have prepared such concentrations. The extract is sold in a diluted form— hepatopson liquidum—two tablespoonfuls of which are stated to be the equivalent of 200 grams of fresh liver. The makers state that hepatopson liquidum has been clinically tested in the Second Medical University Clinic, Munich (Professor von Mueller) and in the polyclinic of Professor Schottmueller in the Lippendorfer Hospital in Hamburg. Professors Schottmueller and Braun reported at the Congress of Physicians (Internists) in Wiesbaden that the preparation has shown good results as a specific treatment against pernicious anaemia.

THE STORY OF INSULIN

PROFESSOR BANTING'S CAMERON LECTURE

In the Cameron Prize Lecture, delivered at the University of Edinburgh on October 30th, Dr F G Banting of Toronto gave a most interesting account of the history of the research that culminated in the discovery of insulin.

Professor Banting said that he conceived the original idea on October 30th, 1920, after reading an article by Moses Baion which appeared in *Surgery, Gynecology and Obstetrics*, and in which the author pointed out the analogy between the degenerative changes which follow the experimental ligation of the pancreatic duct and the blockage of the duct by gall-stones. Later in the night, under the influence of ideas evoked by this article, he made the following entry in his notebook: "Ligate pancreatic ducts of dogs. Wait six to eight weeks for degeneration. Remove the residue and extract." The next step was the application to Professor J J R Macleod for permission to try these experiments in his laboratory, and for facilities for doing blood and urine sugar estimations.

Work began in May, 1921, and Dr C H Best, who was then a medical student, acted as assistant in the chemical work. The first attempts to ligature the pancreatic duct were partial failures, because the ligatures cut through the duct and the dogs had to be operated on a second time, but by July 27th degeneration of the pancreas was produced, and a saline extract of the degenerated pancreas was injected into a depancreatized dog. The blood sugar figure fell from 0.20 to 0.11 in two hours, and the clinical condition of the dog showed marked improvement. Another depancreatized dog was kept in good condition for eight days by the administration of extract from five degenerated pancreases. This, however, exhausted the available supply of "isletin," as the extract was then termed, and the dog rapidly became moribund. The idea was then conceived of exhausting the pancreas of a dog by continued injection of secretin, and then extracting the exhausted pancreas. This experiment was carried out, and the extract restored the moribund dog to a fairly normal condition. Important contributory evidence was thus obtained in favour of the main theory that the active principle was an extract of the island cells free from the products of the acinous cells.

The next task was to find an easier means of obtaining such extracts. The pancreas of foetal calves appeared to be a likely source, since these contained abundant islet tissue. It seemed reasonable to conclude that, since digestion is not called into play until after the birth of the animal, there would not be powerful digestive ferments present in the foetus. Experiment showed that extracts of foetal pancreas lowered the blood sugar of depancreatized dogs, and thus a cheap and plentiful source of isletin was discovered. It was also found that the active principle could be extracted from the foetal gland with acetone and alcohol, and that it was not destroyed by chloroform or ether. Alcoholic extracts of the pancreases of adult cattle were next made, and with various extracts a dog was kept alive for seventy days after removal of its pancreas.

On January 11th, 1922, the first patients were treated with pancreatic extract in the Toronto General Hospital. Following the injections there was a typical lowering of blood sugar and a slight decrease of the sugar in the urine. But on account of the high percentage of protein in the extracts a sterile abscess developed at the point of injection. These results were however, sufficiently encouraging to induce Professor J J R Macleod to turn a large proportion of his laboratory staff to work on the problems of the physiological activity of the pancreatic extract. Dr J B Collip developed a method of fractional precipitation by alcohol and produced a less toxic and more active extract. Finally, Dr Best took up the problems of production and refinement, and he is still in charge of the

production of insulin in the Connaught Laboratories at the University of Toronto.

Insulin was not the first name used among the group of workers. As early as August, 1921, the word "isletin" occurred in the notebooks. Professor Macleod insisted that the internal secretion of the pancreas should be called "insulin." Later it was found that Schafer of Edinburgh had suggested this name about 1910.

With a group of workers attacking various problems under Professor Macleod's directions, rapid progress was made. Quite early an attempt was made to find a test-tube reaction for determining the potency of insulin, but none was found. It therefore became necessary to develop a biological method of standardization. In the early work Collip had found that a normal rabbit given a certain dose of insulin developed in four hours a complex of symptoms characterized by intermittent convulsions and coma. The rabbit rapidly recovered when given injections of glucose, and could be used again for another test. It was therefore decided to use the rabbit in making a biological assay. The unit of insulin was defined as the amount required to reduce the blood sugar of a normal rabbit weighing 2.5 kg to 0.045 in four hours. To ensure a uniform unit of strength in the various countries the Public Health Committee of the League of Nations changed the definition as follows: The unit of insulin is one-third of the amount of material required to lower the blood sugar of a 2 kilogram rabbit which has fasted twenty-four hours, from the normal level (0.118 per cent) to 0.045 per cent over a period of five hours.

In May, 1922, in association with Dr Joe Gilchrist, a clinic was established in connexion with the Soldiers' Civil Re-establishment at Christie Street Hospital. A few months later clinics were established at the Toronto General Hospital and the Hospital for Sick Children. A number of private patients also presented themselves for treatment. The clinical value of insulin was now fully established, and the chief problem was to surmount the many and varied difficulties met with when large-scale production was attempted.

These clinical results were the outcome of years of patient, quiet effort of numerous workers in many fields of science. Insulin was but the final stage. It was known from the work of von Mering and Minkowski that diabetes was definitely associated with the pancreas, that if the pancreas was removed from a dog it became diabetic. It was also known from the work of Ssobolew that animals did not become diabetic when the acinous tissue had degenerated. The weight of evidence pointed to the existence of an internal secretion of the islet cells. A vast amount of scientific knowledge had accumulated on the subject of carbohydrate metabolism. Estimations of sugar in small quantities of blood and urine could be accurately made. Ketone bodies could be accurately estimated. Dietetic treatment for diabetes was highly developed. The world still owes a great deal to the diabetic patient for the development of dietetic knowledge which can now be applied to other diseases. The Toronto group of workers considered themselves fortunate in being able to add something of practical importance to the long series of previous investigations into carbohydrate metabolism.

The lecturer concluded with the following advice to the four or five hundred medical students who had listened to his story. The question may arise in the mind of someone present, what may I do? Do not enter upon research unless you cannot help it. Ask yourself the why of every statement that is made and think out your own answer. If, through your thoughtful work, you get a worthwhile idea it will get you. The force of the conviction will compel you to forsake all and seek the relief of your mind in research work. You can prepare yourself for work. The paintings of the great masters, the compositions of great musicians, the sermons of great preachers, the policies of great statesmen, and the campaigns of great generals do not spring full bloom from barren rock. Your training here is but a preliminary step in preparation for your life work. Mackenzie practised thirty years before he wrote his book on the heart. Training is required. As Osler says, "Live in a day's tight compartment, doing each

day's work well." If you are a true student you will be more dissatisfied with yourself when you graduate than you are now. It is not within the power of the properly constructed human mind to be satisfied. Progress would cease if this were the case. The greatest joy in life is to accomplish. It is the getting, not the having. It is the giving, not the keeping.

I am a firm believer in the theory that you can do or be anything that you wish in this world, within reason, if you are prepared to make the sacrifices, think and work hard enough, and long enough.

There is no chance, no destiny, no fate,
Can circumvent, can hinder or control
The firm resolve of a determined soul.
Gifts count as nothing. Will alone is great.
All things give way before it soon or late.

CONFERENCE ON "LIGHT AND HEAT IN MEDICINE"

A CONFERENCE on 'light and heat in medicine, surgery, and public health' was held in the buildings of the University of London at South Kensington from October 29th to November 1st. It took the form of twice daily sessions, at each of which a couple of papers on some application of the subject were read, and, when time permitted, discussed.

A few Continental visitors attended and added to the value of the programme. Dr FRANZ NAGELSCHUDD of Berlin gave two demonstrations. The first was a new method of diathermy application in which the electrode consisted of a thick layer of rubber so that the patient was not in contact with metal, and the danger of burning was practically eliminated. An advantage of the method was that treatment could be prolonged over a considerable period. The other demonstration was a method of applying external heat to the body by what he called 'foam treatment'. By adding a saponine solution to water of any desired temperature he was able to produce an air foam consisting of fine bubbles, and at a temperature depending upon that of the water from which it emanated. This foam he said, was of value in nasal irrigation, and also in treating vaginal discharge.

Dr W FLAEMER, chief assistant to Professor Wintz at the gynaecological clinic at Erlangen, discussed the use of light and heat in gynaecological practice. In most cases of vaginal disease this therapy had proved of great value, though only in combination with the conservative remedies. It had not proved satisfactory in uterine inflammation due to growth, but, combined with careful massage, it had achieved success in cases of enlarged or congested uterus resulting from certain misplacements. Light and heat had also proved efficacious in the treatment of amenorrhoea and dysmenorrhoea though only when there was general as well as local treatment and constant medical supervision.

Another foreign visitor Dr A J CEMACH of Vienna, discussed the uses of ultra violet radiation in oto-rhino-laryngology. As long ago as 1919 he had shown that middle-ear tuberculosis could definitely be influenced by light. Later he had developed a method of local irradiation of laryngeal tuberculosis from a quartz lamp. He now used quartz lamp irradiation exclusively where phototherapeutic treatment was indicated. Laryngeal tuberculosis was by far the most important of the processes accessible to light treatment, and he found that the desired reaction was most simply and rapidly produced by direct quartz lamp irradiation of the larynx.

A candid and philosophic survey of actinotherapy in certain skin affections was given by Dr W J O'DONOVAN. He said that one of the striking things in the history of light treatment had been the widespread recommendation of its use in eczema, in startling contrast to the scanty references to that disease in standard dermatological textbooks. The explanation of this, and possibly of similar circumstances, was that men who had taken up light therapy, though probably up to date in physics and in one or two branches of medicine, may not have acquired the precise dermatological nomenclature when they left medical schools before the great war. Cures of acne rosacea by means of ultra violet radiation had been reported, but such cases were recognized by the dermatologists to be most intractable. Very little reference to alopecia areata could be found in major textbooks on skin diseases, here, again, the value of local light therapy was much stressed. Apart from those cured by suggestion therapy, there would remain a large number suffering

from alopecia areata who would need ultra violet therapy to the whole body because of its tonic effect, rather than as a substitute for rubefacient liniment to a bald and otherwise healthy arc of the scalp.

Mr T TALBOT spoke on actinotherapy in dental caries, arguing that the determining factor in the arrest of caries was something additional to vitamin, and that there was evidence that this factor was produced by the action of ultra violet radiation on the skin. He had been impressed by the improved appearance of the teeth in some children who had been regularly exposed to a carbon arc lamp in a convalescent home.

Sir HENRY GAUVAIN exhibited a most entertaining cinematograph film, illustrating not only the general routine at the Sir William Treloar Home at Alton and Hayling Island, but also the technique pursued in the artificial light department, the preparation of the patient for local treatment, and so forth, but he insisted that light was only part of the treatment of surgical tuberculosis. With regard to particular methods he expressed himself a great believer in the value of the plain carbon arc.

The treatment of chronic pulmonary tuberculosis by light was broached by Dr M. WEINBERG of Mount Vernon Hospital. He said that good results were claimed for light in every other manifestation of tuberculosis, but in pulmonary it was said to be contraindicated. Numerous authorities, however—though few in England—had reported excellent results in the pulmonary condition. Amongst the thousands of cases of surgical tuberculosis already treated there must be many with quiescent pulmonary lesions, and if these had become active under light treatment it would surely have been noted. He agreed as to the unwisdom of applying light treatment where there was a marked toxæmia, but this would contraindicate ultra violet radiation in any condition. He exhibited a table showing the results of treatment on a number of patients with chronic disease by means of gradually increasing exposures to a 30 ampere carbon arc. Of the group of inpatients treated 25 had been sputum positive, 9 of these became sputum negative, and there was a gain in weight in all but a few. The outpatients were of a very poor and unfortunate class but 3 out of 14 who were sputum positive became sputum negative, and a number put on weight, while not one of the 24 who were sputum negative at the beginning became sputum positive under treatment.

Other speakers were Dr KERR RUSSELL and Dr C B HEALD, who both spoke on the development of apparatus, the one for actinotherapy and the other for electrotherapy, and there were a number of papers on photo-sensitization and on the biochemical aspects of the subject. The exhibition, which was opened by Sir JOHN SNELL, with Dr F E FREEMANTLE, M.P. in the chair, illustrated the great variety of lamp models and outfits now on the market and included some interesting demonstrations, such as the detection of ringworm infection by filtered ultra violet rays, an apparatus for the irradiation of milk to promote its vitamin D content, the influence of a quartz mercury vapour lamp on plants and the organization of the Bermondsey municipal solarium.

DANGEROUS DRUGS ACTS

THE Home Secretary, in a circular issued on November 2nd, gives notice that, under the Rules Publication Act 1893 he proposes, after the expiration of forty days, to make Regulations under Section 7 of the Dangerous Drugs Act, 1920 (10 and 11 Geo 5, cap 46), controlling the manufacture, sale, possession and distribution of the drugs to which Part III of that Act applies.

The principal objects of the Regulations are (1) To consolidate into one code the provisions of the seven separate acts of Regulations at present in force (2) To apply the provisions of the existing Regulations to the drugs and preparations which have recently been brought under Part III of the Act of 1920—namely, extract and tincture of Indian hemp, dihydrocodemone, dihydrocodeine, and preparations containing them, and preparations containing less than 1/10 per cent of diacetylmorphine.

Provision is also made for the constitution of a tribunal (similar to that which has already been constituted for medical practitioners in accordance with the recommendations of the Departmental Committee on morphine and heroin addition) to which the Secretary of State may refer any case where there is reason to think that a dentist may be contravening the provisions of the Regulations with respect to the supply, administration or prescribing of dangerous drugs.

Draft copies of these Regulations may be obtained on application to the Under Secretary of State, Home Office, Whitehall London S.W.1.

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SATURDAY, NOVEMBER 10TH, 1928.

HEALTH ADMINISTRATION AND POOR LAW REFORM

THE last session of the present Parliament has just opened, and its chief business will be to consider the proposals of the Government for the redistribution of the functions of local authorities, especially those concerned with highways, health, and Poor Law administration, and for financial grants and adjustments connected therewith. The financial way was prepared in this year's budget, and every part of the Government scheme, which is intended to be taken as a whole, has its importance, but the attention of the medical profession, as such, will naturally be concentrated on those proposals which affect the health services and hospital administration. These proposals are of vital importance, and upon the way in which they are moulded and carried into effect will depend, in large degree, the whole future of public health services of institutional provision for the sick, and of many medical professional interests and developments. Too much care, therefore, cannot be given to their consideration.

The exact form of the Government bill is not known at the moment of writing, but there is material from which its main features may be gathered and stated with some confidence. In the *Journal* of July 7th last (p. 23) we commented on the Parliamentary Paper in which the Government's proposals for Poor Law and other local government reforms were submitted in outline for the observations of local authorities and others. The medical aspects of these proposed changes were expounded afresh in an article on October 27th (p. 765). Correspondence between the Ministry of Health and the special committee of the British Medical Association which was set up to deal with this matter has shed further light on some of these. In addition the Royal Commission on Local Government has just issued a second report dealing with five special points on which its opinion was asked by the Ministry of Health, and it is significant that on all these points the Royal Commission was able to agree, apparently unanimously, with the suggestions which had been made by the Ministry. A summary of this report was given in last week's *Journal* (p. 800), and it is to be expected that the proposals therein contained with regard to the reorganization of areas, the extension of the local area for charge of certain services, the stimulation of unwilling or defaulting authorities, accelerated progress towards whole time appointments of medical officers of health, and the distribution of certain functions between local authorities, will all be incorporated in the Government bill. On all these matters, especially the last two, memorandums were presented to the Royal Commission by the British Medical Association. One such memorandum was published in the Supplement of May 1st, 1926 (p. 172), and another in that of September 29th last (p. 142). Upon the facts, statements, and proposals made in these two documents the policy of the Association is based.

At the present stage the important things are that the medical profession should properly appreciate the position and be fully informed as to the proposed

changes, and that it should concentrate on a few points in which modification is essential if grave danger to the health services and to the efficiency of hospitals is to be avoided. It is proposed that the Poor Law guardians shall be abolished, and that the whole of their functions—assistance, educational, health (including, of course, the control of hospitals and other institutions)—shall be transferred to the councils of counties and of county boroughs. It is proposed that each such council shall, between the passage of the Act and April 1st, 1930, submit to the Minister of Health for his approval a scheme in accordance with which it proposes to arrange for the administration of the transferred functions. It is proposed to establish a system of Government grants on a new basis, so that efficiency of administration under these schemes shall be encouraged or secured. There are thus three stages—the legislative stage, the scheme stage, and the grant stage—in which it may be possible for the medical profession to advise or to press the Government, the local authorities, or both, in order to secure its objects. At first sight the complete liberty of county councils or county borough councils as to the character of the administrative schemes which they may propose for approval is attractive. But unless certain compulsory features are imposed by legislation there is an obvious danger that many of these schemes may be inefficient in practice. It should be made compulsory for the council to distribute the transferred functions to suitable committees, and not to be content to set up merely another committee to which all these functions are to go *en bloc*. It should be made compulsory for a county council in whose area there are boroughs or urban districts of suitable size and experience to delegate to the councils of such county districts all functions similar to those which these districts are already concerned in administering, if such functions cannot be transferred directly to such districts. These two points are not primarily medical in character, though the profession is seriously concerned with them, inasmuch as experience shows that only in this way can effective health services be carried on without much waste and overlapping.

Of more immediate medical concern are two other points. It ought to be made compulsory that the transferred health and hospital functions should be dealt with through a statutory committee established on the lines of the existing education committees—that is, in accordance with an approved scheme providing that such committee should contain not merely a majority of members of the parent council, but also other persons experienced in the work required, including members of the medical profession. There might be separate health and hospital committees, or a hospital subcommittee of the health committee, or a separate responsible governing body for each hospital, but in all cases the compulsory co-optation of experienced persons is essential. Without it there will almost certainly be in most cases either inefficient administration through lack of experience or bureaucratic administration through necessary reliance on the sole advice of medical and other officials. There should be compulsory established also in each area a statutory local medical advisory committee, which the council should be obliged to consult on all medical professional matters, and whose opinion should be available on all other health or hospital matters coming within the province of the council. All these points can best be secured by legislation. In order to secure them it is evident that considerable pressure will have to be brought to bear upon the Minister of Health and

on members of Parliament, for the method of permission and not of compulsion is obviously the easier for the legislator, and may be advocated with much plausibility. If legislation should fail it may still be possible to achieve much by inducing councils of local authorities to embody these features in their schemes, or by pressing the Minister not to sanction schemes which do not include them. It remains, however, the first duty of our profession, in the interests of the public health and of satisfactory hospital control and co-ordination, to use its utmost endeavour to secure these essentials of efficiency during the legislative stage.

THE AGE OF NOISE

Will noise destroy our civilization or will our civilization destroy noise? We are living in an age of noise, but of noise that has worked itself into the texture of life so insidiously that many people are still unaware that any change has taken place at all. It is a curious fact about human beings in the mass that they are seldom aware of doom until it has overtaken them. They are blind to the writing on the wall. They do not even hear the blast of trumpets and the shouting, they only gather themselves up a little surprised when the walls have unaccountably tumbled about them. There appears, indeed, to be no limit to man's capacity for adapting himself to noxious influences once he regards them as inevitable. If he is not deafened by the increasing noise in our society he can shut his ears to it. Some people, indeed, make a pleasure of necessity, and cry out for more and bigger noises. In the stillness of the evening, if such an anachronistic term may be permitted, they switch on the "loud speaker" or grind noisy tunes from the gramophone. They have even evolved jazz a cacophony generally regarded as symptomatic of the age we live in. It is as though the stresses of life were so unendurable that they must make a great noise to keep their spirits up. Children, it is believed, like to bang a drum, not because they are so misguided as to enjoy the sound of it, but because it is an activity that ministers to their self importance. It enables them to produce a tremendous effect without much effort. They discover for themselves that noise is a symbol of power—a fact expressed admirably in the popular term describing an important person as 'the big noise'. It is permissible to speculate whether it is a sense of frustrated power, a teasing inferiority complex, that drives the motorist to substitute the klaxon horn for the drum, whether, indeed, the pandemonium of whistles and hand rattles, fireworks and bugles, apparently indispensable to the happiness of great masses of people making holiday together, may not be equally symptomatic of regression to an infantile state.

In one of his Utopian romances Mr H. G. Wells suggests that a commonly overlooked cause of man's inefficiency lies in the fact that much of his energy is used up in an incessant war on bacterial invaders. In our delight at his frequent victories we are apt to overlook the price he must pay for them. We forget that throughout his life he is forced, albeit unconsciously, to divert to the task of creating antibodies and other bacterial principles a great deal of physiological energy that, in the absence of bacteria, could be more profitably devoted to creative ends. Needless to say, in Mr Wells's Utopia the problem is solved by the simple expedient of abolishing pathogenic bacteria altogether. A somewhat similar suggestion, but about man's war against noise, is made in a document that no one would seriously describe as Utopian,

we refer to the British Medical Association's Memorandum on Noise submitted on October 23rd to the Ministry of Health, and published in the *Supplement* to our present issue at page 209. This most readable memorandum suggests that too much may be made of the fact that workers engaged in industries in which work has to be done to the accompaniment of the noise of machinery appear to enjoy good health. It argues that the employment of energy for inhibiting nerve-racking noises must involve an inevitable loss of personal and industrial efficiency. Adaptation to noxious influences may occur smoothly and unconsciously, but this must not be taken to imply that it is achieved without effort, the individual may, in fact, be as unaware of the habitual strain as he is of the habitually inhibited stimulus. Workers in noisy industries acquire a capacity for hearing even the faintest whisper through the din that surrounds them. This is a very pretty talent, but it cannot be said to compensate completely for the price that must be paid to develop it. The prevention or reduction of noise in commercial work is, as Professor Spooner has said, a paying proposition. Noise is one of the heaviest overhead costs in industry.

The multitudinous sounds of the big city differ, however, in many respects from the industrial noises just considered. The latter are usually continuous and uniform, they do not, like a lorry in the night, burst in with the suddenness of an explosion, and the worker can brace himself to meet them. The former, on the contrary, are discontinuous, discordant, and un-rhythmic, various in quality, pitch, and intensity, above all, they are sudden and aggressive. The investigations of Dr J. B. Watson have shown sudden noise to be one of the two stimuli capable of provoking fear reactions in a child whose reflexes are as yet unconditioned. Most of us, from personal experience, know that this quality is retained throughout life. The frequent stimulation of this primitive reflex in a healthy person not engaged in an exacting occupation may produce nothing more serious than distraction and annoyance—perhaps a deep felt desire to do physical violence to the author of the noise in question. But in the sick and convalescent, in the man or woman trying to rest and sleep after the day's work, in the professional worker grappling with vital and intricate problems, and finally in the neurotic subject, it is bound to produce effects which no one concerned with the health, happiness, and efficiency of the people can afford to ignore. One may even concede Dr Millais Culpin's point that noise is never a direct cause of neurasthenia. Perhaps the symptom complex of fatigue, hyperacousis, irritability, and anxiety, so often observed in the worker deprived of regular sufficient sleep by aggressive noises at night, is not really neurasthenia at all, but a different disease of the same name. There can, however, be no doubt that noise does exacerbate, even if it does not produce, the difficulties of the neurasthenic subject (using the word strictly in Dr Culpin's sense). It tends to augment his anxieties and complicate his already too exacting problems of personal adjustment.

'It is a revolution, not a mere change of fashion, through which we are passing'. Unless something is done quickly to check the growing volume of sound that assaults our ears we may find ourselves deprived more and more of that capacity for sustained work, for clear thinking, and energetic action which is the mainstay of civilized life. Much can be achieved by personal restraint and mutual consideration—it is a curious fact that our neighbours' noises are louder than our own—much by measures on the lines pro-

posed in the British Medical Association's memorandum. These proposals, it may be conceded, are extremely modest in scope, and should be taken to represent the bare minimum of what is needed to deal with the problem. The most vital among them—namely, the first and second—deal with the association between noise and speed, and in this connexion we may repeat what we said in a leading article in our issue of August 25th, that "unless speed on the roads can be effectively regulated—and all attempts to do so have hitherto notoriously failed—noise will continue." Attention may also be drawn to Professor Spooner's additional suggestions that horns or hooters should be standardized as to pitch, and that a low melodious note should be adopted, that worn ram shackle vehicles should be warned off the streets by the authorities, and that the designers of machinery should pay more attention to the balancing of rotating parts, particularly high speed ones, and to the mounting of certain machinery on anti-vibration supports in order to minimize the noise incidental to its operation. At present most of us would give almost anything for a quiet life.

FAT-SOLUBLE VITAMINS

THE discovery that the antirachitic vitamin can be produced artificially by the irradiation of ergosterol has led, as is only natural, to its production on a commercial scale, and a considerable number of proprietary preparations of irradiated ergosterol are now on the market. This development has resulted in certain problems assuming considerable practical importance. It is important to know, in the first place, whether irradiated ergosterol is a full substitute for cod liver oil, and, in the second place, whether excess of ergosterol is likely to produce harm. Irradiated ergosterol is the antirachitic vitamin in a very pure form, but cod liver oil contains both this vitamin and also vitamin A, which hitherto has been termed the growth promoting vitamin. Recent investigations by Green and Mellanby¹ in this country, and by Sherman and Burtis² in America, have established with fair certainty that an adequate supply of vitamin A is of great importance, because it is an essential for the maintenance of the power of the body to resist infection.

Green and Mellanby (as described by them in our columns three weeks ago) found with rats that deprivation of vitamin A resulted, in practically all cases, in a variety of infective and pyogenic lesions. Administration of vitamin D alone did not prevent the appearance of these lesions, but they were prevented by the administration of vitamin A. The authors therefore suggested that vitamin A might suitably be termed the anti-infectious vitamin. Sherman and Burtis found that a mild deficiency in vitamin A, no greater than might easily occur in a human dietary, was sufficient to cause a great increase in the incidence of infection in rats. These experiments show that vitamin A is a very important constituent of the dietary, and appear to justify the conclusion that irradiated ergosterol alone cannot be regarded as a full substitute for substances such as cod liver oil, which contain both vitamin A and vitamin D.

It has been pointed out that certain German workers have obtained results which indicate that

the power of the body to resist infection is influenced by the supply of vitamin D. This would accord with the well recognized fact that rickety animals and children are very susceptible to infections. These results do not, however, invalidate Mellanby's conclusion that deprivation of vitamin A causes septic infections of the upper air passages, lungs, and kidneys, and that these infections cannot be prevented by administration of vitamin D alone. Even if the matter were more doubtful it would obviously be wiser to keep on the safe side and to administer vitamins A and D combined rather than either of these alone.

The possibility that vitamin D may produce toxic effects is of considerable practical importance because it can be obtained in an almost pure condition, and the physiological daily dose for a human being is only a fraction of a milligram, hence overdosage can easily be produced. Kreitmair and Moll³ and Pfannenstiel⁴ found that excess of vitamin D produced severe toxic effects in laboratory animals. Dixon and Hoyle (whose paper appears in our present issue at page 832) failed to confirm this result. Harris and Moore⁵ found that a huge excess of irradiated ergosterol (one hundred thousand times the physiological dose) always killed rats, but that a moderate excess had no toxic action. They also quote the result of Hess and Lewis, who gave rickety children 2.5 to 5 mg irradiated ergosterol daily. This large dose did not produce toxic effects, but, on the contrary, the children benefited greatly.

The evidence shows, therefore, that irradiated ergosterol only produces toxic effects when given in enormous excess, and it may be concluded that poisoning by this substance is not a probable danger in clinical practice.

DAWSON WILLIAMS MEMORIAL PRIZE.

At the general meeting of subscribers to the Dawson Williams Memorial Fund, held on July 10th last under the chairmanship of Sir Humphry Rolleston, and reported in our issue of July 14th (p. 65), it was resolved that the sum subscribed to this memorial to our late Editor should be devoted to a prize in pediatrics, to be awarded every two years or at longer intervals at the discretion of the trustees, and that the scope of the prize and the details of its adjudication should be left also to their discretion, with the assistance of such other persons as they might wish to consult. The following were invited to act, *ex officio*, as trustees, and have agreed to serve: The Presidents (for the time being) of the Royal College of Physicians of London, the Royal College of Surgeons of England, the British Medical Association, the Royal Society of Medicine, the Section for the Study of Disease in Children of the Royal Society of Medicine, and the Editor of the *British Medical Journal*. The Medical Secretary of the British Medical Association, at the request of the subscribers, consented to act as convener and secretary of the trusteeship. The first meeting of the trustees was held at the House of the British Medical Association on October 19th, with Sir John Rose Bradford, F.R.C.P., in the chair. It was decided to ask the Charity Commissioners to accept for investment the sum of £849 now in hand, to receive all interest accruing therefrom, and to pay this over to the trust account at the bank for the purposes of the Fund. In pursuance of the resolutions of the meeting on July 10th, it was resolved that the Dawson Williams Memorial Prize should take the form of an award for the best work done in pediatrics during the five years

¹ H. N. Green and E. Mellanby. *British Medical Journal* October 20th 1928 691.

² Sherman and Burtis. *Proc. Society of Exper. Biol. and Med.* 1928 25 649.

³ Kreitmair and Moll. *Munch. med. Woch.* 1928 15 637.

⁴ Pfannenstiel. *Ibid.* 1928 26 1113.

⁵ Harris and Moore. *Lancet* 1928 ii 832.

immediately preceding the date of the award that any registered medical practitioner in the British Empire should be eligible for the award, and that the first award, to be made by the trustees in July, 1930, should consist of a cheque for fifty guineas

PROBLEMS OF LARYNGOLOGY AND RHINOLOGY

IN his presidential address on November 2nd to the Section of Laryngology of the Royal Society of Medicine Mr Bell Tawse touched upon "Some unsolved problems of rhinolaryngology." While some of the older problems, particularly those relating to malignant disease of the upper air passages and the oesophagus, still remain unsolved or unsettled, new problems have arisen out of modern surgical treatment. Among the latter perhaps the one most urgently requiring attention is the prevention and arrest of excessive haemorrhage following the complete enucleation of the tonsils. The president, observing "reports of this complication are very rare," pertinently asked "If it is an uncommon incident, why is there such a persistent effort to find a guillotine that will do the work bloodlessly?" Further, "If the loss of blood is negligible, why should there be such a variety of pressure clamps on the market?" It is common knowledge that a child is more seriously affected by haemorrhage than an adult, it is also common knowledge that a very large majority of the children never give any anxiety from bleeding, but, as the president remarked, "What about the others?" Association with a school medical service had opened his eyes to the serious effect on a child of undue loss of blood. In a series of 900 cases of enucleation of the tonsils by a blunt-bladed guillotine and the removal of adenoids under ethyl chloride anaesthesia, 18 cases—that is to say, 2 per cent—required the application of pressure clamps and ligature of vessels. The quantity of blood lost varied from 20 to 40 oz., and allowing for further loss in various ways and during the operation it was probably a good deal more. In 2 per cent of this same series haemostatics appeared to have obviated the necessity for operative intervention. In another series of 764 cases the percentages were very much the same. Nearly all these children had a protracted convalescence, and in the worst cases several months elapsed before complete recovery. Opinions are sharply divided on the point whether haemorrhage is more likely to occur after enucleation of the tonsil by dissection or after enucleation by the guillotine. The president expressed his opinion without any doubt that there is much less bleeding when the method employed is enucleation by dissection with ligature of the chief vessels. Unfortunately, on the one hand, there are not enough trained dissectors in the country, nor a sufficient number of skilled anaesthetists to deal with the huge lists of hospital cases, and, on the other hand, the bloodless guillotine has not yet been discovered, so this problem is still awaiting solution. Passing to malignant disease, Mr Bell Tawse submitted for inquiry the unsolved problem of how to determine when a case of intrinsic epithelioma of the larynx should be treated by thyrotomy or laryngectomy and appealed to those with leanings towards pathology to separate into definite clinical types the various degrees of malignancy, so that it might be possible to have reliable evidence that thyrotomy is just permissible in one case, risky in a second, and useless in a third. If ever there was a problem, he said, worthy of a man's life-work it was cancer of the oesophagus. The very thought of the locality immediately produced a feeling of surgical impotence. Radium and intensive x rays were said to palliate. A very few patients had survived transthoracic excision, and by that method a few cures had been claimed in foreign countries. Speaking for himself, he had never seen a cure of malignant disease of the oesophagus. The address concluded with some comments, perhaps long overdue, on the so-called status lymphaticus. Why does the coroner's

verdict of death from status lymphaticus evoke sympathy from all, and dubiety from some? The case is frequently one of tonsils and adenoids, and we are told there is no known means of detecting the condition during life, and that the patient would have died during any other operation, meaning, presumably, that the anaesthetic is the cause of death. Mr Bell Tawse asked three questions. *Would the patient have died?* Is there any pathological lesion to be detected during life? How are we trying to solve the mystery if there is one? Some few months ago, under ether and chloroform, he performed tracheotomy on a boy of 5 whose tonsils and adenoids he had removed five weeks previously under ethyl chloride. The thymus completely hid the cricoid and trachea, and had to be forcibly retracted. *Post-mortem* examination three weeks later revealed an enormous thymus continuous with a mass of similar tissue, and enveloping the trachea, the bronchi, the roots of the lungs, and the heart, and yet this child was not upset in any way by either anaesthetic.

INTERNATIONAL CONTROL OF THE DRUG TRAFFIC

IN describing the activities of the League of Nations Assembly at its last meeting in September, our correspondent at Geneva, in the *Journal* of September 28th (p. 578), referred to the increased attention given to the traffic in opium and other dangerous drugs by that body, and mentioned that the League Advisory Committee on Traffic in Opium would, at its next session, examine a scheme for the limitation of the manufacture of drugs transmitted from the United States Government. We have now received from the Anti Opium Information Bureau (a non-official organization) a memorandum giving details of these proposals, which are described as a "scheme of stipulated supply." The memorandum states that the present problem arises mainly from the over-manufacture of opium derivatives and cocaine, and only in a much lesser degree from the smoking or eating of opium. Further, it is alleged that, while manufacturing countries pledged themselves to limit output in 1912 and 1925, none has apparently enforced any system for direct limitation, and that the drugs continue to be produced in quantities greatly in excess of the world's legitimate requirements. It is recalled that the Advisory Committee has repeatedly taken the view that the only method by which this traffic can be brought to an end is by a limitation of the manufacture and by stricter international control, and Sir John Jordan is quoted as saying "The Governments should stop the excessive production, which they could do perfectly well if they were honest and efficient." In the meanwhile, it is said, manufacturing countries plead the absence of any known equitable scheme for apportioning among them the world's legitimate medical and scientific requirements. The scheme outlined essays to supply this deficiency. In the introduction to the scheme an estimate is referred to which states that "at least ten, perhaps fifty, possibly hundreds of times the world's legitimate need for these narcotics is being poured out of the drug factories," and it is added that the drugs are all produced in about forty factories, located in eight countries. Seven of the forty factories, the memorandum states, virtually all of whose products reach legitimate destinations are in the United States, Great Britain, and India, the remainder are in Germany, Switzerland, France, Holland and Japan, and from them the illicit trade is almost exclusively supplied. The problem, therefore, is stated to be to co-ordinate the export trade of the producing countries with the requirements of the non-manufacturing countries. Figures are already available giving a reasonably accurate estimate of the world's per capita requirements of manufactured drugs, and the scheme assumes that, while conditions vary considerably from one country to another,

these are adequate to reveal any glaring discrepancy between legitimate requirements and an over-statement by any country. It is claimed that the scheme would impose only two new commitments on countries adhering to it. These are (a) the modification in advance, for a determined period, of their requirements of each substance derived from opium and the coca leaf now or in the future covered by either the Hague Convention or the Geneva Convention, and (b) a statement of the country from which they will purchase their requirements. The information so gained should disclose the volume of the legitimate trade of each country manufacturing or re-exporting narcotic drugs. This, it is contended, would overcome the weakness of the present system, under which every manufacturer is free to compete for the trade of all the world's non-manufacturing countries. The scheme, it is maintained, conforms juridically with both Conventions, as, while securing the essential collective action, it does not require countries to commit themselves specifically to more than the present individual action. In meeting the possible criticism that this scheme does not prevent over-production in manufacturing countries, it is assumed that the Governments concerned are above the suspicion of conniving at such over-production, and that they would probably take steps to ensure the restriction of raw material imports to the amounts necessary for known legitimate requirements only. It is suggested that economic pressure might be brought to bear on any country outside the scheme in which a "pirate" factory was established. The memorandum concludes that a new conference is required to secure the execution of the scheme, and that the members should be persons distinguished for their ability to apply to the practical task in hand "the utmost intelligence, common sense, and business sagacity," and who "are not restrained by the political considerations of the country which they represent that have heretofore prevented them mutually from exposing each other's full and notorious guilt." The desire of the authors of the memorandum is to see the drug problem removed from the political sphere of diplomatic bargaining, and treated as a supra national question. It may be noted that the new Spanish law on narcotic drugs embodies the same principle as this "scheme of limitation", the Spanish Government presumably intends to make known its requirements and to indicate the source from which it will obtain its supplies. The Anti-Opium Information Bureau points out that in the *British Medical Journal* of September 29th, in the article to which we referred above, it was mentioned that "no exports of opium from India would be allowed after 1934," and states that this refers only to exports destined for the manufacture of opium prepared for smoking. It is added that as an offset to the reduction of exports for this purpose there should be taken into consideration the fact that exports for medical purposes (shipped to the High Commissioner for India in London) are considerable, and that as a result of special efforts the morphine content of the opium being produced in India is increasing.

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comments by Mr Ivor Back. He remarked on the curious spell which the very name of Harley Street appeared to exercise over playwrights and audiences. Harley Street always seemed to be the only medical thoroughfare worth mentioning. It would be useless to protest that physicians and surgeons had successful practices in Brook Street or Park Crescent, still less in places like Liverpool or Leeds, it must be Harley Street or nothing. The stage Harley Street was immensely long. In the directory it was given only 145 houses, but on the stage the houses went up to a thousand, in a recent play the surgeon lived at 'No. 915.' Moreover, the tenants of Harley Street were nearly all baronets and nearly all surgeons. In the mind of the dramatist Harley Street meant a surgeon's consulting practice and a baronetcy. Why only surgeons? Because the public still thought of surgeons as queer romantic creatures who spent the greater part of their days doing operations of extraordinary gravity, where the deviation of a hair's breadth would inevitably cause the death of the patient. The stage surgeon also had certain characteristics which Mr Back at least had always associated with the physician. He carried a stethoscope and listened to chests, talked a great deal, and administered poisons. In one London theatre at the present moment a play was running in which the surgeon administered poison to his son, doing it in the rather furtive manner in which one would give half a crown to a ducal butler. The stage surgeon, Mr Back continued, was always well dressed but out of fashion. Either he wore a frock coat, or else a cut-away 'morning coat,' when in fact Harley Street had adopted the short black coat and striped trousers of Throgmorton Avenue. The stage version of surgical procedure, too, would hardly be tolerated in real life. Mr Back had seen, on the stage, a thorough examination of the patient take place in the presence of eleven people, including two servants. As for the general practitioner on the stage, he was represented generally as "full of beans, bunkum, and benevolence" occasionally as a buffoon—entering, saying, "Ah, what have we here? A case of double pneumonia!"—or sometimes as a venal scoundrel, in the pay of the villain, administering chloroform to the victims with a handkerchief, and securing, within two seconds, profound anaesthesia with muscular relaxation. Mr Back suggested that in any play of medical interest it might be well to invoke the aid of a medical man to ensure that there were no inconsistencies. This was once done by Sir Henry Irving, who secured the help of two of the most eminent medical men of the time, one a physician and the other a surgeon.

PROGRESS IN BRITISH RADIOLOGY

A YEAR ago the incorporation of the Röntgen Society with the British Institute of Radiology was successfully accomplished, and, commenting on this on October 15th, 1927 (p. 687), we expressed the belief that important contributions to science and practice would follow the happy event. It has been decided by the combined societies to inaugurate the opening of the new session by holding special meetings in London from November 14th to 17th. The proceedings will begin with the delivery by Professor Bragg of the Mackenzie Davidson Memorial Lecture in the Baines Hall of the Royal Society of Medicine on Wednesday, November 14th, at 8.15 p.m. Professor Bragg has taken for his subject x-ray optics, and will illustrate the lecture by experiments. At 10.30 on the following morning an exhibition of x-ray apparatus will be opened at the Central Hall, Westminster, and in the afternoon at 2.30 Mr G. W. C. Kaye, D.Sc., will deliver his presidential address on mediæval and modern radiology, this meeting, in common with the others to be mentioned, will be held at

the Central Hall. At 5 p.m. on the same day the Sirvanus Thompson Memorial Lecture will be given by Mr Sampson Handley, who will deal with radiology from the surgeon's standpoint. At 10 on Friday morning a discussion on the value of the opaque meal in diagnosis will be opened by Sir Thomas Horder, Mr A. J. Walton, and Dr A. E. Barclay, the discussion will be continued in the afternoon. Two other papers will also be read during Friday morning—one on the distribution of x-rays with an irradiated medium, by Mr W. V. Mayneord, M.Sc., and another on some applications of x-ray spectroscopy to industrial problems, by Mr G. Shearer, D.Sc. In the afternoon Mr W. J. Schall will give an address on some engineering lessons from the congress at Stockholm. A dinner will be held at 7.30 that evening at the Trocadero Restaurant, the price of the tickets is 15s (excluding wines), and members may bring friends. On Saturday, November 17th, there will be demonstrations at the National Physical Laboratory of the million-volt generator and the 200 k.v. cathode ray tube. Further particulars of these meetings may be obtained from Dr J. Muir, 32, Welbeck Street, W.1, but communications concerning the dinner should be addressed to Major D. McGrigor, 55, Jermyn Street, S.W.1.

SIR DAVID PRAIN and DR H. H. DALE are recommended by the President and Council of the Royal Society for re-election, on November 30th, as treasurer and secretary respectively of the society. Among the other Fellows recommended for election to the Council are Dr Charles Bolton, Dr C. G. Douglas, Sir Frederick Hopkins, Professor J. C. G. Ledingham, and Professor G. Elliot Smith.

THE next session of the General Medical Council will commence at 2 p.m. on Tuesday, November 27th, when the President, Sir Donald MacAlister, will take the chair and give an address. The Council will continue to sit from day to day until the termination of its business.

GENERAL MEDICAL COUNCIL

ELECTION OF DIRECT REPRESENTATIVES

ASSOCIATION'S CANDIDATES RETURNED

THE result of the voting in the election of two direct representatives for England and Wales to be members of the General Medical Council in the place of the late Dr J. A. McDonald and of Sir Robert Bolam, who has been appointed to represent the University of Durham, was announced on November 1st as follows:

Dr ERNEST KAILE LE FLEMING (Wimborne)	11,455
Dr JOHN WARDLE BONE (Luton)	11,340
Dr Gordon Reginald Ward (Sevenoaks)	4,262
Dr Edward Andrew Gregg (London)	3,108

The constituency numbered 32,758, of whom 15,082 took part. The total number of voting papers issued was 3,579 more than in 1924. Only 368 papers were returned by the Post Office as dead letters, but 720 of the votes received were invalid for one reason or another. Dr Le Fleming and Dr Bone, the two successful candidates, were supported by the British Medical Association in accordance with the decision of the Representative Body at Cardiff last July. On behalf of their fellow members we congratulate them on the result of the election. They will hold office as direct representatives for five years from November 1st, 1928.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

THE BUCKSTON BROWNE ANNUAL DINNER OF FELLOWS
AND MEMBERS

The first annual Buckston Browne dinner of Fellows and Members of the Royal College of Surgeons of England was held on Thursday, November 1st, at the College, Lincoln's Inn Fields, the President, Sir BERKLEY MOYNHAN, Bt., being in the chair. About a hundred guests were present, of whom half were Members of the College, the majority of the others being Fellows. No speeches were made, and the toasts were limited to those of "The King" and

"The Donor." Sir Berkley Moynhan, in proposing the latter, said he hoped that the annual festival now inaugurated would continue to the end of time. To perpetuity there would be two toasts only, and to neither of these would there ever be a reply. The guests were present by the kindness of the donor, and he asked them to drink to the health of Mr G. Buckston Browne.

After dinner the guests were invited to inspect a special exhibition of the original specimens brought back from South America by Charles Darwin, and prepared under the direction of the conservator, Sir Arthur Keith.

The following is a list of those present

Lord Dawson of Penn
Sir Thomas Barlow
Sir George Newman
Sir Alfred Hopkinson
Sir Anthony Bowley
Sir Thomas Holland
Major Leonard Darwin
Sir John Rose Bradford (President R.C.P.)
Mr G. Buckston Browne
Mr G. B. Hillman (Wakefield)
Mr Philip H. Cox
Sir William Bragg
Mr H. M. Hake
Mr O. J. R. Howarth
Mr O. A. Griffiths (Cardiff)
Sir William Lister
Mr J. A. Hayward
Mr H. W. Armstrong
Sir John H. Parsons
Mr J. F. Dolson (Leeds)
Mr W. H. B. Brook (Lincoln)
Mr T. H. Openshaw
Mr Thomas H. Bickerton (Liverpool)
Mr Henry Colgate (Eastbourne)
Mr Raymond Johnson
Sir George Thane
Mr Macleod Learley
Lieut.-Colonel F. E. Fremantle (Hatfield)
Sir Richard H. Luce
Sir Edward J. Pollock
Mr J. F. Jennings
Mr E. F. White (Crowborough)
Dr T. Wilson Parry
Mr H. Bellamy Gardner

Dr G. de Bee Turtle
Dr E. L. Paine
Mr Guy Wood
Mr Richard W. Lloyd
Dr E. M. Callender
Mr Frank Savery
Mr Owen Lancaster
Dr Haden Guest
Mr Ernest Ware
Dr Maurice Newfield
Mr Sidney Spokes (Lewes)
Dr Graham Little
Dr George Parker (Bristol)
Mr E. G. Moon (Broadstairs)
Dr H. B. Brackenbury
Dr Alan Randle
Dr T. W. Shoto
Professor H. E. Roaf
Professor O. Lovatt Evans
Dr G. A. Buckmaster (Bristol)
Dr G. W. Hunt
Dr P. H. Manson Bahr
Dr W. Attlee (Eton)
Dr J. O. Symes (Clifton)
Lieut.-Colonel O. T. Samman (Master of the
Society of Apothecaries)
Dr Walter Broadbent (Brighton)
Dr Astley V. Clarke (Leicester)
Mr Harold H. B. Macleod (Shrewsbury)
Mr J. E. Kilvert (Derby)
Mr G. Francis Smith (Watford)
Dr Hugh Lawson (Chichester)
Dr Gilbert Kumpke (Salisbury)
Dr W. B. Maurice (Marlborough)

Mr Arthur Bostock (Chichester)
Dr Charles Edwards (Andover)
Dr E. Collingwood Andrews
Dr John Gay
Dr E. C. Morland
Mr D. J. G. Watkins (Lincoln)
Mr Philip G. Laver (Chichester)
Sir Alfred Rice Oxley
Mr W. H. Dolamoro

Council
Sir Berkeley Moynhan Bt. President
Mr E. W. Hey Groves Vice-President
Mr V. Warren Low Vice-President
Sir H. J. Waring
Sir Cuthbert Wallace
Mr F. J. Steward
Mr C. H. Fagge
Mr R. P. Rowlands
Mr J. Herbert Fisher
Mr W. Samson Handley
Mr G. E. Gask
Mr W. McAdam Eccles
Sir Charles Gordon Watson
Mr Victor Bonney
Mr Hugh Lett
Mr Leonard P. Camgee
Mr R. G. Hogarth

Mr S. Forrest Cowell (Secretary)
Sir Arthur Keith (Conservator)
Mr R. H. Burne (Physiological Curator)
Mr D. K. Carrels (Assistant Secretary)

LARYNGO RHINOLOGY AND GENERAL MEDICINE

SEMON LECTURE BY PROFESSOR MARKUSZ HAJEK

The Semon Lecture, under the auspices of the University of London, was delivered on November 1st, at the House of the Royal Society of Medicine, by Professor MARKUSZ HAJEK, professor of laryngo-rhinology in the University of Vienna. Mr H. BELL TAWSE, president of the Laryngological Section of the society, presided over a very large gathering.

Professor Hajek, who delivered his lecture in English, said that the invitation to be Semon lecturer filled him with pride and gratitude for two reasons: first, because it afforded him the opportunity of further establishing the relations with his British colleagues which already dated back for thirty-five years, and, secondly, because it enabled him to pay a tribute to the late Sir Felix Semou, who had rendered immortal service to this branch of medicine. Taking for his general theme "Laryngo-rhinology and general medicine," Professor Hajek said that the development of this specialty, in particular the rapid advances in the realm of diagnosis, had, so to speak, intoxicated the first generation of specialists, with the result that the specialty had become detached, and was not connected with general medicine, as it should have been. He gave some illustrations of the unfortunate results which followed over-enthusiasm for a specialty to the disregard of the larger field. He had known a patient treated most admirably for a condition of the larynx, with no regard to the fact that she was suffering from generalized tuberculosis, from which shortly afterwards she died. His verdict on the case was, "The larynx healed, the patient killed."

Laryngo-rhinologists to-day endeavoured, most properly, to complete their clinical observation by resort to the laboratory—by histological and serological examinations, and by the x-ray picture. Every clinician was aware that in a large number of cases it was not possible, from clinical observation alone, to speak with certainty of definite disease. In certain forms the clinical picture was sufficient, but there were intermediate forms which could not be interpreted with absolute certainty, and in such cases

the laboratory diagnosis was apt to be made the deciding point. In the lecturer's view this had led to an over-emphasis of the value of laboratory tests and an under-valuation of the results of clinical experience. He was fearful lest, in the widespread dependence on laboratory methods, what had been achieved by the long practice of clinical medicine should go by the board. Clinicians themselves tended to think that while clinical observation often could not say "Yea" or "Nay," the power of absolute proof did belong to laboratory diagnosis, an assumption which he contested as being by no means correct.

Remarking that the findings of the laboratory were not absolute, but comparative, the lecturer proceeded to give a few examples from his experience, illustrated by microscopical sections, where the histological finding had proved to be misleading. It was forgotten that the so-called histological diagnosis was the product of a series of histological pictures, and that the way in which these separately and collectively were assessed, and held to demonstrate or not to demonstrate a particular condition, reflected the personal view of the histologist. Often these histological pictures confused the clinical findings, yet many specialists still believed in the infallibility of the histological results. He showed three cases in each of which the result of the histological examination was a positive diagnosis of carcinoma of the larynx, yet two of these patients were shown by the after-history to have been free from carcinoma, they had been well now over a long period, and the remaining patient proved to have, not carcinoma, but tuberculosis. He added that histologists were not always agreed among themselves as to what was positive and what was only suspicious, one and the same histological picture was differently interpreted by different histologists. Histological findings as a guide and corrective were of great use in relation to the results of other observations, but they must not be taken as conclusive in themselves, the same remarks applied to the results of serological examination. He pleaded that laryngologists while neglecting no help which might come from this side or that should hold fast to their clinical diagnosis, the principles of which had been laid down with great care and diligence by their predecessors.

As for radiology, the errors following from radiological findings were legion. Radiology itself was not to blame, but the wrongful interpretation of the radiograph and the assumption that the radiological finding was sufficient for diagnosis. Radiology, in order to present its indispensable character in the brightest light, often over-reached itself. The lecturer showed examples of one or two cases in which the precise situation of a foreign body impacted in the air passages had been misinterpreted as a result of reliance upon the x-ray finding solely. He quoted—without his own endorsement, however—one authority in this branch of medicine who had said that radiology in this field had confused more issues than it had clarified. Radiological findings, like the histological and serological, needed to be fitted into the entire series of investigations, but clinical medicine must not be placed in the background. He likened the whole investigation to a symphony orchestra, in which every instrument had its proper place and significance, while the conductor—in other words, the clinician—harmonized the whole. The specialist must be a critic of the laboratory findings and in order to do this he should be familiar with the difference between certain and doubtful laboratory indications.

In considering the general relations of the specialty of laryngology to medicine and surgery as a whole, the lecturer again urged the need for a comprehensive view. The separate findings of the specialist were not sufficient, and regard must be paid to the entire clinical picture. The importance of this specialty to general medicine was self-evident. Only too often the first sign of a general infection or disease was manifested in this region. With regard to surgery, the first generation of laryngologists took too narrow a view, only with difficulty had the new generation gradually learned its way in surgical method. To-day surgical training was a *sine qua non* for the laryngologist. Young physicians should not dedicate themselves to laryngology immediately or soon after the completion of their studies, particularly if they intended to become teachers. They must first have a good general grounding in all the principal departments of medicine, only then could they develop their specialty scientifically. The house was not built from the gables to the foundations, but the reverse, and, to change the figure, laryngologists would do well to cultivate the field of general medicine in order that their own special fruit might be brought to its finest.

SIR STCLAIR THOMSON, in proposing a vote of thanks to Professor Hajek, mentioned that among previous Semon lecturers had been savants from Berlin and Paris, and now the great school of Vienna had made its contribution. Professor Hajek was a pioneer who differed from most pioneers in his intense conservatism, which he had exemplified in the lecture. SIR JAMES DUNDAS GRANT seconded the vote of thanks, which was heartily carried, and Professor Hajek was then presented with the Semon plaque.

India.

Women's Hospitals in the Central Provinces

A CONSIDERABLE advance in the provision of medical treatment for women by members of their own sex has been made in the Central Provinces and Berar in the course of the past year. Colonel J. Norman Walker, inspector-general of civil hospitals, in his notes on hospitals and dispensaries in 1927, reports that two special women's hospitals were constructed during the year, both of which are now in operation, while women assistant surgeons have been attached to main hospitals in seven centres where no special women's hospital exists. Provision for five more assistant surgeons has been made in the budget for 1928-29. In addition to the women assistant surgeons there are nine women assistant medical officers attached to certain dispensaries, and the number is being increased by two. Regarding the general question of the provision of medical assistance, Colonel Walker states that the budget for 1928-29 provides for opening additional cheap plan dispensaries in certain areas. The policy of the Government

is to leave the initiative to local bodies, with the assurance that proposals for the establishment of dispensaries will receive sympathetic consideration and financial assistance. The demand has been noticeably better from Berar than from the Central Provinces. Government approval has been given to a scheme for subsidizing qualified private practitioners who agree to settle in villages distant not less than eight miles from existing dispensaries, but no funds were available for this service in 1927, although it is expected that some progress will be made with the scheme in the current year. An official investigation is being made into the question of grants to local bodies and dispensary committees for the maintenance of hospitals. Colonel Walker holds that "when one considers that the voluntary system has failed, the ticket system has failed, and that other provinces have given up the ticket system, it is difficult to see how these public institutions can be adequately supported without more generous support from provincial or local revenues." He sees no reason to believe that, should the Government allotments be generously increased, voluntary subscriptions from the philanthropic would be reduced.

Burma Government Medical School

The Burma Government Medical School commenced the session 1927-28 with seventy-nine students on the register, but as an earlier order for the closing of the school was still in force, no new students were then admitted. This order had been made in pursuance of the policy of the Government gradually to replace the class of sub-assistant surgeons by the more highly qualified licentiates in medicine and surgery, and to the effects of this decision the superintendent of the school Lieut.-Colonel T. F. Owens, I.M.S., attributes a deterioration in the tone of the establishment and the high percentage of failures recorded in his report. In the course of the session, however, the Government decided to reopen the school, and thirty-eight new students were admitted to the four years' course which it provides. From the report it appears that the school buildings are in urgent need of reconstruction or replacement now that the institution has been re-established. The report of the inspector-general of civil hospitals in Burma, Colonel W. H. C. Forster, states that fifty-six students were under training in 1927 for the degree of M.B., B.S., and sixteen for the diploma L.M. and S., in addition to the 117 already noted as attending the Government Medical School. Regarding the class of sub-assistant surgeons employed in the services under his control Colonel Forster mentions that the number on the rolls decreased during the year from 436 to 427, and that the shortage was so acute that all leave had to be stopped. An increase in the cadre to a total of 475 has been requested. It may be added that this class is by far the most numerous in the Burma medical service, the total number of officers sanctioned in other and superior classes being about 150.

Blindness in Sind

The annual report of the Thakurkarkar (Sind) branch of the Blind Relief Association for 1927-28 suggests that the census reports relating to blindness in India under-estimate considerably the incidence of this disability. It is recalled that the census figures for India and for the Bombay Presidency give the incidence of the total blindness as 14 per 10,000 of the population, generally, the report states, the figures are two or three times too low. In a count by an official in the United Provinces over 90 totally blind per 10,000 were found, and in the part of Sind from which the report emanates the figure is at least 40 per 10,000. The association seeks to overcome the difficulties created by ignorance, apathy, and lack of medical facilities which prevent the treatment of many cases of blindness susceptible to curative surgical measures, it also undertakes preventive work. In this task the main problem has been to obtain capable and suitable medical officers for touring work in the districts. There appears to have been a substantial reduction in the number of cases requiring operation in the area in which the association has been carrying on its campaign during the past three years, and it has therefore been possible to extend its activities to cover the greater part of Eastern Sind. Mr. Saheanand, the association's medical officer, dealt with about 10,000

cases, including over 2,000 in which major operations were performed, at camps in various districts. In Upper Sind, at Shirkapur, Dr Holland of Quetta spent some six or seven weeks in work among the blind with the assistance of surgeons from Europe and America, nearly 3,000 cataract and other operations were performed. Although this work has been continued for a considerable period, thousands of cases are still in need of attention.

Hospital Provision in Assam

Several important schemes for improving the hospital facilities of the province of Assam are in progress, and a substantial improvement in this direction should be shown in the course of the next few years. In his report for 1927 Colonel G. Hutcheson, inspector-general of civil hospitals, states that schemes are under consideration for the construction of two new hospitals for men and women at Sylhet, and of a new civil hospital at Shillong, while a project for a new civil hospital at Sadiya has been forwarded to the Government of India for approval. At present there are no women's hospitals in the province, and the arrangements for labour cases and the treatment of diseases of women are inadequate. The new women's hospital at Sylhet will be the first of its kind. Colonel Hutcheson suggests that such hospitals should gradually be provided at all important district headquarters. He also calls attention to the deficiency of provision for the well-to-do class of private patients, or for Government servants, who can afford to pay for their accommodation; it is proposed to provide blocks of private wards for orthodox Indian men and their families, and also for those who live in European style, in the new civil hospital at Shillong. The attention of local boards is directed to the need for considering the question of constructing private paying wards in connexion with their more important dispensaries. In the course of the year work on the new medical school at Sylhet was commenced, and its completion is expected to take about two years. A substantial increase in the number of patients at the State public, local fund, and private aided hospitals and dispensaries was again recorded, the total being 1,620,012, against 1,559,001 in 1926 and 1,471,239 in 1925, the number of in-patients rose from 11,812 in 1926 to 12,369 last year, and the number of out-patients from 1,547,189 to 1,607,643. Cholera was much more prevalent in 1927, when 5,013 cases were treated, against 1,845 in the previous year, in the Sylhet district alone 2,167 cases occurred. The decline in the incidence of, and mortality from, kala-azar, to which reference was made in the *Journal* of February 18th (p. 283), continues, last year 8,277 cases were treated and 88 deaths recorded, this compares with 10,416 cases, with 134 deaths, in 1926 and 15,823 cases in 1925.

Scotland.

Scottish Department of Health Chief Medical Officer

The Secretary of State for Scotland has appointed Dr John Parlman Kinloch to be Chief Medical Officer in the Department of Health for Scotland, which on January 1st next will take over the powers and duties of the Scottish Board of Health. Dr Kinloch, who is 43 years old, graduated at the University of Glasgow in 1909. At present he is medical officer of health for Aberdeen and head of the Public Health Department of the University of Aberdeen.

Grenfell of Labrador Rector of St Andrews

Sir Wilfred Thomason Grenfell, best known as "Grenfell of Labrador," was on November 3rd elected Lord Rector of St Andrews University by the undergraduate members, defeating his opponent, Lord Melchett, by 157 votes. The candidates, as is customary at St Andrews, were selected on non-political grounds—Sir Wilfred Grenfell being chosen for his distinguished services to humanity and medical science, and Lord Melchett for his part in the promotion of industrial peace. Sir Wilfred Grenfell succeeds to an office vacated by Dr Fridtjof Nansen and held previously

by Sir James Barrie and Mr Rudyard Kipling. In July last year, it may be recalled, the King conferred the KCMG upon him in recognition of his thirty-five years' work as a medical missionary in Newfoundland and on the Labrador coast. He was born in 1865 and received his medical education at Oxford and the London Hospital, obtaining the diplomas LRCP, MRCS in 1888, and being elected FRCS in 1920. He was made CMG in 1906, and has received honorary degrees from Oxford, Harvard, and Toronto.

Pollomyelitis in Glasgow

The usual sparse incidence of poliomyelitis in Glasgow was maintained until the end of June, but since the beginning of July there has been a very definite increase in the number of cases, from July 7th to October 20th eighty-six cases were reported, and in the four four-weekly periods contained within these dates the number of cases sickening was fifteen, nineteen, twenty-seven, and twenty-five respectively. The disease was distributed generally throughout the city, and there was only one instance in which two definite cases occurred in the same household. Various instances of the occurrence of febrile illnesses, presumably the so-called abortive attacks, were, however, reported among members of a family round about the date on which a declared case sickened. A definite grouping of cases occurred in connexion with a day school, four pupils of the infant classes and two of the junior classes being affected, the first three cases were in the infant classes, and these sickened in the same week. The disease attacked all classes of the population. Approximately 63 per cent of the population of Glasgow live in houses of one and two apartments, and 66 per cent of the cases occurred in these. Clinically the disease has presented no unusual features. At the onset the majority of cases showed vomiting and feverishness, but cases of the sore throat type of onset were not uncommon. The deaths among the eighty-six declared cases occurring between July 7th and October 20th numbered seven, giving a case mortality of 8.2 per cent. Cases of the disease have come under notice also in other parts of Scotland. During the thirteen weeks ended September 29th, fifty-four cases, including thirty in Glasgow, were notified in the sixteen principal towns, and the counties of Lanark and Fife, compared with the lower figures of twenty-two and seven in the corresponding periods of 1927 and 1926 respectively. The Scottish Board of Health, on October 22nd, circularized medical officers of health, suggesting that they should keep a close watch on their areas and that they might ask practitioners to bring to their notice any suspicious case.

Sunlight and Health

A public lecture on the influence of sunlight on health was given in Edinburgh on October 31st by Lieut-Colonel J. de P. Langrishe, DSO, lecturer on public health in Edinburgh University, who referred to the value which was placed by the Greeks and Romans upon sun culture, and to the special "solaria" or sunning places on their houses, saying that in the care of the health among these peoples sunlight was of the greatest importance. Air, light, and gymnastic exercises, he continued, were the foundations for physical and mental health, and the sources of strength. The stimulating effects of sunlight on our feelings of comfort and happiness were particularly obvious in the constant changes of weather observable in the cloudy British climate, this climate would be ideal if there was more winter sun with bright frost and snow. The lecturer described the composition of sunlight as containing a huge range of electro-magnetic rays, with wireless rays at one end of the spectrum and the extremely short ultra-violet rays and still shorter gamma rays and heat rays at the other end. The defective powers of penetration possessed by rays of short wave-length explained why ultra-violet rays were obstructed by dull skies, smoky atmospheres, crowded buildings, and even by thick clothing. This obstruction of sunlight not only affected human beings directly, but extended to plant life, so that vitamins were produced in defective quantities in vegetables and fruits. Pollution of city atmospheres by smoke—one of the most serious

causes of light obstruction—was being successfully attacked in various places, and could ultimately be removed by a strong public opinion. In Pittsburgh smoke pollution had been reduced by 85 per cent, and certain German industrial towns were now smokeless. Domestic fires were largely to blame for smoke pollution, and the wider use of gas electricity, and coke in the home should be secured. In summer much could be done by a greater amount of sea bathing with suitable precautions, the early morning sunlight was richest in ultra-violet rays. In conclusion the lecturer urged the importance of eating fresh foods, particularly dairy produce and fruits which were in effect "bottled sunshine."

Research in Animal Breeding

Mr A D Buchanan Smith, of the Animal Breeding Research Department of the University of Edinburgh, in the course of an address on recent advances in animal breeding research at Perth on November 2nd said that science consisted much in the making of careful observations and the accurate record of them so that when sufficient experiences had been collected some law could bring the various pieces of information together, and thus the scientist could be enabled to look ahead, plan experiments, and define the law more precisely. The science of animal breeding was still very young, having been born in the present century, and its exponent were learners, rather than teachers, who were always glad of advice from those who had had great experience. The most important work being done at Edinburgh and elsewhere was in regard to the inheritance of economic characters of livestock, such as good conformation in meat-producing animals or milk production in dairy cattle. Considerable time was being devoted to finding out what type of pig was most suitable for the Scottish bacon market from the producer's point of view. Research was also being conducted into the subject of inbreeding and into that of sterility, which constituted one of the greatest menaces of the stock-breeding industry at the present day. The breeder should always be careful to include fertility in his idea of a perfect beast. With regard to the question of resistance to disease, breeders had known from time immemorial that some animals were harder than others and that hardiness was inherited, but it had been shown only within the past few years that certain individuals possessed resistance to definite diseases, and that these specific resistances were also inherited. The main object of this new science was not to see what could be produced to-day or to-morrow, but what information could be brought together and arranged in an orderly fashion so that it could be understood and applied in the future.

Fifty Years' Service as a Lecturer

Dr Thomas William Drinkwater who has completed fifty years of service as a lecturer in the School of Medicine of the Royal Colleges of Physicians and Surgeons at Edinburgh, was entertained on November 1st at a dinner in the Hall of the Royal College of Surgeons. Sir David Wallace, who presided over a company which included some forty of his fellow lecturers and colleagues in the School of Medicine, remarked that they were met to do honour to Dr Drinkwater, as it was a unique event that a lecturer should have continued to hold classes throughout the long period of fifty years, Dr Drinkwater having been appointed a lecturer at the commencement of the winter session of the year 1878. Dr Drinkwater, after completing his medical studies at St Thomas's Hospital, London, and at Edinburgh, qualified in this year, and almost immediately commenced lecturing on chemistry. In addition to conducting large classes, he was one of the earliest chemists to commence analytical work in connexion with the public health movement of last century. He had been public analyst to various burghs, such as Fortrose, Inverness, and Forres, and public agricultural analyst to the county of Ross and Cromarty. For a time he was assistant to the professor of forensic medicine, in the department of toxicology at the University of Edinburgh, and examiner in chemistry to the Royal Agricultural Society of London. He had made numerous literary contributions, both to the

teaching of the subject and to analytical work. For many years he was a well-known figure at students' entertainments, and his great abilities as a pianist, a reader of humorous songs, and a raconteur were in much demand. Despite his long tenure of office, Dr Drinkwater is still actively engaged in teaching and in chemical analysis for medico-legal work.

Longmore Hospital for Incurables, Edinburgh

The annual meeting of the Royal Edinburgh Hospital for Incurables (Longmore Hospital) was held on October 26th. Mr J J Herdman, chairman of the board, who presided, stated that the number of patients under treatment was 337. He said it was a tragic fact that out of 247 applications for admission only 128 could be accepted, and that many of the applicants died before accommodation could be found for them. On the list of applicants there was always a considerable percentage of severe cancer cases, and the managers had under consideration a scheme whereby, through rearrangement of the wards, additional accommodation could be found for women, who constituted the greater number of applicants. Dealing with the accounts, the chairman said there was an increase of over £500 on the ordinary income compared with last year, but an increase of £762 on the ordinary expenditure. The managers deplored the very heavy drain upon capital income which was required to meet the deficiency in ordinary income, for this year they had drawn upon extra ordinary income to the extent of about £8,000. An outstanding need was for a very definite increase in the amount received from annual subscriptions. Professor John Fraser, in seconding the motion for adoption of the report, said that one of the deepest shadows on human life was that of the disease or accident which either snuffed the vital spark from day to day or left the sufferer living but helpless. This hospital provided a resting-place for such persons, and the patients gave an impression of a sense of happiness which might fill them with wonder. In several instances, too, children who had been thought crippled beyond repair had regained in the hospital the full power of their limbs, and such experiences made them appreciate the splendid care and attention which the sufferers received.

Gifts to Scottish Universities for Bacteriological Work

Among benefactions reported at a meeting of the Court of the University of Glasgow on October 31st, was a gift of £10,000 from Mr William C Teacher of Cove, for the foundation of a lectureship in bacteriology at the Royal Infirmary, Glasgow. At a meeting of the Edinburgh University Court, held two days earlier, intimation was received of a gift of £5,000 from Sir Leybourne Davidson of Huntly Lodge. This sum is to be utilized for the foundation and endowment of a fellowship for the encouragement and promotion of research in bacteriology and immunology.

Dramatic Production in Aid of a Medical Charity

The Albany Players, a well-known Glasgow amateur dramatic company, will, on Wednesday, November 21st, and the three following evenings, give four performances in aid of the Glasgow branch of the Royal Medical Benevolent Fund Guild. At these performances, to be given in the Athenaeum Theatre at 7.30 p.m. each evening, the company will present a light comedy, "Healing Waters," which has a strong medical interest and contains a good flavouring of Scottish humour; it is in part a skit on the novelists of the "kailyard" school, and treats with gentle satire those who seek "cures" at the "Healing Waters." The author, Dr John Fergus, is a well-known figure in Glasgow literary circles as a writer of verse in the vernacular, among his most popular poems being "The Kirk" and "The Old Parish Doctor." Among the leading members of the company is another Glasgow medical practitioner. Vouchers may be obtained from Mrs Fergus, 1, Parkgrove Terrace, Glasgow, C 3 and others, and from Messrs J D Cuthbertson and Co, 226, Sandhurbill Street, where seats may be booked.

England and Wales.

Iris Fox Memorial

A FUND has been raised to erect a permanent memorial to the late Dr C Iris Fox, who died in January, 1926, from septicaemia contracted during a *post-mortem* examination at the Royal Free Hospital, where she was senior assistant pathologist. A sum of £345 has been collected, and it is proposed to devote the money to the provision of a pathological library at this hospital to be named the "Iris Fox Library," a commemorative medallion or plaque being placed inside the room. Plans for the extension of the pathological department of the Royal Free Hospital have been prepared, though it may be some time before actual building can begin. Should it be found impossible eventually to allow space for a library, one of the new research laboratories would be similarly endowed to her memory.

University of London Medical Graduates' Society

The autumn dinner of the University of London Medical Graduates' Society was held at the Langham Hotel, Portland Place, on October 31st, with the president, Sir StClair Thomson, in the chair. Dr M Hajek, professor of laryngorhinology in the University of Vienna, and Dr Waldapfel, his assistant, were the guests of honour, and among others present were Sir Charlton Briscoe, Bt, Lady Briscoe, Mr Herbert Tilley, Dr Wilfrid Edgecombe, Mr T P Legg, and Sir Holburt Waring, formerly vice-chancellor of the University. The president, after calling attention to the progress of the society, said that it was hoped to bring in a large proportion of the 4,500 medical graduates of the University in the course of time, and thus to intensify corporate feeling. Sir StClair Thomson spoke of his previous study under Professor Hajek more than thirty years previously; the professor had now received the long overdue recognition which his past services to laryngorhinology deserved. In replying, Professor Hajek expressed the great pleasure he felt at being so honoured in England. Mr W McAdam Eccles later referred to the success the society had achieved in the Birmingham area through the initiative of Professor Billington, he mentioned that its first extra-metropolitan dinner would be held there on November 23rd. Describing the progress of developments in connexion with the Bloomsbury site for the University, Sir Holburt Waring stated that eleven acres had been acquired for £535,000, the necessary legal powers had been secured, and they were now able to go ahead with the scheme. The authorities were considering what colleges, institutions, and special departments should be erected there, and when this had been decided plans for the whole area would be prepared.

Maudsley Hospital, Denmark Hill

A course of instruction for the diploma in psychological medicine will be given at the Maudsley Hospital during the next five months of next year, commencing on January 28th. As in previous years the course will consist of two parts, of which the first will extend over January and February and the second will follow in March, April, and May. The first part includes a series of lectures on the physiology of the nervous system, by Dr F Golla, who will also give demonstrations on physiological psychology; these will be supplemented by a short theoretical and practical course on the biochemical aspects of mental disorders, including laboratory methods. Twelve lectures on the anatomy of the nervous system will be given by Professor G Elliot Smith, with practical instruction by Mr F Geary, and lectures and demonstrations on theoretical and practical psychology by Dr Henry Devine. The work of the first part of the course will commence, generally, at 2.30 p.m. daily. In addition to the foregoing four lectures on psychological mechanisms will be delivered by Dr Edward Mapother, on Fridays February 22nd, and March 1st, at 2.30 p.m. and 4 p.m. In the second part of the course, from March to May inclusive, Dr Mapother will give lectures on morbid psychology and demonstrations in clinical psychiatry, Dr Bernard Hart will lecture

on the psychoneuroses, Drs Golla and F M R Walsh will give instruction in clinical neurology, and the former, with Mr Charles Geary, will deal with the pathology of mental diseases. Lectures on the legal aspects of insanity will be given by Dr C Hubert Bond, on mental deficiency by Dr F C Shrubbsall, on crime and insanity by Dr W Norwood East, on therapeutics by Dr A A W Petrie, and on abnormalities of the fundus oculi by Mr R Foster Moore. Mr S A Mann will give demonstrations of laboratory methods. Voluntary clinical assistantships are available at the Maudsley Hospital without fee to practitioners of either sex specializing in psychological medicine; they can be held in conjunction with attendance at either part of the course. These appointments satisfy the requirements of the various examining bodies in respect of clinical experience for the diploma in psychological medicine or for the M.D. in psychological medicine. There are also various other opportunities for clinical study, also without fee, open to all attending the course, fuller information may be had from the medical superintendent of the hospital. Inquiries about the lectures should be addressed to the Director of the Central Pathological Laboratory, Maudsley Hospital, Denmark Hill, S.E. 5.

Correspondence.

SCHIZOPHRENIA (DEMENTIA PRÆCOX)

SIR,—Many of your readers will be aware that the accommodation of institutions for persons of unsound mind is to a large extent taken up by patients who illustrate the above-named disorder, mainly in its chronic, irrecoverable stages. For many psychiatrists—probably the majority—the problem of the pathogenesis of the conditions commonly grouped under the designation "schizophrenia" is the most urgent they have to deal with. In so far as there are differences between the symptoms and course of schizophrenia on the one hand and epidemic encephalitis on the other, my view is that such are explicable on the basis of difference in the irritability in the two cases, in the inherent mode of reaction. As regards the irritants, it is a matter for investigation whether that is the same or not.

It rejoices me to believe that the great majority of your readers are mercifully absolved from the duty of perusing British and foreign journals of psychiatry. But others, like myself, who (I hasten to assure you, through no fault of their own) have been condemned to study such must have observed that sometimes and lately there has passed a glimmer of suggestion, there has even been seen the steadier glow of evidence athwart this murky literature, going to show that some in different lands are pondering the relationship between the two conditions referred to.

Epidemic encephalitis is placed amongst the "virus diseases," amongst those pathological conditions which, with greater or less justification, are ascribable to filterable viruses. The early schizophrenias of psychiatry and the encephalitics of general medicine should I think, be investigated together—on the same lines. The doctrinaires, of course, are always with us, prepared to demonstrate, on paper, that these conditions are fundamentally different. They cannot be allowed to numb and bring to naught the initiative of investigators. We are sick of disputation, disquisition, and differentiation in this matter of schizophrenia. The perpetrators of such have occupied the stage too long. I would fain see the safety curtain lowered upon them, and kept *in situ* until the boss behind had done its work. What we require in respect of psychiatry in general, and schizophrenia in particular, are silence and skilled research. Our problem is how to get hold of the patients concerned in the earliest stages possible, and to bring them in touch with centres where the necessary research can be done. Obviously the psychiatric clinic in working association with the general hospital is what is needed. Such clinics, as you are aware (with the exception of the Maudsley Hospital) are not yet available in England and Wales, since legislation has not been introduced to facilitate investigation and early treatment of the psychoses. Deplorable and humiliating as this position is, I can say

from my practical experience that the necessary research can be carried on, to a limited extent, in the meantime, in the following manner

A mental hospital near to, and in close working association with, an adequately staffed general infirmary is equipped with the necessary staff and laboratory facilities and authority to conduct animal experimentation. It has amongst its visiting medical men members of the infirmary staff competent in different branches of medicine. Very rarely in an early case of schizophrenia is received direct, but when, as should be the case, an out-patient clinic in psychiatry is conducted at the infirmary by one of the staff of the mental hospital, instances of the disorder in an early phase are from time to time available. The necessary apparatus for collecting material is kept at the pathological laboratory of the infirmary as well as at the mental hospital. The case is watched at the infirmary, by the kind co-operation of the physicians, the material for investigation is removed at the infirmary and forthwith transferred to the mental hospital, there to be dealt with by way of cultivation, animal inoculation, etc.—I am, etc.,

Cardiff City Mental Hospital Nov 1st

LUDWIG GOODALL

HYPOCHONDRIA

SIR,—Dr Gillespie's paper and the discussion on this subject reported last week (p. 795) touch on a number of interesting points. I am surprised that no reference was made (except in a casual way) to the vascular factor. I think most physicians will agree that a very high percentage of cases have some circulatory disturbance—they are either profound vagotonic or well-marked arteriosclerotics. If this is the case what is the explanation?

It seems to me that Dr Gillespie has somewhat confused the issue as regards hypochondria and hysteria. From the therapeutic point of view the difference is clear enough: the hysteric improves with isolation, because his symptoms depend on his relations to the outside world; the hypochondriac is relatively unaffected because his misery is subjective and generated within. Jung's type-psychology is helpful on this point.

Again, the anxiety factor offers a fairly clear-cut line of demarcation. Hypochondria, as I understand the term, is not applicable to cases in which somatic preoccupation coexists with generalized anxiety. If a man is as much worried about his stocks as about his stomach he is an anxiety case and not a true hypochondriac.

It seems to me impossible to consider hypochondria usefully apart from the basic conception of self-love (the Freudian narcissism) and its transmutation to obsessional self-pity. This conception offers a clue to the onset of the symptoms. The expression of self-love has generally been the keynote to all the hypochondriac's life. External circumstances turn that emotion inwards and it takes the form of stereotyped self-pity.—I am, etc.,

London W 1 Nov 5th

H. CRICHTON-MILLER

PAY BEDS IN VOLUNTARY HOSPITALS

SIR,—The report of the Special Committee of King Edward's Hospital Fund for London on the subject of pay beds at voluntary hospitals, while recommending a large increase in the number of such beds, contained also the following paragraph:

We doubt whether the nature and extent of the existing pay bed accommodation at voluntary hospitals is generally known by the members of the middle and professional classes. We suggest that the Management Committee of the King's Fund might consider whether the Fund should prepare and publish year by year for the information of the public a list of the pay beds at the London voluntary hospitals, with rates of charge and other particulars.

The report itself, which can be purchased for 1s 5d, post free, contains in an appendix particulars of all the pay beds now available in the King's Fund area, and also a list geographically arranged. The Management Committee are at present considering the recommendation quoted above, and would be glad to receive any information on the question whether a similar list, if prepared

and issued annually, would be likely to be of use to the public and to the medical profession throughout the country.—I am, etc.,

SOMERLEYTON,
Honorary Secretary and Vice-Chairman
of Management Committee

London, Nov 5th

HOSPITAL POLICY

SIR,—I attended a meeting of the medical staffs of our county hospitals a few days ago, and should like to give your readers my impressions of the meeting.

The two larger hospitals are both anxious to adopt the B.M.A. policy, and get a percentage paid to the medical staff funds for tariff patients. The other hospitals are all anxious to help these hospitals, and most of them voted for the Association's policy with that idea, but, with one exception, none of them intend to carry that policy into force in their area. The reason is that what suits the large hospitals does not suit them. Of course, I think that the staffs of the large hospitals will rue the day when they lose their status as free men, and the younger men will not bless them for doing it. But that is neither here nor there, what is important is the position the small hospitals are being placed in.

In a small town, at any rate, if the medical profession cares to see to it, it is quite possible to prevent abuse of a contributory scheme. The contributory scheme in itself surely should be welcomed if it is designed as a contribution towards the upkeep of a voluntary hospital. Where a scheme has no contract, and where a payment is asked for as a contribution and not demanded as a right, payment for maintenance should be encouraged. If the workers pay 1d or 2d a week, with full knowledge of what they are doing—as they will do—then they should be thanked for doing so. Abuse arises when these boundaries are not understood and insisted upon. No difficulty arises where a patient is admitted because of the urgency of his case and on the recommendation of the doctor, and it is understood that his contribution is only for maintenance in the hospital. The position of the medical staff is then one of honourable independence, and the staff can use this for the benefit of the voluntary hospital.

In order to define the position of the medical staff and create a foundation from which action can be taken later on if necessary, I should like to see a resolution such as the following passed by all hospital boards and made clear to all contributing authorities:

"That contributions are for maintenance only, and the medical staff reserve the right to be paid for attendance in suitable cases after the full cost of maintenance has been met."

I submit that this would clear the air, and is something that everyone can understand.—I am, etc.,

Leitchworth Oct 29th

NOAH MACFADYEN

X-RAY DIAGNOSIS

SIR,—If Mr Gilbert Scott will refer to the dictionary he will find a fallacy described as "an argument which professes to be decisive of the matter at issue, while in reality it is not." It is in this sense that I use the word "fallacy," and I know that many surgeons will agree with me that the present position of radiography in abdominal diagnosis justifies my choice of a title.

There is another definition of "fallacy"—"a deceptive appearance"—which is equally applicable as the word "mistakes," which Mr Scott prefers. "The fallacy of x rays" is due to the many pitfalls which lie in wait even for the experienced radiologist. There is an old adage, "If you have a bad case, abuse your opponent." Both Dr Heinemann-Johnson and Mr Scott suggest that the "mistakes" to which I refer are due to the inexperience of the radiologist. The "mistakes" are the considered opinions not of one, but of several of the most expert radiologists in London, for whose work I have the greatest admiration, but who are not young enough to be infallible. They will be both surprised and gratified to learn that they are guilty of "gross mistakes and lack of judgement."

Dr Whorlow takes me to task for condemning house-surgeons for sending cases for a radiological report before

making a diagnosis, and asks me, "Why?" Such house-surgeons and students in hospitals are there to learn their jobs? How are they to acquire skill to diagnose fractures, when x-rays are not available, if they do not train their hands as well as their eyes and ears during their apprenticeship? I trust Dr Whorlow will not have the misfortune to fracture a leg, as I am confident he would not enjoy the journey to the radiologist, or even to a radiological couch, without first allowing the surgeon to "lay hands on him." His knowledge of surgeons must be either unfortunate or scanty if he imagines that a fractured limb cannot be examined without causing pain.

Why Dr Whorlow thinks I am unduly impressed with the radiogram I cannot imagine. Nothing in my paper suggests such an idea. On the contrary, the fact that I emphasized the importance of the presence of the surgeon at the radiological examination negatives such an assumption. Dr Whorlow must be congratulated on his ability to demonstrate 98 per cent of gastric ulcers by means of barium meal examination. I have never previously heard of any radiologist who could attain such a degree of accuracy. Indeed, I do not think any surgeon would claim to be able to discover 98 per cent of gastric ulcers even after opening the abdomen.

It would encroach too greatly on your space to answer in detail all the criticisms in Dr Whorlow's letter. The gist of it is that a radiologist should not make mistakes, and, therefore, the radiologists who make them are incompetent. Probably the radiologists whose help I have enjoyed would disagree with Dr Whorlow. They might even suggest that it is he who is mistaken. Therefore the logical conclusion to be drawn from these opposing views is that all radiologists are incompetent, a view with which, I need hardly say, I would totally disagree. On the contrary, seeing that radiography is simply an interpretation of shadows, the wonder is that mistakes are not far commoner. It is easy to be wise after the event. May I suggest to Dr Whorlow that it is noiser difficult to interpret the x-ray findings in the light of what has been found at operation, but very difficult, and often impossible, to determine beforehand the conditions which will be revealed on the operation table?

My paper was intended, not to depreciate the value of radiography when used with judgement and discretion, but as a protest against a growing tendency to regard a radiological report as gospel. I venture to think that the letters of your correspondents fully justify the need for such a warning at the present time—I am, etc.,

London W 1, Nov 5th

HERBERT J PATERSON

SIR,—Is it not time we dropped such futile discussions as that opened by Mr Herbert Paterson at Cardiff, especially when they are based upon the assumption that there is a disagreement between clinicians and radiologists as to the "infallibility" of their respective methods of examination? In a practice of over twenty years as a radiologist I have never had any such difficulty with the physicians and surgeons with whom I have been associated, for the simple reason that they and I have had the sense to realize that there are cases (1) in which the x-ray evidence is necessarily inconclusive, though perhaps of great value when considered in conjunction with the clinical data, and (2) others in which, despite Mr Paterson's emphatic denial, the radiological diagnosis does exist and is final, no matter to what extent the clinical evidence fails to tally with it. As an example of the latter class, I need only cite the screen diagnosis of hydro-pneumothorax, in which the evidence afforded by the shadow of free fluid splashing about at the bottom of a brilliantly translucent air space is so "diagnostic" that I fail to see how even Mr Paterson could deny its "infallibility." Equally positive diagnoses are obtainable in urological and other abdominal examinations by up-to-date methods.

It is quite true, as Mr Paterson says, that the x-ray evidence has to be "read in the light of past experience, and that there is ample scope for error in the interpretation thereof." But why should radiology be singled out for such criticism? Are not the clinical observations of the surgeon also to be read in the light of past experience,

and is there not ample scope for error in his interpretation thereof? Many radiologists have aet with surgical "fallacies" in the diagnosis of dislocated shoulder, for instance. Yet in these cases a radiograph taken by (and interpreted by) a competent radiologist would have given him an absolutely infallible diagnosis, unassisted by any clinical signs or symptoms. In more than one such case it would also have saved the surgeon from having to pay heavy damages.

It is true that Mr Paterson concludes by holding out one crumb of comfort to us poor radiologists, when he magnanimously acknowledges that radiography is "of value." But I affirm that he has said nothing to justify such statements as that the "assumption that there is such a thing as a radiological diagnosis is a fallacy," or that "a radiological diagnosis, as such, does not exist." Such sweeping assertions do nothing to help the progress of medical science, and a little common sense on both sides would do away with the excuse for such discussions as that opened by Mr Paterson at Cardiff—I am, etc.,

Manchester, Oct 31st

W J S BYTHELL

PAEDIATRICS OR PEDIATRICS

SIR,—In your issue of to-day there is amongst the notices of the week a mention of the FitzPatrick Lectures, which are stated to be "On the history of Pediatrics." There is some mistake. I feel bound in all modesty to disclaim any knowledge of this subject.

If it deals with the science of plane surfaces (*παιδια*), I never had any skill in geometry, and am incompetent to deal with it. If, on the other hand, it refers to eursmanship (*παιδος*), or any other form of athletics, such as jumping, I cannot claim to have studied it. Some illiterate person has suggested that the term "pediatrics" refers to boots and bunsions, but I apprehend that the correct term for this would be "podiatrics."

My lectures are concerned merely with paediatrics—the study of children (*παιδες* or *παιδια*)—I am, etc.,

London W Nov 3rd

GEO F STILL

** We respect Dr Still's desire to keep medical orthography on sound lines, but since pedagogy and pedantic (also derived from *παις*) are so split nowadays in good circles, why not pediatrics too? The *New English Dictionary* gives both spellings—pediatrics and paediatrics. A ruling by the Society for Pure English would be welcome, also on two other words in common medical use—*orthopaedics* or *orthopedics*, and *aetiology* or *etiology*.

THE DURATION OF PREGNANCY

SIR,—Recent publications have, I think, awakened a renewed interest in the factors determining the period of human pregnancy, and the possibility of correlating it with the length of the menstrual cycle in any particular case. Jolly¹ has expressed the view that in short cycle cases—for example, twenty-four days—the period of pregnancy extends over eleven cycles, counting from the last menstruation. He terms this the "physiological" period of gestation in the human being, and considers that the reason why pregnancy is terminated as a rule before the lapse of eleven cycles is that the usual case (a twenty-eight-day cycle) is really complicated by other factors, such as the mechanical distension of the uterus.

I should like however, to point out that in my experience the length of the menstrual cycle is not so fixed as many people suppose, we must ask ourselves what is the mechanism of the short cycle case, and whether it is the same as that of the usual twenty-eight-day cycle case. As an example I may record the following case which came under my observation.

A tall healthy girl commenced menstruating at the age of 13½. Her periods at first occurred at intervals of between fourteen and twenty-one days, usually at fourteen-day intervals and lasted for five days. After seven months the type of cycle changed and the periods came on every twenty-eight days and lasted for six to seven days. For about a year after this it happened that occasionally an extra menstrual period occurred in the middle of the month lasting for five days and usually

¹ Jolly, W. A. *Journ. Obstet. and Gyn. Brit. Emp.* vol. 35, 1928.

associated with pain. On two occasions there was no discharge of blood at this extra period, but it consisted of a leucorrhoea lasting for a few days and accompanied by pain. About a year later the menstruation became regular, once every twenty-eight days and lasting for five or six days.

There seems no doubt that if pregnancy were to occur after the establishment of the twenty-eight-day cycle in this case its duration would correspond to the usual, but it is an interesting question as to what duration could be predicted if pregnancy had supervened while the cycle was short. In this connexion the case recorded by Dr S. H. Waddy in the *British Medical Journal* (January 14th, p. 75) may be quoted. The patient underwent curettage and gave birth to a full-term infant 231 days after the operation; she had a short cycle, menstruating regularly every twenty-one days. Dr Waddy took the view that there was here a period of gestation of exactly the duration of ten cycles, that is, 210 days. This is based on the assumption that coitus did not take place for three weeks after the curetting. But if we assume that the curetting took place on a day that would have coincided with menstruation, then the period of pregnancy, reckoning from this menstruation, is exactly eleven cycles, that is, 231 days, which agrees precisely with Jolly's theory. The date of coitus is not known, but if we assume that the fertilization took place at ovulation, which is generally considered to occur about half-way between menstruation, then the actual period of gestation would be ten and a half cycles. On the whole this case may be regarded as lending support to Jolly's theory.

As regards the factors which bring about parturition, there can be little doubt that endocrine influences from the ovary play an important part but we cannot claim to understand the mechanism yet. It has been demonstrated² that the injection of an extract of ovary lowers the blood calcium, and that there is a marked fall in blood calcium preceding parturition.³ Perhaps further investigation of this relationship may lead on to a fuller understanding of the problem, and I hope later to publish results of experiments which I have on hand dealing with this matter—I am, etc.,

L. MURVISH, M.B., Ch.B.

University of Capetown Oct. 18th.

PAINLESS LABOURS

SIR,—Several years ago I attended a case similar to those described by Dr Mary DeGaris on October 27th (p. 745). The patient, a primipara, had strong uterine contractions, but no suffering; she remarked that "if these are labour pains, I can't see what people make all the fuss about." Stitching of the perineum, however, caused some pain later.

Referring to uterine contractions, Eden and Holland state that "in animals they are peristaltic, but clinically this is not observable in women." Possibly Dr DeGaris's cases are instances of painless uterine peristalsis. Apparently in cases of primary uterine inertia there is painful uterine peristalsis or uterine colic. Remington Hobbs has pointed out how this uterine colic can occur in the puerperium if there is obstruction at the internal os.

The causes of the ineffectual uterine contractions may be various—a full bladder or rectum, or the patient may be nervous, and worrying about anything from a new nurse to the necessity of finding a new flat (one remembers, of course, that the first recorded case of painful parturition occurred after an eviction!), but the results of the usual treatment with morphine, atropine, and hyoscyne are very good.

A few years ago, when midwives used to send for help very late in the course of a confinement, one used to see, in addition to cases of primary uterine inertia, a number of cases where frequent strong uterine contractions were accompanied by very severe suffering. These were not cases of tonic contraction; there was no obstruction, and with chloroform anaesthesia delivery was comparatively simple.

Recently one has seen fewer of these cases. It is more widely realized that two or more sleepless nights are a

poor preparation for severe muscular effort. The doctor is called in early, a hypnotic secures a night's rest for the patient, the nurse, and the doctor. Uterine contractions, when they begin, are much more effective, and the suffering does not seem to be so acute. Frequently, in fact, the midwife reports later that "the patient had a few food-going pains," and the baby was born, with no need for further medical assistance.

Consideration of this group of cases—whether they are pigeon-holed as spasm of the uterus, lower uterine segment, or cervix, as uterine colic, as altered polarity, or as primary uterine inertia—leads to the inquiry whether it is the hypnotic action of the drugs used or the anti-spasmodic effect that is of more value. Has the result been determined of adding more atropine, belladonna, or hyoscyamine to the usual hypnotics? Has benzoyl benzoate any effect? Does a patient who is delirious while having "twilight sleep" show less spasm than one who is only sleepy?

Perhaps some investigations on these lines will enable us to get back to the "painless labour"—I am, etc.,

London W.10 Oct. 28th.

A. KEITH GIBSON.

PESSARIES FOR PROLAPSE

SIR,—The use of pessaries for simple prolapsus uteri raises the all-important question which to employ. Having met with an extraordinary number of septic cases following treatment with the various kinds of ring pessaries, I have every reason to be content with the satisfactory results which have followed the use of the india-rubber cup-and-stem variety.

Only recently I have had under my care a woman with an offensive vaginal discharge, the result of wearing a ring. This had been placed in situ last June, when she was instructed that it would not be necessary to remove it for six months. To give such advice to a patient was, to say the least of it, extremely unfortunate. Even the constant use of a douche by a patient is not sufficient in itself to ensure safety for so long a period, and the results appear to be always the same—that is, a septic discharge with a general lowering of vitality.

As this patient is only one of many who have come to me for treatment, I venture to suggest that the subject is important enough to merit some discussion, as well as suggestions with regard to the use of pessaries in general. Personally I have never found the cup-and-stem pessary fail in this type of case. This result, naturally, is due in the main to the fact that the patient can take it out every night and replace it fresh and clean before rising—I am, etc.,

Canford Cliff Oct. 30th.

FRANCIS G. BENNETT.

TUBERCULOSIS BOARDS

SIR,—Now that radical changes are taking place in connexion with the Ministry of Pensions' procedure I should like to call attention to a suggestion I made some years ago.

By way of preface, may I say that I think most tuberculosis specialists who have had much experience on medical boards will agree that a large proportion of the men who are receiving pensions for tuberculosis have not got the disease and probably never had it? I think it was Osler who said that half (or was it 75 per cent.) of the men who were discharged from the army with tuberculosis as their disability never had the disease. Speaking on this point in a paper I read at the Royal Sanitary Institute Congress at Hull in 1923, I said

There has been a gigantic error in diagnosis and there is every reason to believe that the same error is still being made and on very nearly the same scale. The report of the Public Health Committee of the London County Council for 1921 mentions that of 158 men sent to the Brompton Hospital for diagnostic purposes 78.4 per cent were reported as not suffering from tuberculosis.

To give a definite diagnosis of tuberculosis in doubtful cases is a safe and widely adopted policy. It is often right and often wrong. In any case the examiner is on the safe side of the fence whatever happens, but the results in money and man waste are appalling.

From a diagnostic point of view this is the most difficult disease in the whole range of medicine. The history of

² Murvish and Boeman. *Quart. Journ. Exp. Physiol.* 1927 vol. xiii, pp. 11-23, 29-33.
³ McIsaac P. *Brit. Journ. Exp. Biol.* 1928 vol. v No. 3 p. 233.

having had a positive sputum does not help much. We are all familiar with the ease with which a positive sputum could be produced in the army, and with the number of men who 'got their tickets' in this way. We might apply the same remarks to a history of haemoptysis.

Many years ago I suggested to the pensions officials that their methods of dealing with these doubtful cases were all wrong. I suggested with much trepidation and humility that it was not right and just to put on the shoulders of one tuberculosis officer the onus of deciding whether or not certain men had tuberculosis, and that the Ministry should appoint a travelling tuberculosis board, consisting of three specialists in this disease, to examine and decide the fate of these men. I can see little virtue and many faults in the new methods of the Ministry. Special boards are to sit in London, Liverpool, Newcastle, and Glasgow. I venture to say that not a quarter of the men will be able to obey the summons to attend. I submit that if a man really has tuberculosis which originated during his service in the great war he will not now be in a condition to take a railway journey of, say, four or five hours each way.

I have great respect for the permanent officials of the various Ministries, but they often make grave mistakes. This new scheme is one of them. They should bring the special boards to the men, not the men to the boards.

Anent this subject, may I tell a story which has the merit of being true—it can be verified by reference to the man's M.P.A.9. A "permanent official," reporting on a certain case, entered on the man's record card, "This man will require home treatment for the rest of his life and probably institutional treatment later."—I am, etc.,

Hull Oct 24th.

T READMAN

POISONING BY BENZOL VAPOUR

SIR,—In your issue of November 3rd (p. 794) Dr. Gaffrey Carter contributes a note on poisoning by benzol vapour. He begins with the words "These cases are so rare," and continues that in his forensic medicine literature he could only find one recorded case, and that not fatal. In the literature of industrial hygiene such cases are by no means scarce. Benzol poisoning has been very fully surveyed by Greenburg in three issues of the U.S.A. Public Health Reports. Parts I and II are in Vol. 41, No. 27, of July 2nd, 1926 (Part II is 'Acute Benzol Poisoning'). Parts III, IV, and V in the succeeding Nos. 28 and Parts VI, VII, and VIII a fortnight later, in No. 30. Part VIII is a bibliography of 106 references.

If Dr. Carter should wish to read Greenburg's report and has any difficulty in obtaining it, I should be glad to send the three numbers of the U.S.A. Reports. The survey is not confined to benzol poisoning in America. Greenburg's papers, and many others on benzol poisoning, have been noticed in the *Bulletin of Hygiene* published from this Bureau.—I am, etc.,

JOHN F. C. HASLAM

Bureau of Hygiene and Tropical Diseases
23 Endleigh Gardens W.C.1.

TRAUMATIC RUPTURE OF SPLEEN

SIR,—I have read with interest Mr. C. J. Cellan-Jones's memorandum on traumatic rupture of the spleen (October 20th, p. 700), as my twenty-five years' surgical experience in Bombay, where, owing to the prevalence of malaria, rupture of the spleen is perhaps the most common intra-abdominal injury, has confirmed me in the belief that delayed haemorrhage and also spontaneous arrest of bleeding are extremely rare. The prognosis, however, is good, provided the surgeon sees the case before too much blood has been lost.

My excuse for writing is that the two cases briefly described here may be of interest to some of your readers, since, though they came under my care at least twenty years ago, I have not subsequently met anything resembling them.

CASE I

A European man aged about 40 was brought to hospital one Saturday about noon. He was very ill and stated that he had been struck with a stick on the left side the previous Saturday night, since when he had had severe pain and several rigors but had continued to work right up to the morning of his admission when he felt he could continue no longer.

The left side of his abdomen was more or less rigid rendering palpation difficult, but an ill-defined mass, in which no splenic notch could be identified, was felt extending from the splenic area down into the pelvis. The left side was dull on percussion but there was no evidence of free fluid in the abdomen. The signs of sudden severe abdominal haemorrhage with the exception of bloodlessness were absent. His condition was such that thorough examination was not possible and successful exploration out of the question. The diagnosis rested between slow haemorrhage from a ruptured spleen caused by a not very severe blow received seven days previously and extreme malarial anaemia combined with splenic enlargement and perisplenitis.

The patient died within two hours of admission. At the necropsy the spleen was found to be considerably enlarged with a tear involving the lower border and extending up the posterior surface, from which a large blood clot resembling a stalactite, extended down to the bottom of the pelvis. There was no free unclotted blood in the abdominal cavity.

This appears to have been a case of slow haemorrhage with a prolonged, though unsuccessful, attempt at spontaneous cure by coagulation, and in all probability haemorrhage was intermittent. Had the patient been kept at rest Nature's efforts might have been crowned with success.

CASE II

An Indian boy, aged 12 or 13 years, was admitted with a tumour extending from under the ribs to the iliac crest on the left side and forwards to near the middle line. The boy was not ill, but complained of discomfort. The history as to origin and when first noticed was vague. On examination the tumour was found to be largely cystic and connected with the spleen.

The left flank was incised and on opening the cyst a large quantity of golden yellow fluid laden with cholesterol crystals escaped. The operation was completed by cutting away as much as possible of the cyst wall and suturing the edges to the wound which healed up by granulation in due course. Microscopic and bacteriological examination threw no further light on the origin.

I think it is possible that this cyst may have originated in an intracapsular haemorrhage caused by some slight forgotten injury.—I am, etc.,

T. S. NOVIS, F.R.C.S.,
Lieutenant-Colonel I.M.S. (ret.)

Maidenhead Oct. 25th

MEDICAL SICKNESS, ANNUITY AND LIFE ASSURANCE SOCIETY LIMITED

SIR,—In reparting the annual general meeting of this society you did not make clear the position in regard to the election of directors. Believing the general body of members will wish to know the facts, I venture to submit them.

Dr. Martley and I were the two directors retiring by rotation, and we offered ourselves for re-election. Mr. McNeill Love also sought election, thereby creating a contest.

Your readers will, I am sure, concede that in all commercial companies apposition to the re-election of a director and the election of a new man in his place is taken as a vote of censure upon the whole board and the administration of the company's affairs. Since, however, the past year has been the most successful in the history of the company, there can be no excuse for turning out one of the directors in favour of a new man.

As no proxies were issued by the company when sending out the notices convening the annual general meeting, the election was necessarily left to be decided by the votes of those present. Since the membership of the company is nearly 6,000, and such a vote could not, in fairness, be taken as reflecting the feelings of the general body of the members, a poll was demanded. It was ruled by the chairman to take this poll a fortnight later. Proxies were issued with the notice of this poll, and therefore when the members received proxies and a request to vote from the new candidate and Dr. Martley, and no such request from myself, many signed these proxies without realizing that a director would thereby be displaced.

It may be queried why I also did not canvass the electorate. My answer is that I was lulled into a sense of false security by being led to believe up to the last moment, that Mr. Love would withdraw and wait for the next casual vacancy on the board. When, however, one week before the meeting I learned that Mr. Love did not intend to withdraw, it was too late to do anything but write to my personal friends my only chance being to leave the result to the good judgement and good taste of the general body of the members since there was no time to canvass and inform them of my services to the company.

As an indication of these services I may here mention that I was one of the three founders of the present company who brought about its conversion from the old friendly society, on the committee of which I had served gratuitously for several years, that my colleagues on the board had done me the honour of electing me their vice-chairman and chairman of the new Business Subcommittee, and that I have worked hard for extending the company's business in many directions. I may add that I was the youngest member of the board, whose average age is 62.

I retire, therefore, in the belief that if all the members had been aware of the facts they would on principle have voted in my favour. I hope, therefore, that at the next election they will see to it that justice is done and will reinstate me in the office in which I have served them faithfully for so long—I am, etc.,

London W. Nov. 5th

HARRY HILLIARD

CHIMNEY SWEEP'S CANCER

Sir,—May I, through the medium of your columns, make an appeal for some small portions of the chimney-sweep's carcinoma if any surgeon has a case of this description awaiting operation? I am engaged in some investigations, and at the time am particularly anxious to obtain as many specimens as possible of this particular tumour. What I should like is a piece of tumour which includes surrounding skin, if possible also with the small papillomatous nodules, and areas of early involvement. If anyone can, and will, help me in the matter I shall be most grateful if he will communicate with me at the laboratory, St. Giles's Hospital, Brunswick Square, S.W. 5 (telephone Rodnor 4221), when I would arrange to collect the material.—I am, etc.,

London S.E. Oct. 29th.

G. BOUSFIELD, M.B., B.S. Lond.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The King's Speech

Debate on the Address

PARLIAMENT was opened by the King on November 6th. The Speech from the Throne, after referring to foreign affairs, announced that the Estimates for the coming year were being prepared with strict attention to the need for economy in public expenditure. A bill was proposed to authorize increased borrowing to meet the drain on the unemployment fund resulting from distress in the mining areas. Bills would be presented to reorganize local government in England and Scotland, these would also give effect to the rating reforms and adjust the financial relations between the State and the local authorities. The Speech added that the King's Ministers trusted that the proposed changes in local government and in the relations between the Exchequer and local authorities would enable better provision to be made for the health of the people.

In the House of Commons later on the same day Mr. NEVILLE CHAMBERLAIN gave notice of his intention to introduce at an early date a bill to amend the law relating to local government.

Mr. RAMSAY MACDONALD pointed out that the King's Speech did not mention the *Factories Bill*, though the Government had promised that in previous sessions.

Mr. BALDWIN admitted that an undertaking had been given to introduce the *Factories Bill*. Difficulties of time and the overriding importance of the reforms in rating and local government made that impossible. Mr. Baldwin announced that the Government would ask the House to pass the *Expiring Laws Continuance Bill* and legislation on the traffic services in the Western Highlands and Islands. All private members' time would be taken to Easter, and there would be no ballot for private members' motions.

Dr. FREMANTLE said he hoped that, by the help of all well-wishers of factory and workshop legislation on both sides of the House, they might well be able to find time before the end of the present session to pass the now much needed and frequently promised *Factories and Workshops Bill*. The anticipation in the King's Speech that the proposed changes in local government would enable better provision to be made for the health of the people was not encouraging to those who were keen on thus or that particular measure of social progress.

Still less was the fact that there was no mention of housing at all in the Speech an encouragement. They had had nothing from the Prime Minister in regard to the removal of the subsidy, yet it was vital to the housing movement that they should economize their resources as much as possible. A great deal of the subsidy on houses with a rent of over one guinea a week was being thrown away at the present time. The Prime Minister had referred to the fact that Parliament would have to deal with rent restrictions in the *Expiring Laws Continuance Bill*. The *Restrictions Acts* were at the very bottom of their difficulties in connection with slum property and slum treatment. The development of estates was being delayed because of the exceptional instances of control. Here and there control had held up the erection of houses, and had got in the way of development. It was causing inequalities to owners against profiteering on the part of tenants as opposed to sub-tenants and a great deal of suffering to sub-tenants. There was abundant reason why the subsidy should be further knocked off houses of the highest rental value. By relieving the subsidy on the more expensive houses, which were being adequately provided by private enterprise, so much money would be set free, by which they would be able to subsidize slum clearances. There was no promise in the Speech that the subject of slums was to be dealt with. The Prime Minister said, in December, 1924, when he took office: "We have got to get rid of two things—the shortage in houses and the disgrace of the slums." He (Dr. Fremantle) believed that if they achieved de-control and de-subsidizing they could have improvements in the slums. The report of the Lunacy Commission which came out three or four years ago revealed a system which was insufferably hard on a large number of mental cases. He sincerely hoped that time might be found for legislation on this subject. The country was suffering at the present moment from a vast outbreak of preventable disease—small pox. It had been a mild type of that disease, but the medical profession could give no assurance that it would not become worse. They were sitting on the top of a volcano. He was glad that the great powers had agreed under the aegis of the Health Organization of the League of Nations, to study the question of small pox. A committee had been formed to study it permanently. Of all the civilized countries our own country was one of the most infected with small pox. It was recognized that we were more behindhand in the application of vaccination than any other country, and other countries recognized the necessity for keeping up their quarantine regulations against us. Vaccination had hitherto been left in the hands of the Poor Law guardians, while small pox was in the hands of the sanitary authority. He hoped that in the reorganization of local government it would follow, as a result of the Government's scheme, that the matter of vaccination would be under the control of the larger authorities.

The debate on the Address in reply to the King's Speech continued in the Commons all the week. That in the Lords ended on Tuesday night.

Universities and Colleges

UNIVERSITY OF OXFORD

Theodore Williams Scholarships

On the recommendation of the Waynflete Professor of Physiology the Board of Management has elected Robert A. Beaver New College, to be the Theodore Williams Scholar in Physiology for the year 1928-29.

The Professor of Human Anatomy has reported to the Vice-Chancellor that he recommends that Renatus Kemphorne Queen's College, and Aldwyn B. Stokes B.A. Jesus College, be bracketed equal for the Theodore Williams Scholarship in Anatomy 1928.

On the recommendation of the Professor of Pathology the Board of Management has elected Frank Hawking, University College, to be the Theodore Williams Scholar in Pathology for the year 1928-29.

Radcliffe Scholarship in Pharmacology

The Master and Fellows of University College upon the report of the Professor of Pharmacology have awarded the Radcliffe Scholarship in Pharmacology to Hedley John Barnard Atkins, Trinity College and John Henderson Hunt B.A., Balliol College, equal.

The following are the Degree Days for the present academic year—*Michaelmas Term* 1928: Saturday November 24th, Monday December 17th. *Hilary Term* 1929: Thursday January 24th, Saturday February 16th. *Summer Term* 1929: Saturday March 23rd, Trinity Term, 1929: Thursday May 2nd, Saturday June 8th, Thursday June 27th, Saturday July 20th.

Obituary

SIR HUGH ANDERSON, M A, M D,
F R C P, F R S,

Master of Gonville and Caius College Cambridge

WE have to record with sorrow the death on November 2nd, at the age of 63, after a severe operation, of Sir Hugh Keri Anderson, M D, F R S, Master of Caius College, Cambridge. The outstanding features of his character and of his work are portrayed with intimate knowledge and feeling in the memoir printed below, which has been written at our request by Sir William Hardy, F R S. Sir Hugh Anderson was a true friend to Medicine and to innumerable members of our profession. Although he never practised, his gift of imaginative sympathy enabled him to understand the doctor and the doctor's work. It was characteristic of him that when the British Medical Association met at Cambridge in 1920 he made no public appearances, but welcomed with gracious hospitality the fifty members who lodged in Caius, and dined and talked with them every evening in Hall or Combination Room. He threw himself heart and soul into the arrangements for the Annual Meeting, and showed in many quiet ways, then and at other times, his sympathy with the aims of the Association and his friendship for the Journal.

Anderson's career (Sir William Hardy writes) is something of an enigma. In the first fifteen years of his productive life he proved himself to be possessed of an acute scientific intellect and of an altogether rare quality as a teacher. Why did he not follow the ordinary course, occupy a chair, and become head of a school? Why did he suddenly cease actively to pursue scientific research to be a wise and kind counsellor in affairs, of whom it may be said in literal truth that "there is hardly any great project which has come to fruition in Cambridge for many years but he has been its most inspiring forwarder"? The answer lay in himself. Scientist, man of affairs, artist—he was all of these and the first two found obvious expression. The third, however, cannot be neglected, since it informed and coloured the whole. These three struggled to possess him, and when the conflict was at its fiercest in the early nineties they tore him sorely.

Anderson came to Caius in 1884 as a classical scholar. He held a Saver Scholarship, which was founded by a Canon "for the Promotion of Classical Learning and Taste from Harrow School to be held at Caius College." He at once changed, however, to medicine, and after taking a first class in both parts of the Natural Sciences Tripos, went to St Bartholomew's Hospital to complete his medical course. Somewhere in these years he attended Addenbrooke's Hospital, and cherished memories of the caustic and merciless way in which Sir George Humphrey managed his classes. My recollection of these early years is of musical occasions when Anderson played the 'cello, and of him as an active member of the College Musical Society. After taking his medical degree in 1891 he returned to Cambridge to follow research in the physiological labora-

tory, where he was one of the third generation of Foster's men, the first exemplified by Gaskell and Langley, the second by Sherrington, Adam, Hoad, Rolleston, Shore, the third by Anderson, Rivers, Fletcher, Hopkins, and the fourth by Pavlov, Dale, Elliott.

From 1892 to 1905 there was a steady output of scientific papers, twenty-two in all, bearing Anderson's name. Of their scope and quality I will speak presently. In 1905 the curtain fell, his election to the Royal Society in 1907 being in some sort a posthumous honour so far as his scientific life was concerned. The beginning of the eclipse—for eclipse it was of a brilliant scientific career—is to be found in a simple enough happening, when he first took his turn amongst the Fellows of his College to audit the College accounts. Finance was of the very make up of his being, and from that first auditing followed activities which by 1903 had completely remodelled the College finances and had so increased his influence within the

College that when the headship fell vacant in 1912 the Fellows practically without debate elected him Master. No one was surprised save Anderson himself, and never in the history of any institution was there a more fortunate choice. The date 1905 marks the time when even Anderson's immense industry was unable longer to bear the double burden of College affairs and active research. He did, it is true, and most fortunately for that generation, continue the teaching of science until his election as Master.

In 1909, and again in 1912, when the Hall and Lodge were remodelled, the third side of his nature, his delicate and detailed sense of beauty, enabled him to give peculiar service to his College, which is a vivid memory of those who are able to recollect that time.

The University was not long in discovering the capacity for service which this junior Fellow of Caius possessed. In 1906 he became a member of the University Press Syndicate, in 1908 of the Financial Board, and in 1910 of the Council of the Senate. Thence onward there is a record of ever-

widening public duties, of which the barest enumeration must suffice. He became chairman of the University Press Syndicate, and in that capacity head of a great publishing house. In 1919 Anderson was appointed a member of the Universities Commission, and in 1922 of the University of Cambridge Statutory Commission.

Outside the University he was a director of the London Life Assurance Company, a member of the Commonwealth Fellowship Committee and chairman of the Cambridge Waterworks Company. I reserve to the last an appointment which gave him peculiar pleasure—his election as a governor of Harrow School. Had he acceded to the demands made upon him his activities would have been increased tenfold, but he consciously reserved himself for the service of his College and of his University.

Of the twenty-two scientific papers which bear Anderson's name, nineteen deal with the sympathetic nervous system, and of these fourteen were written in collaboration with Langley. One paper, on the action of the epiglottis, was written with Kanthack, the gifted second professor of pathology in Cambridge whose untimely death took place



THE MASTER OF CAIUS

shortly after 1898, the date of the paper. The collaboration with Langley lasted from 1892 until 1904. It was only in 1902 that Anderson published the first paper of which he was sole author. Looking through these papers after a lapse of years, one is impressed by the immense amount contributed by Anderson to that prolonged analysis of the sympathetic system so steadfastly pursued by Langley, and one can see that Gaskell, Langley, and Anderson started a new movement in physiology. It was a field peculiarly suited to Anderson's extraordinarily high technical skill in dissection, operation, and histology. The series of joint papers begins with the neuromuscular mechanism of the pupil, passes on to the nerves of the large and small intestines, the bladder and generative organs, and ends in the great paper of 1904 on the three classes of nerve fibres—fundamentally distinct in that they are incapable of joining together after section. These classes are the efferent fibres of the spinal cord, the post-ganglionic sympathetic fibres and the afferent fibres. In 1903 Anderson published four important papers, of which he was sole author, on the paralysis of involuntary muscle. The main subject was the so-called paradoxical dilatation of the pupil which follows on injury to the cervical sympathetic. Thus he traced to a state of hyperexcitation of the muscle and not to local action of the ciliary ganglion. In the course of this work he demonstrated reflex dilatation by way of the cervical sympathetic. Two papers alone record work outside the nervous system, and one of these, that on the properties of the peculiarly unstable cosmophilous corpuscles of fish, was of outstanding importance in the controversies of the times.

That is a summary of Anderson's published record, but it by no means exhausts his contributions to science. His reach far exceeded his grasp. Those who worked in Foster's laboratory at any time between 1891 and 1912 will recollect how fertile Anderson was in ideas, how accessible, and how stimulating it was to discuss work with him. No department of physiology seemed to come amiss to him. Contemporaries and pupils alike can bear testimony to the fact that in those years he was a great biologist.

He was, if that were possible, even better as a teacher than as a research worker. While he was lecturer in advanced histology the subject had a character which it has never had since, and everyone who attended his classes, and especially those who came to the small evening classes, will recollect how he never spared himself, and how vividly original in outlook was his mind. It was totally impossible for him to reproduce in class clumsy fragments of textbooks.

Of Anderson's method of work the chief feature was a capacity for taking pains. In the work on the Royal Commission "not a detail escaped him. He toiled day and often night, not only at documents presented to him, but in creating invaluable presentation of statistical and financial information." What a familiar picture those phrases call up to all who knew him intimately! He was apprehensive in this that he felt vividly the possibility and consequences of failure. Sensitive is perhaps the better word, sensitive to those small signs which point to success or failure, especially in dealing with people. Apprehensive and sensitive, yes, but once the course of action was settled in his mind, by the tremendous drill in detail to which he subjected all his ideas, no one could have been bolder.

It is comparatively easy to set out the outstanding features of his career and of his methods, but of the man it is more difficult to speak, and yet for his generation, it was the man that counted. He was so gifted and yet so gentle, so capable of tendering help and so approachable by all who needed help. He was the well-beloved, and on that sure foundation stood his great gifts of service. It is hard to write temperately of him as a personality, hard because any form of words must fall so far short of the truth. "Some of us have lost an old and very dear friend. All of us have lost a wise and kind counsellor." He has great achievements to his credit, but he has also "the number of young people with no claim upon him, in all walks of life, whom he has set upon their road." He might have been a great administrator in wider fields; he might have been a great professor; he was a great Head of his House, and he was a gentleman in the simple significance of the word.

Sir HUGH HENRY ROLLESTON, Bt, Regius Professor of Physics at Cambridge, writes:

The sudden and premature death of the Master of Cambridge is a stunning blow not only to his friends—for they are many, and he was the most lovable of men, ever ready to help others, and entirely oblivious of his own interests—but to the University, and even more so to the Medical School, of Cambridge. The loss of his long-sighted ability and wise judgement leaves a gap which it will be difficult, if not impossible for a long time, to fill, probably few outside its councils know what he meant to the University, and even the numerous committees, syndicates, and boards of which he was a member do not fully represent his influence on its policy and progress. With a wonderful grasp of affairs and long experience he ungrudgingly shouldered heavy burdens of complicated detail, while keeping his activities out of the limelight. His advice was universally sought and carried conviction, but, though clearly expressed, his opinion was given in a most conciliatory manner, for, like the really great, he was essentially modest and sensitive to the feelings of others. He faced illness, of which he had more than his share, with a courage and cheerfulness rarely equalled.

In his younger days a physiologist of great eminence, he maintained a wide knowledge of the natural sciences, and his acquaintance with current work in very different branches and his faculty for anticipating future developments were almost bewildering. Though perhaps on rather different lines, he was, as regards the natural sciences, the real successor of one of the founders of the modern school of medicine at Cambridge, Sir Michael Foster. At the moment of this grievous loss it is difficult to realize, much more so to express, what his death means to his colleagues and friends, for they cannot hope to meet his like again.

Sir WALTER FLETCHER, M.D., F.R.S., Fellow of Trinity College and Secretary of the Medical Research Council, writes:

To Sir William Hardy's most effective sketch of Sir Hugh Anderson's character and work there is little that could be added appropriately here. The medical profession, whether as concerned with its sciences or with its arts, may surely feel proud to number as one of themselves a man who upheld so fully the highest traditions of medicine. He added to knowledge, he greatly served the cause of education, and he abounded in self-sacrificing kindness to others.

It would be out of place to attempt here any detailed notice of the part Sir Hugh Anderson played for a quarter of a century in the development and growth of the Cambridge Medical School. In that, as in other great fields of work, his University owes him an incalculable debt. Here I would only point to a quality which contributed to the value and stability of all he accomplished. Anderson's labours were never in the spirit of partisanship or rivalry. He worked for his College, not as against other Colleges, but because the strength and success of his College served causes he knew to be great. So in his work for the University, he cared deeply for truth for its growth by research, and for the uses to which rightly planned education could bring it. This was the motive force behind all his work, and so in serving his own school of medicine in that spirit he has served the cause of medicine as a whole. Other great and even more direct services he gave as well. For many years he taught and inspired a succession of men who have passed on to work in the various fields of medicine. Very many of these owe to him their first clear ideas of method and sincerity in scientific work, very many owe repeated acts of help and encouragement in their lives. The tale of this kind of service can never be ended or calculated.

In the work of the Royal Commission, and of the Statutory Commission for Cambridge, he took the heavy burden that is now well known, and more recently he has taken the lead in planning the great new developments now foreshadowed for the University Library and some of the biological departments. In these he had a clear view of what medicine has to gain from added strength given to the newer sciences upon which it will have increasingly to draw. He had joined the Medical Research Council a year ago and had looked forward, as the Council had,

to a near future in which relief from his great general burdens might have set him free to enter again more fully into his old delights of helping the growth of biological knowledge

Now there has passed away a great Master of Caius, that College of Harvey and Glisson, whose name must stand proudly among those of any of his predecessors since Dr Caius himself. More happy he was than Caius, in that he never had a personal enemy. Like Caius he was small in physical stature. He died at exactly the same age, and, again like Caius, he was brought home for the last time to his College on the Tuesday after his death in London, passing as he did after a life of Humility and Fortitude out of the Gate of Honour. We can say truly, in thinking of his services to his College and University, what Conrad Gesner wrote of Dr Caius, that he had "consummate judgement, fidelity, and diligence."

Dr H. R. DEAN, Professor of Pathology in the University of Cambridge, writes

It is probable that no single person knew more than a few of the many activities which filled almost every hour of the day for the Master of Caius. The widespread interests of the University, the welfare of his College, the smallest details in the progress of each one of the laboratories of the medical school, the private affairs of his many friends, and even of the almost strangers, who often came to seek his help, were one and all his constant care. While no project for promoting the interests of the University failed to enlist his active support, his enthusiasm found its chief outlet in fostering the advancement of the University departments devoted to the study of the biological sciences. In the department of physiology he maintained a lifelong interest, and he took the keenest pleasure in the growth of the closely related departments of biochemistry and pathology. In the welfare of medical science, in the medical student, and in the difficult problems of the medical curriculum he was always interested, and the Cambridge Medical School owes much alike to the vision which enabled him to forge great schemes for the future of the school and to the meticulous care with which he worked out the smallest details of his plans. His industry was almost fabulous, and when, as often, his interests were deeply engaged, he found it impossible to rest. Elaborate plans, schemes, and proposals were drafted with his own hand with the blue pen and the black Indian ink which he delighted to use. Correction after correction was made, and the whole document was rewritten often three and four times before he was satisfied with the wording and arrangement. He thought little of making several copies of the final draft. During the last few years he did indeed permit a secretary to help him with his work, but he had little liking for typewriting, and his letters to his friends were always written with his own hand.

Busy as he was, he always found the time to help his friends with sympathy, encouragement and well-directed but always kindly criticisms. He was the most accessible of men, and we took our difficulties, great and small, straight to him. We let ourselves into the Lodge at Caius, we never rang a bell. The study door was always open, and from the hall we could see the Master writing at his table. "Come in," he always called. "I want to see you." And up he got from his table with a smile and a look which seemed to expect that your next remark would be something of quite unusual interest. He delighted in helping all who came to him. No problem was too small to arouse his sympathy and interest, and no trouble too great for him to take if he could help a friend. Progressive as he was in thought and policy, there were times when his views and plans met criticisms and opposition. He always considered the opinion of others, and he took great pains to understand the point of view of those who differed from him. He was always unwilling to force his opinions on others, and he thought little of spending hours and days in personal visits and talks with colleagues that he might the better understand their difficulties, and, if possible, construct a solution which all could approve.

His great charm of manner and conversation, his lively interest in everything which mattered to any one of his friends, his wonderful sympathy with the pleasures and

sorrows of his colleagues combined to make him the most delightful of companions. It was his habit to come to one of the laboratories late in the afternoon and to look for one of his friends. It was then, when he had escaped from a long meeting of a board or syndicate, that he liked to go for a short walk. In the summer the walk was generally to the botanical gardens, and the way to the gardens and back to Caius and the route within the gardens was hardly ever varied. In the winter time the walk was in the town, where the shops were just lit up and the windows which displayed old furniture or china or silver were closely scanned and their contents critically discussed, and sometimes a purchase was made. He loved beautiful things and understood them, and he liked to talk about them.

There will be many places in Cambridge where his loss will soon be felt, for he took an active share in so many phases of University life that no one of us will see all the gaps which he has left. In the science laboratories and in the medical school we shall find that we have lost a leader to whom we all have turned for guidance more often perhaps than we have known. All we know now is that we have had a friend who always gave of his best for us and whom we loved very dearly.

The funeral service was held in Caius Chapel on November 6th. Those present included Lady Anderson and other members of the family, the President and other Fellows and former Fellows and many graduate and undergraduate members of the College, together with Sir Ernest Rutherford (President), Sir Charles Sherrington (Past-President), and Sir Richard Glazebrook, representing the Royal Society, Dr W. S. A. Griffith, representing St. Bartholomew's Hospital and College, and the Editor of the *British Medical Journal*, representing the British Medical Association. On the coffin was placed the silver caduceus, the cushion, and the Book of Statutes, presented to his College in 1558 by John Caius, M.D. After the service the procession passed round Caius Court and out of the College through the Gate of Honour. A very largely attended official University memorial service, conducted by the Vice-Chancellor, was held simultaneously in Great St. Mary's Church. The Hebdomadal Council of the University of Oxford, remembering Sir Hugh Anderson's great services to both Universities while serving upon the Royal Commission on Oxford and Cambridge, appointed Sir Charles Sherrington, Waynflete Professor of Physiology, to represent the sister University at the funeral.

[The photograph reproduced is by J. Palmer Clarke, Cambridge.]

LOUIS LAWRENCE CASSIDY, M.B., Ch.B., F.R.C.S.I.,
Gynaecologist, Royal City of Dublin Hospital, Master of
the Coombe Hospital, Dublin.

WE had to announce last week, with great regret, that Dr Louis Cassidy, Master of the Coombe Hospital, Dublin, died on October 27th from injuries received in the hunting field while taking part in the opening meet of the season of the Ward Union Hunt. It appears that he was thrown into a ditch and that his horse fell upon him, when picked up he was unconscious, and he died soon after his arrival at the Mater Misericordiae Hospital.

Louis Lawrence Cassidy was the son of the late Anthony Cassidy, J.P., of the Grann, Enniskillen. He received his early education in his native town, and after he had spent some years at sea and obtained a master mariner's certificate commenced the study of medicine at Edinburgh University, where, in 1908, he graduated M.B., Ch.B. He became a Fellow of the Royal College of Surgeons in Ireland in 1911, and was also a Fellow and a member of the Council of the Royal Academy of Medicine. He was gynaecologist to the Royal City of Dublin Hospital, examiner in midwifery and gynaecology in Dublin University, a former senior demonstrator of anatomy in the Royal College of Surgeons, and gynaecologist to Dr Steevens's Hospital, Dublin. Dr Cassidy was a distinguished lecturer in gynaecology and cancer, and an ardent supporter of the National Cancer Research Campaign, which he helped to organize, and served as its secretary. Years of research into the elusive cause of cancer had fitted him admirably for such a post. At the recent public health congress in Dublin he read a

learned paper on ante-natal care, a subject in which he was greatly interested, and he communicated not a little of his interest to his audience. Not only was Dr Cassidy looked upon in Ireland as one of the foremost specialists in gynaecology, but his profound knowledge of the subject was recognised in Great Britain and on the Continent. He was a member of many medical societies, and his learning brought him into touch with the medical schools of Berlin and Vienna, and with other centres abroad, for a time he was secretary for foreign correspondence of the Royal Academy of Medicine.

Dr Cassidy joined the Royal Army Medical Corps as a captain soon after the outbreak of the war, serving with the forces in Salonika, where he established himself as an authority on malaria. He was a member of the Malaria Commission in the Stuma Valley, and joint author of *Malaria in Macedonia*, a book which threw much light on the campaign against this disease in the Near East. His work in Dublin is widely known. Nearly seven years ago he succeeded Mr McLaverty as Master of the Coombe Hospital, where he distinguished himself by his skill. So great was the success of the National Gynaecological Conference in Dublin on the occasion of the centenary of the Coombe Hospital, about two years ago, that the British Empire Gynaecological Society decided to hold its annual conference in Dublin next March. To Dr Cassidy were due in a large measure the visits of many outstanding men in the medical profession who have lectured in Dublin in recent years.

Of his generosity to the poor perhaps only the poor themselves have a full appreciation, especially those of the Coombe area. He was always willing to give financial help to deserving objects, and to any scheme for the advancement of his profession. He was a member of many organizations in the city, including the All-Ireland Polo Club. Dr Cassidy was respected by his colleagues in the medical profession, esteemed by the public at large, and loved by those in need. In his brilliant attainments, scrupulous sense of honour, and courtly manners, he was an Irish gentleman and scholar of the best type. He was only 51 years of age, and leaves a widow, a son, and a daughter, with whom deep sympathy is felt in their bereavement.

JOHN BLACKBURN SMITH, C B,

Major General I M S President of the Medical Board of the India Office

We have to announce, with great regret, that Major-General John Blackburn Smith, C B, Bombay Medical Service (retired), the president of the Medical Board of the India Office, died suddenly at Cork, where he had gone on short leave, on November 2nd at the age of 63. He was born on January 25th, 1865, the son of the late Rev John Anderson Smith of Lurgan, Armagh, and educated at Queen's College, Cork, graduating as B A in 1887, M B, B Ch, and B A O in 1888, and M Ch in 1889, in the Royal University of Ireland. Subsequently, in 1907, he took the diplomas in tropical medicine and public health at Cambridge. He entered the I M S as surgeon on September 30th, 1889, attained the rank of colonel on September 3rd, 1918, and was promoted to major-general on June 26th, 1920. He retired on January 22nd, 1923, and in August of that year was chosen to succeed Sir Havelock Charles, G C V O, as president of the Medical Board of the India Office, holding that post at the time of his death. During the war he served in Egypt from January, 1915, to April, 1916, and on the North-West Frontier of India, in the Mahsud operations, from May to August, 1919. He was mentioned in dispatches in the *London Gazette* of June 22nd, 1916, and May 18th, 1918, and was decorated with the C B on June 4th, 1918. He was appointed Honorary Physician to H M the King on January 25th, 1919, and received the C I E on January 1st, 1922.

General Smith had much experience of both military and civil employment in India. For many years he served as civil surgeon of Poona, the most important station in the Bombay Presidency, and after the war was appointed Deputy Director of Medical Services in the Eastern Command. For the last five years in the India Office, as

president of the Medical Board, he had rather a difficult job in the present state of transition of all things Indian. One of his most important duties was, as a member of the Selection Board, to choose men for appointment by nomination to the Indian Medical Service, a task for which he was specially fitted by his long experience and mature judgement. He was very popular both with his contemporaries and with junior officers. *Multis ille bonis flebilis occidit.*

In 1896 General Smith married Letty Mayne, daughter of the late W R Nelson of Belfast, who survives him. He leaves also three sons and one daughter.

One of General Smith's most intimate friends contributes the following note:

In the summer of 1923 General Smith was selected from a number of senior officers for the very responsible post of medical adviser and president of the Medical Board at the India Office, in succession to Sir Havelock Charles, Bt. Here once more his quiet conscientious work proved of inestimable value to his service at a most critical time, when the interests of the Indian Medical Service are being steadily sacrificed to political clamour in India. He never wavered in his loyal support of what he considered to be right in face of the insurmountable obstacles he had to face, and it was certainly not for any want of his persistent advocacy at the India Office that the Indian Medical Service, which has long been regarded as the greatest the world has ever seen, has not been able to recover from the repeated blows inflicted on it ever since the so-called reform scheme came into operation. In this uphill struggle his courtesy, modesty, great powers of application, and unswerving loyalty endeared him to all who had the privilege of working with him, and there is no doubt that his unceasing labours at the India Office caused him to age rapidly during the last few years and hastened his untimely end, a year before he would have retired to a well-earned rest, and before he had received any recognition of his labours at the India Office, which might fittingly have been bestowed when he first succeeded to his responsible duties there. The Indian Medical Service has lost in General J B Smith a greatly respected and loved officer of sterling character, who has well earned the highest praise, "Well done, good and faithful servant."

SIR G STEWART ABRAM, M B, B Ch,

Senior Physician Royal Berks Hospital

By the death of Sir Stewart Abram the town of Reading has lost one of its leading citizens, and the local medical profession one of its distinguished members, who leaves the memory of a well spent life devoted to the service of his fellow men.

George Stewart Abram received his early education at Merchant Taylors' School, and entered Caius College, Cambridge, where he gained honours in the natural sciences tripos. From the University he proceeded to University College Hospital, London, and in 1891 graduated M B, B Ch Camb, and obtained the diplomas M R C S, L R C P. In 1893 he settled in Reading and built up an extensive practice. In 1904 he was elected to the staff of the Royal Berks Hospital, of which later he became the senior physician. In due course he filled the office of president of the Reading Pathological Society, to which, on retiring from office, he presented a striking badge of "Imhotep," the Egyptian deity of medicine, as a souvenir of his presidency.

During the war he held the rank of major in the R A M C (T A), and took charge of the Wilson War Hospital at Reading, where some 10,000 patients passed through his hands. To the British Medical Association he ever rendered loyal service, being a member of the Reading and District Branch Council from 1900 to 1902, and of the Oxford and Reading Branch Council on and off between 1903 and 1920. He was elected vice-chairman of the Reading Division in 1913, and chairman in the following year.

A keen politician, Abram was a hearty supporter of the Conservative party, and for a time served as president of the Reading Conservative Association. To the civic life of Reading he rendered invaluable service, being for over

thirty one years first a town councillor and afterwards an alderman of the borough. He was chairman of the health committee of the Reading Education Committee. He filled the office of mayor in 1919-20, and in January, 1922, much to the gratification of his fellow townsmen, received the honour of knighthood. It may be said in brief that *omne quod tigit ornavit*. Amid his many professional, political, and civic activities he found time for sport, and participated in many tennis tournaments. In later years he became attracted to the drama, and took an important part in the Reading pageant, which was organized during his mayoralty and largely through his inspiration.

Some years ago he was attacked by a grievous malady, which he bore with characteristic fortitude, carrying on his exacting duties with admirable self-forgetfulness. A few weeks ago his malady reached a critical stage and the end was obviously approaching. On the night before his death a special meeting of the Reading Town Council was summoned for the single purpose of conferring upon him the highest honour that could be paid to a citizen—namely the honorary freedom of the borough. At this meeting eloquent tributes were paid to the character and services of the new freeman. At the close of the meeting the mayor hastened to Sir Stewart's bedside and presented to the dying alderman the parchment recording his admission to the honorary freedom of the borough. Five hours after signing the roll the new freeman breathed his last.

Sir Stewart Abram married, in 1883, Ethel May, daughter of Mr. T. F. Rider, M.V.O., to whom, with his son and two daughters, deep sympathy is extended.

J. B. H.

We are indebted to another colleague ("W. B. S.") for the following appreciation. Possessed of great personality and absolutely indefatigable energy, Abram did not confine his talents, which were many, purely to professional work. Shortly after he came to Reading he was elected to the town council, on which he served for very many years, taking the keenest interest in all its activities. He was also a governor of Reading School, a member of the court of the university, an ex-president of the Reading Pathological Society, and a member of very many charitable, welfare, and athletic association committees. He led a very active political life, and took a leading part in the organization of the Conservative party in the town, for many years he was chairman, and afterwards president, of the local Conservative and Unionist Association. A fluent and graceful speaker, he was always in great request at both political and non-political gatherings. In spite of severe disabilities due to progressive disease he carried on his ordinary work actively, cheerfully, and courageously until a week before his death. Abram loved his work and he loved his town. It can truly be said that few men have laboured so unceasingly for the good of his fellows. His untiring energy was amazing and his life's work has indeed been well done.

FRANK JOSEPH WETHERED, M.D., F.R.C.P.,

Consulting Physician to the Hospital for Consumption and Diseases of the Chest, Brompton, late Physician to the Middlesex Hospital.

We regret to announce the death, on October 28th, of Dr. F. J. Wethered at the age of 68.

Frank Joseph Wethered, who was the son of Joseph Wethered of Clifton, Bristol, was educated at Clifton College and the London Hospital. In 1885 he obtained the diplomas M.R.C.S. (Eng.) and I.S.A., and graduated M.B. (Lond.), in the following year he became M.R.C.P., and proceeded M.D. in 1888. He obtained the degree of M.D. (Bristol) in 1913. He devoted some time also to study abroad, principally in Berlin and Vienna, and was appointed medical registrar and demonstrator of practical medicine at the Middlesex Hospital in 1892. He was elected assistant physician to this hospital in 1899, and physician in 1913. He was also a member of the staffs at the Brompton Hospital for Consumption and St. Saviour's Hospital. Wethered was always interested in medical jurisprudence, and often visited the Law Courts and the Old Bailey, he became lecturer on the subject in the Middlesex Hospital

Medical School in 1896. He was also attracted by insurance work, and was for some time physician to the Equity and Law Life Assurance Society. He was elected a Fellow of the Royal College of Physicians in 1895, and served as member of the Council and examiner in medicine. He was very keenly interested in medical literature, acting for some years as medical referee to the *Lancet*, and he himself wrote in a clear, interesting manner. He gained the second prize in the King's competition with an essay on "A sanatorium for consumption."

Wethered was a man of very kindly disposition, most popular with his friends, and a conscientious worker. He had a moderate practice, but, possessing private means, he did not exert himself to make it very extensive. He enjoyed all the work he did, preserving always a very open mind, but his temperament was not altogether suited to the uncertainties of the medical life. During the war he took very seriously his position at the Third London General Hospital, where he served as captain in the R.A.M.C. (T.F.). He married in 1889 the daughter of Edward Howan, fond of entertaining, he exhibited a charming side of his personality in his home life.

He had one daughter, to whom he was devoted, and her sudden and tragic death in 1918 was a shock from which he never really recovered. He resigned all his appointments in London, and retired to Falmouth, where he undertook a small amount of local consultant work, and was consulting physician to the Royal Cornwall Infirmary, Truro. He was fond of outdoor occupations, and after his retirement to Cornwall he was able to devote time to his favourite recreation of sea-fishing. During the last ten years of his life he practically never visited London, and most of his old friends never saw him again, but he will be remembered by a wide circle as a very kindly soul of charming personality.

Dr. HENRY EDWARD DAVISON, who died at his residence, The Brow, Wylam-on-Tyne, on October 15th, after a short illness, had been a well-known figure in the Newcastle district throughout the greater part of his life. He received his medical education at Newcastle-on-Tyne College of Medicine, obtaining the diplomas M.R.C.S., L.R.C.P., and graduating M.B., B.S. (Durham), with honours, in 1899. A year later he became B.H., and in 1901 proceeded M.D. and obtained the D.P.H. For a period he held a resident post at the Royal Victoria Infirmary, Newcastle, and was afterwards for two years resident medical officer at the Newcastle Dispensary. Subsequently he started practice locally, but relinquished his extensive practice during the war to undertake neurological work in London, ultimately assuming charge of the Ministry of Pensions Neurological Clinic and being appointed president of the Special Neurological Board of the Ministry. While in London he took a leading part in the affairs of the Psycho-Neurological Society. He subsequently returned to private practice and settled at Wylam, where he won wide popularity. He was a member of the British Medical Association. Dr. Davison married the second daughter of the late Dr. Armstrong, who was for forty years medical officer of health for Newcastle and was one of the founders of the medical college in that city. He is survived by two sons and a daughter.

Dr. SAMUEL IAN HAMILTON REID, who died at the age of 27, on October 16th, at Queen Mary's Hospital for the East End, Stratford, E., after an operation, had been resident medical officer there for about ten months. He received his medical education at the Queen's University, Belfast, graduating M.B., B.Ch., B.A.O. in 1923, and was admitted F.R.C.S. (Ed.) last year. He had held a succession of resident hospital appointments in Belfast, at the Salford Royal Hospital, at the South Devon and East Cornwall Hospital, Plymouth, at the West London Hospital, and at St. Peter's Hospital, Covent Garden. His death has caused deep regret among his colleagues and others associated with him, he was held in high esteem as a surgeon of considerable promise, and had won the warm affection of many friends. His brother is in practice at Plymouth.

Dr. **IRVING JAMES MILNE**, who died suddenly from heart failure on November 2nd, at the age of 63, had been in practice at Mirfield, in the Dewsbury district of Yorkshire, for over thirty years, and had been medical officer of health for Mirfield since 1906. A native of Aberdeen, he received his medical education at the University there, graduating M.B., C.M. in 1890, and proceeding M.D. in 1897. The greater part of his professional life was spent at Mirfield, where he built up an extensive connexion, yet found time for a variety of other activities. His work as medical officer of health was recently the subject of a complimentary message from the district council. Dr. Milne was also honorary surgeon to the Mirfield Memorial Hospital, and medical officer to the Liversedge and Mirfield Joint Infectious Hospital, the Community and College of the Resurrection, and the post office. He was keenly interested in child welfare work, and devoted as much time as possible to the Mirfield centre. During the war he was attached to a base hospital at Dewsbury as medical officer. In the affairs of his profession he played an active part, and as a member of the British Medical Association had served upon the executive committee of the Leeds Division, while in the Society of Medical Officers of Health, of which he was a Fellow, he had held the office of president. He was a popular figure in the Mirfield district, both among his colleagues and with the general public, and his death has caused deep regret. Dr. Milne was unmarried, his brother, Dr. J. Adam Milne, is in practice in Nottingham.

Dr. **RODERICK MACLEOD**, who died from pneumonia at Middleton St. George in the county of Durham on October 26th, at the early age of 30, was a native of Stornoway, Isle of Lewis, and received his medical education at Aberdeen University. During the war he enlisted in the Royal Engineers, and was twice wounded and gassed in France, being ultimately discharged as medically unfit. He completed his studies in 1921, and graduated M.B., Ch.B., settling in the Darlington district in practice at Middleton St. George about three years ago, being also honorary medical officer to the Roper Convalescent Home. Dr. Macleod was an active member of the Darlington Division of the British Medical Association, and was a popular figure among his colleagues, one of whom writes: "He was an undoubted success in general practice—kindly, approachable, and efficient—and was beloved of his patients and friends. His illness was a sudden tragedy, striking him down while in good health, he failed to rally from this, his second attack of pneumonia and it seemed that the effects of gas in the war had undermined his resistance. His funeral was an impressive tribute to the respect in which he was held among colleagues, patients, and friends, and he will be sorely missed in the neighbourhood. Much sympathy is felt for his widow and for his aged parents, who are thus bereaved of their only son."

The following well-known foreign medical men have recently died: Professor **LUIGI MINGHIOALI** of Milan, aged 78, Senator of Italy, Counsellor of State, and formerly professor of obstetrics and gynaecology at Sassari, Catania, Pavia, and Milan, where he founded a cancer institute; Professor **LUIGI SABBATINI**, director of the Institute of Pharmacology at Padua, aged 65; Professor **GIUSEPPE SILVIO TONINI**, who recently resigned the chair of neuro-psychiatry at Bologna, aged 70; Dr. **GUSTAV V. SCHLEICH**, professor of ophthalmology and rector of the University at Tübingen, aged 71; Dr. **WILHELM FLEISS**, author of works on the periodicity of life and the reflex relations between the nasal mucous membrane and other organs, especially the female genitals, aged 69; Dr. **FLORENT JANSSENS**, doyen of the medical faculty of Louvain; Dr. **CHARLES LEE SUMMERS**, professor of pediatrics in the Maryland school of medicine; Dr. **OMÉLIAVSKY**, an eminent Russian bacteriologist; Dr. **WILLIAM SHEPPEGRELL** of New Orleans, author of a work on hay fever and asthma and of numerous articles on diseases of the ear, nose, and throat, aged 68; Professor **D. S. FAUST**, a pharmacologist of Basle, aged 58; Dr. **HOFFMANN**, a medical jurist of Berlin, and Professor **WALTERHOFER**, a haematologist of Berlin, aged 47.

Medical News.

THE annual dinner of the Society of Medical Officers of Health will be held at the Piccadilly Hotel on Thursday, November 15th, at 7.30 p.m. Ladies are invited. Members and candidates nominated for election intending to be present are asked to give early notice to the Executive Secretary, 1, Upper Montague Street, W.C.1. Applications should be accompanied by a payment of 12s. 6d. for each ticket. It must be before Monday, November 12th, after this date the cost will be 15s. for each ticket.

THE Aberdeen University Club, London, will hold its eightieth half-yearly dinner at the Frocadero Restaurant on Thursday, November 22nd, with Lord Moston, Chancellor of the University, in the chair, and with the Earl of Birkenhead, Rector of the University, as principal guest. The secretary's address is 9, Addison Gardens, Kensington, W.14.

At the adjourned annual general meeting of the Medical Students' Annuity and Life Assurance Society, Ltd., held on October 22nd, Mr. R. J. McNeill Love and Dr. F. C. Martley were declared duly elected as the result of the poll for two directors.

At the meeting of the Medico-Legal Society to be held at 11, Chandos Street, W.1, on Thursday, November 22nd, at 8.30 p.m., Dr. L. A. Weatherly will read a paper on juvenile psychologic delinquencies—their origin and treatment, which will be followed by a discussion.

THE Central Midwives Board for England and Wales, at a meeting on November 1st, with Sir Francis Champneys in the chair, granted permission to the guardians of the West Dorset Union for the training of ten pupils at a time at the Mill Road Infirmary, Liverpool. Approval as lecturers was granted to Drs. C. B. Robson, A. K. H. Kounoth, and J. K. Timothy. The Board decided that all candidates submitting certificates of birth, baptism, or marriage, which had been tampered with in any way, be debarred from sitting for examination for at least three months after the presentation to the Board of such certificate or certificates. The report on the work of the Board for the year ended March 31st, 1928, was approved, and signed by the chairman and secretary for forwarding to the Ministry of Health.

THE first Argentine Congress of Surgery will be held next week at Buenos Aires under the presidency of Dr. Armando Marotta, professor of clinical surgery in that city.

THE next award of the Swiney Prize—a silver cup of the value of £100 and money to the same amount—to the author of the best published work on medical jurisprudence will be made in January, 1929, on the eighty-fifth anniversary of the testator's death. The award is made jointly by the Royal Society of Arts and the Royal College of Physicians, and any person desiring to submit a work, or to recommend any work for the consideration of the judges, should do so by letter addressed to the Secretary of the Royal Society of Arts, John Street, Adelphi, London, W.C.2, not later than November 30th, 1928. The silver cup to be presented on this occasion was designed by Mr. Edward N. H. Spencer, whose design was awarded first prize at the society's 1928 competition of industrial designs. The finished cup has been included with the works of living craftsmen as part of the Loan Exhibition of Oxford College Plate which is on view at the Ashmolean Museum, Oxford, from November 7th to 23th.

THE Fellowship of Medicine and Post-Graduate Medical Association announces that on Monday, November 12th, Dr. H. C. Semon will lecture for the Fellowship on "Some basic remedies in diseases of the skin" at the Medical Society of London, 11, Chandos Street, Cavendish Square, at 5 p.m., and that on the same date, at 4.30 p.m., a clinical demonstration will be given by Mr. Williamson Noble at the Central London Ophthalmic Hospital. On the following Wednesday, at the Wellcome Museum of Medical Science, 33, Gordon Street, W.C., Colonel L. W. Harrison will give a demonstration on syphilis now and twenty years ago. The above lectures and demonstrations are free to members of the medical profession. Miss Davies Colley and her colleagues will give a clinical demonstration, free to women graduates only, at the South West London Hospital for Women, 103 South Side, Chapham Common, on Friday, November 16th, at 2 p.m. A three-weeks course in medicine, surgery, and gynaecology given by the staff at the Royal Waterloo Hospital for Women and Children, begins on November 12th, and on the same day will open a special short course in pathology at St. Mark's Hospital. There will be a course in ophthalmology at the Royal Westminster Ophthalmic Hospital from November 12th to December 1st, and a course in urology at St. Peter's Hospital from November 19th to December 1st. For these hospitals from the late afternoon there will be a course in neurology at the West End Hospital for Nervous Diseases, daily from

5 p.m., from November 19th to December 15th. Throughout the month there will be a course at the London Lock Hospital in venereal diseases. Syllabuses and particulars of the general course of work under the Fellowship scheme are obtainable from the Secretary, 1, Whitpole Street, W 1.

THE first evening meeting of the new session of the British Institute of Philosophical Studies will be held at the Royal Society of Arts, 13, John Street, Adelphi, W.C.2, on Tuesday, November 13th. Dr C. S. Myers, F.R.S., will take the chair at 8.15 p.m. Mr Morris Glusberg, D.Litt., will lecture on race and civilization. A limited number of seats are reserved for members of the public for which application should be made to the Director of Studies, British Institute of Philosophical Studies, 88, Kingsway, London, W.C.2.

THE Ministry of Health has issued a booklet, obtainable from H.V. Stationery Office (price 4d net), on regional water committees, explaining briefly the reasons for the constitution of such bodies and the work they should undertake. It is pointed out that the more readily accessible sources of water supply have, generally speaking, been appropriated while consumption is growing, so that if the remaining sources are to be made available cheaply and without dissension, systematic foresight is desired. There is no occasion for general alarm, but in some areas the question of future sources demands serious consideration. The most practical way of meeting the demand for a national allocation of water resources, it is suggested, is by the formation of regional water committees, which will ascertain the needs of each district in a region and formulate a policy for meeting requirements. Such regional findings can then form the basis of a national policy. A region should comprise the districts of 'water undertakers'—local authorities or companies—who are, or are likely to be, concerned in the same general sources of supply or whose interests are otherwise closely connected, a regional committee, being purely advisory and having no executive power, need not be composed of representatives in strict numerical proportion to the importance of the undertakings they represent. The most important element is that it should contain persons capable of dealing with the problems before it. It is contended that considerable savings could be effected by such bodies. A regional committee should prepare a programme providing for measures in detail for twenty years ahead, and in broad outline for about fifty years ahead; it should be kept in being for the periodical revision of its programme in the light of the latest developments. The pamphlet gives an outline of the manner in which the work of a committee should proceed.

THE *Medical Art Calendar* for 1929 is, like its predecessors, an attractive, clearly printed, and well got-up volume. The plates, of which there are twenty-seven, are photographic reproductions of famous paintings, engravings, and etchings dealing, directly or indirectly, with medical subjects. They are intelligently chosen, clearly reproduced, and in most cases beautiful. They can be readily detached and framed separately, and nearly all of them are well worth it. The *Calendar* can be obtained from Mr Kruseman, 8 Gravenhage, Noordeinde 91, Holland, price 6s post free.

A LIST of British and American doctors practising in various towns in Continental Europe and Northern Africa is published by the Continental Anglo-American Medical Society, and free copies may be obtained from the honorary secretary, Dr B. Sherwood Dunn, 54, Boulevard Victor Hugo, Nice, France. This society was founded in 1885, and for nearly forty years has published periodically lists of medical practitioners in Europe and North Africa who speak English.

THE returns of the six European countries—namely, England and Wales, Sweden, Finland, Denmark, Switzerland, and Italy—for which fairly reliable data of the incidence of epidemic encephalitis since 1920 are available, yield the following figures: 7,697 cases in 1920, 4,649 in 1921, 1,273 in 1922, 2,205 in 1923, 6,196 in 1924, 3,766 in 1925, 2,991 in 1926, and 2,168 in 1927. The same countries had 1,050 cases during the first half of 1928.

TYPHUS fever was less prevalent in Europe during the first half of 1928 than during the corresponding period of any other year since the war. The decrease was most marked in Rumania, and there was a considerable decrease also in Poland. On the other hand, there was an increased incidence in Lithuania and Latvia. In the Union of Socialist Soviet Republics the decrease was most marked in Central Russia and in the Ukraine. In Western Russia the incidence was about the same as last year. In Korea typhus was more prevalent in the early part of 1928 than in previous years.

THE death rate in the Federated Malay States has risen from 29.22 per thousand in 1926 to 32.11 in 1927. Dr R. Dowden, principal medical officer of the Federated Malay States, in his annual report for last year, attributes this increase to the influx of very large numbers of immigrants and their dependants who were not acclimatized and who

were frequently of poor physique. Among contributory causes were outbreaks of cholera, plague, small pox, and beriberi. In the State of Pahang, where the increase in the death rate was most marked, the vitality of the population was impaired by floods which occurred at the beginning of the year, the destruction of crops and vegetable gardens caused an outbreak of beriberi, and many deaths from malarial fever followed. Every effort was made to meet the situation by the health services, and the Medical Research Institute issued large quantities of rice polishings extract, but it was impossible to control these diseases over large tracts of undeveloped country with the communications broken down. Dr Dowden suggests that the outbreak of beriberi shows how very narrow is the margin between health and disease among Asiatics, and also how they react immediately to any interference with the vitamin content of their food supplies. He adds that, in spite of all that can be done, the population, of all races, are increasingly using polished rice.

THE KING has granted his licence and authority to Major Basil H. C. Lea Wilson, R.A.M.C., P.M.O., Egyptian Army, to wear the insignia of the third class of the Order of the Nile conferred upon him by the King of Egypt in recognition of valuable services rendered. Permission has also been granted to Dr Andrew Copland to wear the insignia of the third class of the Order of the Brilliant Star of Zanzibar conferred upon him by the Sultan of Zanzibar for valuable services rendered.

DR THOMAS G. NASMYTH of Edinburgh has been appointed Deputy Lieutenant for the city and county of Edinburgh.

PROFESSOR P. G. UNNA has been elected an honorary member of the American Medical Association and Dr Ernest Fuchs, professor of ophthalmology, and Dr Wilhelm Iatzko, professor of gynaecology at Vienna have been nominated honorary members of the Academy of Medicine of Buenos Aires.

DR NETTER has been made a grand officer and Dr Darier a commander of the Legion of Honour.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1**.

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Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal* should be addressed to the Financial Secretary and Business Manager.

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The address of the Irish Office of the British Medical Association is 16 South Frederick Street, Dublin (telegrams *Bacillus Dublin* telephone 62550 Dublin) and of the Scottish Office 7 Drumsheugh Gardens, Edinburgh (telegrams *Associate Edinburgh* telephone 24361 Edinburgh).

QUERIES AND ANSWERS

SEBORRHOEA OF THE SCALP

DR HENRY WALDO (Clifton Bristol) in response to Dr I. B. McCallum's request for suggestions in the treatment of seborrhoea of the scalp (November 3rd p. 828) writes: As greasy applications are disliked sulphurous acid B.P. if rubbed into the scalp daily, will benefit it and soon cure it. The scalp should be washed in soap and water once a week always.

DR L. IVAN M. CASTLEDEN (London N.W.1) writes: I have found the best basis for such an ointment to be a combination of soft paraffin and coconut oil as suggested by Whitfield and A. M. H. Gray. A useful formula is: A.o. anlicyl gr xv, anlipn sublim gr xv, ol. lavand mly paraffin moll 3ij, ol. cecoli uncerif ad 3j. It is not so messy as paraffinum melle alone and is easily washed out the only disadvantage being that it gets rather soft in warm weather, so should be dispensed in screw top pots. As an alternative formula the following has proved useful. Resorcinu

et ac salioz iū 3as, ap vial rect 3ij, solve Adde Lij carb
deleg 5j paraff liq alb 3ij This lotion replaces brilliantine
for male patients, the oil and spirit mixing easily when shaken
before a bottle with spritlike cork. Less oil can be used if
desatrol as in the case of female patients. Research, although
excellent cannot be used by those with very fair hair, as it tends
to stain.

CHRONIC URTICARIA

"W T P" in reply to "Inquirer a" request for suggestions for
the treatment of chronic urticaria (October 20th, p 732), reports
consistent success from the use of oilatum sodum lactate
tablets. He prescribes at least four tablets daily, as follows:
one on rising, one an hour before the midday meal, one an hour
before the evening meal, and one on going to bed.

LBN AT BIRTH

Dr W L HUNNARD (St Leonards-on-Sea) writes: While taking
charge of the practice of a friend a baby was born and lived at
least one week weighing only 1 lb. During that time it had
gained in weight, cried more strongly and began to suck the
mother's breast. I do not know whether it still survives. It was
born at the beginning of the seventh month of pregnancy.
I should like to know if this is an unusual weight for a child
living at least seven days.

DELAYED MENSTRUATION

Dr ROSE CRESAY (London, W 1) in reply to "A T's" inquiry
(November 3rd, p 828) as to treatment of an obstinate case of
delayed menstruation in a stout girl aged 25 writes: I would
advise "A T" to try static electricity applied by means of a
vaginal or rectal electrode. The treatment is painless. In a very
similar case this treatment proved successful in my hands. The
static machine must be a really powerful one.

EGG PRESERVATIVES

"R B G" asks if any harm to the consumer can result from
eating eggs preserved in waterglass which contains silica. The
custom of such preservation is widespread, and presumably,
if the process is harmful, some evidence to this effect exists.
There is bound to be a certain amount of absorption of the silica,
and this may, or may not, have some action on the egg or upon
the gastric juice.

INCOME TAX

Obsolescence of Car

"J C" bought an 119 h p V car in 1920 for £400 and sold it in
1925 for £18 when he purchased a second hand 121 h p D car for
£200. On that transaction he was allowed a deduction for
income tax purposes of £200-£18=£182. In 1927 he sold that
car for £55 and bought a 10 h p R car for £250. Depreciation
has been allowed in recent years.

* * The statutory provision is Ru's 7, Cases I and II,
Schedule D, which allows as a deduction so much of any
amount expended in replacing a car which has become obsolete
as is equivalent to the cost of the car replaced after deducting
the total amount of the depreciation allowances and the sum
realized by the sale of the car. The difficulty is whether the net
expenditure of £250-£55=£195 was not partly laid out in
improving, and not merely in replacing the car equipment.
On that point we think that "J C" can properly disregard the
temporary lowering of his car standard and refer back to the
original V car and its cost as showing, that, on the whole, there
has been no capital expenditure involved in the two car transac-
tions combined. Equity is undoubtedly on his side, and he
might well press the matter to an appeal if necessary.

New Partnership—Cash Basis

"T H G" refers to a reply in our issue of June 30th last and
explains that the Inspector of taxes now proposes "as a com-
promise," to include in the accounts of the partnership for
the first year only the cash received in that year for the fees
earned before the beginning of the new firm. Is he right in
refusing the compromise?

* * We can see no logical justification for the basis proposed
and are clear that the new firm is not chargeable to tax on those
fees. Perhaps the Inspector would agree to confine the cash
basis without qualification. On that basis the amount of the
fees in question would be brought into the computation but the
unpaid fees outstanding would be omitted. The basis of division
of the net earnings of the practice as so calculated would, of
course, be that laid down in the partnership agreement.

Assessment of Interest

"H J D" writes: I have had a holding of War Stock for some
years and in August 1927, bought a further holding of the same
stock. The Inspector of taxes has made the assessment for the
year 1928-29 on the amount received on the original holding in
1927-28 plus the amount receivable on the additional holding in
the year 1928-29. Is this correct?

* * Section 30 (1) of the Finance Act 1926 provides that
where a person acquires an addition to any source of such
profits or income, income tax to respect of the income from
the addition to that source shall be computed separately.
The result is that while income from the original holding is

computed on the previous year's basis the interest on the
additional holding is computed on the basis of the actual year.
It is, of course, also provided that the converse takes effect on
sale of part of a holding.

Employee Spending Part Time on Private Work

"R P M" explains that, being unable to replace a boy formerly
employed entirely for professional purposes, he and his partner
have engaged a married man who will spend part of his time
cleaning cars and doing odd jobs and part on housework and
gardening. Seeing that his employment is necessitated by the
professional work—(1) Is a licence duty payable in respect of his
employment? and (2) Can the whole of the cost be charged for
income tax purposes?

* * (1) Yes. (2) No, only the amount arrived at by taking
a proportion according to the ratio of professional to private
employment.

LETTERS NOTES ETC

MEDICAL GOIF

The first week-end meeting of the London Irish Medical Golfing
Society was held on October 27th and 28th, when there were
about fifty members present. Mr Canny Rival presided at the
annual dinner in the Granville Hotel Ramsgate, on October
27th, when Dr Roll Cressy who was the guest of the evening
was elected an honorary member. A successful auction sweep
was held. Dr George Campbell being the auctioneer. The
results of the competitions, played at the Princes course were
as follows:

The Canny Rival Challenge Cup—1st M Thomson 71 (66-18)
2nd E T McElligott 80 (93-13) 3rd J D McGrath 81 (86-5)
4th D R Wheeler 83 (93-10) and R Lindsay Rea 83 (103-20)

The O Malley Cup—1st M J Smith 71, 4 up 2nd H Lott (11)
2 up 3rd E T McElligott (13) 1 up 4th R Lindsay Rea (20)
all square

The Lett Cup—1st H Lott and D R Wheeler 1 up 2nd
J McElroy and P K Murphy all square 3rd D O Keefe and
J Grace J Doohine and L Thomson G Dawson and W McE H
McCollagh all 3 down.

Allan Perry Medal (for best scratch score)—D J McGrath 86

The Captain's Prize (for best net aggregate over 36 holes)—E T
McElligott 156 (76 and 80)

ANTRAL SEPSIS AS A CAUSE OF ILLNESS

We have received another personal experience of antral suppura-
tion, which may be computed with the one published on
October 27th (p 764). Our correspondent writes: In the winter of
1915-16 when in camp I had a bad attack of flu and in our
quarters there was about a foot of water under the huts. About
six months afterwards I was accidentally found to be suffering
from glycosuria and was under treatment for some months.
It was thought that I had a calculus in the bile duct and an
operation was advised. At that time, and for, I suppose, quite
twelve months the conjunctivae were slightly itchy. The
operation was vetoed however my condition being attributed
to chronic pancreatitis. However, as I was feeling very poorly
I determined to have the operation since life did not seem
worth living under the existing conditions. Fortunately for me
I thought I would have the antrum x-rayed and pus was found on
the right side. It was opened through the nose washed out and
kept open, it is still open and I occasionally wash it out myself.
The glycosuria disappeared in a few days and with ordinary care
in diet I have been free from sugar from that date. The jaundice
vanished in seven days. I had indulged in an excess of carbo-
hydrates and sugar there might be a trace of glycosuria but with
ordinary care and diet and without any inconvenient restric-
tions, I keep in the best of health. The condition arose when
I was about 50 years old.

POLYMASTIA

Dr R L PATERSON (Cape Province S Africa) writes: Cases of
polymastia or polymastia are not altogether uncommon, but
those in which the secondary nipples are active are I believe
sufficiently rare to warrant their being placed on record when
they do appear. In a native woman aged 44 whom I saw with
this condition each breast was well formed, and had the
usual nipple and areola about four inches below the normal
nipple and slightly medial thereto, an accessory nipple was
present on each breast. Each accessory nipple was well formed
and had around it a distinct areola. On being questioned the
patient stated that although she had not seen any milk from
these accessory nipples during lactation they excreted a watery
fluid. They never caused any trouble or inconvenience.

A COMMUNICATION with two enclosures has been received from
a correspondent in Port of Spain Trinidad who omits to sign his
name.

VACANCIES

NOTIFICATIONS of offices vacant in universities medical colleges,
and of vacant resident and other appointments at hospitals will
be found at pages 51 52, 53 56 57, and 58 of our advertisement
columns, and advertisements as to partnerships assistantships
and locum tenencies at pages 54 and 55.

A short summary of vacant posts notified to the advertisement
columns appears in the Supplement at page 219.

Remarks ON URTICARIA ITS PATHOGENESIS AND ETIOLOGY *

BY
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THE subject of urticaria is one of considerable importance, for the complaint is not infrequently met with both in private and in hospital practice and also because of the distress it occasions its unfortunate victims. To the dermatologist it is of peculiar interest, for it exemplifies, perhaps better than any other skin complaint, the close relationship between the science of cutaneous medicine and the other branches of medicine. It serves to impress upon us the fact that a change in the skin is often the expression of some pathological process which is taking place in another part of the body, and that its elucidation and treatment require a knowledge of the latest advances in biology and physiology.

The signs and symptoms of the condition are fortunately easily recognized, although the wheals vary enormously in shape and size. Occasionally, it is true, there may be a confusion with the bullous rashes should the horny layer of the urticarial wheals be raised in the centre by an excess of serum, but this is an infrequent occurrence. On other occasions the oedema of a limb or other part of the body may be so pronounced as to earn the distinctive name "angioneurotic oedema," a term which may preferably be replaced by that of "giant urticaria."

It is convenient, perhaps, to follow the line of the majority of textbooks and divide the subject into four main groups: (1) factitious urticaria, (2) acute urticaria, (3) chronic urticaria, (4) papular urticaria of childhood, but to obtain an accurate conception it is necessary to realize that it is not a disease, but a symptom attributable to one of many causes.

Urticaria Factitia or *Dermographism*.—This peculiar response of the skin to local trauma may or may not be concomitant with urticaria vulgaris. Lewis, in his classical work on the mechanism of wheal production, states that both this form and the wheal secondary to internal causes is due to the release of a histamine-like substance from the cells of the skin. Why the person with urticaria factitia acquires this exaggerated susceptibility of the cells of the skin is not clear. The condition is met with in apparently good health. On the other hand, the incidence is higher in epileptics and alcoholics. I recently saw well-marked dermographism begin during the course of secondary syphilis.

Acute Urticaria.—It is common knowledge that this state usually follows the ingestion of some particular article of diet, and is often accompanied by more or less severe constitutional symptoms such as vomiting, diarrhoea, and a general feeling of malaise. The rash is usually profuse, and sometimes even bullous. It may involve the mucous membrane of the lips, tongue, or glottis. The latter complication, however, is rare, but cases are recorded in which tracheotomy has been necessary. Fortunately this drastic remedy may now be obviated by the hypodermic injection of adrenaline.

Chronic Urticaria.—It is this chronic, recurring stage which exercises the skill and patience of the physician, for the duration may be measured in terms of weeks and months or even years, and it may be due to an embarrassing variety of causes.

Papular Urticaria

Urticaria in the true sense of the word is not often met with in childhood, but the clinical entity known as papular urticaria, or helen urticatus, bears such a close relation-

ship to chronic urticaria that it is usually classified with it. There are, however, clinical, anatomical, and etiological distinctions between the two. The disease is only met with in childhood, and is characterized by the successive crops of small urticarial wheals, in the centre of each of which is a small papule. The wheal disappears within a few hours, but the papule remains for about a week. The causation is obscure, but there is a curious factor common to all, to which I have drawn attention in previous communications—namely, that the sufferers recover immediately they are admitted to hospital even though no treatment of any description be given. The rash returns after their discharge. Based on this experience, I have been engaged in numerous experiments during the last few years with a view of ascertaining whether there is a specific antigen responsible for the complaint, but so far have failed to detect one.

Before discussing the etiology of urticaria in detail I think it is expedient to consider briefly the present day conception of

The Histopathology of Wheal Formation

The actual microscopical changes have been accurately described by Gilchrist, Lewis, and others. The former excised a portion of the affected skin at varying intervals after wheal formation, and found a local congestion of the cutaneous vessels, an escape of serum through the capillary walls, and also definite signs of inflammatory change in the later stages. As previously mentioned, Lewis has shown that this phenomenon of wheal formation is exactly reproduced by an injection of histamine.

Change in the blood in the form of retarded coagulability and deficiency of calcium content were described by Wright,² but other observers have not always been able to confirm either change. During recent years it has been recognized that the victim of this reaction of the skin is often one who is temporarily or permanently the subject of some peculiar metabolic change, which has produced an increased susceptibility to irritants. Also, that this change is a factor in the close relationship between eczema, asthma, hay fever, and urticaria for the same individual is not infrequently a sufferer from more than one of these. The nature of this instability or sensitiveness, which is often referred to as a state of allergy, has given rise to much experimental research, but as yet the various conjectures are hypothetical. It is sufficiently clear, however, that although no organ such as the skin or the lungs shows clinical manifestation of the hypersensitive state, it must not be assumed that the particular organ is the sole site of the allergic state. It is possibly governed by highly complex changes in the cells of the individual or in the colloid stability of the blood. Allergy is found as a family disposition. The Jews are particularly subject to it, the North American Indian is not, and apparently it may be hereditary or acquired.

The Relationship to Anaphylaxis

The conception that urticaria might be a manifestation of the anaphylactic state was advanced by Wolff-Eisner³ soon after the peculiar phenomenon of anaphylaxis was first observed in animals. This theory has received considerable support, and it is generally acknowledged that, although there is a wide difference between the condition of an animal which has been re-injected after an interval of ten days with some foreign protein and a patient suffering from urticaria, yet there is a close resemblance between the two states. This is particularly evident in urticaria following serum injections, but Widall⁴ and others have shown a similarity between the alimentary type of urticaria and anaphylactic shock for in both there is a fall of blood pressure, leucopenia, moderate eosinophilia, and sometimes albuminuria. Again Bovey⁵ found that a flea does not produce a wheal after the first bite unless his host has been previously bitten by the same species of flea. A case described in *La Presse Medicale* last year also illustrates the similarity. The patient, after undergoing moderate exertion for a few minutes, not only suffered from a profuse urticarial rash, but in addition showed signs of dyspnoea, vertigo, profound cardio-vascular disturbance, and collapse.

* Made in opening a discussion in the Section of Dermatology at the Annual Meeting of the British Medical Association, Cardiff, 1928.

In examination of the blood revealed changes usually associated with anaphylactic shock.

In some cases urticaria follows the ingestion of or contact with a substance to which the patient has not been previously exposed, therefore anaphylaxis does not always serve to explain the reaction, and we have to fall back on the term "sensitization"—the inappreciable predisposition or idiosyncrasy to react to stimuli which have no effect on a normal individual. There is evidence to show that the antigen may be ingested inhaled, or absorbed through the skin, and yet produce the same results. Also that the so-called sensitiveness exists in the serum, for Prausnitz and Küstner⁷ injected the serums of hypersensitive patients into the skin of normal individuals and found that the site of the injection was temporarily sensitized to the same substance. This was confirmed by A. Walzer and M. Walzer,⁸ who noted that the serum possessed this activity for some months after it was withdrawn from the sensitized person. The susceptibility may be transmitted by a female guinea-pig to her offspring (Rosenau⁹). Another observation which has an important bearing on the treatment is that when once acquired the sensitiveness to a particular antigen appears to be followed by sensitiveness to other antigens.

May this reaction of the skin be of some protective significance? This point is raised by Memmesheimer¹⁰ in relationship to eczema, but there is little to support this hypothesis. The histology of the wheal certainly shows that cell damage takes place and therefore cell products escape into the general circulation. We know that immunity follows an attack of measles and scarlet fever, diseases in which the skin is particularly affected, but we are equally cognizant of the fact that in many other diseases involving extensive areas of skin no protection is acquired.

Etiology

Although the conception of the biological changes associated with an attack of urticaria has changed considerably in later years, it is interesting to note that the dermatologists of the middle of the last century fully recognized the diversity of the causes of the reaction. In every textbook, ancient and modern, there is a long list of both external and internal causes, and almost every observer is able to add to the list. Hebra noted that the introduction of a uterine sound produced a profuse urticarial rash in one of his patients. Crocker¹¹ quotes a case in which a ring at the front door would determine an attack. We know that it may mask a scabies infection, that it follows the ingestion of some particular food or drug. Furthermore, it may be one of the earliest signs of a grave disease such as leucæmia or diabetes, also, it may be associated with focal sepsis. The latter coincidence has been so frequently demonstrated in recent years that it must be accepted. My own view is that focal sepsis plays a far greater role in the causation of chronic urticaria than food protein, and that in the past it has been assumed too readily that urticaria is the outward manifestation of food poisons.

As the chance of successful treatment largely depends on the detection of the cause, it is essential that a case of urticaria should be approached with the greatest circumspection, and also with the knowledge that there is no specific remedy. A detailed history will be required, the skin will need careful inspection to exclude the possibility of local irritants. Protein sensitization tests must be considered, although these have not given the assistance that was anticipated from them. Each system will require examination, for none is above suspicion. The key to the mystery may be the examination of the blood. In a recent article F. R. Monaghan¹² claims that disease of the biliary tract was an etiological factor in 50 per cent of his cases. A high incidence of urticaria has been described in patients with syphilis, and I have met with this coincidence on several occasions, but antispasmodic treatment has not prevented the recurrence of the wheals.

It is sufficiently obvious that there are innumerable possibilities to be considered, and that the physician who successfully detects the offending abnormality has good reason to congratulate himself. That trauma plays an

important part as an exciting cause was demonstrated as long ago as 1888 by Jaquet, who found that when a limb of a patient suffering from generalized urticaria was protected the wheals did not arise on the skin of that limb.

Desensitization

Should the offending antigen be detected, desensitization may be attempted by giving minute, increasing doses until tolerance is established. On the assumption that urticaria is a manifestation of the anaphylactic state French dermatologists have recently advocated the ingestion of 0.5 gram of peptone one hour before each meal.

Empirical Remedies

Calcium salts have had a long innings, but in my experience the results have been singularly disappointing, and in my opinion confidence in the supposed virtues of this drug have many times been responsible for an inadequate examination of patients. Urticaria has been noted in hypothyroidism, therefore thyroid extract has recently been prescribed as a remedy, one author, indeed, proclaims it as a specific. I do not go so far with him, but believe, in the unhappy event of the actual cause not being ascertained, that thyroid extract is worthy of a trial. Popular urticaria is influenced neither by dieting nor drugs, but, as already mentioned, the patient obtains a respite if he be removed from his own environment. True, the rash often recurs when the patient returns home, but I have noted a permanent benefit in a number of instances, and recommend a trial when practicable.

REFERENCES

- ¹ Gilchrist *Journ Amer Med Assoc*, 1896 27 1222. ² Lewis *The Blood Vessels of the Skin and their Responses*. ³ Wright *Brit Journ Dermatol* 1896 7 82. ⁴ Wolff Eimer *Derm. Zeit.* 1897, 14, 312. ⁵ Widal *Soc Méd des Hosp* February 13th 1914. ⁶ Boycott A. E. *Journ Path and Bact* 1912-13 17 110. ⁷ Prausnitz and Küstner *Centralbl. f. Bakt.* 1921 85 160. ⁸ Walzer and Walzer *Amer Journ Med Sci*, 1927 669 279. ⁹ Rosenau and M. Anderson *Bull Hyg Lab U.S. Pub Health* No. 50 April 1909. ¹⁰ Memmesheimer *Monograph Haut Eosinophilie*. ¹¹ Crocker *Diseases of the Skin* 1893. ¹² Monaghan *Journ Amer Med Assoc* 1928 90 668.

BIOCHEMICAL INVESTIGATIONS IN ALLERGIC CONDITIONS*

BY

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AND

G. H. ORIEL, M.A., M.D.

Our communication is concerned almost entirely with certain biochemical investigations carried out by one of us (G. H. O.) in what may be termed allergic conditions. The word "allergy," in the sense originally employed by von Pirquet, has a narrower significance than others have given to it, for, as Danier points out, although including all forms of acquired hypersensitiveness, it excludes inborn hypersensitiveness or idiosyncrasy. We do not, however, consider this distinction of practical importance, or, in fact, valid, and with Doerr, Zinsser, Wells, Duko, and others, we employ the term to indicate almost all forms of hypersensitiveness.

Allergy is beyond question the most important biological and medical problem that exists or ever has existed, for it represents the pathology of the reaction of man and the lower animals to their environment—to the air they breathe, the physical agents, such as light, heat, and cold, to which they are exposed, the food they eat, and the various parasitic organisms which may invade them.

Moreover, in our opinion the discussions that have arisen as to whether or not the so-called allergic conditions, such as hay fever, asthma, and urticaria, should be termed anaphylactic reactions, or whether they differ essentially from true anaphylaxis as produced in animals experimentally, or as it may occur accidentally in man, are profitless. The important fact is that many of the

* Read in a discussion on urticaria in the Section of Dermatology of the Annual Meeting of the British Medical Association, Cardiff 1928.

symptoms to which sensitized persons are liable are identical with those seen in animals suffering from anaphylactic shock—for example, contraction of the pilo-motor muscles with erection of the hair follicles, sneezing and coughing, pruritus, urticaria, respiratory distress consequent upon the contraction of the smooth muscle of the bronchioles, and oedema of the bronchial mucous membrane, diarrhoea, diuresis, and epileptiform convulsions.

The following list includes the majority of conditions which are certainly, or in some instances probably, of allergic origin.

Cutaneous—Urticaria, true infantile eczema, certain forms of eczema occurring after infancy, certain forms of pruritus, prurigo of the Besnier type, prurigo of the Hebra type, prurigo of the simple type, prurigo nodularis, urticaria papulosa (lichen urticatus, strophulus), ichthyosis light sensitization of the adult type, dermatitis herpetiformis (probably).

Subcutaneous—Angioneurotic oedema.

Respiratory Tract—Paroxysmal rhinitis, of which hay fever is one of the commonest examples, asthma.

Gastro-intestinal Tract—Certain forms of vomiting and diarrhoea.

Nervous System—Migraine, epilepsy (probably).

Articular System—Paroxysmal hydrarthrosis.

This list, although it may appear formidable, is doubtless incomplete. Freeman¹ includes functional albuminuria, and tentatively dermatographia, paroxysmal colitis, and white leg.

The literature of allergic conditions, from both the clinical and the pathological standpoint, is so vast that we have made no attempt to review it. We shall merely summarize our own observations and refer to a few communications of other workers that bear upon them.

It may be of interest to record how we came to investigate the biochemistry of allergic manifestations. It seems clear that in cases of what may be called the ichthyosis-asthma-hay fever-eczema-prurigo-urticaria-migraine syndrome, in which there is almost invariably a strong family history of one or other of these various manifestations, there must be some inborn metabolic kink—comparable to Garrod's "inborn errors of metabolism"—which predisposes the affected person to becoming sensitized to various proteins.

The inherited "sensitizability" of Cooke and van der Veer must have some metabolic explanation, and in persons, previously normal, who develop the allergic state it was thought the same metabolic error would be found. Now the view has long been held, not only by certain clinicians but also by laboratory workers, that both in experimental anaphylaxis and in allergic conditions, such as asthma and urticaria, the essential factor is what may be vaguely termed "hepatic insufficiency." One need only refer in this connexion to the writings of Widal and his co-workers, of Manwaring, and, from the clinical standpoint, to the views of Moncorge and others, on the pathogenesis of asthma.

One of us (G. H. O.), working on oedema from the biochemical point of view, had discovered a phenomenon in the urine, which may be termed the "ether reaction," in certain cases of cardiac failure. This reaction will be described and discussed later. On testing the urine of normal controls, he found that one of his laboratory assistants gave a strongly positive test, and on questioning the man, he learnt that he was healthy except that he suffered from urticaria. It was then found that other urticarial subjects also gave positive tests. The question therefore was: What is the connexion between cardiac failure with oedema and urticaria? It occurred to us that the most probable explanation was either that in both conditions there is some degree of hepatic insufficiency, or that some factor concerned with the production of tissue oedema was common to both. It was then decided to test the urines of persons with allergic symptoms other than urticaria, and positive reactions were at once found in cases of prurigo of the Besnier type, with or without asthma, in asthma without cutaneous symptoms, in urticaria papulosa, in angioneurotic oedema, in certain cases of prurigo of the simple type, in infantile eczema and in

migraine. Numerous normal controls were, of course, also tested. It was further found that the reaction was strongly positive in obstructive jaundice, in cirrhosis of the liver and in cases of toxic jaundice—for example, from salvarsan or acute infections—thus lending, perhaps, additional support to the view that the reaction was an indication of hepatic insufficiency.

Assuming, therefore, that these allergic conditions were, at any rate in some cases, associated with functional hepatic insufficiency, and that such insufficiency concerned protein metabolism (cf. the proteoexcretory function of the liver of Widal) the next step was to estimate the amino-acid content of the blood in patients with allergic manifestations and in normal controls.

The method used was that of Folin, as described in *Recent Advances in Medicine* by Beaumont and Dodds.

AMINO-ACID CONTENT OF THE BLOOD

It would appear from our own investigations and those of others that the average normal figure for the amino-acid content of the blood is from 4.0 to 6.5 mg. per 100 c.c., the latter figure being distinctly a "high normal." In order to determine the effect of a meal containing plenty of protein, what may be called "protein-tolerance tests" were performed in normal subjects and in those with allergic symptoms. A determination of the amino-acid content of the blood was made before breakfast or several hours after a meal, and a mixed meal containing various proteins was then given, and estimations were made one, two, and three hours afterwards—for example:

G. H. O. normal subject before breakfast 3.7 mg. per 100 c.c. one hour after breakfast 4.7 mg., which figure remained constant two and three hours afterwards.

N. normal subject 5.0 mg. before a meal 5.8 mg. afterward.

K. R. normal 4.0 mg. before 5.6 mg. afterwards.

A case of dermatographism and urticaria 5.0 mg. before a meal one hour afterwards 5.5 mg. two hours afterwards 6.2 mg. when there was slight urticaria three hours afterwards 5.8 mg. when the urticaria had disappeared.

W., a case of asthma and prurigo fasting 7.0 mg. one hour after meal 7.2 mg. two hours after 7.4 mg. three hours after 7.2. It will thus be seen that there is a slight rise in the amino-acid content of the blood after a protein meal both in normal persons and in others.

A very large number of estimations have been carried out in patients with allergic manifestations, the majority of cases investigated being classical examples of the ichthyosis-asthma-hay fever-eczema-prurigo-urticaria-migraine syndrome, in a considerable proportion of which more than one of these various symptoms were combined. In this group, which for brevity's sake we will term the asthma-prurigo group, a high amino-acid content of the blood was found to be constant in untreated cases but it is necessary to make this reservation—that the patient, as a rule, were seen when one or other of their symptoms, usually the prurigo, was active. After dietetic and other treatment, and probably also during the remissions, that so often and so inexplicably occur in these patients, normal figures may be obtained. For example:

W. was a typical example of the group. He gave a family history of asthma and migraine, suffered himself from infantile eczema which was later followed by asthma and prurigo of the Besnier type with lichenification involving chiefly the antecubital fossae, the popliteal spaces, the dorsal surfaces of the wrists and hands, the circumoral and frontal regions. He is an ichthyotic. When seen early in December 1927 he was having moderately severe asthmatic attacks about three times a week and nocturnal exacerbations of itching. His lips were bluish in colour and rhonchi were audible in the chest. The blood drawn in the afternoon—a quiescent period—gave an amino-acid content of 7.0 mg. per 100 c.c. He was ordered a vegetarian diet except that he was told to eat some lightly cooked liver if possible daily and given aspirin to take three times daily. In a fortnight he returned transformed in appearance. He was entirely free from asthma, had little or no itching and his lips were now pink. The amino-acid figure was 5.8—that is, normal. Treatment was suspended, he returned in January having kept very well except for slight asthma and itching at night time. His amino-acid figure then was 7.0. Early in March he came again having had a severe relapse following a gastro-intestinal upset. He was having asthma every night with intense ichthyosis, his lips had become blue again and his chest was full of rhonchi. The amino-acid figure was 9.3. Treatment was again ordered, and he returned in a fortnight much improved. The amino-acid content had fallen to 7.0.

It is our impression that in cases of Besnier's prurigo, with or without asthma, the amino-acid content of the

blood tends to be high even during periods of comparative freedom from itching. Thus

S. C., a man aged 42, family history of eczema, ichthyosis on the father's side. Had infantile eczema. Asthma began at the age of 2 years. Asthma and irritation of the skin were provoked by contact with horses and cows, also asthma with catarrhal infections. Severe urticaria and angioneurotic oedema from Brazil nut which once nearly caused death from oedema of the glottis when taken accidentally. Has ichthyosis and prurigo of the Besnier type in antecubital fossae, popliteal spaces, wrists, and face. Cutaneous tests: Horse +++ cattle +, dog +, sheep +, Brazil nut +++ During a period of almost complete absence of symptoms nevertheless had an amino-acid figure of 9.8.

V., a little boy with Besnier's prurigo, formerly infantile eczema and asthma, at a time when the prurigo was slight had an amino-acid figure of 8.2.

P. B., a little girl with asthma, hay fever, horse sensitiveness, eczema, prurigo and urticaria. Seen during one of her best periods when she was having no asthma and only slight itching, amino-acid 9.3.

Of forty-one patients belonging to this group, in nearly all of whom there was a combination of asthma or hay fever with prurigo of the Besnier type, and several of whom were ichthyotics, the average figure for the amino-acid content of the blood was 8.8. The highest figure in this series was 10.7, the lowest 7.0, but examinations made in a few asthmatic patients during an actual attack gave much higher readings—for example, 17.5 in one case, 18.6 in another. These figures have not been included in the above series.

In simple cases of urticaria and of asthma without prurigo it would appear that in the intervals between the attacks the amino-acid figure may be normal, or nearly so, but it rises rapidly during the paroxysms. Thus the asthmatic who in an attack gave the above figure of 18.6 gave in a quiescent period only 6.8, and the patient with 17.5 in the attack at another examination gave 8.0. One case of urticaria gave 6.4, rising during an attack to 11.8, another 5.0, rising to 7.4 and 9.3. Some of our urticarial patients with nocturnal attacks have given figures well within normal limits during the daytime; in others, however, they have been raised even at times when no eruption was present. A patient with angioneurotic oedema gave 6.0 in an interval between attacks, rising to 8.2 during one.

To sum up, the conclusions at which we have arrived from investigations made in a large number of patients are as follows:

1. During the acute paroxysms of allergic manifestations the amino-acid content of the blood is very markedly raised.

2. In cases of prurigo of the Besnier type, in which asthma, hay fever, and ichthyosis were often also present, high figures were usually obtained even during periods of comparative freedom from symptoms. The figure rose still higher during the paroxysms of itching.

3. In cases of simple urticaria or of angioneurotic oedema, and of asthma without prurigo, the figure may be normal or nearly so in the quiescent stage, but is constantly raised, sometimes to an extraordinary extent, during the attacks.

A raised amino-acid content of the blood has also been found in cases of light-sensitization of the adult type, in four cases of dermatitis herpetiformis, in some cases of simple prurigo occurring for the first time in adult life, in prurigo nodularis (three cases), in certain cases of eczema of the "gouty" type associated with a high blood pressure, in a case of dermatitis exfoliativa of unknown cause, in cases of salvarsan poisoning with jaundice, in one patient with cirrhosis of the liver, and in a case of intermittent hydrarthrosis associated with psoriasis. On the other hand, normal figures have been obtained in uncomplicated psoriasis, in one case of cirrhosis of the liver, in one case of toxic jaundice following tonsillectomy, in a case of sarcoid, in one of alopecia areata, and in a case of generalized eczematous dermatitis apparently due to septic absorption. In healthy normal subjects the figures are remarkably constant.

In experimental anaphylactic shock Hisanobu found a rise in the blood of total non-protein nitrogen and of amino-nitrogen.

With regard to the other non-protein nitrogenous substances—for example, urea, uric acid, and creatinine—we have not as yet estimated them in the blood in a sufficient

number of cases to enable us to draw any definite conclusions, but it would appear that during the acute paroxysms their quantity is raised. At all events, they are excreted in increased amounts in the urine at and during the period immediately following the paroxysms, and the output of creatinine would seem to be particularly high in cases of urticaria. Such an increase of non-protein nitrogen excretion has also been observed by Longcope and Rackemann to follow attacks of acute urticaria.

As to the significance of a raised amino-acid content of the blood we can say nothing. It is possible that it may be at any rate partly accounted for by the presence in the blood of toxic amines, of the histamine type, which are known to produce symptoms comparable to anaphylactic shock, and the various allergic manifestations. On the other hand, it may merely be an indication of the disturbance of endogenous protein metabolism that obtains in anaphylactic shock, and in the proteose intoxication which, as Whipple and others have shown, occurs in experimental intestinal obstruction, and in which the non-protein nitrogen in the blood is greatly raised. That the endogenous protein metabolism is excessive in the acute stage of allergic states is shown by the increased creatinine excretion that follows them.

CHLORIDES

In the early period of our work the importance of the chloride content of the blood and of the urinary excretion of chloride was not realized. Of late, however, one of us (G. H. G.) has investigated cases of various diseases from this point of view, with significant results.

In serum disease von Piquet and Schick showed that there was a relative increase in weight which they considered due to retention of fluid. Rackemann, Longcope, and Peters demonstrated that there is, during the active stage of serum disease, a marked but transient retention of chlorides and water, associated sometimes with a slight albuminuria and cylindruria, and occasionally with an impairment of the excretion of phenolsulphophthalein by the kidneys. They stated that in patients with oedema and a gain in weight during serum sickness the plasma chlorides were below normal. Rackemann and Longcope also investigated six cases of urticaria both during and after attacks. In one patient sensitive to beef and sheep protein the attack of urticaria was associated with a rise in blood urea, a decrease in the phthalein output, diminished excretion of urine, and almost complete suppression of chloride and nitrogen excretion. During the period immediately after recovery the nitrogen and chloride excretions were excessive, and the blood urea, the phthalein output, and the water exchange returned to normal. During this period there was a loss of almost 8 lb in weight. These results, as will be seen, correspond almost exactly with our own findings in allergic diseases.

In infantile eczema Lust and Lederer found at times a considerable increase in the water content of the blood as compared with normal infants, and wide and rapidly occurring fluctuations of the water content were characteristic. These fluctuations appeared to depend on alterations in the metabolism of mineral salts. Freund found that eczematous infants showed a much greater retention of chloride than non-eczematous infants on the same diet. This retention of chloride was coincident with a rapid gain in weight due to a simultaneous water retention. Meyer found that if eczematous infants were underfed there was a much greater excretion of mineral salts than in normal infants on the same diet.

In considering the chloride content of the blood a distinction must be drawn between the serum content and the whole blood content. The chloride content of a given volume of serum is greater than that of the same volume of whole blood, showing that normally the serum chloride exceeds that in the corpuscles. The normal readings are fairly constant: a series of estimations in normal controls gave figures varying from 570 to 585 mg per 100 c.c. of serum, and 454 to 495 mg per 100 c.c. of whole blood. These may probably be taken to represent the normal limits. The chloride content is estimated as the chlorine ion, and the result expressed in terms of sodium chloride, although the actual combination of the chlorine ion varies in the serum.

and the red cell, it is probably present as sodium chloride in the serum and potassium chloride in the red cell

Now it would appear that in acute and chronic allergic manifestations the whole blood chlorides are markedly diminished, whereas the serum chlorides may remain about normal—that is, there is a reduction of the corpuscle content of chloride. As with the increase of the blood amino-acid content, we have found that this reduction of whole blood chloride is most constantly found in the asthma-prurigo group, and, like it, varies with the exacerbation or remission of the symptoms. In simple urticaria the chloride reduction takes place, like the increase in blood amino-acid, during the attacks, and usually returns to normal in the intervals. Thus

Disease	Amino-acid Content of Blood Mg per 100 c cm	Serum NaCl Mg per 100 c cm	Whole Blood NaCl Mg per 100 c cm
Normal	4.0-6.5	570-585	454-495
1. Asthma, ichthyosis prurigo	7.0-9.3	577	346
2. " " " "	7.0-7.7	561	363
3. " " " "	7.0	627	396
4. " " " "	7.0	561	322
5. " " " "	7.0	610	380
6. " " " "	7.0		380
7. " " " "	8.7		305
8. " " " "	8.7		430
9. " " " "	7.0		363
10. Asthma, ichthyosis prurigo urticaria	10.0		412
11. Angioneurotic oedema urticaria (quiescent stage)	7.0		396
12. Asthma, ichthyosis prurigo urticaria	9.3		412
13. Asthma	7.0	577	363

One case of severe prurigo of the Besnier type associated with occasional attacks of asthma was investigated at various times

On April 24th 1928 after having been for some time on a vegetarian diet the patient was fairly free from itching. Amino-acid 5.4 mg per 100 c cm serum NaCl 577 mg per 100 c cm whole blood NaCl 396 mg per 100 c cm. Given sal volatile potassium bicarbonate, and urea. On May 1st was much better. Serum NaCl 610 mg per 100 c cm whole blood NaCl 430 mg per 100 c cm. On May 7th patient had a relapse with severe itching and asthma following a catarrhal infection with some pyrexia. Amino-acid 7.0 mg per 100 c cm serum NaCl 561 mg per 100 c cm whole blood NaCl 363 mg per 100 c cm. On May 13th the asthma had gone but there was still some itching. Amino-acid 7.7 mg per 100 c cm whole blood NaCl 396 mg per 100 c cm

A case of angioneurotic oedema gave the following figures

	Before Attack.	During Attack.
Amino-acid	5.8 mg per 100 c cm	8.2 mg. per 100 c cm
NaCl (whole blood) ..	480 " "	396 " "
NaCl (serum)	580 " "	577 " "

THE URINE

A study of the urine has proved of very great interest and importance in allergic states, and it is no exaggeration to say that not only can we now deduce from a given specimen, taken from a person with allergic symptoms, whether it was passed at the onset or during the paroxysm or in the period following it, but we can also predict the urinary findings according to the condition of the patient at a given time

There are two phenomena which we believe to be almost if not quite constant in persons with allergic symptoms at certain times during the periods of active manifestations—namely the ether reaction, already referred to and the deposition of urates in the urine on cooling. These will be discussed later

Before considering the urinary findings in detail it is advisable to summarize what we have found to occur in the cycle of events that takes place in all the acute allergic states so far investigated—for example, an attack of asthma, urticaria, angioneurotic oedema, or migraine, and in the paroxysms of itching that occur periodically in prurigo and infantile eczema. In the period just preceding and during the paroxysms we find

Blood

- 1 The amino-acid content rises
- 2 The uric acid and creatinine are also apparently increased
- 3 The chloride content of the whole blood—chiefly of the corpuscles—falls

Urine

- 1 Free acidity rises
- 2 Urates are often deposited when the urine cools
- 3 Diminished water excretion, so that the specific gravity is usually high
- 4 Retention of chlorides
- 5 Ether reaction strongly positive
- 6 Ammonia excretion rises and the ratio of free acid to ammonia is altered
- 7 Excretion of amino-acid, creatinine and uric acid begins to rise

In the period following the subsidence of the paroxysm we find

Blood

- 1 The amino-acid content falls again
- 2 The uric acid and creatinine also diminish
- 3 The chloride content of the whole blood rises again

Urine

- 1 The free acidity rapidly and progressively falls, and the urine tends to become neutral and finally alkaline sometimes strongly so
- 2 Increased excretion of water, so that the volume is raised and the specific gravity falls (post-paroxysmal diuresis)
- 3 The excretion of chlorides is increased
- 4 The ether reaction diminishes and may entirely disappear
- 5 The excretion of ammonia begins to fall but it is so slow that the ratio of free acid to ammonia is still further altered
- 6 Excretion of amino-acid, creatinine and uric acid gradually falls

The Precipitation of Urates

The precipitation of urates in the urine on cooling is a phenomenon that has not, in our opinion, received sufficient attention from clinicians. It is usually taught that such a precipitation when the urine cools depends on (1) the concentration, (2) acidity. As a matter of fact these factors are of relatively minor importance. We have seen a heavy deposit of urates in a urine with a quite low free acidity and a specific gravity of only 1012. The following remarks are taken almost *in extenso* from an article on renal calculi by Jacob Rosenbloom in *Endocrinology and Metabolism* (D Appleton and Co., New York and London, 1924, vol 4, pp 465-467)

Temperature, as is well known, has a great influence on the solubility of acid sodium urate. It may often be observed that a precipitate which disappears on boiling the urine does not reappear on cooling, and that the urine remains clear for hours or even days. Some change must therefore have taken place in the urine by heating. Decomposition of uric acid is not in question, decrease of acidity from the small loss of CO₂ cannot account for the change. One can even make the urine more strongly acid after heating without hastening the formation of a precipitate. This phenomenon of change in solubility may be found at times in urines which give a dense uric acid precipitate on acidification. If one adds the same amount of acid to the heated urine the precipitation may fail or come later

It can be shown that, by boiling a change in the solubility state of the colloid is produced. Lichtwitz examined fifty-seven such urines for their colloid conditions. The gold count was made before and after boiling and the time noted that the sediment remained in solution. The gold count increased from two to ten times—that is the uric colloids were in a state of precipitation in these urines, and became reversible through boiling as gelatin by warming goes into a finer separation. In eighteen urines that precipitated on cooling the gold count was the same before as after boiling—that is, the colloid which these urines contained was in an irreversible precipitation state. Such urines may be without defence action for colloidal gold solutions. Lichtwitz observed a patient who passed urine for four weeks without a gold count with abundant uric acid sediment only on one day was the urine clear and acted protectively on the gold solution.

These observations show that the solubility of the uric acid and its salts depends on the colloid state of the urine. The concentration is of subsidiary importance, for precipitation may occur with quite normal amounts, while abnormal amounts may remain in solution. Other conditions being the same, a sediment occurs naturally more readily in concentrated urine. The reaction is of significance merely in so far that precipitation only occurs in acid urines. If occasionally the reaction is neutral, it is due to the fact that in crystallization hydrogen ions have left the solution and thereby reduced its acidity. At any rate, in very strongly acid urines the uric acid may remain dissolved.

The dominant factor for the solubility is the state of the urino colloids. It may be here remarked that, since the precipitation of urates does not depend on the uric acid itself, such precipitation does not in any way indicate the "uric acid diathesis." Brugsch and Schittenhelm have pointed out that whereas true gout is extremely rare in childhood, uric acid stone is most frequent, and the majority of cases of urate stone diathesis occur without true gout.

Now although the precipitation of urates may be found in the urines of apparently normal healthy people, it is, in our experience, comparatively rare, and we believe that, apart, perhaps, from its occurrence after excessive sweating, it is an indication, even in persons organically sound, of at any rate a temporary functional metabolic disturbance. One of us (H. W. B.) makes a rule to examine an early morning specimen of urine of nearly every patient he sees in private practice, and urates are more commonly deposited in the night or early morning urine than at other times, nevertheless, except in patients with allergic symptoms, it is rare to see a specimen with uratic sediment. Even in patients with acute seborrhoeic manifestations, in whom the urine is usually excessively acid, such sediment is very uncommon.

In allergic diseases, however, it is so frequently met with as to be almost constant at some period in the twenty-four hours, at least during the phase of active manifestations. In infantile eczema, urticaria, and in the asthma-prurigo syndrome, for example, an inquiry as to whether a reddish sediment has been noticed in the urine on cooling will almost invariably be met with an affirmative reply.

It would seem, therefore, that in allergic diseases there is an alteration in the colloidal state of the urine which predisposes to the deposition of urates, and one naturally asks whether this phenomenon is not a reflexion in the urine of the *crise hémoclasique*, or *colloïde clasique* in the blood.

The Ether Reaction

This reaction, as has been said, was first observed by one of us (G. H. O.) in cases of cardiac failure with oedema. The test is performed as follows. To a few cubic centimetres of urine are added first a little of a 25 per cent solution of sulphuric acid, and then sufficient ether to form a layer above the urine about half an inch in depth. The mixture is then thoroughly shaken, with the thumb over the mouth of the test tube, and allowed to stand. The layer of ether becomes frothy, but, if the reaction be positive, the froth in its lower part becomes viscous and opaque, like melted wax, after ten minutes or so. In strongly positive tests the tube of urine can then be inverted without spilling. The degree of positiveness is measured by the depth of the waxy scum beneath the superficial froth, and we would here emphasize that the test is one of degree only, because a slight reaction—that is, the formation of a narrow band of opaque scum—is frequently found in apparently normal people. For this reason we do not wish to exaggerate the importance of this reaction, nevertheless it is one of great interest, and deserves further study.

Microscopically the viscid scum is found to consist of finely divided globules. When the ether is evaporated there remains a little urine. Chemical analysis has thrown no light on the phenomenon, the various substances identified in the scum being normal constituents of urine, such as hippuric acid. Presumably, therefore, the reaction merely depends on reduction of surface tension. This is supported,

perhaps, by the fact that it is well seen in jaundiced urines.

As far as our observations go the reaction is always strongly positive during the acute phase of allergic manifestations, but may disappear during the period of quiescence. We have, for example, found it very marked during the acute eruptive stage of urticaria and urticaria papulosa, though sometimes practically absent between the outbreaks. In migraine—and Dr Moroland McCrea has confirmed this—it is positive during the attacks, but may be negative at other times. In infantile eczema and the asthma-prurigo syndrome, it may be well marked in practically every specimen of urine examined, but is always most intense during the paroxysms of itching.

We have also found it in serum sickness, in hepatic disease, in acute febrile infections such as pneumonia, and in certain cases of active tuberculosis, and we have seen it strongly positive in some cases of acute toxic eruptions from food poisoning, and in generalized eczemas due apparently to sensitization to external irritants.

It would seem likely that there is a connexion between this reaction and the deposition of urates, both being probably dependent on an alteration in the colloid state of the urine, and it may be of significance that Kropczewski and Yakiam have shown that sodium oleate suppresses anaphylactic shock in sensitized animals, as also do saponin, sodium taurocholate, and sodium glycocholate, presumably owing to their power of reducing surface tension in the plasma.

Urinary Acidity and Concentration

The acidity of the urine, as already remarked in the summary of what may be called the allergic cycle, varies according to the particular phase of the cycle. In the period preceding an attack the free acidity is, if anything, raised, but as the attack proceeds and diminishes the acidity falls, and the urine tends to become neutral and sometimes strongly alkaline, with a deposit of phosphates. During the acid stage the urine is usually concentrated, there being a diminished water excretion, and very commonly deposits urates on cooling, although, as has been remarked, uratic deposits may occur in urines of only moderate acidity and comparatively low specific gravity. During the alkaline stage it is dilute, there being a diuresis, which has long been noted clinically, for example, after asthmatic attacks. A patient may, in fact, during the same period of twenty-four hours, at one time pass a strongly acid concentrated urine with a deposit of urates and at another a highly alkaline dilute urine with a deposit of phosphates.

Ammonia.—The ammonia excretion is one of the most remarkable features of the allergic state, because it does not correspond to the degree of acidity. The normal ratio between the free acid and the ammonia excretion varies from 1.06 to 1.15 according to Davis and Rixon,² 1.1 being probably the normal average, according to our own investigations.

In persons with allergic symptoms the ammonia excretion is raised, often to an extraordinary extent, and the ratio is found to be abnormal at the period of and following the paroxysm. For example, a lady with asthma and hemified eczema of the hands gave the following figures:

Time	Free Acid	Ammonia	Ratio	Volume	Volume per Hour
4.15 p.m.	38.4	21.6	1.15	120 c.c.m.	
8.0 p.m.	50.4	17.0	1.16	180 c.c.m.	45 c.c.m.
2.0 a.m.	29.4	13.0	1.30	210 c.c.m.	35 c.c.m.
5.0 a.m.	14.4	9.0	1.40	180 c.c.m.	60 c.c.m.
6.0 a.m.	8.0	9.0	1.70	150 c.c.m.	180 c.c.m.
7.0 a.m.	—8	34.0		210 c.c.m.	
Total	132.5	58.6	1.26	1,050 c.c.m.	

The asthmatic attack was nocturnal, and it will be observed that in the latter half of the night the free acid progressively diminishes until at 7 a.m. the urine is alkaline whereas the ammonia excretion, so to speak,

lags behind, and at 6.30 a.m. a ratio of 1.70 is obtained. The diuresis accompanying the alkaline stage is well shown.

A boy of 18 with asthma and prurigo gave the following figures:

Day of No Attack

Time	Free Acid	Ammonia	Ratio	Volume	Volume per Hour
11.20 a.m.	24.0	91.8	1.20	150 c.cm.	
5.15 p.m.	45.0	122.4	1.16	150 c.cm.	25 c.cm.
7.10 p.m.	23.0	67.3	1.18	90 c.cm.	45 c.cm.
5.45 a.m.	114.0	346.0	1.14	600 c.cm.	60 c.cm.
Total	235.0	627.5	1.15	930 c.cm.	

Day of Attack

Time	Free Acid	Ammonia	Ratio	Volume	Volume per Hour
1.20 p.m.	16.0	122.4	1.45	90 c.cm.	
4.10 p.m.	7.0	65.0	1.54	90 c.cm.	30 c.cm.
7.0 p.m.	12.0	38.0	1.20	90 c.cm.	30 c.cm.
4.30 a.m.	79.2	314.0	1.30	650 c.cm.	66 c.cm.
9.15 a.m.	27.0	128.0	1.28	270 c.cm.	
Total	141	667	1.27	1,200 c.cm.	

The following figures were recorded in a case of angioneurotic oedema:

Time	Free Acid	Ammonia	Ratio	Volume	Volume per Hour
7.0 p.m.	52.8	157.0	1.17	300 c.cm.	
Adrenaline 8.0 p.m.					
6.0 a.m.	115.2	440.0	1.23	720 c.cm.	65 c.cm.
10.45 a.m.	neutral	148.0		330 c.cm.	66 c.cm.
1.45 p.m.	neutral	31.0		90 c.cm.	30 c.cm.
4.0 p.m.	-26.4	67.0		660 c.cm.	330 c.cm.
Total	142	894	1.36	2,130 c.cm.	

It will be noted in this case that the attack of angioneurotic oedema was already present when the investigations were begun, and that adrenaline was administered after the first specimen of urine was examined. The figures show the gradual diminution of acidity with ultimate alkalinity, although the ammonia excretion remains high, and the very marked diuresis. Moreover, it will be seen that this progression towards the alkaline side is common to both asthma and angioneurotic oedema, and cannot be explained merely by the hyperpnoea that occurs in asthma.

Urea, Creatinine, and Uric Acid.—It will thus be seen that the ammonia excretion is raised in association with the paroxysms; the other non-protein nitrogenous substances—namely, urea, creatinine, and uric acid—are also correspondingly increased.

Chlorides.—The diminution of the chloride content of the red corpuscles has already been noted. Examination of specimens of urine taken at different times during the twenty-four hours in a patient with active allergic symptoms has shown repeatedly that during the active stage there is retention of chlorides, with a consequent low excretion of them in the urine, whereas after the paroxysm the excretion rises. This chloride retention has been shown to occur by Rackemann, Longcope, and Peters in serum sickness, and by Longcope and Rackemann in cases of urticaria. It is a well-known phenomenon in pneumonia and in other acute infections, such as scarlatina and typhoid fever. Kartavitschew and Pokorwy, and d'Urbach have

also emphasized its occurrence in pemphigus vulgaris and in dermatitis herpetiformis. In all probability it is a protective mechanism, and the experiments of Richet and others on the prevention of anaphylactic shock in animals by the previous injection of sodium chloride support this view.

CONCLUSIONS

The points we would emphasize in the foregoing summary of some of our investigations into the metabolism of allergic conditions are as follows:

1. Certain phenomena have been demonstrated to occur with remarkable constancy in various manifestations of the allergic state, some of these have already been described in experimental anaphylaxis and in serum sickness, which is generally admitted to be truly anaphylactic in origin.

2. In the allergic state, whether it be intermittent, as in certain cases of urticaria, angioneurotic oedema, and asthma, or whether it be more or less chronic, with periodical exacerbations or remissions, as in Besnier's prurigo and infantile eczema, there can be recognized a definite cycle of events corresponding to the pre-paroxysmal stage, the actual paroxysm, and the post-paroxysmal stage. In this cycle the most striking features are:

- (a) The rise in the amino-acid content of the blood.
- (b) The rise in the ammonia excretion out of all proportion to the excretion of acid in the urine.
- (c) The lowering of the corpuscle content of chloride and the retention of chloride during the paroxysm with its subsequent excretion as in pneumonia and other acute infections.
- (d) The deposition of urates in the pre-paroxysmal or paroxysmal stage.
- (e) The ether reaction during the periods of active manifestations.
- (f) The diuresis with decreasing acidity and sometimes marked alkalinity of the urine in the post-paroxysmal stage.

3. The deposition of urates and the ether reaction in the urine indicate an alteration in its colloid state, comparable probably to the colloidal change that is held to occur in the blood during anaphylactic shock.

4. It is probable that the increased ammonia excretion and the retention of chlorides are protective mechanisms.

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HAEMOGLOBINURIA AND URTICARIA ARISING FROM COLD

A NOTE ON THE PRESENCE OF A DEHYDOLYSIS *

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OBSERVATIONS upon three patients, the first suffering from paroxysmal haemoglobinuria and urticaria, the second from simple cold urticaria, and the third from uncomplicated paroxysmal haemoglobinuria are here recorded. The investigations are still incomplete: the present note is therefore a preliminary account only.

CASE I

H.D. is a slightly anaemic girl aged 11 years, for about two years she has passed dark urine after exposure to cold such as going out in winter or washing herself in cold water. Apart from a positive Wassermann reaction given both by herself and by her mother there is no evidence of congenital syphilis. When tested by bathing in cold water to demonstrate the haemoglobinuria extensive whealing of the skin developed. On further questioning she has given a history of nettlerash appearing after being out in the cold on exposed areas of the body and mainly affecting the hands and the face.

The case is typical of paroxysmal haemoglobinuria occurring in response to exposure to cold. This condition has been proved by Donath and Landsteiner, Eassey, and others to be due to the presence in the patient's blood of a haemolysin, which unites with red

* Work undertaken on behalf of the Medical Research Council.
† Assistant on the Medical Unit.

blood cells only at relatively low temperatures, but requires subsequent warming to body temperature to allow the necessary union with complement and consequent haemolysis. This phenomenon has been demonstrated by repeated experiments on the blood of our patient *in vitro*. The skin reaction to cold in this patient is of the usual form seen in other skin injuries—namely, the triple response, cold of the degree here used produces no such response in normal persons. In previous publications from this laboratory,^{3, 4} a great deal of evidence has been brought forward to show that this triple response—namely, local reddening, increased permeability leading to whealing, and a reflex arteriolar flare—is due to the liberation of a histamine-like substance already present in the skin cells. The reaction occurs in this patient as a sequel to cold applications, temperatures of from 0° to 19° C being effective in producing whealing, at 0° C cooling for only half a minute is sufficient. The reaction is purely local.

The response of the skin to cooling is due to the presence of a dermolysin in the patient's blood. The skin of other subjects is rendered similarly sensitive to cold by the intradermic injection of this patient's serum.

The conditions under which the dermolysin and the haemolysin act are similar. Thus, cooling followed by warming is essential in both instances, and very prolonged cooling is unfavourable to both reactions.

CASE II

H. M. is an artist, aged 64 years, he was admitted for cardiac failure with venous congestion and slight oedema, but without sign of valvular lesion. There is no history of paroxysmal haemoglobinuria nor evidence of syphilis. Whilst in hospital his skin was found to be abnormally sensitive to cold, and he then gave a history, extending over a period of twenty-five years, of nettles rash occurring on any surface exposed to cold.

In this patient cold produces urticaria locally in the skin, exposure at 0° and 10° C for ten minutes gives a typical urticarial reaction, but his responses to varying degrees of cold and length of exposure are somewhat variable from day to day. Prolonged exposure of the arms to cold water gives no haemoglobinuria, *in vitro* tests provide no evidence of a haemolysin in his blood. His serum, however, contains a dermolysin, which can be transferred readily to the skins of normal subjects by injection, causing them to react similarly to cold.

CASE III

W. W. M., a boy of 9 years, had frequent attacks of red urine for three winters, but is said to have had none for the last four years. The attacks always followed exposure to cold. The boy's Wassermann reaction was positive four years ago, but is now negative (he has been receiving antisyphilitic treatment). There is no history of skin eruptions.

This boy, giving as he does a typical history of paroxysmal haemoglobinuria, has not present a haemolysin in the blood, as shown by *in vitro* tests. The skin has been tested with varying degrees of cold from 0° to 15° C, but no whealing can be obtained. The skin of a control subject injected with the patient's serum fails to react to cold.

On the basis of observations upon these three patients, and upon other observations to be described at a later date, we conclude that there are three types of case in which there is a specific reaction to cold—namely, simple haemoglobinuria, simple urticaria, and haemoglobinuria and urticaria combined. The haemoglobinuria in the first and third types is due to a haemolysin, the urticaria of the second and third types to a dermolysin. We have as yet insufficient evidence to show that these two substances are either identical or different, but this question is being investigated further, we have evidence, in their frequent association and in the general resemblance of the corresponding reactions, that the two substances are closely allied pathogenetically.

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RADIUM TREATMENT OF INTRINSIC CARCINOMA OF THE LARYNX*

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At St. Bartholomew's Hospital researches in radium therapy have been carried out since 1913, and many different types of growth have been treated. At first we employed large doses of radium, either as external applications or buried in the centre of the growths. With these methods it was found that there was too much local destruction of tissues. Radium burns were often produced and the wounds healed slowly. Necrosis and sloughing of deeper tissues were caused, and in many instances secondary haemorrhages occurred. After fifteen years' experience we have come to the conclusion that radium should be buried in the tissues whenever possible, and that as a rule small amounts should be used for long periods. To obtain a uniform irradiation platinum-iridium needles containing radium are buried around the growth, the greatest care being taken to prevent sepsis.

With smaller doses and better technique our results have gradually improved, and four years ago we devised an operation closely resembling that of Professor Bayet for the treatment of intrinsic cancer of the larynx which we hoped might give better results than the more mutilating treatments such as laryngo-fissure and laryngectomy. We have now treated 15 cases of carcinoma of the larynx by this method, in 13 the diagnosis was confirmed by microscopic sections before they were treated.

Method Employed

A skin incision is made over the thyroid cartilage, starting at the centre of the hyoid bone and extending outwards and downwards along the posterior border of the thyroid cartilage. The infra-hyoid muscles are exposed and split longitudinally. The internal aspect of the thyroid cartilage is exposed, the perichondrium covering it is divided and stripped backwards and forwards. The greater part of the cartilage is then resected. Thus a large window is made in the thyroid cartilage, but a framework is left consisting of the four margins. By this means the outer surface of the growth covered by the perichondrium is exposed. It is important not to destroy this capsule or to cut into the growth. The cartilage is removed for two reasons—to allow the needles to be placed as close to the growth as possible, and to prevent the perichondritis or necrosis which may be caused by the radium.

From five to ten radium needles are thus inserted lying parallel to one another and vertical. To keep them in position the ends of the needles are tucked under the framework of the cartilage. Care is taken that the needles do not penetrate into the growth or into the larynx. At the lower end of the wound, if the growth is subglottic, the needles are pushed inside the cricoid ring, but in this situation the tissues are often so thin that occasionally the needles may perforate the air passage.

Each needle has attached to it a piece of linen thread soaked in a solution of flavine 1 in 1,000. This material seems to cause less irritation than silk or others that have been tried. The threads are all tied together and buried beneath the muscles. Double sutures are inserted into the skin, half of them being tied at once to close the wound completely, and the other half left so that they can be tied later after the radium has been removed. No drainage is employed, and the skin incision is completely sealed with a collodion dressing. If the growth has extended across the middle line, a second window is made in the thyroid cartilage on the opposite

* A paper read at the Second International Congress of Radiology held at Stockholm.

sids, and needles are buried there also. A low tracheotomy is then performed. This is deliberately made the last stage of the operation to prevent infection of the laryngeal wound. Tracheotomy has been performed in all the cases because the reaction which results from the radium may cause so much swelling that the glottis may become temporarily obstructed. In six of the cases the patient could not have breathed satisfactorily without a tracheotomy tube.

The needles have been left *in situ* for periods of from four and a half to eight days, according to the dose of radium employed and to the extent of the growth that had to be treated. At the end of the treatment the wound was found to be infected in every case. In some of them there was definite pus, while in others the exudation was serous, blood stained, or fibrinous. Slight rises of temperature (99° to 101°) were common, but in only one case was the wound septic enough to cause anxiety. Cough has been a prominent feature of all the cases while the radium was *in situ*, and a good deal of sticky mucus has been secreted in the larynx. In no case has the inflammation extended downwards and caused bronchitis. With one exception, no shock has resulted from the treatment. There has been practically no pain or discomfort, and none of the patients has been seriously ill.

The time of the removal of the needles depends to some extent on the amount of reaction and inflammation in the wound. In one case the suppuration was so severe that the needles had to be removed earlier than was intended. In such an instance the skin wound requires drainage for several weeks. After removal of the needles the wound should be thoroughly irrigated with hydrogen peroxide or flavine and unless pus has been present it should be closed completely wherever possible. If there is much effusion a small drainage tube may be retained for a few days. Some swelling and induration of the neck results from this treatment, and may persist for a month or two. Ultimately the wounds heal soundly with soft movable scars.

Changes in the growth itself occur rapidly, and even in ten days the lesion may appear less nodular. Often the surface is then coated with a layer of white fibrin. The surrounding parts are generally oedematous, and in some instances the swelling may occlude the glottis. Later the inflammation subsides, and after six weeks all signs of growth may have disappeared, leaving the cords symmetrical and equally movable. About this period the tracheotomy tube can usually be removed.

Dosage and filtration.—We have throughout used a 0.5 amp filter of platinum containing a small percentage of iridium. The applicators have been in the form of needles 2 cm and 1 cm long, containing respectively 1 or 0.5 mg of radium element. In some cases these needles have contained 0.9 and 0.45 mg. On the average eight needles, seven long and one short, are used if one side only is being treated, and about twelve for both sides. With about 7 mg of radium element in the wound we usually leave the needles *in situ* for six or seven days (see table). In some cases about 30 per cent of a full dose of heavily filtered x rays has been given during two or three days immediately preceding the operation.

Theory

It is known that if a transplantable animal tumour be given a certain dose of radiation *in vitro* such a tumour can no longer be transplanted. This is called the lethal dose, but a lethal dose cannot be administered to the whole of a tumour in the human larynx or in an animal because the effect on the surrounding tissues is too severe. By embedding radium in a growth, however, parts of it will receive such lethal dose. Now if an animal tumour which has received *in vitro* a lethal dose and not very greatly in excess of this be implanted, it is absorbed and immunity to subsequent implantations of the same tumour is conferred on the animal.

One of us has advanced the theory that the administration of the lethal dose to parts of the tumour *in vivo* renders the remainder of the growth more susceptible to moderate doses of radiation. Therefore radium needles or seeds may produce better effects than homogeneous irradiation of the tumour. When such a big dose is given

the tissues are very susceptible to bacterial invasion, so that the most meticulous care must be taken to avoid sepsis. This we have borne in mind throughout. Apart from this action the effect of the rays is selective, the cells of the growth being more vulnerable than the normal cells. The wonderful restoration of the vocal cords, so that it is not even possible to say which side has been diseased, is evidence of this.

Results

Of the 15 cases treated, 14 were males and one a female, with ages varying from 45 to 67. Patients were selected who were not too old and who had a reasonable expectation of life. They can be grouped in three classes as follows.

1 Early cases in which the growth was strictly confined to one vocal cord and did not involve either the anterior commissure or the arytenoid cartilage—namely, cases that could have been treated by laryngo-fissure. In this class there were 8 cases. In 6 the growths entirely disappeared, and the patients have remained well for periods of from one to three years. In all of them the affected vocal cords have become freely movable. In some of them the vocal cords have recovered to such an extent that it is now almost impossible to detect on which side the growths were situated. Such results are far superior to those that can be obtained by cutting operations such as laryngo-fissure. The voice results are also excellent, the worst voices being better than the average obtained by laryngo-fissure. To demonstrate this feature a gramophone record of an exceptionally good voice following thyrotomy was prepared, and was no better than the good results obtained after radium treatment. In one case the growth diminished in size, but a stenosis of the glottis resulted, and the patient died suddenly eight months later of unknown cause. In the other case no real improvement resulted from the treatment.

2 Advanced cases in which the disease was intrinsic but had crossed the middle line in front and involved the other vocal cord. These cases could only have been cured by some form of laryngectomy. There were five cases in this class. One patient has remained cured for four years, his vocal cords are freely movable and have a normal appearance, but the voice result is not as good as might be expected (record given). In one case, a male, the disease in the larynx entirely disappeared and the voice became normal again but recurrence took place a year later in the tracheotomy wound, and he died eight months afterwards. In one case the growth shrank, but a stenosis of the larynx supervened and later it recurred, and the patient died twenty-one months after operation. In one no improvement was noticed. One patient died of chloroform poisoning before the operation was completed. The voices in the two cases in this group in which the disease disappeared were infinitely superior to anything which can be obtained by means of an artificial larynx, and in one of them the voice became normal.

Many patients will even prefer an increased risk to life rather than lose their voice permanently. As far as our evidence goes radium treatment does not increase this risk.

3 Inoperable cases in which the disease had extended into the pharynx or through the laryngeal cartilages into the neck, with enlargement of the cervical glands. In this group there were two cases. In one case the growth entirely disappeared and the glands which contained carcinoma, were removed by operation. The larynx remained healthy for two and a half years but afterwards the vocal cord became thickened again owing to recurrence. In the other case the growth shrank greatly, but the patient died after fifteen months, probably as the result of metastases in the mediastinum.

This last class of case can also be treated by heavily filtered x rays. In one patient who has recently been treated by this means an extensive ulceration involving the greater part of the cavity of the larynx has entirely healed and the growth has already greatly diminished.

These results are encouraging, but obviously it is too early at present to be certain to what extent the cures are permanent. It is quite possible that radium will be found to be the best method of treatment in all cases of intrinsic

Case	Sex	Age	Symptoms (years)	Date of Operation	Number of Needles	Needles Retained (days)	Tracheotomy Tube Retained (weeks)	Cured (years)	Arrested (years)	Dead (years)	Larynx	Cords	Voice
1	M	45	4	1921	9	4	6	4½	—	—	Normal	Freely movable	Good
2	M	55	3	(1) 1921 Sept	6	14	—	—	—	1½	Stenosis	Unmovable	Hoarse
3	M	55	2	(2) 19.4 Dec 19.4	22 right 5 left 13	7½	Permanently	—	—	1½	Normal	Freely movable	Normal
4	M	55	1½	1925	13	6	Permanently	—	—	1	Stenosis	Fixed	Hoarse
5	M	67	7	1925	7 right 5 left	6	Permanently	—	—	2	Stenosis	Fixed	Hoarse
6	F	63	3	19.5	7	7	4	3½	—	—	Normal	Freely movable	Normal
7	M	47	1½	1925	9	7	14	3½	—	—	Normal	Freely movable	Normal
8	M	55	3	1925	8	6½	16	—	2½	—	Normal	Freely movable	Normal
9	M	51	1	1925	7	7	6	3	—	—	Normal	Freely movable	Normal
10	M	55	1½	1925	11	4½	Permanently	—	—	1½	Stricture	Fixed	Feeble
11	M	50	2	1925	8	4½	6	2	—	—	Normal	Freely movable	Normal
12	M	61	1½	1927	9	6	8	1½	—	—	Slight thickening	Slight movement	Slightly improved
13*	M	59	1	1927	—	—	—	—	—	—	—	—	—
14	M	63	1½	1927	7	7	14	1½	—	—	Slight thickening	Freely movable	Hoarse
15†	M	53	1	1927	8	7	6	—	—	—	—	—	—

* This patient died under the anaesthetic

† The patient shows no improvement

carcinoma of the larynx. There seems to be no doubt that in the early cases in which the disease is strictly localized to the vocal cord a high percentage of cures can be expected, and the after-results are far superior to those which have been obtained by operation. In a favourable case the vocal cord may become absolutely normal again and freely movable. The voice may be completely restored (6 cases), and the larynx does not appear to be weakened in any way.

In advanced cases there seems no doubt that radium should always be tried before laryngectomy. If the disease is not completely eradicated within three months, or if any induration remains, the radium treatment should either be repeated or an operation such as laryngectomy performed. Even in inoperable cases it seems probable that with careful selection some relief of symptoms and some prolongation of life may be obtained by this method.

Lantern slide diagrams of the condition of the vocal cords before and after the treatment were shown. Gramophone records which had been specially prepared free of cost by the kindness of the Columbia Graphophone Company were used to illustrate the voice results, and for comparison the records of two cases treated by the operation of laryngo-fissure were included.

Case Histories (July, 1928)

Case 1—Extensive growth involving the right side of the larynx the anterior commissure and the front of the arytenoid cartilage the greater part of the glottis was occluded. The patient was seen in consultation with Sir St. Clair Thomson and told that the disease could only be treated by complete laryngectomy or by radium needles. He was warned that radium treatment was still in its infancy and that we had no previous experience whether it would succeed in his case. After careful consideration he refused to have a laryngectomy performed and decided to try the radium treatment. Six months later he was again seen by Sir St. Clair Thomson who remarked that 'If we can see him this time next year without a recurrence it will be a splendid case. Now, nearly four years later he has a perfectly normal larynx with freely movable cords, and a good voice.

Case 2—The growth had been removed three years previously by laryngo-fissure. There was an extensive recurrence involving the right half of the larynx. Again the choice lay between complete laryngectomy and radium and he was strongly advised to have the former. As he absolutely refused to undergo laryngectomy radium needles were inserted. The growth was found to have extended through the thyroid cartilage into the tissues of the neck. Twenty-eight needles were inserted on the two sides and the growth almost entirely disappeared, leaving a moderate stenosis in the subglottic region. His health gradually failed and he died fourteen months after the operation from chest troubles, which were probably due to secondary glands in the mediastinum. Although his larynx never became normal, there was at no time any active recurrence of the growth in it or in the neck.

Case 3—A medical man with an extensive growth on the right side of his larynx involving the anterior commissure. To cure the condition a complete laryngectomy would have been necessary but the operation was refused and fourteen radium needles were

buried in the two sides of the larynx. All signs of the disease in the larynx disappeared rapidly. In two months the larynx had a healthy appearance both cords moved freely and the voice was absolutely normal. Twelve months later he suddenly became hoarse again and a hard swelling was discovered in the position of the tracheotomy wound. It was explored and found to be a malignant growth surrounding the trachea, and inoperable. His health rapidly failed in spite of external radium treatment and he died twenty months after his operation from a recurrence in the neck, the larynx having remained healthy throughout.

Case 4—Apparently an early case with a localized hard fibrous growth confined to the right vocal cord. The disease did not respond well to radium treatment. Subglottic stenosis of the larynx resulted necessitating a permanent tracheotomy tube. The patient died unexpectedly eight months later of heart failure and a post mortem examination showed that there was a mass of scar tissue below the vocal cords containing small islands of carcinoma cells. It is probable that in this case the needles were not inserted low enough to treat the disease in the subglottic space properly.

Case 5—An extensive disease of long duration involving both sides of the larynx. The growth responded badly to radium treatment and a subglottic stenosis resulted. The patient's general health and voice were poor, and he died two years later.

Cases 6 and 7—In each instance the growth was an early one and strictly confined to one vocal cord. Good results were obtained. The larynges became healthy again with freely movable cords and normal voices.

Case 8—A very extensive carcinoma involving the whole of one side of the larynx. Suspicious glands could be felt in the same side of the neck. Previously he had been treated for twelve months by continued small doses of x rays. Eight radium needles were buried and all traces of the growth entirely disappeared, leaving a healthy larynx. The glands were removed later and found to be infected with carcinoma. His larynx voice and general health have remained normal for nearly three years.

Case 9—A localized growth involving the left vocal cord and anterior commissure. The cord moved sluggishly, the voice was husky and weak. Operation by Mr. Rose. After treatment the growth rapidly disappeared and the larynx assumed a healthy appearance. The cord now moves freely and the voice is normal.

Case 10—This patient had suffered from syphilitic laryngitis for many years, and it was doubtful when the carcinoma started. The disease was very extensive and could only have been treated by complete laryngectomy. Radium needles were buried but the growth did not improve with the treatment and an external fistula developed which ultimately became infected with the disease. Death occurred fourteen months after the operation.

Case 11—A localized growth of one vocal cord which disappeared immediately after radium treatment. The vocal cord now has a healthy appearance and moves freely. The voice is normal.

Case 12—An extensive growth involving the whole length of the right vocal cord with marked swelling of the ventricular band. Two-thirds of the glottis was occluded by the growth. After treatment the swelling subsided slowly. The vocal cord is now slightly thicker than normal but moves freely, and the voice is strong.

Case 13—An extensive growth involving the whole length of the left vocal cord the anterior commissure the hyoid and the epiglottis slightly, and the subglottic region. Seen by Sir St. Clair

Thomson, who agreed that the growth was too advanced for laryngo-fissure, and that the patient was not strong enough for laryngotomy because he had an enlarged liver and had suffered from haematemesis. Radium needles buried under a local anæsthetic. The growth rapidly shrank and had entirely disappeared in three months. The cord became freely movable although the edge was slightly swollen by oedematous fringes. He now has a loud hoarse voice.

Case 15—A fairly extensive growth involving the whole of the right vocal cord with infiltration of the ventricular band. So far the growth has not responded to radium treatment and a further operation will probably be necessary.

EXAMINATION OF THE EYES AND EYESIGHT OF YOUNG CHILDREN

BY

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THE subject of this paper forms, I imagine, part of the work of all of us here, whether we be ophthalmologists, school medical officers, or general practitioners interested in eye work. Much has been written about the examination of children in elementary schools. Statistics dealing with very large numbers have been published by Mr. Bishop Harman¹ and Dr. James Kerr,² to whose useful work we are much indebted. It is the examination of young children, including those below school age, about which I wish to speak, and I should like to insist that my remarks apply to the children of all classes, and not merely those attending school clinics. For this subject forms an important part of what we have been discussing—"visual efficiency" affects "working ability" no less in childhood than in after years, in some ways, indeed, more so. Vision being our most important special sense, it is possible for a child's whole "outlook" in the widest sense of the term, to be affected by his sight.

There are several factors peculiar to childhood which make a routine examination advisable. These factors ought to be more appreciated by the medical and teaching professions, for, roughly speaking, it is only those young children attending council schools who get a routine examination of their eyes. Young children seldom complain of their sight. They know no better. Eyestrain and the mental fatigue produced thereby are supposed to be part of the irksomeness of doing lessons. As I have already suggested, a child's character, health, and habits are liable to be affected by its sight. The "beautiful little needlewoman" or the "wonderfully studious boy" may be the result of short sight. The child who does not see across the room clearly, and who can scarcely see at all down the street, has few distinctions from his books and toys. Such children who are taught in small dames' schools, home schools, preparatory schools, or by governesses do not get noted as do the children in the large classrooms of the council schools where a blackboard is in daily use. There is much need for propaganda on this matter. So, too, a rebellious hatred of lessons or so-called stupidity may be the result of a serious defect of vision. In order to read, a young child has to see every single letter, and thus at a time when the eye is not fully developed, is still growing, and is ordinarily long-sighted. Children with their great power of accommodation may, for a time at any rate, disguise a big defect, and such children will pass an examination which merely depends on the reading of test types.

As well as the growth of the eyes, we have to remember the development of their functions. Binocular vision, or bifovent vision, should become well established within the first few years of life, but this faculty, in association with the proper muscle balance of the eyes has to be

acquired. Like walking, it is easily upset or retarded in infancy.

Variations from the normal, therefore, as regards fixation, muscle balance, and binocular vision, are the most important clues we have which lead us to discover defects of vision in early childhood. From this it follows that we shall have to distinguish between the spurious squint of the young infant and the incipient squint of the older child. From our clinical experience we know the importance of early treatment, after the seventh or eighth year we know that treatment of such defects often fails in the desired result, which is to obtain complete binocular vision. We bear all these facts in mind and also do not forget our general medical knowledge of children. In this way the examination by an ophthalmic surgeon may not infrequently be the starting point of great improvement in the child's health, mental and physical.

Certain simple details of a routine examination³ carried out on these lines may possibly be of help to some. The examination should be made in a large room which can be easily and quickly darkened. Good daylight is only needed at the place where the surgeon and child sit. Test types are artificially illuminated by standard illumination, using daylight lamps. When a number of children are to be seen, the brighter and older ones are first examined, whilst the others observe the proceedings without, however, being able to see the test objects. The child is seated to the left of the examiner, and behind the child is a lamp for retinoscopy. The child is allowed time to get accustomed to the surgeon's presence whilst the latter enters details. The surgeon then rapidly looks for external signs of inflammation, etc. The lids are carefully examined. Definite blepharitis is, of course, well known to be a suspicious sign of eyestrain, and the clearer the child the more suspicious is this sign. The presence of quite inconspicuous scales at the roots of the eyelashes, apart from any redness, is I think, quite as important, and more often than not indicates an error of refraction requiring treatment. The condition is a slight seborrhoea due to over-secretion, the result of reflex irritation produced by eyestrain. The presence of follicles inside the lower lid makes the examiner suspect the general health or hygiene.

Next, the movements of the eyes are tried. With small children the retinoscope mirror rarely fails to attract, and for a screen to cover one or the other eye the examiner uses the thumb of his left hand placed on the child's head. I need not further detail this examination to an audience of ophthalmic surgeons, except to remind you that, during the various movements of the eyes, opacities of the cornea or in the pupil area should be noted. If the lids, fixation, convergence, and other movements and muscle balance, as tried by the above methods, all appear normal and the cornea and pupil areas are clear, the child, being an infant, has passed his test.

In slightly older children, the toddlers of 3 and 4 years the vision is further tested by pictures of familiar objects. Little children will whisper the names to a friendly examiner as the pictures are pointed out by a nurse. If the child is reading—if one may so describe it—the pictures well, each eye singly may be tried. Other children who can scarcely be persuaded to read the pictures have the eyes alternately covered. If the child dislikes having one eye covered and does not mind the other eye being covered this latter eye should be suspected of being defective. Other things being normal, I do not think that at this age any further test of each eye separately is necessary. Such pictures are not drawn to exact scale like those of Snellen's type and the "E" test, but a small child who "reads" the smaller objects freely and easily has sufficiently good vision for his age. No preliminary training is required and there is very little mental fatigue. A picture book may be first shown to the child to encourage him to talk, and then he should be told to look in the distance. I have several times spotted myopia and other bad defects at an early age when an otherwise bright child has appeared to take no interest in the distant pictures. Although high myopia is relatively rare in infancy, anyone who does much children's eye work not infrequently meets with it. I have notes of many cases of high myopia in early childhood,

* A paper read in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Cardiff 1928.

¹ See summary of the discussion on visual efficiency and working ability. *British Medical Journal* August 4th p. 205.

the worst case being one of 14 dioptries in a child a year and nine months old.

If a child does not read these pictures, retinoscopy is done straight away and the position of the corneal reflex is noted. The room is darkened and the child looks into the distance over the examiner's shoulder at a nurse whose duty it is to attract its attention. Children with obvious refractive errors are at once spotted, and, together with doubtful ones, are referred for retinoscopy under a mydriatic. With the arrangement above mentioned this is all done very quickly, and there is no moving of the child into a dark room.

A young child may have 3 or 4 D of hypermetropia at 4 years of age and have no need of treatment if it has passed these tests. In this connexion I should like you to consider some figures published by Mr. Bishop Harman,¹ together with the results of an examination by Dr. Margaret Hogarth.² Mr. Bishop Harman tested 350 children between the ages of 4 and 7 years under a mydriatic, and in round numbers found 65 per cent with hypermetropia not exceeding 2 D or with astigmatism not exceeding 1/2 D, which he calls a good average eye, and 35 per cent defective through all causes, including six myopes. With this standard you notice that he found 35 per cent defective. On the other hand, Dr. Margaret Hogarth, by testing very carefully the vision of 800 Peckham children between the ages of 4 and 7 years by the "E" test, found that 86 per cent had normal visual acuity. I think we must allow, therefore, for the fact that, although the young child is normally somewhat hypermetropic, yet at the same time he is endowed with compensatory powers of accommodation. If, however, binocular vision appears to be defective, a child with as little as 2 D of hypermetropia may need to have this corrected.

Children who can read go through all the above tests, but are examined by Snellen's test types. For the sake of the youngest children it is wise to use only the letters of the first half of the alphabet, and for the top letter to be a "B" or a "D," for example. A "Z" or an "X" at the top they may not be so sure of, and this may cause them to err.

In all cases note how they read as much as what they read. For example, a boy aged 8 read 6/6 with each eye singly, but after 6/18 the reading got slower and more deliberate, and the boy shut his eyes at intervals. It had been previously noted that he had a few scales at the roots of the eyelashes. He had 2.5 D of manifest hypermetropia, and stated that his eyes were sometimes sore. Another boy saw 6/6 with each eye, but read the last few lines slowly and deliberately. He stated that his eyes troubled him when reading, and retinoscopy showed 5 D of hypermetropia. Both these children would have been passed if the mere reading of the type had been the only standard. Besides slowness and deliberateness and a strained attitude, the examiner should note whether the child stops reading, shuts the eyes, and starts off again, also whether the child screws the lids up, and, if so, should tell him to open wide and try if he can still see well.

Provided always that no abnormalities are noted under any of the above headings, and no complaints are made about the eyes, the following rough standards of vision are used.

A child of about 10 years of age and over should read 6/9 with each eye and a child between 7 and 10 years should read 6/12 with each eye. Such children are passed.

I have notes of 4,186 children whom I have examined, as a routine, on these lines at Queen Mary's Hospital for Children at Corsholton.³ This is a hospital of 800 beds for orthopaedic, tuberculous, cardiac, and convalescent cases coming from the County of London. Slightly over 20 per cent were found defective from all causes. Their ages varied from 2 to 16, the average being 11. Of 500 children, however, whose average age was slightly below 8, less than 15 per cent were found defective. Statistics which do not give the average age and visual standards lose something of their significance. There are two chief reasons why less than 15 per cent of these 500 younger children were found defective: (1) because of the lower standard demanded, and (2) because of the comparative rareness of myopia.

Thus, among the 4,000 or more children of the total average age of 11 who were examined, the average age of the hypermetropes was 10 years and that of the myopes 12½ years.

Next we come to the consideration of retinoscopy when examining young children. Do we need so completely to paralyse the ciliary body as to abolish the normal tone of this muscle not rest? Is it not enough that accommodation should be absent during retinoscopy? We do occasionally meet with spasm of accommodation in older children, hyper-sensitive and worried about school examinations, but I have not met with it in small children. Tablets containing cocaine and atropine 1/200 grain (previously shown to the child as "little sweets") are placed inside the outer part of each lower lid at the same moment whilst the seated child looks up at the surgeon or nurse putting them in. The tablets rapidly soften on the everted lids, and, when these are released, dissolve in the lower fornix without touching the sensitive cornea. If the child is examined an hour and a half later in a darkened room—not, be it noted, in a dark cupboard-like place—where he will not be frightened and where his attention can be attracted to look in the distance, this method is found quite efficient. It is certainly kinder to the child than drops of ointment used for three or four days, often very inefficiently inserted and often associated with struggles and crying at each attempt, of which I myself have vivid recollections in my early childhood.

If ointment is prescribed the best method is the use of ointment put up in soft gelatin capsules such as are made by Messrs. Duncan, Flockhart and Co. The ointment can then be safely and efficiently squeezed inside the lids by the most inexperienced, it is of a low melting point, and comes out of the tube sterile.

In infants and young children the angle of astigmatism must be accurately found when doing the retinoscopy. If a retinoscope with two mirrors is used one can always follow the bar of light moving with the mirror, and the angle in one meridian is checked by the angle found for the opposite meridian. The child should be looking straight at the mirror when the angle is being accurately determined. In older children final subjective testing may be attempted, especially if retinoscopy has indicated the need for strong cylinders. A trial frame is used in which the cylinder can be easily turned by the child himself. Put the cylinder in a known wrong position, and let the child have the amusement and pleasure of getting clearer vision by turning the little wheel. Comparatively young children will often thus make fine adjustments of a strong cylinder when the game has been explained to them.

So much for routine testing. It cannot be too strongly insisted that the mere reading of lines of type never should be the sum total of "sight-testing," and that young children of all classes should undergo a routine examination somewhat on the lines here suggested.

A final word about the children who are brought to see us because of some supposed defect or because of some complaint about the eyes. We have already noted that quite young children do not complain. Squint or suspected squint is by far the commonest cause of mothers bringing a young child. Of 550 children seen privately for all causes, 83 (15 per cent of the total) came to see me for this reason, and the average age of these children (when first seen by an oculist) was 4 years. Older children do complain of their eyes. For those who have some definite abnormality treatment is usually obvious. I would like to refer to those in whom no such defect is found. Forty-nine of these 550 (that is, over 8 per cent), of the average age of 10 years, were found with normal vision and, as regards their refraction, came within the limits of the "good average eye" of Mr. Bishop Harman.¹ Yet they were brought because of symptoms referred to their eyes, principally frontal hoodedness, inability to read for long, frowning, twitching of the eyes, etc., or severe mental fatigue after lessons, or because of a general tendency on the child's part to use the eyes, as it were, as a peg on which to hang his troubles. Not counting two cases of chorea and one of definite acidosis, the remainder come under the heading of what I call "anxiety strain." All young children are apt to be uncontrolled in their actions.

and the nervous, excitable, worrying type is especially apt to throw an excessive amount of nervous energy into whatever it does, accommodation included. Being anxious and over-intent about their lessons, they accommodate for the book nearer than it is, draw closer, therefore, and have to accommodate still further, overdo that, and get closer still. With their big power of accommodation they keep this up for a while. The so-called accessory muscles of accommodation (orbicularis, corrugator, frontalis) are reflexly put into strong action, and this helps to aggravate the ache in those regions. Later the effort becomes too great to be sustained. Convergence gives out, I think, first (letters are said to run into each other), and accommodation fails, the whole process is followed by headache and severe mental fatigue following on the expenditure of nervous energy. These children are of the type who have 'night terrors'. The treatment of these cases is the treatment of the child rather than its eyes. The cause of the trouble has to be explained to mother and teacher, and in a certain degree to the child, in order that its habits may be altered. The family doctor's help is obtained and a daily dose of bromide may be of more use than a pair of spectacles. Our reputation will suffer if we limit our examination to the correction of half a diopetre of hypermetropia in an individual with 14 dioptries of accommodation. It will be enhanced by the explanation that glasses are not necessary, and by the subsequent improvement in the child's health.

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THE KIDNEYS IN PNEUMOCOCCAL INFECTIONS

BY

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CONFLICTING records appear in the literature concerning the relationship to nephritis of invasions of the body by the pneumococcus of Fraenkel.

Sir Thomas Horder¹ in a recent address remarked that it had been suggested that pneumococcal infections were responsible for a large proportion of hæmorrhagic nephritis cases, but he himself was unable to confirm the statement from his own experience.

Abrahams² discussing the results of 558 cases of typical lobar pneumonia occurring in the Aldershot Command during the war shows that although there were 61 deaths and 116 developed complications, only 2 cases developed nephritis giving the extremely low figure of 0.35 per cent.

Parsa³ discussing the etiology of nephritis in childhood believes acute catarrhal desquamative or tubular nephritis to be a condition occurring in varying degree as a result of acute infections such as septicaemia or pneumonia and being principally due to the circulating bacterial toxins the renal lesion being largely recovered from when the cause is removed, but severe cases may pass on to a subacute form to constitute nephrosis (Vollhard and Fahr). Several workers have attempted to associate the pneumococcus with lipid nephrosis. Vollhard⁴ observed the frequency of termination of the nephrosis cases by a pneumococcal peritonitis and Stolz⁵ in one case found bacteria resembling Fraenkel's organism in the walls of the glomerular capillaries, the tubule cells and the intertubular capillaries and in another case in the intertubular connective tissue. He is of opinion that the coccus in the kidney causes an inflammation that is at first acute but soon takes on a chronic form and results in injury to the tubules. It is suggested however that the germ may be a secondary invader. Variability in the incidence and degree of kidney lesions may be related to the particular virulence of the pneumococcal infection or even to a special group type of the pneumococcus.

It would seem, therefore, that some authorities attach significance to pneumococcal infections as a source of acute nephritis or as a starting point in the genesis of certain degenerative lipid processes in the renal tissue (nephrosis). Others have less regard for this suggestion. However, I have made some investigations into records and certain cases which will be considered.

An analysis of the urinary findings in 287 cases of acute lobar pneumonia in adults has yielded the following:

No. of Cases		Urine
Group A	10=3.4%	{ Albumin +++ Red blood cells + Granular and tub. casts +
Group B	32=11%	{ Albumin + No blood cells No casts
Group C	107=37%	
Group D	138=47.5%	{ Albumin - No blood cells No casts

In all the cases in Group A the urinary abnormality commenced between the third and tenth day after onset of the lobar pneumonia. In none of the above cases was there any history or clinical signs of previous renal disease.

Three other cases have been studied in which a previous history of nephritis was given, and which briefly were as follows:

Case 1—Nephritis onset two years ago. Apparently mild. Acute lobar pneumonia then occurred and ran the usual course. A few days after the onset of the pneumonia the urine showed features of an acute exacerbation of the nephritis: albuminuria +++ Casts and blood cells +. Marked improvement in the renal condition quickly occurred after the febrile crisis.

Case 2—Acute nephritis several weeks before but rapid improvement under treatment. Later onset of acute lobar pneumonia which ran a normal course ending by crisis.

Urinary Findings

	Albumin	Casts	Blood Cells
4 days after onset of pneumonia	++	+	+
6 (crisis)	+	+	+
8	+	-	-
15	+	-	-

Case 3—Known to have chronic nephritis. Urine before onset of pneumonia albumin + casts few blood cells nil. Latent had an attack of acute lobar pneumonia, with usual course and crisis.

Urinary Findings

	Albumin	Casts	Blood Cells
4 days after onset of pneumonia	+++	++	++
6 (crisis)	+++	++	+
10	++	+	-
20	+	+	-

The morbid anatomical conditions of the kidneys in 42 fatal cases of acute lobar pneumonia were investigated. In all the cases no previous renal disease had been suspected or detected.

- (a) Normal in 17 cases (40.5 per cent.)
- (b) Normal but signs of arterio-sclerosis in 3 cases (7.1 per cent.)
- (c) Cloudy swelling in 17 cases (40.5 per cent.)
- (d) Acute inflammatory changes in renal parenchyma in 3 cases (7.1 per cent.)
- (e) Chronic nephritis with superadded recent acute inflammatory changes in one case.
- (f) Small cortical hæmorrhages in one case.

It is the aim of the clinician to attempt to correlate a particular clinical feature with a particular anatomical lesion. But in the kidney extreme difficulties have presented themselves, and to-day many exceptions are found to certain views previously held. This is to be anticipated where such an anatomically complex tissue is concerned, and where probably the different elements although having in themselves particular functions cannot be considered as physiological entities, but only as units in cyclic action. Osler⁶ suggests that glomerular damage is the chief feature in 'pneumococcal' nephritis and Muir⁷ agrees.

An attempt to correlate the urinary contents with the probable renal damage may be made. The meaning of albuminuria occurring in a febrile state needs explanation.

It is unlikely that undamaged renal tissue would allow such an important plasma constituent to escape and be lost in the urine. Parsons' considers "fibrile albuminuria" indicative of the mildest form of renal inflammation—a form in which clinically there is no oedema, but which shows changes in the tubule cells on morbid anatomical examination.

A comparison between the urinary findings and the morbid anatomical findings may be seen in the following table.

	Urinary Findings	Necropsis
Nephritis	—	71%
Albumin + casts +, blood +	4.5%	—
Cloudy swelling	—	40.5%
Albumin +, casts - blood -	48.0%	—
Normal	—	47.6%
Albumin -, deposit -	47.5%	—

This table shows a comparison between renal and urinary findings in two series of cases. The number of cases showing normal findings at necropsy and normal urine findings is practically the same. Similarly, the acute nephritis figures closely approximate. The remaining large group, in which albumin, in variable degree, is the only abnormal feature in the urine, agrees closely with the number showing simple cloudy swelling ("parenchymatous degeneration" of MacCallum). The significance of this change in the cells is regarded as one of the earliest indications of a disintegrative effect. There seems no doubt, however, that such cells can resume a normal anatomical and physiological state. Authorities state that acute nephritis may occur at any stage of the disease in acute lobar pneumonia. In four cases occurring in the present series the condition was detected on the fourth, fifth, sixth, and eleventh days of the illness. In each case a simple albuminuria appeared before the presence of casts and blood cells. No relation to the length of the febrile period or other single clinical feature was found. In each instance the abnormal urinary findings only lasted for a maximum period of one week, and quick recovery appeared to be the rule. In the convalescent stage each patient conformed to the normal in response to renal function tests. Pneumococcal infection would appear to act adversely on kidneys which have suffered from a previous attack of nephritis but even in these instances the exacerbation is probably only a temporary matter, and return to a satisfactory condition may be anticipated in most cases.

Investigation of 112 cases of pneumococcal disease other than lobar pneumonia showed

Normal	46 = 45%
Albuminuria alone	45 = 44%
Albumin casts and blood cells	11 = 10%

Morbid anatomical findings in a similar series (65 cases) showed

Normal	25 = 38.5%
Cloudy swelling of parenchyma	45 = 47.0%
Pyæmic abscess	1
Nephritic changes	8 = 10%

Comparison of these results with those obtained in cases of pure lobar pneumonia shows that the readings are similar. No greater incidence of renal involvement is indicated, the degree and duration are apparently the same, and an early recovery of any renal lesion also occurs. It would also appear, therefore, that the particular focus or even extent of pneumococcal infection bears no relation to any consequent renal damage.

A remarkable constancy in the low incidence and the benign clinical features, *qua* renal symptoms and signs, was observed. In no case were any detectable cedema or uræmic symptoms found. Twenty-one cases of clinically pneumococcal infection in children under 7 years of age showed

Normal	5 = 23.7%
Simple albuminuria	12 = 57.2%
Albuminuria with casts and blood cells	4 = 19.0%

This small series suggests that a somewhat higher incidence of renal involvement occurs in the young patient. Clinically, however, as in the adult, a minority of signs occur and quick recovery is usual.

On clinical grounds the pneumococcus would appear to be a benign organism in relation to the etiology of nephritis. Immediate and ultimate prognosis of renal damage in infections due to Fraenkel's organism would appear to warrant optimism. That profound toxæmia occurs in many cases of pneumococcal disease is not doubted, but the views here suggested are in accordance with a low renal susceptibility thereto.

Conclusions

- 1 In acute lobar pneumonia nephritis is uncommon, but mild recoverable degenerative changes in the renal parenchyma are not uncommon.
- 2 Nephritis occurring in lobar pneumonia is of a mild type, of short duration, and apparently recovery is the rule.
- 3 Similar conditions occur in other pneumococcal infections.
- 4 The benign features of renal involvement in pneumococcal infection are similar in children and adults.

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LATREME EMPHYSEMA INVOLVING THE GREATER PART OF THE BODY

REPORT OF TWO CASES

BY

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While surgical emphysema is fairly often met with in connexion with fracture of the ribs, it is, so far as my experience goes, generally fairly localized in a small area surrounding the site of injury. The only case seen by me which was comparable in extent and severity to those now reported occurred in Sir William Macewen's wards in the Western Infirmary, where, in addition to the chest, the head and neck were involved, and the emphysema extended down over the abdomen to the scrotum, which was greatly distended, resembling a large hydrocele.

The cases now reported occurred at about two months' interval, the second being admitted before the first was dismissed. Both men were critically ill on admission and for a considerable period thereafter, rendering thorough examination, even by x-rays, impossible.

The first a miner aged 44, was crushed by a fall of stone in the pit and complained of great pain on the right side of the chest on admission and inability to move the right arm probably due to fracture of the right clavicle, with injury to the brachial plexus. He had a curious audible crepitus on respiration which appeared to originate over the sternum. Emphysema had already appeared over the right chest and on applying strapping the emphysema spread rapidly over the right neck and face the eye being completely closed. Soon the whole face, neck, chest, and abdomen were involved the tissues becoming greatly distended, and the skin tense and glossy. The patient was quite unrecognizable. The scrotum was ballooned up. He had great difficulty and pain in breathing the pulse was good but the temperature was subnormal. In spite of incisions made to allow escape of the air the emphysema extended and next day the arms and the legs down to the ankles had become involved. Breathing was now laborious and the patient was cyanosed, the temperature was elevated and the pulse rapid and soft. After some days the emphysema began to subside very gradually so that, three weeks later it was very markedly less the face now being free although the thighs were still affected.

Although in this case fracture of the ribs was diagnosed clinically from the emphysema over them and the curious crepitant sound, no evidence thereof was found on x-ray examination, the fracture of the clavicle being the only definite x-ray finding.

The second case a man of 47 a forester fell from a tree, and was admitted in a collapsed condition with an obvious fracture of the right humerus about the insertion of the deltoid a dislocation of the same shoulder which was entirely masked by the emphysema which had already occurred extending from the fourth rib (which was fractured, together with the second and third ribs) to the angle of the jaw and over the shoulder. A crepitant sound was also heard in this case appearing to arise from the sternal region. About three hours after admission the

breathing was considerably embarrassed and the patient complained of great tightness in the chest and of severe headache. The emphysema had now greatly extended, involving both sides of the face (distending the eyelids, so that the patient could not see) both sides of the neck and thorax the skin being tense over these regions and, to a lesser degree the abdomen. The scrotum was moderately distended. There was a slight degree of emphysema in the left thigh.

During the night the patient was very ill. He was delirious, with a temperature between 102° and 103° F. the pulse was rapid and soft, respirations short and jerky and cyanosis marked. The emphysema now was at its maximum involving the whole body except the scalp, the skin being tense and glistening over a large area of the face, neck and chest. It extended to the feet, but was not marked below the knees. On squeezing the air out of the eyelids and forcing them open the conjunctiva was found to be affected. The accompanying photograph was taken after it had somewhat



subsided. At this time the crackling sound on respiration was audible at a distance. While the patient remained very ill for three weeks being generally delirious at night the emphysema gradually subsided but persisted over the chest and neck for about four weeks.

Both patients made a satisfactory recovery, leaving the hospital about a couple of months subsequent to admission. The first patient still suffers from the effects of injury to the brachial plexus, and the second had considerable trouble owing to the double condition of fracture and dislocation complicating his otherwise serious condition.

The notes on these cases are abstracted from the reports made by my house-surgeon Dr. E. Fischbacher and the photograph was taken by one of my senior students Mr. P. Brown.

AVULSION OF THE SCALP

BY

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Avulsion of the scalp is probably a much less common accident than formerly, owing to the better fencing of machinery and the modern fashion of wearing the hair short. In the three years 1924-26, however, the number of cases of partial or complete avulsion was 19.¹ It is more common in women than in men—for example 6 out of 9 cases at the Massachusetts General Hospital, quoted by Davis.² The avulsion is very often complete, the integument being torn at its thinnest part—the level of the brow and the line of separation passing between the loose areolar tissue underlying the epicranial aponeurosis and the pericranium. Death may take place from haemorrhage and shock.

Judging from the literature on the subject the end-results of treatment are none too good, while convalescence is tedious and not without danger from septic infection. The chief obstacles to successful treatment are the difficulty of obtaining an adequate blood supply for the new skin and the liability to sepsis.

Even the slightest pressure causes exfoliation of the skin, microbial infection below the crusts occurring in all the grafts.³ Abbé records a case in which 12,000 grafts were planted in four years.⁴

In a few cases when done shortly after the accident and in the absence of sepsis whole skin Wolfe grafts seem to have given sound end results—that is movable sensitive skin with no tendency to break down.⁵ In others a combination of these and Thiersch grafts have been successfully used.⁶

Porter and Shedden⁷ record a case where healing was obtained by removing several circles of bone from the calvarium to secure a dural blood supply.

Davison⁸ drilled fifty holes in a case where the pericranium had sloughed.

All these methods are illustrated in the following case, but final healing was only achieved by making use of a tubal graft after the Tngluacotian method. My only regret is that I did not think of it earlier.

The method of Porter and Shedden (which dates back to Indian scalpings) is perhaps not without risk of meningitis infection, and is contraindicated in young people owing to the active regeneration of bone. Replacement of the avulsed scalp is to be avoided owing to the danger of sepsis.

A girl aged 15 had her scalp avulsed in a machinery accident in September 1920 leaving only a narrow strip on each side and below the occipital protuberance. The bare area was extensively Thiersch-grafted but the higher grafts did not take well and the new skin showed a pronounced tendency to disintegrate. Large or smaller areas kept breaking down and ulcerating in spite of the most careful treatment and protection. Further Thiersch-grafting was done on several occasions during the next two and a half years but sound healing was never achieved.

The regions where disintegration most frequently occurred were carefully noted and in January, 1924 after due preparation of the head I removed eight circles of bone from half to three quarters of an inch in diameter and situated below these patches. The cavities were lightly packed with esul gauze granulations soon reached the surface and the epithelium grew over. Convalescence was untroubled and free from any complication whatsoever. For a time healing seemed to have been secured but after some months the same disintegrative processes recurred—no doubt owing to the dural blood supply being cut off by newly formed bone.

A year later several ulcers of various sizes were present in or near the old sites. Thiersch and Wolfe grafts were tried, but without permanent success, and consolidation seemed as far off as ever. The skin was mobile for about an inch at the sides and over the rest of the skull adherent to bone.

Stage 1—On February 10th 1926 a tubular skin graft 11 in by 4½ in with two pedicles was raised from the abdominal wall extending from just above the pubis well into the right flank and passing below the umbilicus.

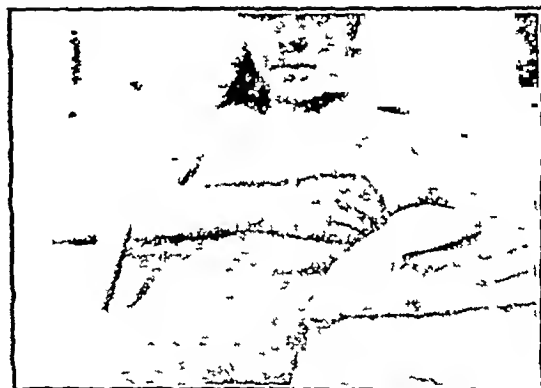


FIG 1—Stage 2.



FIG 2—Stage 3.



FIG 3—Final stage.

Stage 2—Four weeks later the upper end of the graft was mobilized and attached along its free edge to the back of the right forearm below the radio-ulnar joint, the abdominal wound, which had been approximated by extensive undercutting, being nearly healed. As her general condition was not very good she was sent to a convalescent home for some weeks and did not find the position of the arm irksome during this time.

Stage 3—On May 20th the graft was detached from the abdomen and sutured to the edge of the scalp on the right side of the head. Contrary to expectations no great difficulty was experienced in keeping her comfortable nor in securing asepsis.

Stage 4—Seventeen days later the arm was freed and the opened graft sutured to the edge of the scalp on the left side. The bed was prepared by excising a corresponding area of the old skin a small oblong piece at each end—where it was mobile and the blood supply apparently adequate—being retained on a single

pchele in case of need for more skin (The distal half of these oblongs, each about 4 in long by 1½ in broad sloughed almost at once showing the poverty of the circulation even here)

Primary union was secured, but at one spot adjacent to the graft rather too much skin was removed and one of the small flaps was successfully used as a stamp graft to cover this

The patient has been fitted with a wig and has resumed work, and so far no tendency to break down has been anywhere observed. There is a definite degree of sensation in the skin flap. She can distinguish between heat and cold fairly accurately, can appreciate the separate points of a compass less than 1 in apart, and there is also evidence of epiritic sensation in parts. Painful stimuli are referred to the ends of the graft.

As an alternative a caterpillar graft from the back was considered. The girl, however, is small and slight, and excision of a sufficiently large area of skin might have interfered with function in addition to giving a poorer cosmetic result.

I am greatly indebted to my late house surgeons Mr. Tucker and Mr. Dyke and to Sister Rootham, who also is responsible for the photographs.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

DEXTROCARDIA AND OTHER ABNORMALITIES

The following case merits publication from its unique character

A man was admitted to the Victoria Hospital with a history of abdominal pain and vomiting which had lasted about four days. On admission the temperature was 99° F and the pulse 90. The faeces were of the abdominal type. There was slight icteric tinge of the sclerotics and foul breath. Physical examination revealed tenderness and rigidity of the abdominal muscles on palpation of the appendix region also tenderness in the region of his umbilicus, with rigidity. This patient was well known to be the subject of dextrocardia.

A provisional diagnosis of acute appendicitis was made, and on the following day the appendix region was explored through a "gridiron" incision. The caecum could not be found in its right place, nor the appendix and it was concluded that this man was suffering from complete transposition of his viscera, and that the pain and tenderness in the right iliac fossa were due to colic. The wound was closed in the usual way. The patient stood the operation well and was comfortable after recovery from the anaesthetic.

He became worse next day and thereafter he sank rapidly, suffering from anorexia, vomiting, and rapidly increasing jaundice, and died two days later. Shortly before death the temperature rose to 105° and the pulse to 136. He remained in a comatose condition for twenty-four hours.

At the necropsy it was noticed that the fat in the abdominal wall was decreased and that there was some free blood stained fluid in the abdominal cavity. There was a large opening in the left dome of the diaphragm—larger than a man's fist—with smooth edges covered by peritoneum through this were herniated several coils of small intestine and transverse colon filling the thoracic cavity. The caecum and appendix were occupying the mid abdominal region. The appendix was not inflamed but elongated and kinked. There was a condition of acute haemorrhagic pancreatitis with adhesions all round the pancreas. The liver was congested and large and the portal fissure deep and pronounced the right lobe being well marked off from the left. The spleen was normal. The kidneys were longer but narrower than usual, and showed no pathological nor developmental peculiarities. The heart was transposed and the pericardium contained free fluid. There were springing from the arch of the aorta three vessels—a right common carotid, a right subclavian artery and a left innominate (the reverse of normal). The left lung was completely collapsed (it may never have developed) and on its parietal surface was a superficial area the size of a penny piece covered with a creamy exudate. The right lung looked like a normal left lung. The weight of the right lung was 15 oz 3 drachms that of the left 4 oz 2 drachms, while the heart weighed 10 oz 5 drachms.

I am forced to the conclusion that the immediate cause of death was acute pancreatitis, that the abnormalities recorded were developmental, and, in particular, that the hernial condition of the diaphragm must have persisted since infancy, having regard to the undeveloped condition of the left lung. As against this, it may be as well to

consider the possibility that in the absence of a developed lung and a weighty heart above the left dome of the diaphragm—that is, in the absence of counter pressure above the diaphragm—this portion of the diaphragm may have become weakened, and thus have paved the way to a hernial condition. If I am right in assuming that the hernial condition persisted from infancy, this is an amazing commentary on the adaptability of human life, when it is considered that this man was engaged in the arduous occupation of planting (and a planter's life is not a "dry" one), and at the least that the hernial condition—from which, in the absence of obstruction, he would not have died—must have lasted some time.

V L FERGUSON, M.B., Ch.B.
St. Lucia, British West Indies

A CASE OF MULTIPLE DEFORMITY IN AN ADULT NATIVE

The case recorded below is of interest as showing that such gross malformation is compatible with power to walk well and to be able to grip well with both hands, so that the patient was able to lead an active life and to earn his living.

The patient was a member of the Wajji tribe of Kigoma Province of Tanganyika Territory, aged about 30 years and was seen at Kigoma in December 1927. The upper lip was split but the palate was intact. In the right hand the distal joint of the thumb was in a position of flexion. Only two metacarpals could be felt in the palm, that corresponding to the second being



CASE 1



CASE 2

double in part of its length. They each bore a carpal bone, but there was no division of the skin, so that there was only one large finger bearing a double nail. This finger had some flexion deformity. There was a very good grip with this hand. On the left hand there was no thumb and the second metacarpal was only half formed. The third was represented by a hair of bone joining the second to the end of the fourth. Otherwise the fourth and fifth metacarpals seemed normal and the only fingers present were the fourth and fifth which were partly webbed. There was a good grip with this hand also, but not so good as with the right. Each foot bore two appendages. On the right foot the outer appendage formed the greater part of the foot and seemed to contain a metatarsal bone ending in a small fleshy stump bearing a nail. The inner appendage of the right foot contained two tarsal bones was hooked, and bore no nail. The left foot was divided into two almost equal parts the outer being slightly the larger, and bearing a small fleshy toe having a nail. The individual bones of neither mass could be felt. The inner mass was crooked upwards and inwards and bore a nailless toe containing two tarsal bones. With a flat footed gait the patient could walk quite well.

Curiously enough, on the same day a native of the Wajji tribe of the Knsulu district of Kigoma Province was seen having an extra digit, bearing a nail but containing no bone, on the ulnar aspect of each hand. They were connected to the hand by a short stalk of flesh. Such extra appendages, either of the hands or feet, seem to be common in this tribe.

My thanks are due to the Director of Medical and Sanitary Services, Tanganyika Territory, for permission to publish these notes.

C R STEEL, M.R.C.S., L.R.C.P.,
Kigoma Tanganyika Territory
D.T.M. and H.

SPONTANEOUS PNEUMOTHORAX SUPERIMPOSED ON BILATERAL ARTIFICIAL PNEUMOTHORAX

The following case is interesting as showing with what a small quantity of lung tissue an individual may achieve a relatively efficient respiratory exchange

R F W a young adult male with bilateral pulmonary tuberculosis was admitted to Brompton Hospital on November 2nd, 1927. Artificial pneumothorax was induced on the right side on November 7th and on the left side on December 12th.

During the first few weeks the patient's temperature was erratic but it gradually settled and did not touch 99° F after January 10th, 1928. By February 7th he was getting up all day, and on February 13th he was allowed to go home. His home being within a few miles of the Brompton Hospital Sanatorium, Frimley, it was arranged that he should attend there weekly for refills and for some time he continued apyrexial well, and maintained his weight. Regular screening enabled the degree of collapse to be carefully controlled.

At the examination on May 22nd fluid was beginning to appear on the right side, on the left side only a shallow collapse was visible. During the next three months little change occurred. On August 21st after attending at the sanatorium for refills he returned home as usual driving a car for about six miles. On the way presumably the rupture of an adhesion led to a communication between lung tissue and the artificial pneumothorax. He felt a sharp pain in the left shoulder and began to suffer from shortness of breath. By 6.30 the next morning the discomfort was such that he had to send for his regular medical attendant who removed air from both pleural cavities thereby securing for him relief which however was only temporary. (It was impossible to measure quantities and pressures as no artificial pneumothorax apparatus was available.) Later in the day after the removal of more air he was moved to Frimley where a screen examination showed good collapse with fluid on the right and complete collapse on the left. In spite of this his temperature remained normal and his pulse and colour were good. At no time did he appear in the least cyanosed. During the next few days he more than once felt distinct embarrassment of respiration but he steadily improved the only treatment being rest in bed combined with the administration of small doses of potassium bromide and morphine hydrochloride in a mixture. By August 31st he was up six hours daily and was comfortable. He was discharged a few days later and has since remained perfectly well both sides being filled weekly as before.

I have to thank Dr H Batty Shaw for permission to publish these notes

S P WILSON,
Late House-Physician Brompton Hospital
and Brompton Hospital Sanatorium

B COLI MENINGITIS IN A NEWBORN INFANT

The case recorded below seems to be of sufficient interest to merit publication

A primipara aged 22 was under observation and treatment for toxæmia of pregnancy—manifested in headache and raised blood pressure—from mid term. At no time was any urinary abnormality detected.

On August 28th because of persistence of severe headache the induction was performed. She had then reached the thirty-seventh week of pregnancy. On August 30th at 7.40 a.m. labour commenced and the tube was removed. The membranes were then intact. On the same day at 11.55 p.m. a female infant was born it weighed 6½ lb and was 19½ inches in length. The infant appeared to be perfectly well and remained so until the afternoon of September 2nd when she had a screaming attack. This was repeated an hour later and it was noted that the abdomen was markedly distended. True convulsive attacks associated with a cephalic cry then set in and were frequently repeated. The abdominal distension remained until the following morning and was associated with the frequent passage of stools but not with vomiting. The convulsions became more frequent the abdominal signs diminished she became dyspnoeic the temperature rose to 100.2° and the child died at 9 p.m. on September 3rd—thirty hours after the onset of symptoms.

Examination revealed no other signs—no increase in tension of the fontanelle, no neck rigidity or limb rigidity, deep reflexes were not obtained the lungs were apparently clear there was no umbilical sepsis.

At post mortem examination made on the following day a purulent exudate was found over the convexity of the cerebrum and chiefly in the line of the vessels which were congested. The organs of the chest and abdomen were congested, but nothing further was noted except an offensive odour unusual at necropsies on the newborn. From the exudate a pure growth of *B coli* was obtained. From a cervical swab taken from the mother two days later a similar growth was obtained. Her puerperium was afebrile.

During birth, presumably, the infant swallowed some secretion infected with *B coli*. An extension from the intestine to the general blood stream followed, and meningitis was the gross manifestation of a *B coli* septicæmia. I can find no record of a similar case.

FRANCIS BRAID, M R C P
Honorary Assistant Physician Birmingham
Maternity Hospital.

Reports of Societies.

MEDICO-LEGAL ASPECTS OF FRACTURES

At a meeting of the Medical Society of London on November 12th, with Dr J W Carr, president of the society, in the chair, a discussion was held on the medico-legal aspects of fractures.

Professor E W HEN GROVER (Bristol), in opening, said that the habits that medical practitioners incurred in the treatment of patients varied inversely with the complexity of the condition. Fractures were just the type of case in which the actual injury appeared to be so simple that the public considered themselves to have sufficient knowledge to decide the adequacy and correctness of the treatment. Some time ago, with the aid of a legal friend, he had collected 50 consecutive cases in which some action was threatened or actually taken against a medical practitioner for alleged negligence in the treatment of fracture. The region of the body affected in these cases was as follows: clavicle 1, shoulder 9, elbow 3, radius and ulna 4, wrist 5, digits 3, femur (neck) 11, femur (shaft) 3, patella 1, tibia 5, ankle 5. The most striking fact which emerged from a study of this series was the prominent part played by x rays in 90 per cent of these cases; the neglect of a real x ray examination seemed to be the point on which the case turned. The classification of these legal cases, in all of which no x ray examination was made, according to the essential factor, was as follows:

	Percent
Diagnosis of fracture missed	56
Malunion not recognized	12
Complicating injury to bone or joint missed	18
Allegation by another practitioner could not be refuted	4

The missed fracture was most frequently that of the neck of the femur. Another group of missed diagnoses consisted of cases in which there was thought to be, not a fracture, but merely a crack, or perhaps it was considered that the fracture was impacted, and no special treatment was advised, and not until weeks or months later, when the weight of the body was placed on the limb, did full displacement occur. Next to missed diagnosis in frequency came the group in which the fracture was obvious, such as Colles' fracture of the wrist, or Pott's fracture of the ankle but some complicating injury was overlooked, in the former case perhaps displacement of one of the carpal bones or in the latter an injury to the astragalus. In the third group of cases the fracture was so obvious that it was thought quite unnecessary to have an x-ray examination, and the limb was put up and splinted, but malunion was allowed to remain and not recognized until long afterwards. Very frequently this malunion was of the nature of lateral displacement, and possibly if it had been recognized it might have been thought wiser to have been content with that amount of lateral displacement which very often resulted in no serious functional loss. In the x-ray picture, however, it was very obvious, and the argument was put forward by the patient and his friends that if it had been recognized it could and should have been corrected. The smallest group was that in which a more or less straight fracture was treated on conservative lines but owing to some circumstance or other the patient sought advice elsewhere, and the second medical man, in undertaking some operative procedure, deliberately or inadvertently made a statement to justify the operation which implied criticism of the first practitioner. In such a case the first practitioner would probably have been adequately defended if he had had a radiograph taken at the time of the injury. In the remaining 10 per cent of cases in which the question of x rays had not played any part the matter turned usually upon the hostile criticism of one medical man by another. Quite possibly the first criticism was inadvertently made, but eventually the critic was apt to become the chief accuser of his colleague in the court, and was usually persuaded to say in the witness-box a great deal more than he had intended. The speaker then dealt at some length with the case of Tyndall v. Alcock. He thought that if it had been argued for the defendant in

that case that he had carefully attended the patient and carried out the treatment had down in standard textbooks, but that he had made the flexion of the limb a little too full, the case would have been regarded as a mere error of judgement, and not as negligence. The prosecuting counsel, however, pushed the allegation that it was a perfectly simple fracture which had never been properly set. The speaker regarded that case as a grave miscarriage of justice and said that such a miscarriage had a wider bearing than the heavy misfortune suffered by one practitioner. In the early stages the great majority of fractures must be attended by men in general practice, and one could hardly blame a general practitioner if, influenced by the verdict and penalty in this case, he declined to have anything to do with a fracture, or merely adopted a non-committal policy of first aid, and awaited the result not only of x-ray examination, but of a second opinion, which might mean a delay of perhaps a week. Thus the golden opportunity of the first few hours, when reduction was comparatively easy, was lost. In conclusion, the speaker put forward three practical suggestions for reform, either in the law or in medical practice, so that the number of cases which came to court might be fewer and the cases of apparent injustice much rarer. He was well aware of the difficulties attaching to each of them. (1) A medical man before undertaking the care of a case of fracture should persuade the patient or his guardian to sign a paper indemnifying him against any action in case the result was unsatisfactory. (2) It should be made a definite ethical rule that when one medical man was asked to pronounce a verdict upon the work of another he should refuse to do so until he had had the opportunity of consultation with the man whose conduct was in question. (3) In High Court cases the judge should always have the benefit in technical medical matters of an assessor, a procedure already followed in county courts, where the judge had a medical referee sitting with him in compensation cases.

Dr JAMES NEAL (general secretary, Medical Defence Union) submitted that the position with regard to treatment of fractures was, from the legal point of view, essentially the same as it was with regard to all other forms of treatment. There was an implied contract between the practitioner and his patient that he would exercise reasonable skill and care in treatment, whether of fracture or any other injury or disease. Whether reasonable skill and care were exercised in a given case depended upon the facts which it was for the jury to decide on evidence, but it was not for the jury to fix the standard. All that the law demanded was the exercise of such skill and care as would be exercised by the ordinary practitioner in the same branch of the profession. Moreover, the term "reasonable skill and care" must be applied relatively, a rural practitioner could not be expected to have the same resources as a hospital surgeon. Failure to diagnose the presence of a fracture was the usual basis of a claim against a doctor. In all cases of doubtful diagnosis where there was any possibility of fracture an x-ray examination was essential, even when the presence of fracture was clearly established by ordinary signs and x-ray examination immediately after reduction had been effected should be resorted to for objective evidence that the limb had been placed in a suitable position. Modern advance in surgical treatment could not be ignored, and patients to-day expected far more perfect results than formerly. It might be necessary to repeat the procedures of manipulation, fixation, and x-ray examination several times until a perfect position was obtained, and any omission in these respects might conceivably render the practitioner liable for damages in the event of imperfect recovery. Each and every detail of the treatment might be challenged, even instructions given to the nurse or patient. The prudent man would therefore adopt precautions as a matter of routine. It was of the utmost importance always to avoid any appearance of carelessness. Only a few of the claims or complaints against doctors actually went to trial, and in the majority of these cases there had been some definite omission to take all reasonable precautions. It was a wise precaution to obtain a second opinion in any case presenting unusual difficulties. But if reasonable

skill and care were exercised from start to finish, doctors need not fear that litigation was any more likely to follow a case of fracture than other conditions. The real difficulty was that the question of negligence was one to be decided by a jury, and if the jury, even on the flimsiest evidence, found negligence it was almost useless to go to appeal. With regard to Professor Hey Groves's three suggestions, it was the opinion of the Medical Defence Union that a form of indemnity would not render the doctor immune from actions for negligence. He thought it impracticable for such an ethical rule as Professor Hey Groves suggested to be made, for anything which was calculated to lead the public to believe that the object of the profession was to safeguard the doctor would render the profession suspect, whatever it did. As for the assessor, this was a highly dangerous suggestion. If the judge was to be influenced by the advice of an expert, who might, for anything known to the contrary, hold the most peculiar views on the matters in dispute, the defence in every trial would be up against an unknown factor in addition to the jury who had already to be faced.

Mr ZACHARY COFF mentioned that there sometimes occurred a case, such as fracture of the hip, which had been neglected for some time, and with regard to which x-ray evidence furnished quite contradictory information. An x-ray picture might have been made, and then changes developed within a few weeks which made the line of fracture difficult to detect, and led to contrary opinions being expressed by equally competent surgeons. The x-ray picture might be very difficult to interpret, and grave charges might be made upon x-ray evidence which could sustain contradictory points of view with regard to interpretation.

Surgeon Vice-Admiral GASKELL said that a large number of cases of fracture occurred in the navy, though it was true that not much litigation arose in these cases. He was convinced that one of the most dangerous persons was the optimist who told the patient that all was well. If only the medical man would take a rather more pessimistic attitude he would prepare the patient and his friends for the bad results which occasionally followed even in the best practices. That was a point he always instilled into his junior officers. A too optimistic attitude also made the patient and his friends unwilling to call in a second opinion, which was one of the safeguards against any ensuing legal action. He thought that Professor Hey Groves's remarks ought to be widely circulated in the profession.

Mr R C FLEMING said that Professor Hey Groves's suggestion that the "accuser" might meet the "accused" before making any pronouncement which could be regarded as in the nature of criticism sounded very well in theory, but in practice it might be very difficult. He described the circumstances in a fairly recent case in which he himself was looked upon rather as an accuser, although he did not consider himself in that position. In that case he simply gave a proof of his evidence to both sides, and left it to whichever side liked to call him. Speaking of the Wood-Hill case, he said that in his view the points which settled that case were (1) the very grave divergence of evidence as to what directions had actually been given to the patient in hospital and after she had left hospital, and (2) the fact that some eight or ten weeks after the fracture the practitioner, on request from the patient's husband, writing from memory, and without having seen the x-ray picture, indicated on a diagram the site of the fracture, which proved to be erroneous. The speaker thought that medical practitioners ought to keep the most careful notes of their fracture and other cases, how they had been treated, and what instructions had been given to the patients.

Mr DONALD ARMOUR said that as long as human nature remained what it was, doctors would be found, some on one side and some on the other, and certain doctors, not content with being witnesses, would become advocates as well. One case in which he himself had been involved was a Colles's fracture referred to him at hospital by a medical practitioner. There was obvious malunion. Some weeks afterwards he discovered that the patient was bringing an action for damages against the medical man concerned originally in the case. The patient had said nothing to

the second doctor whom she had consulted. The speaker, having operated on her, was asked to give evidence on her side. He refused to do so, and being called into court he refused to furnish a proof of his evidence to either side, and told the Lord Chief Justice, before whom the case was heard, that he attended on subpoena and had refused the proof of his evidence to both parties. The judge protected him, and would not allow him to be made a witness for either the plaintiff or the defendant. In another case, heard before Mr Justice Roche, the circumstances were very similar, and the judge acted in just the same way.

Dr L. M. CALLENDER related a case in which a young lady, who until her marriage had been a patient of his own, was thrown from her horse in the hunting field. A local practitioner attended her, took her in an ambulance to the local hospital, and had x-ray photographs taken. The x-ray pictures were eventually brought to the speaker by the parents of the lady, with the statement that she had fractured the sixth and seventh ribs and dislocated one of the bones of the pelvis. But the x-ray pictures were so hopelessly bad that nothing at all could be gathered from them. Later it was shown that there had been a fracture of the twelfth rib only. It appeared that the x-ray pictures had been taken by a local chemist with an ancient apparatus and the exposure was so long that respiratory movements had interfered with the clearness of the result. The possession of ancient x-ray apparatus might be a real source of danger.

Mr H. A. T. FAIRBANK said that the first obligation of the profession was to do the best for the patient. If it came to a question of criticizing the procedure of the practitioner who had first treated the case, this seemed to be unavoidable if the second man was to do his duty to the case. The only thing he could do was to refuse definitely to criticize his predecessor without having had a talk with him, because the second practitioner could not know what difficulties the case had presented at the beginning. With regard to the suggestion to have an assessor, he thought it an excellent idea.

Mr WARREN LOW remarked that those who had been practising for the last thirty years realized what an extraordinary boon the x-rays had been, but while excellent servants they were hard masters, and it was well not to be slaves to the x-ray habit. There should be no delay in dealing with a fracture through waiting for the radiologist. The rays were perhaps more useful after the fracture had been dealt with than they were before. The public ought to realize that surgeons were not always successful in dealing with fractures at the first attempt. He thought the first two of Professor Hey Groves's suggestions rather impracticable, and as to the third—the assessor—it was true that an assessor sat with a county court judge, but the judge was not obliged to ask his opinion or to follow it.

Dr REDMOND ROCHE mentioned two recent cases in his own family in which the x-ray picture had been misleading. He thought the profession was allowing itself to be led by the nose to some extent in this matter by assenting to the proposition so generally laid down that x-rays were the absolutely essential to diagnosis. What he thought to be a slighting reference had been made by one of the speakers to the "ordinary surgeon." But it was not only ordinary surgeons who were at fault, he gave an instance of an error of which a one-time vice-president of the Royal College was guilty.

Mr W. F. TANNER pleaded for a revision of the nomenclature. The terms "closed" and "open" fracture should be used instead of "simple" and "compound."

Dr ANTHONY FERRIS said that if the second of Professor Hey Groves's suggestions were taken, and "accused" and "accuser" met in consultation, the evidence of both in court would carry much less weight and would be looked upon as suspect from the beginning. As to the assessor he mentioned a case which turned upon neurological evidence in which the judge ruled against the five neurologist witnesses, adding that his assessor quite agreed with him. It transpired that the assessor was a surgeon.

Mr H. W. CARSON said that the public was educated to believe that in all fractures a perfect functional result

could be secured, in the hands of the very best practitioners in orthopaedic surgery this was not always possible. The public was also being misled as to the value and importance of the x-ray photograph, which was difficult to take and more difficult to read, especially if it had been taken early in the case and was compared with the appearance presented weeks or months afterwards.

Professor HEY GROVES, in reply, said that in speaking of an "accuser" he had in mind those cases—roughly 10 per cent of the whole—in which a medical practitioner had allowed himself definitely to impugn the conduct of a colleague in a way he would not have done if he had been informed of the facts beforehand by consultation.

Dr JAMES NEAL still maintained that the x-ray examination was essential in any case of doubtful diagnosis. He would not suggest that a medical man should invariably rely mainly upon an x-ray examination for his diagnosis, but he thought that even a negative x-ray result would be a very good factor in defence, assuming that the photograph had been taken by a good radiologist and had been rightly interpreted. It had a certain objective value when produced in court.

SURGICAL EDUCATION AND SURGICAL PRACTICE IN THE FUTURE

At the meeting of the Section of Surgery of the Royal Society of Medicine on November 7th Sir HOLBURT WARING, the now president of the Section, delivered his address from the chair.

Sir Holburt Waring explained that his purpose was to suggest some points in connexion with surgical education and practice in the future. Dealing first with the basic sciences—chemistry, physics, and biology—in relation to surgical education, he said that since 1923 the medical curriculum had been lengthened by establishing a pre-registration examination in chemistry and physics. He was not sure that the change had been entirely advantageous. Chemistry and physics were now in many cases taught to future medical students in schools or colleges badly or inefficiently equipped for the purpose, and there had been many evasions or semi-evasions of the spirit of the General Medical Council's recommendations whereby this change was brought about. It was disadvantageous also because biology had been omitted from the pre-registration examination. It would be in the interests of medical education to add biology to this examination, and only to admit to such examination students who had completed courses in these three subjects, either under recognized teachers or in schools or colleges recognized for the purpose. The course in biology should also be modified so as to comprise general biological problems, and the present extensive "type" method of instruction should be considerably curtailed. If some rearrangement of the kind were made it would be easier for medical schools to carry out the Council's recommendation that the study of the basic sciences should be continued throughout the entire period of the students' curriculum. If this were done the heads of the departments of chemistry, physics, and biology could be utilized, first in teaching these subjects as applied to medicine and surgery, and then in many directions in connexion with pathology and diagnosis. At the present time it was rare for a biologist to be called upon to deal with the elucidation of a clinical or pathological problem in a hospital.

Methods of surgical education had been modified to a considerable extent during recent years by the increasing tendency in nearly all schools and hospitals to develop specialism. New special departments had been added in most hospitals with the result that the clinical facilities of a general surgeon had become limited in respect to the forms of surgical diseases admitted to his clinic and so made available for the surgical instruction of students.

Passing to the combination of teaching hospitals and Poor Law medical institutions, Sir Holburt Waring trusted that the discussions now proceeding might result in some satisfactory arrangement. Up to the present it had not been possible to utilize these institutions in the best

possible way, owing to vested interests on the one hand, and sentimental objections on the other. But he did not wish to see young students called upon to do work in connexion with these institutions either for nothing, or at a "sweated" rate of pay.

With regard to professional units, the advantages which had accrued from the appointment of a whole time professor of surgery had been chiefly along the lines of increased research on surgical subjects and the reorganization and general improvement of surgical teaching in the non-professional portions of the institution concerned. The non-professional units usually consisted of from 40 to 60 beds, with a personnel of a surgeon, an assistant surgeon or surgeon to out-patients, a registrar, and two resident officers. In the professional units more laboratory accommodation had been given and a larger personnel, which could be utilized for the purpose of diagnosis, treatment, research, and instruction. After pointing out some difficulties, chiefly arising from specialization, Sir Holburt Waring said that he was coming to the conclusion as regards professional units that these could best be utilized in surgical education by making them the organizing heads of the entire course of instruction on the surgical sides of the schools and hospitals concerned, giving preliminary courses to students before they commenced their clinical surgical work proper. They should be utilized also in organizing and carrying out research, and in the clinical education of students after they had passed through one of the non-professional surgical units. With regard to the non-professional units, the usual custom in most hospitals, especially in London, was for a student to spend six months as a surgical dresser. Instead of, as at present, limiting the student's work to one non-professional unit, it would be wise to enlarge the units by combining two together. If this were done, and time-tables rearranged, it might be possible to give to every student a much larger and more extensive course in practical surgery. In addition, courses of instruction in the special departments should be strictly limited to the subject-matter of those departments, and a specialist should not be allowed to try to extend his specialty into other parts of the body which might be considered to be connected with it directly or indirectly.

Rapidly reviewing some other subjects, Sir Holburt Waring said that he doubted whether the use of cinematograph films in surgical education, except in special cases presented any great advantages. The best use of the film was in connexion with many forms of fractures and dislocations. He was not sure how far the use of animals in the acquisition of technical experience could be justified in the education of the future surgeon. He could, by the use of animals, learn many details of surgical technique, but, on the other hand, conditions were somewhat different. Some work of this kind was done in the States, and under good teachers he thought it might be useful, but in this country at present, when the life of a dog was considered by many to be of more consequence than the possible alleviation or cure of disease in a sick human being, the use of animals for the instruction of students in surgical technique was out of the question.

The President then turned aside to discuss the admission of paying patients to hospital. It had been advocated that the provision of beds should be limited to the middle classes, the fixed payment to include the entire charges for accommodation, food, nursing, and surgical treatment, but, on the other hand, it was urged that if a voluntary hospital was to work a scheme of this kind satisfactorily the accommodation, nursing, and so forth should be provided for all classes of patients. He himself felt strongly that the latter was the best solution. Hospitals carrying out this provision would in most cases have to build for it was practically impossible satisfactorily to adapt the accommodation in a voluntary hospital, as it was known at the present time, for the needs of paying patients. One point would require careful deliberation before a decision was reached by any individual hospital adopting this system: this was the admission of patients by the administration on the recommendation of the staff, the financial details being left in the administration's hands. In his experience there was always a tendency to make use of the professional services

of the staff without giving thought to the financial remuneration which the circumstances of a case demanded. There should not, however, be any real difficulty in this respect if in connexion with the paying patients' department of a voluntary hospital there was established a combined board of representatives of the administration and of the professional staff. The utilization of a voluntary hospital for paying patients would make the latest methods of diagnosis and treatment available to all classes.

On the subject of radium and x-ray diagnosis and treatment, Sir Holburt Waring pleaded that in common fairness to all classes of the community the use of radium for treatment should be as readily obtained for paying patients as for the poor, and this could only be done under present conditions by the utilization of the special radium institutes and the radiological departments of large hospitals.

Next he said a few words on the subject of private hospitals and nursing homes. These were for the most part private houses which had been converted into hospitals—a conversion which, in the majority of instances, was unsatisfactory. There were a few examples in London, and others in some of the larger provincial towns, where private hospitals had been specially built. In most of these, however, accommodation had only been provided for the patients, and had comprised rooms and an operation theatre. Every private hospital ought to have a well equipped pathological laboratory, an operation theatre, and an x-ray installation for investigation and also for treatment, provision ought also to be made for light treatment, and in some special cases for physical exercises. It might be said that this would be too expensive to prove an economic success, but he could not agree. If the hospitals were made sufficiently large and well equipped, and provided accommodation for different classes of paying patients, he felt a surer that they would justify themselves commercially.

Finally he touched on the subject of "economic" and "uneconomic" operations, remarking that from an economic point of view surgeons were not always a valuable asset to the country. They performed operations which resulted in the prolongation of life when the lengthened life was an economic loss to the State and often of no pleasurable value to the patient. He referred to such operations as gastrostomy for advanced cases of carcinoma of the oesophagus. After the operation had been successfully done, and the patient taught to feed himself, he returned to his home only to linger and suffer, with no pleasure in life, and a cause of constant anxiety and trouble to his friends. On the subject of surgical operations to prevent the propagation of the unfit a whole evening might be spent in discussion. He suggested that at a later date the Section of Surgery might unite for a combined discussion with the alienists.

Mr W McANAM EOCLES said that the teaching of the basic sciences—chemistry, physics, and biology—in the public schools was never quite satisfactory because they were not taught with a view to the subsequent study of medicine. If it were possible for the teachers to get together and draw up some line of teaching which could filter down to the various schools and give correlation and direction to these subjects it would be of real assistance. He had been a little surprised that Sir Holburt Waring had not spoken about anatomy and physiology. He was in doubt as to how far anatomy, even yet, was really being taught with a view to subsequent clinical practice. The reason why it had been arranged that the three basic sciences should be taught before the student went to the medical school was that more time might be available, not only for clinical subjects, but for a thorough grounding in anatomy and physiology as applied to future clinical practice. As for surgical education proper, there was no doubt that the real basis for surgical education was contact with surgical patients. Long hours spent in the theatres might beyond certain limits, be more or less wasted time, and the student might be better employed in studying cases at close quarters—such as a hydrocele and the method of tapping—than in watching operations from a distance.

Mr V WARREN LOW remarked that those who proposed to enter medicine were now required, after a very good

school education, to devote five years before passing a "bread-and-butter" examination, and even when they came up for this examination about 40 per cent of them were "ploughed." There must be something wrong with the curriculum or with the public requirements when this was possible. Perhaps too much detail was demanded in the earlier stages of a medical student's life. More time might advantageously be spent on principles. Having learned the principles of chemistry, physics, and biology, could not a system be arranged whereby the details would be brought to the student's notice as he went through his clinical career? He might be able to learn the details of his physics more quickly while he was using his instruments. Students also might be brought into responsible relationships with patients at an earlier stage.

Dr GEORGE JONES, speaking on the relations of voluntary and municipal and Poor Law hospitals, said that in London, should the borough councils combine with the Poor Law guardians, they would find themselves in a very strong position as against the London County Council with regard to medical services, and the combined authority might insist that the whole of the medical services of the area should be transferred to them—lock, stock, and barrel. At the present time the borough councils or their medical officers complained of a certain hampering of their work by such activities of the London County Council.

Mr R C ELMSTREE said that professorships in surgery had the disadvantage of taking their holders away from private practice, and private practice was of immense value to the teacher because it introduced him to a class of case in some respects more useful for teaching purposes than those he saw in hospital. With regard to specialism in surgical teaching, his own feeling was that the teaching of special subjects should be supervised by the professor of surgery. He had felt for a long time that the undergraduate received too much teaching in major surgery, also he recalled that in his own undergraduate days he saw too much of the teaching of one surgeon and too little of the teaching of other surgeons. It would be an excellent plan if in every medical school each surgeon had at least one class a week open only to students who did not belong to his unit. As for the method of teaching the technique of surgery when the student was a young house-surgeon he himself might sometimes be allowed to operate while the teaching surgeon acted as his assistant. That was a very good way of teaching.

Mr ERIC PEARCE GOULD said that what it was desirable to ensure was a large number of post-graduate appointments for men who were intending to take up surgery as their life-work. As for the teaching of preliminary subjects, this was primarily of value as giving a man an insight into scientific principles and possibly an opportunity of discovering whether or not he had a facility for the study of science. Mr R P ROWLANDS remarked that every effort to shorten the curriculum appeared to result in lengthening it. He felt that there was some danger of over-specialism, not so much perhaps from the educational point of view as from others. At Giv's they were not keen on professorial units, holding rather that all units should be coequal. Moreover, to divorce the professor from private practice was a bad thing from the point of view of his own teaching capacity.

Mr MAX PAGE thought it economically impossible for a man to give more than five—or at the very most, more than six—years to his medical education. That must be accepted on a comparison of medicine with other professions. He thought there would have to be a students' entrance examination of a sterner character to eliminate in advance a number of those who were obviously unfitted for medicine, and who accounted for some part of the 40 per cent of "ploughs" mentioned by Mr Warren Low. Dr JOHN GIX said that when he himself had passed through hospital he felt that he had seen an enormous number of major operations, but in the ordinary work of the general practitioner he realized that something else was wanted. When men now talked to him about going in for medicine he always advised them to study the beginnings of things, to get to know the smaller things, those earlier stages of disease which were not often seen in hospital,

those chronic cases which were mostly seen in infirmaries, and to make themselves proficient in operations such as tonsillectomy, the passing of catheters, and so on, which fell to the general practitioner's lot.

ANTE-NATAL CARE IN GENERAL PRACTICE

A MEETING of the Newcastle-upon-Tyne and Northern Counties Medical Society was held in the Royal Victoria Infirmary, Newcastle, on November 1st, with Dr W I HUME in the chair. After clinical demonstrations had been given in the out-patient department, a discussion on "Ante-natal care in general practice—its value as an aid and a policy," was opened by Mr H HARVEY EVERS.

Mr Harvey Evers said that he had two definite objectives—namely, to prove that ante-natal care was an essential adjunct to rational obstetrics, and that the bulk of this work must be done by the general practitioner if the service was to have its maximum efficiency. The elimination of eclampsia, the prompt treatment of venereal disease, the correction of malpresentations, the diagnosis and correct management of cases of disproportion, were all emphasized as the direct results of efficient ante-natal supervision. Stress was laid upon the advantages of induction of premature labour, in Mr Evers's experience, as a means of avoiding much difficulty. The speaker also showed the difference in the results of cases of placenta praevia where the patient was under supervision, as compared with those which were unsupervised. Moreover, demonstration of the fallacy that pregnancy and labour were normal physiological processes would be of great advantage to the patient and to the doctor, it would enable patients to see more clearly the need for supervision, and would make the medical man's position much more comfortable where complications or disorders occurred. Mr Evers thought that no woman should be allowed to come into labour without a previous examination by a doctor. The positions of the midwife and of the public ante-natal clinic were discussed and it was pointed out that the best work could not be done by a whole-time ante-natal officer, efficient supervision could only be given by someone in the active practice of obstetrics. The work must be done by the family doctor who would thus acquire full control of the maternity service. He would then be in a position to deal with his patients in a manner which he considered to be to their greatest advantage. The work was easy to learn, took little time to practise, and was welcomed by the patients, provided that vaginal examination was avoided, except where absolutely necessary.

Dr RUSSELL read a paper by Dr L M WELLS, discussing his experience of ante-natal work in private practice, and indicating its great advantages in saving lives of mothers and children, as well as in the prevention of a great deal of subsequent maternal morbidity. Dr Wells described his ordinary routine, and pointed out that the technical side of the work was easy to learn, took not more than three-quarters of an hour in each case over the whole period of the pregnancy, and was welcomed by all his patients. He emphasized the importance of a consultant's opinion in doubtful cases, and gave examples of the good results he had obtained thereby. He gave a summary of 156 cases from his own practice, and called attention to the large proportion of abnormalities and the great benefits derived from ante-natal methods.

Dr S WONTANNEON gave his views on the work in industrial practice, and was enthusiastic in his support of Mr Evers's remarks. He deplored the passage of obstetrics from the hands of the general practitioner, and agreed that there had been a great increase of abnormal cases in recent years. He submitted that the ante-natal clinic and the maternity hospitals should suffice for the very poor, and that for the insured class suitable provision should be made whereby the fees for ante-natal supervision would be guaranteed to the doctor. He preferred that in a normal case there should be a midwife only, rather than a doctor only, provided that the patients were examined ante-natally by a doctor. His routine was described and he asserted that his patients now accepted examination without any difficulty.

Reviews.

CARDIOVASCULAR DISEASES

THESE are special reasons for welcoming Sir HUMPHRY ROLLESTON'S Harveian Oration in the shape of a neat and handy volume.¹ As a record of the historical growth of our knowledge of cardiovascular diseases since Harvey's day it is singularly detailed and complete, and it will therefore be accepted as a standard of reference brought fully up to date. In addition, the text is accompanied by a widely collected bibliography, where the student of the future not less than his colleague of to-day, will find direction and help. And yet again, the volume form has admitted some chapters which the limits of time excluded from the Oration as delivered on St Luke's Day to the Royal College of Physicians of London. It is well, therefore, that so serviceable a contribution should be given in a complete, permanent, and readily accessible shape. The Oration, and a leading article on the subject, we published in our issue of October 20th.

INTRACRANIAL TUMOURS

THOSE who were fortunate enough to hear Sir JAMES PURVES STEWART'S presidential address to the Neurological Section of the Royal Society of Medicine in 1926 will welcome his book on *Intracranial Tumours and Some Errors in Their Diagnosis*² as providing them with a means of reviewing this clinical material at greater leisure than was possible during an hour's lecture.

The author opens with a description of what he calls the general signs of intracranial tumour, and then devotes a chapter to each of the principal anatomical divisions of the brain, giving an account of the localizing signs usually expected from tumours in these situations followed by a detailed account of several cases pertinent to the chapter. He does not claim to have made any novel observations, but, taken as the record of a careful and skilled observer's notes on cases in each of which the diagnosis was confirmed by operation or autopsy, this monograph is of great interest and value. The introduction is written with such disarming modesty that criticism is embarrassing. Each clinician who has elaborated his own method of examination will feel that the particulars given are in many cases incomplete in some important detail—this is bound to be so from the nature of individual experience and what the author has himself referred to as the personal factor. The frequency with which confident deductions as to the site of a tumour are falsified by subsequent events has led one eminent neurologist to remark that their localization is a sport and not a science. Probably all would agree that the most important differentiation to be made in practice is that between intracranial tumour and some other condition, rather than between tumours of differing intracranial site, and it is therefore to be regretted that the chapter on errors of diagnosis contains only four cases where this was in question.

The suggestion that epileptiform convulsions may be due to anaemia of the motor cortex (p. 7) does not tally with the fact correctly given (p. 4) that local cerebral anaemia causes loss of function and paralysis—unless, indeed, the author regards these as release phenomena due to the uninhibited discharge of lower level mechanisms. Again, when he says that in some cases "the increase of intracranial pressure is due to the blocking of the foramen magnum by a pressure cone formed by the prolapsed brain-stem and cerebellum" he is surely overlooking the fact that it is this increase of pressure which is the most common cause of spinal herniation of the intracranial contents, although a vicious circle may thereby be established causing an acceleration of the rise in pressure. These are however minor points in which the pathology does not rise to the level of the clinical observations set out in this monograph, and they do not materially affect its value.

¹ *Cardio-vascular Diseases since Harvey's Discovery*. The Harveian Oration By Sir Humphry Davy Rolleston Bart. K.C.B. M.D. London: The Cambridge University Press, 1928. (Cr. 8vo. pp. 149. 3s. 6d. net.)

² *Intracranial Tumours and Some Errors in Their Diagnosis*. By Sir James Purves-Stewart K.C.M.G. C.B. M.D., F.R.C.P. Oxford Medical Publications, London: Milford Oxford University Press (Demy 8vo. pp. xviii + 206. 61 figures. 12s. 6d. net.)

EXPERIMENTAL PHARMACOLOGY

In *Introduction to Experimental Pharmacology*,³ by SOLLMANN and HANZLIK, is an adaptation of Sollmann's *Laboratory Guide in Pharmacology*, a book that for many years has served as a valuable work of reference to teachers of this subject. The experimental courses therein described were very extensive, and in the present volume there has been a considerable reduction in the number of experiments, but those mentioned are described in greater detail.

The volume consists of two parts—chemical pharmacology and experimental pharmacodynamics. The first part presents a selection of experiments from the subjects of pharmacology, organic chemistry, and biochemistry. The second part describes a large number of animal experiments. The usual classical pharmacological experiments are included, and, in addition, a number of original experiments are described. The chapter on gastro-intestinal movement deserves special mention, and in particular an excellent method for the photography of intestinal peristalsis is given. The volume concludes with a series of appendices, the most important of which, comprising 30 pages, gives the doses for animals of all the most important drugs used in experimental pharmacology. This appendix was one of the most useful features of Sollmann's familiar textbook; it has been carefully revised and brought up to date, and will be found of the greatest value by all pharmacologists and physiologists. A new appendix has also been added giving the dilutions at which drugs act on isolated tissues.

This textbook will be found of the highest value as a work of reference by all teachers of pharmacology and physiology. It is not, however, well suited to the needs of the British student, because a considerable proportion of the subject-matter is devoted to the description of experiments on living animals, which cannot be performed by students in this country; moreover, the course described is far longer than could be carried through in the time allotted to experimental pharmacology in any university in this country.

RADIOGRAPHY IN GYNAECOLOGY

*L'Exploration Radiologique en Gynécologie*⁴ is the title of an interesting book, the work of Dr. CLAUDE BÉCLÈRE of Paris. The first chapter deals shortly with the use of "pneumoperitoneum" in gynaecology, and there is a short reference to the method of injecting air through the uterus and Fallopian tubes, but the main part of this book is based upon the author's own experience in cases in which an opaque material—iodipin—was injected into the uterus and tubes for diagnostic purposes. Following a historical reference, the full technique, with the author's modifications, is described in detail. The rest is profusely illustrated with radiographs of cases after injection, accompanied by descriptive notes and comments. A comprehensive bibliography is added.

To those interested in the subject this book should prove both useful and instructive, the author writes in easy style, and everything is very much to the point, with a complete absence of padding. Apparently the whole ground is covered, and every condition in which such a method of examination can be useful is illustrated. We may add that it is very well printed on excellent paper, and the radiographs, about sixty in number, which show the finest technique, are beautifully reproduced.

AMERICAN MEDICAL BIOGRAPHY

To the admirable industry and esprit de corps of Professor HOWARD A. KELLY and Dr. WALTER L. BURRAGE the profession is much indebted for *The Dictionary of American Medical Biography: Lives of Eminent Physicians of the United States and Canada, from the Earliest Times*.⁵ It is the successor of *American Medical Biographies* (1920),

³ *An Introduction to Experimental Pharmacology*. By Torald Sollmann M.D. and Paul J. Hanzlik M.D. Philadelphia and London: W. B. Saunders Company, 1928. (6 x 8½, pp. 321. 3s. 6d. net.)

⁴ *L'Exploration Radiologique en Gynécologie*. Par Claude Béclère. Préface de Raymond Grégoire. Paris: Masson et Cie, 1928. (Med. 8vo., pp. 175. 61 figures. 45 fr. sans majoration.)

⁵ *Dictionary of American Medical Biography: Lives of Eminent Physicians of the United States and Canada from the Earliest Times*. By Howard A. Kelly M.D. LL.D. and Walter L. Burrage A.M. M.D. New York and London: D. Appleton and Co., 1928. (Sup. roy. 8vo., pp. xxx + 1394. £2 10s.)

by the same authors, which was founded on Professor Kelly's (*Cyclopedia of American Medical Biography* (two volumes, 1912), this in its turn being constructed on the same lines as the *Medical Biography*, published in 1828 by James Thacher (1754-1844), who in the present volume is described as "standing at the head of the list of medical historians in this country." The dictionary contains 2,049 biographies, as compared with 1,948 in the 1920 edition, there are about 300 new entries some of the old ones having been cut down to the name with a reference to the former edition. The two editors are responsible for an amazing number of lives, but to such an undertaking there are naturally many other contributors, such as C. L. Dana, W. B. Cannon, L. I. Cordell, Sir W. Osler, J. R. Packard, L. S. Pilcher, John Howard, who wrote on Emmett Holt, C. R. Bardeen, and J. F. Fulton now of Magdalen College Oxford, who supplies the lives of J. G. Adams and A. E. Brill, well known as the describer of the endemic form of typhus eponymously called Brill's disease. Some of the lives are unsigned, such as that of Surgeon General W. C. Gorgas who have no reason at all to suggest it, but possibly this is concealed the work of a Government official and a great medical historian who would naturally be expected to contribute to this dictionary. The accounts of a number of pioneer women doctors such as the sisters Elizabeth and Emily Blackwell, Rachel L. Bodley, Lucy Serall, and Mary Harris Thompson, the first woman who specialized in surgery, are signed by Alfreda B. Withington. Professor Howard Kelly writes the notices of his old colleague Sir William Osler, of Theodore C. Janeway of the Johns Hopkins, and of John McCrae of Montreal. He also writes on the famous W. C. Wells, the author of "The Essay on Dew" who was born of Scottish parents in Charleston, South Carolina, but is also claimed by our country, and naturally is noticed in the *Dictionary of National Biography*.

This volume, the outcome of twenty years' work and, as the preface says, "years of delightful occupation browsing in old volumes, writing to, and hearing from, interested colleagues," brings the biographies down to the beginning of 1927. It includes medical men of all kinds, not, as the title "Lives of Eminent Physicians of the United States and Canada" might suggest to some British ears, those only who practise pure physic, but medical men who have abandoned medicine and gained distinction in science and other fields. It is an absolutely necessary guide to all interested in the medical history of the English speaking New World.

GERMAN SPAS

MR S. L. BEUSAN, having visited Bad Nauheim in search of health, proceeded to visit other German spas by way of holiday. In *Some German Spas** he records for English benefit his impressions of certain health resorts, being convinced that "the common interests of both countries would be best served, and the chances of another European war most effectively lessened, by the re-establishment of a close and ultimately friendly intercourse between the two nations." Mr Beusman may be thought by some to suffer from a serious disability as a student of German waters: he admits that he is "one of those foolish people who take no alcohol in any shape or form." No man, it has been said, can become a connoisseur in these waters without the antidote of the vintages of the Rhine the Moselle the Nahe, and the Ahr, on the beet of Munich. However, Mr Beusman seems to have derived pleasure as well as health from his tour, he describes pleasantly the attractions of each place that he visited he lays stress on the cheerfulness that pervades the spa from the early morning hymn to the extinction of the lights of the kursal and he admits the influence of the surroundings on the mind of the patient. As becomes a non-medical observer he does not attempt to enlarge upon the medicinal effects of water drinking and bathing, though he seems to think the latter procedure the more important. But he describes in glowing terms the beauty of the spots in which the springs bubble forth: he is duly impressed

by the somewhat garish luxury of Wiesbaden, but he prefers the peaceful surroundings of Wildungen. The book is illustrated with photographs of the spas and their surroundings, and there are chapters on some of the old towns and beauty spots within reach of the health seeker. The pleasing impression to be derived from Mr Beusman's book is the thoroughness with which the German organizes his health resorts. Further evidence of the German thoroughness in this respect is afforded by the comprehensive directory of German spas. Following an alphabetical list of these places, in which reference is made to the forms of treatment available in each instance, there is an account by Dr Hirsch of Charlottenburg of the various medical indications for special hydrotherapeutical procedures. A list of medical practitioners at the different places is supplied, and there is also fuller description of various spas with many illustrations and details of the pastimes available.

BIOCHEMISTRY OF PLANT PRODUCTS

IN their preface to the fourth edition of the first volume of *An Introduction to the Chemistry of Plant Products*,* Drs P. HAAS and T. G. HILL explain that their work has been rendered difficult by the enormous recent expansion in the subject of biochemistry. This work first appeared in 1912 and was intended for the use of advanced students in botany. Since that date a huge literature on biochemistry has developed and the authors have had the difficult task of selecting the information which is of interest to students of botany. The volume under review deals with the organic constituents of plants, and a full account is given of the chemistry of the fats, alcohols, carbohydrates, and proteins of plants, and also of such special plant products as glucosides, tannins, alkaloids, and plant pigments. Other chapters are devoted to the special problems of enzyme action and the colloidal state. The greater part of the volume is devoted to a description of the organic chemistry of plant products, but the physiological significance of these products is also discussed. These notes on plant physiology are some of the most interesting things in the book, and their perusal impresses the reader with the power of plants to synthesize the most varied and complex chemical compounds, but at the same time he will be astonished to discover how little is known about the physiological significance of these compounds. This is especially true of the plant products used in medicine, such as the tannins, glucosides, and alkaloids. Indeed, it appears to be doubtful whether these substances which are so indispensable in medicine, are of any value to the plant that produces them. For example, it is suggested that the most valuable drugs known to medicine such as morphine and quinine, are merely waste products stored where their accumulation can do no harm to the plant. It is curious that human medicine should be dependent on accidental waste products. The authors have evidently taken great pains to bring their book up to date and are to be congratulated on their success in extracting the matter relevant to their purpose from the vast mass of biochemical literature.

NOTES ON BOOKS

THE British Social Hygiene Council has published in book form a report* of the proceedings of the Imperial Social Hygiene Congress held in London in October 1927. Perhaps the most important part of the report is that dealing with the welfare of seamen in ports. Surgeon Captain T. B. Shaw, professor of hygiene at the Royal Naval College, Greenwich, laid stress upon the importance of recreational training in the navy for maintaining a healthy morale amongst seamen, and Sir George Buchanan described the efforts that are being made at the International Health Office in Paris to ensure satisfactory treatment for the sailor suffering from venereal disease from port to port in all the large seaports of the world.

* *Deutscher Bäderkalender*. Herausgegeben vom Allgemeinen Deutschen Bäderverband E. V. Abteilung A. Redigiert von Prof. Dr. Weissbela. Mit einer Einführung von Ministerialdirektor Dr. R. Prof. Dr. Dietrich Berlin. Bader und Verkehr-Verlag G. m. b. H. 1928. (Demy 8vo pp. 623 illustrated.)

* *An Introduction to the Chemistry of Plant Products*. Vol. I. By Paul Haas, D.Sc. Ph.D. and T. G. Hill, D.Sc. V.R.C.S. Fourth edition. London: Longmans, Green and Co. Ltd. 1928. (Demy 8vo pp. xvi+550. 18s. net.)

* *Proceedings of the Imperial Social Hygiene Congress*. London: British Social Hygiene Council Inc. 1928. (Demy 8vo pp. 314.)

* *Some German Spas*. By S. L. Beusman. London: N. Douglas. 1928. (Demy 8vo pp. xi+160. Illustrated. 8s.)

Dr L. Carozzi of the International Labour Office spoke of the attempt which will be made at the Maritime Conference in 1929 to deal with the question of social insurance for the protection of seamen in case of sickness and possibly also in case of accident. Representatives at the conference from various Government departments, from the Dominions, Colonies, Protectorates and Mandated Territories described the problems they had met with in the control and treatment of venereal disease. In the section dealing with the administrative aspects of social hygiene Sir Walter Greaves Lord K.C. indicated the difficulties which arose in defining and dealing with solicitation. Whether the Home Secretary will succeed in clearing up these difficulties remains to be seen but Mr I. B. Turner was convinced that the condition of the streets when he first came to London had been very much improved by police action. He thought also that owing to relaxation of this action recently there had been some return to the state of affairs which existed when he first took part in the medical side of rescue work some fifty years ago.

The main theme of Dr SEJOURNE'S book¹⁰ on mitral stenosis in relation to the puerperal state is that while the ordinary methods of clinical examination are insufficient to show whether pregnancy in a case of mitral stenosis will be well borne or otherwise radiological examination gives more precise evidence as to the state of the heart, and that by noting the appearance and development of certain signs in the early stages of pregnancy, a definite prognosis may be made. The signs to which he attaches chief importance are auricular dilatation and changes in the hilar shadows interpreted as indicating stasis in the pulmonary veins. The book however, is lacking in detailed evidence to show the value of the methods adopted by the author and especially is there no evidence that radiological examination can provide earlier or more definite signs of the onset of heart failure than can examination of the superficial veins by the unaided eye.

The *Chemical Laboratory Manual*¹¹ of BOGERT is a companion to the same author's *Fundamentals of Chemistry*, which is a textbook for nurses and others. The laboratory manual gives directions for the practice of a number of experiments illustrating lessons set forth in the companion work. It is prepared with care and forethought for all that the student may lack, whether in tutorial supervision his own power of insight or even dexterity and would accordingly be particularly helpful to a student working alone. The first experiments described are those demonstrative of the most elementary facts of chemistry. Then follow experiments on carbohydrates, fats and proteins, leading to a knowledge of their physiological relationships, and a few experiments on blood and urine. It is a very practical little book.

Dr HENRI THIBAUT'S thesis on the necessity for adapting the anti-tuberculous armamentarium to the current conception of the evolution of tuberculosis¹² is partly a condemnation of our present methods of dealing with the tuberculosis problem, and partly a suggestion for mobilizing our available forces to the best possible advantage. His general argument is that the majority of cases of pulmonary tuberculosis are not insidious in their onset, and that, as febrile patients are generally excluded from sanatorium treatment, the cases that are actually admitted must be either febrile cases which have reached an intermittent phase or cases that are probably not tuberculous at all. What is really necessary is immediate treatment for the early febrile case. He therefore suggests converting most of the present sanatoriums into sanatorium hospitals, and sending to these the early cases with acute onset encountered at the dispensary or the hospital. The type of patient who at present occupies the sanatoriums he would transfer to fresh sanatoriums, constructed at slight expense from country property, or else built up of movable shelters of the Papworth type. The conditions in France are clearly different from those in this country, nevertheless, the problem is essentially the same, and most tuberculosis workers will find the author's thesis of considerable interest.

Unlike radiotherapy, which almost from its beginning has had a physical experimental basis, radiography has remained very largely empirical. Dr W. BRONKHORST, in a study of contrast and sharpness as present in the x-ray image,¹³ has

¹⁰ *Le Rétrécissement Mitral dans les Rapports avec l'Etat Puerpéral* par J. Séjourné. Paris: G. Doin et Cie, 1928. (64 x 94) pp iv + 156. 22 figures. 4 plates. 25 fr.

¹¹ *Chemical Laboratory Manual*. By L. Jean Bogert. Ph.D. Philadelphia: P. Allan and Co. Ltd. 1928. (Demy) Bro. pp 142. 23 figures. 7s. 6d. net.

¹² *La Nécessité d'Adapter l'Armement Antituberculeux à la Conception Actuelle de l'Évolution de la Tuberculose*. Par Dr Henri Thibault. Paris: L'Expansion Scientifique Française. (64 x 94) pp 134.

¹³ *Kontrast und Schärfe*. Von Dr. W. Bronkhorst. Aus dem Loewen Fortschritt Nr. 15. Leipzig: G. 4 plates. 30 charts. 21.15.

therefore tried to establish an experimental basis for the different factors influencing the production of the skiagram, and to systematize them. The first part of the book deals with the influence exercised by the intensity of radiation, the quality of the rays, the thickness of the absorbing and diffusing tissues, and the results following the use of intensifying screens and the Potter-Bucky diaphragm are considered. The second part is concerned with the factors which govern the sharpness of the x-ray image and in particular the focus characteristics of the x-ray tube. Much careful research is incorporated in this study which is undoubtedly a valuable contribution to the science of radiology. Perusal of the book is by no means easy, one difficulty being the constant need of reference to charts, of which there are thirty, these are printed on separate sheets of flimsy paper and are placed in a special envelope attached to the cover of the book.

Students of social history and of medical criminal procedure, as well as those who are attracted by the grimmer side of life will find much of interest in *A Hangman's Diary*¹⁴. This volume, translated from the German by Mr C. CALVERT and Mr A. W. CRUICK, contains the journal of Franz Schmidt, public executioner of Nuremberg from 1573 to 1617, in the course of which period he put to death between three and four hundred persons. Details regarding the offences and executions are given from Schmidt's diary for each execution and for some of the minor bodily punishments carried out by him. Mr Calvert, in his valuable essay on the judicial methods and customs of the time, notes that many of the executioner's craft practised surgery of a sort and also carried on a ghastly traffic in severed hands, human skin, and similar objects which were valued for the purposes of magic and medicine. Schmidt himself it appears was held in high repute as a surgeon, possessing a better knowledge of the human body than most physicians of his day, this knowledge, as his journal records, he gained by dissecting the bodies of some of those whom he had executed.

Lieut. Colonel T. R. ST. JOHNSTON, the author of *A Wet Indian Pepper Pot*¹⁵ is the administrator of St. Kitts Nevis, in the Leeward Islands, a barrister at law, a medical practitioner and the writer of several anthropological works on native races of the Pacific. His latest book is designed not only to entertain, but also to awaken an interest in the West Indies and their people. The thirteen stories which he has written are primarily studies of native types—some figures of comedy and others grimly tragic, but all treated with sympathy and fidelity. This volume which is richly illustrated with character sketches in colour by Miss Eva Wilkin, should appeal equally to the general reader, the prospective visitor to the islands, or the stay at home tourist who appreciates an exotic flavour in his reading. Mr L. S. AMERY, Secretary of State for the Dominions and Colonies, contributes a preface.

¹⁴ *A Hangman's Diary*. Edited with an introduction by Ulbrecht Keller and translated by C. Calvert, B.A. Lond. and A. W. Cruick. M.A. Oxon. With an introductory essay by C. Calvert. London: P. Allan and Co. Ltd. 1928. (Demy) Bro. pp vii + 250. 8 plates. 10s. 6d. net.

¹⁵ *A Wet Indian Pepper Pot*. By T. R. St. Johnston. London: P. Allan and Co. Ltd. 1928. (6½ x 8½) pp xlii + 194. 13 plates. 10s. 6d. net.

PREPARATIONS AND APPLIANCES

TONSIL HOLDING VULSELLUM FORCEPS

MR C. A. SCOTT RIDOUT M.S., F.R.C.S. (Southsea) writes: Having had considerable difficulty with the clip of other tonsil holding forceps made so as to allow a guillotine or snare to be passed over them whilst holding the tonsil I have had made for me a type of cross action spring vulsellum forceps



which needs no clip, and over which a guillotine can easily be passed while the tonsil is pulled out of its bed. In practice I have found this instrument to work well, provided the spring is sufficiently strong. There being no clip to get out of order, the instrument is simpler in its action than the types previously used. I use this pattern, as illustrated, in both my hospital and my private practice. The instrument is made by Messrs. Allen and Hanburys, Ltd.

INJECTION TREATMENT OF VARICOSE VEINS

Messrs Burroughs Wellcome and Co. have placed on the market hypodermic quinine and urethane for the treatment of varicose veins by the injection of sclerosing solutions. This solution consists of quinine hydrochloride 0.25 gram and urethane 0.13 gram in 2 ccm of sterile distilled water, issued in hermetically sealed glass containers ready for immediate use.

British Medical Journal.

SATURDAY, NOVEMBER 17TH, 1928.

MENTAL HEALTH AND DISEASE.

THE reactions of individuals to life are infinite in their variety, and for this reason, where disorders of behaviour are concerned, it is difficult to say when a person should be described as normal and when as psychopathic, neurotic, or psychotic. Who, for instance, would be disposed to state definitely when an individual of the cyclothymic type—the subject at one time of over activity and at another of depression—had reached a condition at which he had overstepped the boundary between health and disease? Many such personality types are able to accomplish a vast amount of useful and constructive work in a condition which the psychiatrist would recognize as one of mild mania and no surprise would be felt if it were found that this "press of activity" was liable to be followed by one of inadequacy, depression, and inability to do other than the merest routine work. Similar gradations between health and disease are observed in general medicine though here the fluctuations are not so apparent since the social reaction is not involved. It is now generally recognized that the living organism functions according to the same fundamental laws in both health and disease, and for this reason medicine cannot be divorced from physiology, nor psychiatry from psychology. Disease is a modality or variant of vital activity; it is the manner in which the organism reacts under certain conditions.

Every medical practitioner is aware that an understanding of disease cannot be gained without a knowledge of normal physiology. Conversely, the study of disease enriches our knowledge of the reactions in health. Thus much of our knowledge of the structure and functions of the nervous system has been derived from the study of pathological conditions. Similar sequences have occurred in the sphere of psychology and psychiatry. Starting from the study of mental disorders such clinicians as Freud, Jung, and Adler have been able to throw light on the mental reactions of normal people and though the theories of these psychopathologists are contradictory, and have not been accepted in detail by psychologists they have certainly vitalized psychology, influenced its development and brought it into relation with the facts of human life. It is only within recent years that the converse of this could be said—namely, that the psychologist had provided a groundwork, analogous to that of physiology, which could be applied in some measure to abnormal psychology. Formerly the academic psychologist was occupied in the main with introspective studies of the content of consciousness and ignored the fact that action was determined in a large measure by influences which lay outside the realm of focal consciousness, and which were unknown to the actor himself. It was therefore a revolution in scholastic psychology when Dr. William McDougall defined the one time science of consciousness as the science of behaviour. This gave a new orientation to psychology because it showed that this science is concerned with the human being in action, and not

merely with the inner world of ideas which are not open to direct observation. In a later work the same writer provided the student with a comprehensive textbook of psychology, and this was followed by a supplementary volume on abnormal psychology. Thus we have what is perhaps the first attempt to outline the fundamental principles of normal psychology in terms which are capable of being applied to abnormal psychology.

In his preface to the book on abnormal psychology¹ Dr. McDougall states that he wishes this volume and the one dealing with normal psychology, which had preceded it, to be regarded as two parts of one book. He emphasizes the complementary nature of the two volumes, hoping that their conjunction may do some thing to bridge the gap between academic psychology and the study of the neuroses and psychoses. He draws attention also to the regrettable lack of harmony and consensus of opinion within the field of psychopathology, pointing out that this field is cultivated by a number of warring schools whose teachings are so widely different that to a layman they might hardly seem to be concerned with the same topics and the same problems. In view of this situation Dr. McDougall makes it one of his principal aims to bring together in one consistent scheme what seems the soundest and most fruitful in contemporary academic psychology and in the teaching of the various schools of abnormal psychology. His reference to the chaotic state of psychological teaching would appear to be fully justified. In his preliminary physiological studies the medical student has the choice of various textbooks, but all of these teach the same basic principles, have the same terminology, and provide the same unified body of knowledge. With such preliminary knowledge the student is well equipped to pursue his later studies in physical disease. The student of psychiatry is by no means in such a happy position. Nowhere can he find agreement in terminology, in definitions, or in fundamental assumptions. He may find it impossible if he has read a particular book, to discuss the problems of human behaviour with the student who has read another book, for the simple reason that the writers of these two books do not speak the same language, they envisage the same reality from an entirely different aspect. If he attempts to grasp the later developments of psychoanalytic theory which now betray a tendency to drift away from the immediate problems of the clinic, he may find himself unable to understand what he is reading at all. There is in the sphere of both psychology and psychopathology a serious need for clear definitions, simplification of terminology, and a preliminary statement of basic assumption.

We have suggested above that disease might be defined as the manner in which an organism reacts under certain conditions. The nature of these conditions is clearly the aim of medical research to discover. In some instances they are known in others they have not yet been elucidated. It is known, for instance, that the symptom-complex enteric fever is the physiological reaction to the invasion of the organism by a specific bacillus. In the realm of psychiatry the problem of causation is more complex than in that of general medicine because the former is concerned not merely with abnormal reactions of the organism but with those of the individual as a whole. The conditions responsible for psychotic states are probably numerous and in many morbid syndromes

¹ *An Outline of Abnormal Psychology*. By William McDougall M.B. F.R.S. London: Methuen and Co. Ltd. (15s. net.)

it is impossible to point to one condition which can be held accountable for the symptoms provoked. Dr McDougall lays considerable emphasis on the psychogenic factor, and few psychiatrists would be disposed to deny that the stresses of life exert some influence in the production of the psychoses and neuroses. It is more than doubtful, however, whether the biogenetic psychoses can be ascribed solely to functional distortions of the instinctive tendencies owing to the pressure of external life. A psychosis is probably due to a number of mutually interrelated factors, no one of which suffices to account for the total reality exhibited.

RECENT RESEARCH ON URTICARIA

DERMATOLOGISTS will be the first to admit the baffling nature of the problems that surround urticaria. The genesis of this common and troublesome eruption is always ascribed to some circulating toxin, of which the origin, in the majority of cases, remains obscure. It has been cured from time to time by a multitude of remedies, all of which are uncertain. Here, as elsewhere, the multiplicity of remedies is evidence of ignorance and inefficiency. Till recently very little light has been thrown upon urticaria by pathological research. It was demonstrated several years ago that the formation of the typical wheal is accompanied by a small called exudation through the capillary walls, in addition to an outpouring of more fluid. This, unfortunately, did not take us much further. Late, however, some progress has been made from at least two different angles. It is well known that sufferers from urticaria are often sensitive to special substances only. It has been found by Prausnitz and Küstner that this sensitiveness lies in the serum, because if the serum of a hypersensitive patient be injected into the skin of another individual, the skin around the site of the injection becomes sensitized to the same substances as affected the donor of the serum, and it was also discovered by A. and M. Walzer that the serum preserved this power of sensitization for some months after it was drawn off. On the other hand, Lewis and his co-workers have shown that the phenomena of the urticarial wheal may be reproduced with almost exact fidelity by the intradermic injection of histamine, and it now appears that the familiar wheal is produced by the liberation of a substance, not yet isolated, which Sir Thomas Lewis designates H substance, and which may be actually identical with histamine itself. Again, it is well known that paroxysmal haemoglobinuria is, in susceptible persons, brought on by exposure to cold; the same patient may or may not be liable to urticaria if the skin be exposed to cold, and, again, cold may excite urticaria in the exposed skin of an individual who never suffers from paroxysmal haemoglobinuria. Sir Thomas Lewis is now embarked on an interesting series of investigations, which so far tend to show that these phenomena are due to lysins of different kinds, haemolysin determining haemoglobinuria and a dermolysin determining urticaria. He has already confirmed the earlier results of Prausnitz and Küstner in the particular type of hypersensitiveness by showing that the serum of the patient in whom cold leads to urticaria, when injected into the skin, induces a local sensitization to cold with the production of urticaria in a normal individual.

On the other hand, the subject has been approached from the purely chemical aspect by Drs Barber and Oriel. They opened a discussion on urticaria at the Annual Meeting of the British Medical Association this year with an extremely interesting paper dealing

with the biochemistry of allergic conditions. Allergy is now understood to mean all forms of hyper-sensitiveness, whether congenital or acquired, and the brand of the reaction of a hyper-sensitive person may be borne by his cutaneous, respiratory, gastro-intestinal, or nervous system. It would take too long to give a list of the various forms of reaction, which will be found in their paper, but there is no doubt that the cutaneous reactions are the commonest, and of these urticaria is the most typical. Moreover, it is also certain that among patients who show evidence of cutaneous allergy there is very frequently involvement of other systems—for example, of the respiratory system, as shown by hay fever or asthma, or of the nervous system, as shown by migraine. And even if the urticarial or pruriginous patient be free from other allergic reactions, it is almost certain that there will be found examples of some of the other systemic manifestations among his immediate family. It appears probable, therefore, that in such families there must be a sort of inborn metabolic kink which renders the affected person sensitive or 'allergic' to various bodies or conditions. Barber and Oriel have applied themselves to the problem of finding out the nature of that inborn error. While it cannot yet be said that they have solved this problem, they have at least demonstrated certain peculiarities of metabolism characteristic of the allergic state, and especially of the allergic paroxysm or acute attack.

In the first place, allergic subjects often exhibit an abnormally high amino acid content in the blood even when they are free from active manifestations, and during the paroxysm it is always raised above the normal level. Another deviation from the normal noted by Barber and Oriel relates to the chlorides. It appears that the chlorides in the blood are contained partly in the serum and partly in the corpuscles. In allergic individuals, especially during the attacks, the chlorides contained in the corpuscles are much diminished, while those in the serum remain unaltered. Again, in allergic patients the urates are commonly precipitated from the urine very readily. Such precipitation is a phenomenon that has attracted attention since the beginnings of urinary analysis, and it has always been supposed to depend upon the concentration and acidity of the urine. It now seems that these factors are of subsidiary importance; it is true that precipitation occurs only in acid urines, but even in strongly acid urines the urates often remain in solution. The secondary importance of concentration is shown by the fact that, while urates may be precipitated although present only in small quantity, in other instances large amounts are held in solution. The decisive factor in maintaining the solubility of urates appears to be dependent on the colloid state of the urine—a state which can be tested by taking the gold count. Another curious feature which Barber and Oriel have detected in urine from these patients is what they designate the 'ether reaction'. After the addition of a few drops of 25 per cent sulphuric acid and ether, followed by vigorous shaking the ether becomes so opaque and frothy that the test tube can be inverted without losing the contents. The significance of this reaction remains obscure, but it is interesting to note that it is often found in patients with cardiac failure, and the authors think it may depend upon a change in the colloid state of the urine. As regards the reaction of the urine in these patients, the general rule is that, while just before and during an acute attack the acidity of the urine remains high, as the attack proceeds the acidity falls, and occasionally the

urine becomes strongly alkaline with deposition of phosphates, and at the same time there is diuresis. Another interesting point is that the ammonia excretion also rises, although the acidity falls, during an acute attack.

The question that immediately presents itself after considering the work of these two complementary sets of observations is, How can they be linked together? Can the lysins, whether dermolysin or haemolysin, which physiological tests have revealed in the serum of urticarial patients, be made to correspond with any of the chemical abnormalities demonstrated by Barber and Oriel? One of the unsatisfactory features of haematological research is the constant manufacture of names which merely express physiological properties never as yet identified with definite chemical compounds. What are the antigens, complements, precipitins, agglutinins, and so on, of which it is the fashion to talk so glibly? We know to some extent what they can do, but we have no idea what they are. The determination of the chemical basis of these bodies is one of the urgent problems of pathological chemistry. To revert to the phenomena of urticaria the next step is the elucidation of the connexion between the dermolysin experimentally demonstrated and the amino acids, which are so chemically conspicuous in the blood of allergic patients and the H compound (whether histamine itself or an allied body) which is so closely associated with the production of the classical urticarial wheal. The fact that histamine is an amino compound may not be entirely without significance.

Undoubtedly much remains to be done but it may at least be claimed that for the first time the problem of urticaria has been attacked on lines which promise ultimate, even if still distant, success.

THE HISTORY OF THE ASSOCIATION

IN view of the approaching centenary of the British Medical Association in July, 1932, the Council has considered the advisability of preparing a history of the Association from its beginning as the Provincial Medical and Surgical Association up to the present time, and beyond it to the time of the centenary meeting. Most valuable historical sketches have already been published by the Association, from the pens of Mr. Russell Coombe, Dr. Guy Stephen, and the late Dr. J. C. McVail, but it is intended that the proposed volume shall give an account of the main activities of the Association and its Branches, as well as of the careers of those who have taken notable parts in its development and welfare. The duty of compiling such a record has been entrusted to Mr. E. Munhead Little, F.R.C.S., who will be very grateful for any information concerning past events that is not to be found in the medical journals of the last ninety-six years or will not be found in those of the four years to come. Information is particularly wanted as to the origin and development of the Branches, some of which, such as the North of England Branch, were founded very soon after the Provincial Association and were at first independent of it, but ended, as did the Eastern Medical and Surgical Association, by becoming Branches of it. But no information, or hint of where to find information, will come amiss, for it is obvious that in the course of ninety-six years much has been forgotten, and may only be recovered from the shelves of local libraries or the minute-books of local societies. Information or documents may be sent to the Medical Secretary, B.M.A. House, Tavistock Square, W.C.1, or to Mr. Munhead Little direct, at 32, Ashley Gardens, Westminster, S.W.1.

SOME MEDICAL WAR MEMORIES

WITH the passing of the years the celebration of Armistice Day grows no less sincere, and it is generally recognized now that there must be something of practical value to humanity in an annual revival of war memories. Of the making of books about the war there seems to be no end, but few of those lately issued reach the standard of *With a Women's Unit in Serbia, Salonika, and Sebastopol*.¹ In this volume Mrs. I. Emslie Hutton, who was assistant medical officer and pathologist to the Scottish Women's Hospital, sets forth a variety of incidents in the manner of the best kind of travel diary. A particularly vivid light is here thrown on Serbia in defeat and triumph. The story of the reoccupation of their country by the Serbians at last receives the attention it has awaited so long, and in simple language the author gives a moving impression of a most attractive people, who won the affection of such great women as Dr. Elsie Inglis, Mrs. Haverfield, and Mrs. Harley. From Serbia the scene moves to the Crimea, and the story of the ill-fated Crimean venture of General Wrangel is told with a restraint far more eloquent and convincing than any recrimination. Intimate touches illustrate laboratory work in Salonika and child welfare attempts in Sebastopol, the patient endurance and the helpfulness of refugees of many countries come often into the picture. Problems of hospital construction and of prophylactic campaigns appear in a setting which blends humour with pathos. It is well that after ten years of peace we should be reminded of the self-sacrifice and sympathy which the war evoked, and made to reflect that by these qualities war may some day be abolished. Such books as Dr. Hutton's are a practical contribution to the progress of humanity.

A COURSE IN DISEASES OF OLD AGE

THE New York Academy of Medicine has inaugurated a series of annual post-graduate courses, each of which will deal with one special medical topic. The first was held from October 1st to 13th, and the subject chosen on this occasion was "The problem of ageing and the diseases of old age." Clinics, clinical lectures, and demonstrations were arranged in more than thirty of the teaching hospitals of New York, which formed three groups, each providing a similar programme and thus obviating long journeys between different hospitals. Special attention was paid to such topics as "The prevention and postponement of normal senescence" including the early recognition and treatment of disturbances which initiate or accelerate the process. Among the numerous papers read may be mentioned "The pains, penalties, and prohibitions of old age," by Sir Farquhar Buzzard, Regius Professor of Medicine in the University of Oxford; "The ageing of the human brain," by Dr. F. Tilney, professor of neurology in Columbia University; "The mechanism of senescence," by Dr. Alexis Carrel of the Rockefeller Institute; "The treatment of arthritis deformans of the hip," by Professor V. Putti of Bologna, Italy; and "Angina pectoris," by Dr. Harlow Brooks, professor of clinical medicine in the University of New York. Dr. George Vincent, president of the Rockefeller Foundation, who gave an address insisted that doctors should regard themselves more as "trainers," and endeavour to keep aged people healthy, rather than as "healers," ministering to palpable ills. This would call for systematic attention to diet, exercise, personal hygiene, and medical examinations. Dr. L. I. Dublin, statistician of the Metropolitan Life Insurance Company, read a paper in which he said that, while it was true that more people were living to old age at present, this was mainly due to the fact that a greater number of lives were being saved at younger ages, the life

¹ *With a Women's Unit in Serbia, Salonika, and Sebastopol*. By I. Emslie Hutton M.D. London: Williams and Norgate, 1928. (Demy 8vo pp. 302. 13 plates. 12s. 6d. net.)

span itself had hardly been affected by better hygienic and economic conditions. A man had practically no more expectation of living to the age of 70 now than he had in 1840. Some eighty years ago a man at the age of 50 had an even chance of living to be 70, whereas in 1920 a man who was 50 years old had an even chance of living to be 71. The life span had remained almost stationary because the diseases which predominated in old age had not been brought under control. Cancer, for example, seemed to be increasing, while nephritis and cardiac diseases had only slightly declined. Dr Dublin doubted whether there was any great possibility of increasing the life span, but he believed that progress lay in the direction of conquering those diseases which were taking the heaviest toll of old age, in the adoption of preventive measures by the elderly, in periodical medical examinations, and in community hygiene. It may be added, however, that some of the recommendations are disputable, thus, the case against annual physical examinations of adults is deftly stated by Dr Logan Clondomer in the *American Mercury* for October under the heading "Health audits."

THE COLLEGE OF SURGEONS OF AUSTRALASIA

THE issue of the first number of the *Journal of the College of Surgeons of Australasia*, dated July, 1928, is a sign of the great activity of an institution which was founded as recently as February, 1927.¹ This College differs in several respects from the corresponding bodies in England, Scotland, and Ireland. Thus, while one of its prime objects is to bring together men of surgical competence and high character and to cultivate and maintain the highest principles of surgical practice and ethics among the surgeons of Australia and New Zealand, it does not conduct examinations in surgery, nor does it confer a registrable diploma. It is a voluntary organization, conferring its Fellowship solely by election. In order to foster the closest possible harmony with the British Medical Association in Australasia, the Credentials Committee of the Council is directed to inquire of the Association as to the eligibility of candidates for election as Fellows. At present there appears to be some disagreement about the interpretation of a phrase used in defining the aims of the College—"To educate the public to recognize that the practice of surgery demands adequate and special training." The Victorian Branch of the British Medical Association, while approving this object, holds that the registered medical practitioner has received such training, and that he is capable of differentiating clearly between those surgical cases that come legitimately within his province and those that demand specialist attention. It believes that it is futile to expect men deprived of regular surgical work to deal competently with the emergencies of general practice. Sir George Syme, President of the College, in a foreword to the first number of our new contemporary, expresses the hope that it may embody and preserve the best and most distinctive work of Australasian surgeons, and become the medium for communicating this to their colleagues in other countries. The contents of the opening issue include a suggested policy in outline for the improvement of Australasian hospitals, proposals for a scheme of post-graduate surgical training in Australasia, and a number of original articles on topics of general surgical interest.

THE VALUE OF SPA TREATMENT

DR KERR PRINGLE, the new president of the Balneological Section of the Royal Society of Medicine, devoted his annual address on November 8th to a reaffirmation of faith in spa treatment and a reminder that the leading mineral water stations of Great Britain are much more than centres of physiotherapy. He said that he

preferred to discuss some aspects of spa treatment, rather than rheumatism or gout, because in restricting discussions to specific diseases there was danger that the special point of view of the spa as a whole would be overlooked. Dr Pringle thought spas were mistaken in trying to explain the mode of action of the various ingredients of their mineral springs. Minute analytical tables did not convey much to the general practitioner, who, when he received a prospectus regarding a certain spa, and learned that its waters contained a certain number of grams of magnesium carbonate or sodium sulphate per litre, was apt to throw it into the waste paper basket. It would be better to enlarge on the clinical results, backed, of course, by investigations by the biochemist and physiologist. These clinical results had been forthcoming long before the precise constituents of the waters were known or could be expressed. Empiricism, here as elsewhere, had preceded exact science, which had confirmed the results of experience. Every Scotsman had known for generations that it was wise to take a little neat whisky with the haggis, and now the biochemist explained that the action of the whisky was to dissolve certain fats and make the haggis more digestible. On the outskirts of Edinburgh, in a small village called Liberton, there was a mineral spring which enjoyed considerable fame six centuries ago, especially in the treatment of skin diseases. This spring was now known to contain a certain mineral oil or petroleum in solution, which was thrown up in small masses to the surface. Here, then, was a mineralized water which for ages had been used empirically for skin diseases long before anything was known about the effect of liquid paraffin in removing the scales in desquamating conditions. Dr Pringle thought it rather unwise to attempt to explain specifically how each spring produced clinical results, it would be better to confine the description to the clinical results produced. The loss of individuality by spas was a still more important matter. Bath was famous for its natural mineral water, and Harrogate for its sulphur wells, and both these spas made their reputation through their waters, not by the introduction of many different forms of hydrological appliances and ancillary electrical treatments with which spas were apt to mask their individuality and character—an individuality derived from the nature of their waters, their climate, their altitude, and other factors. More reliance should be placed on the particular methods of treatment by the local waters. The spa physician sometimes forgot that the patient was sent to the spa for balneological treatment, and that he could usually get electrical treatment at his own home. Mineral springs should be regarded, not as the property of individuals or local bodies, but as national assets, and the State should assume a certain amount of control over them, allowing the local authorities to levy a "kur tax" in return. It might construct a ring fence three, six, or twelve miles round each spa, thus forming rest areas, within which factory chimneys might not belch, motor cars make no unseemly noises, and no cheap commercial distractions would interfere with the routine of treatment. Finally, Dr Kerr Pringle pointed out how little was really known about the numerous springs of this country. The advertisements of Harrogate, he said, were based on the number and variety of its mineral waters, yet the old sulphur well was practically the only one that Harrogate physicians knew anything about. They had more or less ignored the others, any one of which would have given a reputation to a mineral water station. Cheltenham had four excellent springs, regarding the use of which very little was known, and the same applied to Leamington. In the course of some brief discussion, Dr F. G. Thomson of Bath agreed that spa advocates had tried to do too much. There was a certain element of scepticism among the medical profession generally as to the methods and

¹ See *British Medical Journal* April 30th, 1927 p. 511.

effects of spa treatment, and the spa physicians had tried to explain in terms of chemistry or physiochemistry how these results were brought about, instead of contenting themselves with the fact that they were produced

WHEN THE PROFESSION VOTES

A CLOSER study of the result of the voting in the recent election of two direct representatives for England and Wales to the General Medical Council reveals some points of interest. We announced in the last issue (p 860) the return of Dr E K Le Fleming and Dr J W Bone, the candidates supported by the British Medical Association. The number of votes recorded on their behalf, well over 11,000 for each, falls only just below the unprecedented total recorded for Dr Brackenbury, who headed the poll at the previous election in 1924, when four representatives were returned, it must be borne in mind, however, that the electorate has increased by about 3,600 since then. The margin between the votes received by the second successful candidate and the first unsuccessful candidate on this occasion is also larger by 1,000 than that which separated the last of the four successful candidates and the first of the unsuccessful at the previous election. A less satisfactory feature is the proportion of the electorate—slightly more than one-half—who failed to record their votes. The percentage voting at the elections of direct representatives has shown a more or less steady fall ever since the first of such elections in 1886. On that first occasion, when the electorate in England and Wales numbered only 18,074—not much more than half its present figure—no less than 74 per cent of the possible votes were recorded. This was due, perhaps, not only to the novelty of the occasion, but to the fact that there were fourteen candidates for three seats. The three candidates supported by the Association were successful on that occasion also, and with ample majorities. In the subsequent elections, of which there have been as many as eleven, nothing like 74 per cent of the electorate has ever voted. In 1897, when Mr Victor Horsley (as he then was) beat Sir Walter Foster (afterwards Lord Ilkerton) by a narrow margin, the proportion voting touched 60 per cent, but in general it has been somewhere between 40 and 50 per cent. It is a figure which compares rather badly with the proportion of the general electorate voting in a parliamentary general election—75 per cent in 1924—and in a General Medical Council election the voter has only to go to the pillar-box and not to the polling booth. It surely cannot be argued that to the average medical man or woman the proceedings of the General Medical Council are less important than those of the House of Commons to the average citizen. A minor but more curious feature is the steady growth in the number of invalid votes. At the election of direct representatives in 1891—apparently the first at which this figure was recorded—these numbered 115, but the figure has grown until on this most recent occasion it reached 720. That one medical practitioner out of every two should not trouble to vote at all is perhaps less surprising than it is regrettable, but that one medical practitioner out of every twenty who does vote should fail to observe the rules, and thereby disfranchise himself or herself and waste time and labour and postage, is really astonishing. Why should 200 doctors be interested enough to vote at all and yet not interested enough to fasten their identification envelope in the way prescribed, or 271 others omit to sign their name, or 155 more send in their voting papers too late not to speak of 7 who posted empty envelopes? Invalid votes in a popular election are regarded as some index of illiteracy. That cannot be the case here. Is it absence of mind, or, more probably, impatience with all official instructions, even with the very simple ones issued with these voting papers, and a desire to "take them as read"?

ally, we may note that among the figures relating to this and previous elections, which have been most painstakingly gathered by the Registrar in a report to the English Branch Council, the cost of the election was £405, or roughly sixpence for each vote recorded.

LOCAL GOVERNMENT REFORM

THE text of the Local Government Bill, the longest and most complex placed before Parliament for several years, was issued this week, and the discussion of its provisions will constitute the main task before the House of Commons this session. A general outline of the scope of the proposed reforms was given in our issue of October 27th (p 765), and certain aspects of outstanding importance to the medical profession were discussed in our last issue in a leading article (p 854). The bill provides for the reform of the Poor Law and the system of roads administration, introduces extensive changes in the system of grants in aid of local services, and includes important changes in the law relating to town planning and to the registration of births, marriages, and deaths. It is proposed to transfer responsibility for the Poor Law service from the boards of guardians primarily to the county councils, each of these bodies will be required to set up a public assistance committee, under which subcommittees, to be known as guardians' committees, will be responsible for the actual administration of relief in their respective districts, the organization of institutional treatment will be the function of the public assistance committee, and this will be carried out on a county basis. It will be seen that this system offers the prospect of a considerable advance towards the unification of health services, and this should be encouraged also by the nature of the proposals relating to the acceleration of the appointment of whole-time medical officers of health to maternity and child welfare schemes, and to infectious disease hospitals, etc. The provisions of the bill relating to these subjects are practically the embodiment of the recommendations of the Royal Commission on Local Government, as outlined in the *Journal* of November 3rd (p 800). County councils, under the bill, will have conferred on them the powers possessed by local sanitary authorities to provide hospitals for the sick, and these powers are to be extended to cover maternity cases, the councils are also authorized to subscribe to voluntary hospitals. The financial provisions are extremely complex, and these seem likely to attract most of the attention while the bill is under discussion, although certain concessions have been made to meet the objections of local authorities. Included in the bill is a section incorporating the reforms in the registration system, which were the subject of a private member's bill introduced last session with the support of Dr Fremantle. It is intended to transfer responsibility for the registration of births, marriages, and deaths to the county and county borough councils, and gradually to convert the registration officers into salaried officers.

MEDICAL MEMBERS OF LOCAL PUBLIC BODIES

WE should like to be able to publish as complete a list as possible of medical men and women who are now serving on local public bodies in this country, and we invite the help of our readers in obtaining the necessary information. Medical members of the following bodies are asked to send brief particulars to this office on a postcard addressed to the Editor: County Councils, County Borough Councils, non-County Borough Councils, Urban District Councils, Rural District Councils, also medical co-opted members of Education Committees, Maternity and Child Welfare Committees, Mental Deficiency Committees, and medical members of Boards of Guardians. Such information is always useful, and it will be especially valuable during the coming year in view of approaching legislation.

Nova et Vetera.

JOHN DE VILLULA

In previous communications to the *British Medical Journal* I have given some account of two of the physicians to our early kings, in the persons of Nigellus, who has been held by some to have been the Conqueror's physician (the authority for this is the General Introduction to Domesday, by Sir Henry Ellis, he gives no reason for his statement, and it is only fair to say that Gilbert Maminot, Bishop of Lisieux, has much better claims to be considered the Conqueror's physician), and Grimbold, physician to Henry I.

John of Villula, or John of Tours as he is often called, was physician to William Rufus. Sir Francis Palgrave says of him that he "conjoined three faculties, a Clerk in orders, a Chancery clerk, and a physician, but the last capacity eclipsed all others. He was scarcely thought of otherwise than as a professor of the healing art. Therein he acquired a well deserved reputation, and earned an ample fortune. The episcopal historian of Bishops, speaking of John of Villula, informs us that he was *ex eorum genere quos empiricos hodie appellamus, non non literis medicis probatus*. Hence, probably, his success. He treated his patients by experience and common sense, instead of doing them according to Hippocrates and Avicenna. John de Villula went on prosperously, acted as though he considered himself not bound to obey the obsolete canons which censured his practice, took his fees, became a favourite at Court, the King's body-physician. Knowing that anything the King had to dispose of, could be bought, and seeking to employ his capital advantageously, he watched his opportunity for a good investment. This occurred upon the death of Giso, the old Bishop of Wells, which took place soon after the accession of Rufus, and he purchased the vacant incumbency."

John de Villula was appointed Bishop of Wells in 1088, and was consecrated in July of that year. The Council of London (1076) having sanctioned the principle of the movement of episcopal sees from villages to towns (of which the movement of the see from Dorchester on the Thames to Lincoln by Bishop Remigius is the best example), and Bath Abbey being vacant by the death of Alfsido, Rufus, in 1090, gave the post to John de Villula (who about this time bought the city of Bath from the King for the sum of £500) and authorized by a Royal Charter the removal of the see from Wells to Bath. The city had suffered much from incendiarism, and John de Villula rebuilt the Abbey Church, he also gave the convent an estate near Bath which he had purchased for £60. At Wells he destroyed the cloister, refectory, and dormitory, all of which had been built by his predecessor "to enable the canons to live according to the Lotharingian plan, and so forced them to live among the laity. With the materials, and on the site, he built himself a palace. John de Villula was present at the dedication of Salisbury Cathedral at Old Sarum in 1092, he was also present at the dedication of Battle Abbey in 1094. In 1102 he was present at the Synod of Westminster. It would appear that he was a skilful man of business, for he obtained confirmations of the Bath grant from Robert Courthoise as well as from Henry I.

John de Villula died in old age on December 29th, 1122, having been taken ill with pain in the heart after his Christmas dinner, or, as Symeon of Durham expresses it *Johannes Bathoniensis episcopus in die Natalis Domini, subito post prandium dolore cordis correptus sequente die moritur*. Perhaps he had an attack of angina pectoris. He was buried in the presbytery at Bath.

Of his patients we know little, but he certainly attended William de Carleph, Bishop of Durham, who in 1095 had been summoned to Windsor by the King, although he was ill at the time. He died on January 2nd, 1095 (O.S.).

In 1093 he was certainly in attendance on Rufus himself, who early in the year had been stricken with illness of an alarming character. Lying ill at Gloucester, he was urged by his attendants to forgive his debtors, to free his captives, and to restore freedom to the Church, particularly in the reinstatement of the Archbishop of Canterbury

Anselm was called in, ostensibly to give such spiritual aid as was possible to one who seemed to be on the point of death.

No one can doubt the courage of Rufus, it must have required considerable moral courage to have been an atheist in mediæval times, but he was so moved by the entreaties of those present that he gave way, and invited Anselm to undertake the Primacy. The scene is finely described by Palgrave. The sick king, propping himself on his enfeebled arm, pronounces the name hitherto so scorned and contemned "I choose the holy man Anselm." All present rejoiced, save one. Anselm himself wasaghast, and refused the dignity. But the King's attendants were not to be denied. Someone brought a pastoral staff, and they hurried Anselm to the bedside. His captors seized his right arm and turned the right hand towards the King. Anselm closed his fist and refused to open it. After an unseemly struggle, in which the poor old man was hurt, the pastoral staff was thrust into his hand. The bishops squeezed his hand in theirs, so that he could not drop the staff, and in spite of his cries of "*Nolo, nolo, non consentio*," he was deemed to have received investiture.

There is little more to say about John de Villula, save that he is credited with having built the enclosure round the chief mineral springs in Bath. He is said to have been of a courteous disposition and cheerful by nature. His investment of his capital in ecclesiastical preferment might suggest simony, but we must remember the age in which he lived, and not judge him too harshly in this respect.

The facts recorded here are mainly derived from the account of John de Villula in the *Dictionary of National Biography*, and from Sir Francis Palgrave's *History of Normandy and England*.

R. R. JAMES

A NATIONAL ASSOCIATION FOR COMBATING RHEUMATISM

A LARGELY attended meeting was held at the house of the Royal Society of Medicine on November 7th, to consider a proposal to transform the British Committee on Rheumatism, which has hitherto been a constituent of the International Society of Medical Hydrology, into an independent body for combating rheumatism.

SIR THOMAS HORDER, who occupied the chair, in introducing the proposal, said that he shared a very general repugnance to the multiplication of bodies which had no special function to perform. It would weaken rather than strengthen the national attack on rheumatism if the result of this movement were simply to constitute one more organization in a field in which several were already working. The object should be rather to link up existing efforts, and to co-ordinate and stimulate their work. In addition to the British Committee on Rheumatism, which it was now proposed should be dissolved and reconstituted, there was the Red Cross clinic in London for the treatment of rheumatic conditions, especially amongst the industrial classes, there was the work, still proceeding, of the British Medical Association in regard to the study of rheumatic disease in children, and at the various spas there were units which controlled and advised on research and therapeutics in general. If another body were to be set up it should be a body of such prestige that it could speak authoritatively and in the name of all the interests concerned with this pressing problem.

DR FORTESQUE FOX pointed out that this question was of more than academic interest. Probably no other group of diseases, with the exception of tropical diseases, was so disastrous in its effects upon public health and prosperity. Large numbers of people in various countries were working on the problem, on its social, industrial, and economic as well as its medical side, and what it was now proposed to do in Great Britain in setting up a national body had been done already in some Continental countries. He made it plain that the severance from the international society meant simply that it was desired to have a national organization on a broader basis than was possible for a committee of an international body charged only with the study of medical hydrology.

Dr ALISON GLOVER brought the good wishes of the Minister of Health, and gave a brief sketch of the activities already proceeding in the attack upon rheumatism. In regard to acute rheumatism, several public authorities already had large schemes in being, there was an extremely wide scheme at Birmingham, and in London there were already 230 beds specially allocated by the public authorities for acute rheumatism and chorea. There was reason to expect that in respect of both acute and chronic rheumatism London would be as well equipped as any city in the world. He instanced also the work of the British Medical Association and of the Medical Research Council.

A motion that a national association for combating rheumatic disease in Great Britain be formed was proposed by Mr W. A. APPLETON, the general secretary of the Federation of Trade Unions, and seconded by Dr C. W. BUCKLEY of Buxton. This was agreed to unanimously, as were resolutions that the provisional name of the new body should be the "National Association for Combating Rheumatism," and that membership should be open to all, medical and lay, on payment of an annual subscription. It was further agreed that it should have a council, to represent all the various interests concerned, and an executive committee of twelve members. Five of these members were appointed from the meeting—namely, Sir Thomas Hooper, Dr Portescue Fox, Dr Kerr Pringle, Dr C. W. Buckley, and Mr W. A. Appleton, and power was given to them to co-opt seven additional members, as well as a president and a honorary secretary. Pending the appointment of the latter, Dr M. B. Ray, who has had secretarial direction of the movement hitherto, agreed to continue in office. It was also agreed to ask the executive committee to draw up a regular constitution for the association, to be approved by a general meeting of members, and to hold an annual conference at which papers would be read and discussions take place. It was proposed further to set up a number of committees, to deal with the question on its medical, research, industrial, and approved societies sides.

Letters sympathizing with the movement were read from a number of doctors and men well known in national health insurance administration.

Scotland.

Department of Health for Scotland Chief Medical Officer

As announced in this column last week the Secretary of State for Scotland has appointed John Parlone Kinloch, M.D., to be Chief Medical Officer in the Department of Health for Scotland, which on January 1st, 1929, will take over the powers and duties of the Scottish Board of Health. When the Secretary of State decided to ask Parliament to supersede the Scottish Board of Health by a Department he clearly contemplated the appointment of a chief medical officer of health who would be head of the medical staff, with powers and duties similar to the chief medical officer of the Ministry of Health. As was explained at the second reading, a voting board of six, with two medical members, was not satisfactory from any point of view. The new appointment will make the chief medical officer effective head of the medical staff in all its work, subject to proper adjustments between him, the Permanent Secretary, and the Minister. The Permanent Secretary was appointed some time ago. Sir John Gilmour has now taken the second essential step in establishing the new executive.

Dr Parlone Kinloch, who is a West of Scotland man, graduated in medicine at Glasgow University in 1909. In 1910 he took the D.P.H. of Cambridge with distinction, and in 1913 the M.D. of Glasgow with commendation. He has had a very wide range of clinical and administrative experience. After holding a succession of resident posts, he was resident medical officer, Ruchill Fever Hospital, Glasgow, for three years, then deputy medical officer of health for the city of Aberdeen and reader and lecturer in public health to the University of Aberdeen, and on the retirement of Professor Matthew Hay in 1923 he became

MOH to the City of Aberdeen and head of the public health department in the University. He is physician superintendent of the City Fever Hospital and of the Woodend Municipal Hospital. During the war he had a full term of military service with the R.A.M.C. All through his career Dr Kinloch showed great readiness to react on the new materials that came within his range, as is proved by a long series of contributions to technical medicine published in these columns and elsewhere. Moreover, apart from his annual reports, he has made a series of some twelve or more special reports on subjects such as fish meal factories, hospital buildings, municipal hospital services, and housing. In addition to these incidental investigations the output of Dr Kinloch's department has been striking. He has inspired a team of workers in the public health service to produce a remarkable series of contributions to practical problems affecting the health of the community. In particular, his last annual report contains work prepared under his stimulus on ultra violet radiation and the standardization of treatment with therapeutic lamps. His best achievement as an administrator has been the unification of the public health and Poor Law hospital services of Aberdeen by agreement with the authorities. Over a year ago the Secretary of State opened the new Municipal Hospital, and expressed admiration for the way in which the city of Aberdeen had carried through the amalgamation of the services of Poor Law and municipality. This change is entirely on the lines of the hospital developments contemplated in Scotland as the result of the new reforms in local government. Professor Matthew Hay, in his long period of fruitful administration in Aberdeen, prepared the way for many great changes. Dr Kinloch has taken full advantage of the larger lines of administration, and he has shown great originality in concentrating the full force of the official medical institutions on clinical work. This is the distinctively original note in his work. Incidentally he has demonstrated the possibilities of co-operation of the public health, Poor Law, school health, and Board of Control workers of the city, and of these authorities with the county authorities and with the general practitioners of the north-eastern region. Dr Kinloch is only 43. He comes to the work of the new department with highly specialized training for the problems now rapidly emerging in the reorganization of medical services. Under the new regime he will be able to direct the full strength of a large and capable staff to the best advantage in every section of public medical work.

Mental Defect in Scotland

Dr R. D. Clarkson, superintendent of the Royal Scottish National Institution, Larbert, addressed the City of Glasgow Society of Social Service on November 8th, on the problem of the feeble-minded. Mental deficiency, he said, was at the root of many social problems, and there was a great deal of popular prejudice on the subject. It was extremely difficult to define mental deficiency, and the definitions in the Mental Deficiency Act were not helpful. The highest grade defined in the Act was that of the feeble-minded, who required supervision and control for their own protection or the protection of others in the case of children the feeble-minded were those who were incapable of obtaining proper benefit from the ordinary instruction in elementary schools. It was generally agreed that about 1 per cent of all children in schools did not derive benefit from the teaching and on this basis there should be about 50,000 mental defectives in Scotland. The number known to the General Board of Control was, however, only about 3,000. This was too low a figure, but it was certain that incapacity at school did not necessarily mean incapacity to earn a living in later life. The definition in the English Act was that mental defectives were persons with arrested or incomplete development of mind arising before the age of eighteen from inherent causes or induced by disease or injury. This showed that no distinct line could be drawn between the mental defective and the normal member of the community, and it was probable that heredity did not account for a large proportion of defectives. There was far too little institutional accommodation for defectives in Scotland for of the 3,000

known to the General Board of Control, about 1,800 were in institutions, and of these only 634 were in institutions for adults. Experience at the Lambert Institution had shown that every training school for defectives should have an industrial colony in connexion with it under the same management, because defectives "transplanted" badly from one institution to another. The Council of Social Service could not do better work than to deepen interest in the immediate provision of further institutional accommodation.

Teeth and Health

In the course of a lecture on the teeth in relation to health given in Edinburgh on November 7th, Dr D. L. C. Radford, dental surgeon to the Royal Infirmary, said that dentistry stood on the threshold of preventive medicine, for if the functions of the teeth were not fulfilled many physiological processes might be interfered with. The bony of the face were easily moulded in early life, and bad habits resulted in permanent disfigurements. Thus thumb and lip sucking or the use of a "comforter" by infants left permanent effects in the pushing out of the upper teeth and in the backward deviation of the lower teeth, so that the facial contour was altered. Mouth breathing at a later stage, whether as a habit or due to adenoids, resulted in poor development of the upper jaw and crowding of the teeth, with resultant narrowing and pinching of the face, while the lungs were left less strong than they should be owing to the absence of warming of the air that should take place in the nose. Clean teeth, the lecturer stated, could not decay, and the wide prevalence of dental decay was due to ignorance and carelessness. Caries was regarded as a chemico-bacterial process caused by the activity of certain bacteria in the presence of certain food. In many diseases, further, dental disease was the primary or contributory cause. The tubercle bacillus in some cases undoubtedly passed through carious teeth to the glands in the neck. Various diseases of the chest, such as septic pneumonia and heart disease, were also traceable to a septic condition of the teeth, while other general diseases, such as anaemia, neuritis, neurasthenia, and joint affections, had important relations to the same causative process. The degree of oral cleanliness sometimes decided whether the end of a serious illness should be death or recovery. The preventive treatment of this serious state of affairs was simply the practice of cleanliness. How many persons, he asked, cleaned the mouth after every meal? Effective brushing of the teeth must be done intelligently, with a brush of such a size and shape that all parts of the teeth and gums could be reached, and its bristles should be sufficiently stiff to remove debris from between the teeth and to clear out the stagnation areas. The direction of the brushing movement should be from the gums towards the edges of the teeth, for the usually horizontal brushing was not sufficiently effective. Another point of great importance was the eating of fruit and raw vegetables such as apples. The common practice among some parents of giving children a soft biscuit, chocolate, or sticky sweet at bedtime was bad for the teeth, and was very likely to cause dental disease, with the resultant impairment of physical growth and development in the child, and indifferent health in the adult.

Central Midwives Board

At the recent examination of the Central Midwives Board for Scotland, held simultaneously in Edinburgh, Glasgow, Dundee, and Aberdeen, 119 candidates passed out of 133 who appeared for examination. The successful candidates were trained at the following centres: 20 at the Royal Maternity Hospital, Edinburgh, 46 at the Royal Maternity Hospital, Glasgow, 13 at the Maternity Department, Royal Infirmary, Dundee, 2 at the Maternity Hospital, Aberdeen, 12 at the Queen's Institute of District Nursing, 8 at the Elsie Inglis Memorial Hospital, 2 at the Edinburgh Lying-in Institution, 7 at Stobhill General Hospital, 2 at the County Maternity Hospital, Bellshill, 2 at the Eastern District Hospital, 3 at the Western District Hospital, Glasgow, 2 at the County and City of Perth Royal Infirmary.

Ireland.

Report of the Free State Public Health Department.

THE second report of the Irish Free State Department of Local Government and Public Health, which has now been issued, covers the period from April, 1925, to March, 1927. A description of the original constitution and functions of the department was given in a review of its first report, for the years 1922-25, which appeared in the *Journal* of March 12th, 1927 (p. 489). The present report consists, in addition to an introductory note and numerous appendices, of five main sections devoted to general administration, public health, housing, poor relief, and roads. Important changes in local government were made by the Local Government Act, 1925, which came into effect in October that year, and which involved the centralization of public health administration in each county outside the urban areas under one county authority, the abolition of rural district councils, and a reform of the law relating to the granting of superannuation allowances and gratuities to officers of local bodies. At the same time, with the object of securing a uniform system of administration, the principle of local adoption was withdrawn from a number of important public health statutes (including the requirement of notification of infectious disease and of tuberculosis), and their operation was extended generally throughout the Free State. The Act required also the appointment for each county of a whole-time county medical officer of health. Under the Local Authorities (Officers and Employees) Act, 1926, there was established a commission charged with the duty of recommending persons for various types of appointment under local authorities, including those in which the qualifications are wholly or in part professional or technical, and, as stated in the *Journal* of October 30th, 1926, county councils have been urged to appoint medical officers of health for their areas, and to adapt this procedure in making appointments. The Local Government Act, 1925, defined the duties of the Minister in relation to health, placing them upon a broader basis than before, and the report under review therefore deals with the work of the department in the initial stages of the fulfilment of its new responsibilities.

Decrease in the Death Rate

IN respect of general health conditions, the census of 1926 has furnished a reliable basis for the calculation of local death rates. The larger town districts in that year showed a death rate of 15.5 per 1,000 of the population from all causes, and of 1.5 from the principal epidemic diseases, among which diarrhoea and enteritis figured prominently as a result of a hot dry summer. In 1916 the death rate of the towns was 19.3 per 1,000, so that there has been a gratifying measure of progress in health generally, which is attributable to the collective result of a variety of causes. There is not, however, the report states, a single county in which to some degree restrictions of finance do not retard valuable improvements which would be effected by additional water supplies and sewerage schemes. Local bodies are showing more disposition to embark on public health works, but in some counties there is a tendency to withhold approval to such schemes unless the ratepayers in the area directly benefited agree to bear the cost, which in small towns is often impossible. As a result of this desire to confine liability within narrow limits an indefinite postponement of proposed works frequently follows. The country is subjected to a serious tax by reason of the insufficiency of its water and sewerage services. Enteric fever and diphtheria are unduly heavy in mortality and incidence, and impose avoidable sacrifices of life and expenditure in hospital and medical charges. Among infectious diseases, typhus fever remains rare in the urban districts, only one case being recorded in the years 1925-27, while in rural districts its incidence has decreased considerably also. The extensive outbreaks of enteric fever formerly experienced in the country areas are now unknown.

Maternity and Child Welfare

In connexion with maternity and child welfare the policy of the department has been to encourage and assist voluntary agencies and voluntary effort, and it has been instrumental in maintaining district nursing societies in many parts of the country. The nurses connected with these bodies, of which 105 exist outside Dublin, in addition to other duties, act as health visitors under the maternity and child welfare schemes. Trained nurses who are to undertake this duty are given a supplementary course of instruction. In the development of the public health service it is intended to utilize existing nursing services to the fullest extent. During the two years under review disbursements from the grant in aid for maternity and child welfare work amounted to £29,784, of which £12,993 was paid to local authorities, and £16,791 to voluntary agencies. In view of the reforms in the organization of the public health administration it was deemed inexpedient to press for the inauguration of school medical services in the counties, and little progress has been made in this direction. An account of the present position and of the system adopted in Dublin, recently given by General Mulcahy, Minister for Local Government and Public Health in the Free State, was published in our issue of November 3rd (p. 817).

Tuberculosis Schemes

Despite the application of compulsory notification of tuberculosis to all parts of the country, notification is not yet generally operative; but it is expected that with the appointment of county medical officers of health some improvement will take place in this respect. Comprehensive schemes for the prevention and treatment of tuberculosis, as mentioned in the last report, are in force in twenty-two counties and in the boroughs of Dublin and Waterford, while partial schemes, dealing with insured persons and their dependants only, exist in the counties of Meath and Wicklow. Some progress towards the adoption of comprehensive schemes has been made in the counties of Meath and Cork and in the boroughs of Cork and Limerick, but in three counties—Longford, Roscommon, and Wicklow—no action has yet been taken to provide the facilities available elsewhere. Each approved scheme is in charge of the medical superintendent of the central tuberculosis dispensary, which is generally situated at the administrative headquarters of the area. Twenty such dispensaries are in existence, but in several schemes proper facilities have not yet been provided. There are now 134 branch dispensaries. The approved institutions contain in all 2,100 beds specially reserved for tuberculous patients, the sanatoriums for early and moderately early cases of pulmonary tuberculosis comprise 851 beds, and for cases of surgical tuberculosis 495 beds have been specially provided. Patients treated under approved schemes numbered 11,104 in 1925-26 and 12,628 in 1926-27, compared with 7,132 in 1922-23. The death rate from tuberculosis was 1.57 per 1,000 of the population in 1925, and 1.47 in 1926.

Treatment of Venereal Diseases

Since 1925 schemes for the provision of treatment of venereal disease have been adopted in the borough of Cork and the counties of Offaly and Westmeath, these schemes being similar to those already in operation in Dublin and four counties. Normally the State grant is 75 per cent of the net expenditure. The arrangements generally provide for assistance to medical practitioners (by free pathological reports and, in certain cases, gratuitous supplies of salvarsan substitutes), treatment centres, and pathological laboratories. An inquiry by an interdepartmental committee as to the steps, if any, desirable to secure a diminution in the extent of venereal disease has been concluded, and its report is now under consideration.

Dispensary Medical Service

Coeexistent with the county and district hospital services in the Free State are the facilities afforded under the Medical Charities Acts for free medical attendance for the sick poor at their homes and at dispensaries. The number

of medical officers concerned in this on March 31st, 1927, was 634. In special cases consultants may be employed, while for confinements the services of the dispensary doctor and a qualified midwife are available. Medicines and medical and surgical appliances are supplied gratuitously to patients. New cases at the dispensaries numbered 458,387 in 1925-26, and patients attended at their homes 120,069, the figures for 1926-27 being 499,952 and 139,755 respectively. During the period under review the Local Government Act of 1925 conferred pension rights on medical officers, nurses, and midwives, and made continuous service pensionable irrespective of the area in which it is served. Improved scales of salaries for medical officers have been adopted in every county area except Longford, Mayo, and Wexford.

The Poor Law Hospital Services

In the Poor Law hospital services much progress has been made in improvements of the existing institutions, and in several areas extensive alterations have been carried out. New hospitals are being erected at Bantry and Kantuik. Galway Hospital is being developed on the lines of a large general hospital, with provision for operative and special forms of treatment, resident medical officers, and a visiting staff. Regulations have been issued governing the admission of paying patients to Poor Law hospitals. Satisfactory progress has been made in the development of the home and school established by the Sisters of Charity of St. Vincent de Paul for mentally defective children.

Progress in Housing

The results of the various Housing Acts in force during the years 1925-27 have been exceedingly gratifying, and the provision of new houses in rural areas is described as having surpassed all expectations. Many of these houses are situated in the most remote parts of the country and in the poorest districts of the west, the report states that "in many cases the most admirable determination, involving often personal privation and sacrifice, has been shown by persons of little or no means in the provision of healthy homes for their families." The result has been a substantial improvement in the standard of housing, which must in due course be reflected in health conditions.

General Progress

It will be seen that the main features in the development of the Free State's health services have been matters relating to organization and administration. The report gives evidence of the fact that the local authorities, in several cases, have been exceedingly slow to assume their full responsibilities, but at the same time shows the determination of the central power to secure improvement as financial considerations and considerations of practical policy permit. Due importance has been attached to the appointment of whole-time medical officers of health and to the improvement of conditions of medical officers in certain branches of the public service. The fruits of these reform measures, and of the others to which reference has been made, should be a gradual improvement in general health conditions, and, what is equally important, an increased recognition among local authorities and members of the public of the economic and social value of adequate public health services.

Insurance Medical Certification in the Free State

The National Health Insurance Commission recently addressed a circular letter to medical certifiers, which stated that from inquiries received, and from certain reports in the press, it appears that there is considerable misunderstanding and doubt as to the nature and extent of the proposed alteration in the scheme for the change of the pool area for certification. It may be added that the Commission departed from its usual custom, and did not forward a copy of the letter to the Irish Medical Committee. At the next meeting of this body it will be clearly shown that the figures used by Dr. Power, chairman of the committee, and by the Irish Medical Secretary of the British Medical Association, left no room for any misunderstanding with regard to the effect of the proposed change. It is difficult to

appreciate the urgency expressed by the Commission, which asks medical certifiers to state not later than November 20th whether or not they are willing to continue medical certification under the new conditions, as the agreements for medical certification, entered into in 1915, are still in existence, and the medical certifiers have expressed the desire that they should remain in force. The Commission does not claim that medical certification under their new scheme will be improved. The only argument that might appeal to a proportion of the medical certifiers is that under the new scheme their remuneration might be doubled or trebled. This aspect has been emphasized by the Commission to a far greater extent than the fact that this increase will mean a corresponding reduction in the remuneration of other medical certifiers.

England and Wales.

The London County Council and Slum Housing

UNDER the auspices of the Windsor Division of the British Medical Association, a public meeting was held at Maidenhead on October 19th to consider the problem of housing and health. The chair was taken by Dr J J Paterson, medical officer of health for Maidenhead, and Dr William Butler, senior medical officer to the London County Council, delivered an address on the subject of the provision of new houses since the war. He enumerated the essential elements of good housing, which included proper flooring and adequate lighting and ventilation, together with good sanitation. A point often overlooked was that the actual shell of a house accounted for only 25 per cent of the total cost, the expense of building was largely due to the provision of additional requirements. After many inquiries the London County Council had found that little could be done in the way of reducing the cost of building, and that the brick house was the most economical in view of its durability. The slum houses in London were most unsatisfactory because they were rapidly decaying, although they had good water and some fair conditions. The difficulty was to abolish uninhabitable houses and to rehouse the inmates. Since the war the London County Council had cleared away about 100 acres of slum houses in which the tenants had been living under bad conditions of lighting and ventilation, promoting the spread of tuberculosis and other diseases. Still more clearance work remained to be done, but the cost was very great. There was the additional problem of providing new houses on the old sites so that the inhabitants should not be displaced far from their work. Dr Butler described the operations of the Council on the new building estates at Dagenham and Becontree in Essex, where there would be accommodation for 120,000 people. It was proposed to provide small cottages as well as flats, the speaker detailed the minimum requirements for such houses, and added that the utmost economy had to be practised in their construction in order to keep down rents. Miss Joan Sunderland, house property manager for the Ecclesiastical Commissioners, described the old houses owned by the Commissioners, and remarked that if a house was not carefully built it aged very rapidly. The improvement of old cottages in the country was difficult and expensive. Many of them had been built after the Napoleonic wars, when there was great need of rehousing of returned soldiers; the basement house was perhaps the worst of the types then provided. Though there were many difficulties in the way of clearing the slums built at that time, there were certain advantages as regards privacy, garden space, and beauty attached to some of the buildings then erected. The average rent of old houses in South London was 3s a room and it was obvious that the same terms could not be available in the newer houses. Miss Sunderland thought that under the London County Council schemes there would be a tendency for the very rich and the very poor to remain in the centre of London, while those in intermediate circumstances moved further out. The chief essential in the problem of housing was management, because good supervision prevented degradation into slum living.

Physiology and National Efficiency

A public lecture on physiology and national efficiency was given at King's College, London, on November 14th by Professor R J S McDowall. The lecture is one of a series of nine on the indebtedness of industry to pure science, which is being given during the current term. Professor McDowall said that national efficiency depended on the efficiency of the individual, to be efficient a man should always be capable of doing his best in the minimum time and with the minimum waste of material. The lecturer explained that accurate reasoning was based entirely on experiments performed in physiological laboratories, in the first instance in the pursuit of pure science, and remarked that physiological investigations had led to the discovery of remedies for scurvy, rickets, diabetes, and many other ills. He recalled how Lord Lister, in his first lecture in the college, described the essentials of the souring of milk, and how eventually he demonstrated its fundamental importance in relation to aseptic surgery. In conclusion, Professor McDowall quoted instances to show that the more time a man spent at work the less work he might do. This fact was founded on simple physiological principles, the neglect of which resulted in a considerable loss of national efficiency.

Correspondence.

OPLN-AIR LITE AND MOTHERHOOD

SIR,—We are told that in spite of better midwifery and better trained nurses and doctors, we lose as many mothers in childbirth as we did thirty years ago, and that in 1927 some 2 690 women died in childbirth, and of these, 1 026 of puerperal fever—a preventable disease. I think that all deaths in childbirth should be preventable, not at the time of delivery perhaps, but by proper maternal hygiene, concerning itself with the growth and development of the mother.

I was in India twenty years, and was puzzled by the fact that when I spoke of the awful cases I saw of childbirth among Indian women in a zenana hospital, some lady always said, "But I thought Indian women had such an easy time, my brother in Assam says the coolie women just go behind a bush and have a baby and go on with their work." Or another would say, "I don't understand this, for my husband said that on such and such an expedition they had native women to carry their baggage, and one of them had a baby on the roadside and was none the worse, she just went on with the march, carrying the child in her arms." And yet here were hospitals frequented by the better class Indian women, where every maternity case had some difficulty or they would not have come in to see us.

I began to investigate the Caesareans—we had twenty-nine in one year, all with acute deformity, in many cases even precluding a craniotomy, most of them septic from having been in the hands of untrained midwives for several days. The poor women labouring in the fields or working hard on the great rice boats never came near us, they delivered themselves. Why this great difference? Closer acquaintance revealed the fact that all our worst midwifery cases were among richer people living in purdah—that is, more or less secluded indoors in rooms looking into high courtyards to ensure privacy. They went out very little, and were then usually veiled. I think this association of outdoor life and plenty of air and sunshine with easy childbirth and of indoor life in ill-ventilated rooms and darkness with difficult childbirth will be found to hold good not only in India and Kashmir, but all over the world.

Where is maternal mortality highest? In crowded towns and in colder climates (where people are inclined to lead a more indoor life), among city dwellers, factory workers, and also among the luxurious rich, overclothed townspeople and the delicate who are kept indoors on that account. Who have easy and safe labours? Country people, where the women and children are much out of doors, field workers, those who are in the open air from childhood (Where shall we find them now when all must sit indoors

behind glass windows at school while the sun shines outside?)

Recently the necessity of light on the skin for the production of vitamin D, the vitamin concerned in bone development, has been carefully studied. Without light the calcium and phosphorus needed for bone development leave the body in faeces and urine, and rickets or osteomalacia results according to the age of the patient when the deprivation of light takes place. Those in the open air develop a normal skeleton, and the pelvis is the size Nature intended it to be, those in darkness are under-developed. This may have escaped notice, because I cannot find any routine measurements of the circumference of the pelvis in school children at various ages anywhere in the world. Other observers have come to the conclusion that in every race the size of the head is related to that of the pelvis through which it is to be born, and that all births should be normal provided the mother has attained normal development.

A small fault in development would upset an otherwise perfect adaptation between head and pelvis. American observers have shown these failures in development can arise at any time after birth. The pelvis doubles in circumference from birth to 7 or 8 years old, and triples from birth till puberty at 14 or 15, thus early rickets can affect its normal development, perhaps so slightly as to escape notice until the confinement. Many children kept indoors, overclothed, only allowed out in deep perambulators covered with black mackintosh and a black hood, will be wanting in the bone development suitable to their age, and this loss can never be made up. Ask any woman with an abnormal pelvis as to her past history, and this factor, I think, can be traced. The association of difficult childbirth with the same areas where tuberculosis is prevalent points to the same cause. It seems of little use to blame doctors and midwives for ignorance and want of skill when the fault is not primarily theirs, but is due to a failure in skeletal development on the mother's part, beginning possibly in early infancy and rendering labour difficult or abnormal.

I do not, of course, suggest that all cases of difficult labour are caused by disproportion between head and pelvis, but many certainly are, and for this reason labour is difficult instead of being natural and easy. If normal, there is no need for intervention and no risk of sepsis. In case this idea—that the growth of the human skeleton depends on sunlight—seems far-fetched, I would briefly point out that the smallest races, the pygmies, live in dark forests, that the biggest races live on plains or plateaux, that Limonsin and Sardinia produce small people, but these, if removed as infants from their native valleys, develop into people of normal height, that all town dwellers are shorter than countrymen, especially clerks and factory workers, and their shortness is in the lower limbs, which, being nearer the ground, receive less light in streets, houses, and schools. It does not seem preposterous to suggest that difficult midwifery is caused by under-development of woman's pelvis, due to want of light in home, school, and factory.

The moral is that ante-natal hygiene must concern itself with the mother's own development from birth till maturity, when, if normal development has been allowed, there need be no fear of her life being lost in childbirth. A properly developed pelvis would do far more to diminish the risks of maternal death than assistance called in to avert danger when parturition is imminent.—I am, etc.,

London W. October 28th

K. O. VAUGHAN

SURGICAL TREATMENT OF GASTRIC AND DUODENAL ULCERATION

Sir,—In Mr. A. J. Walton's interesting article upon the results of surgical treatment in gastric and duodenal ulceration (November 3rd, p. 784), he refers to a recent paper in which the author "publishes a table giving 90 per cent of satisfactory results after partial gastrectomy, but his figures do not include those patients who died, 9.2 per cent." As this obviously refers to a paper of mine published in the *Lancet*, August 11th 1928, I feel that some explanation is necessary. The title of this paper was "The later results of partial gastrectomy," and although,

as Mr. Walton shows, the mortality figures were given, it was impossible to include these in an investigation into the late results of an operation. The rather high mortality was deplored, and suggestions were made as to how it might be diminished in the future.

In the evaluation of any operative procedure there are two main points to be considered by the surgeon, one the worth of the procedure as a cure, and the other the risk incurred in its performance. These are obviously interdependent, so that if it can be proved of two operations that one gives a much larger percentage of permanent cures than the other there is justification for extra risk in its performance. For this reason the high percentage of satisfactory results—namely, 95—was held, in the above article, to be some justification for the mortality.

I notice that Mr. Walton uses an argument against partial gastrectomy only too common at the present time. "The removal of three-quarters or more of the viscus for an ulcer, often only 1 cm. in diameter, seems an unnecessarily severe and deforming operation." But surely he does not believe that the ulcer is the whole of the disease, and if not, then the size of the ulcer, whether large or small, is of little importance. It would almost be as logical to state that the removal of the whole breast, muscles, and axillary tissues for a carcinoma the size of a small nut appears an unnecessarily severe procedure, as indeed it was considered in earlier days.

Mr. Walton has himself proved (at the International Cancer Conference) that a considerable percentage of cases of carcinoma of the stomach start as simple ulcers, that a lesser operation than partial gastrectomy will prevent this metamorphosis has yet to be demonstrated, on the other hand, that carcinoma may follow gastro-enterostomy performed for perfectly simple ulceration is certain—I am, etc.,

London W.1, Nov 10th

NORMAN C. LAKE

OBSERVATION OF THE CIRCULATION IN THE MOUSE LIVER

Sir—In the *British Medical Journal* of April 8th, 1921 (p. 526), I communicated the fact that I had been able to observe the circulation in the glomeruli of the frog's kidney, and measure the pressure in the capillaries of the glomeruli.* Dr. James McQueen, extending this line of observation, reported in the *British Medical Journal* of December 17th, 1927 (p. 1137), that he had been able to observe the circulation in the edge of the liver of small toads. A pulse might be seen in the hepatic venules, due to each systole of the auricle momentarily stopping the flow. McQueen observed that many of the capillaries appear naturally to show stasis. I was able to confirm this observation and to measure the pressure in the capillaries of the toad's liver†. The inflow was stopped by a pressure of 2 to 3 mm. of mercury. A compression a little greater than this in amount sufficed to squeeze the blood out of the capillaries of the liver, showing how the respiratory rise of abdominal pressure must further the hepatic circulation. Later McQueen observed the capillaries in the edge of the liver of dead mice, and asked me to make observations on the living anaesthetized animal, he then having no licence to do so. Dr. McQueen has now obtained a licence, and confirms the substance of this note by his own observation. I have made these observations, and find it possible to get a surprisingly beautiful view of the circulation in the thin edge of the mouse liver. I used small, half-grown mice, fasted for twelve hours or so, and then anaesthetized with urethane. I make a cut through the skin and abdominal wall on the right side of the front of the abdomen, put the animal belly upwards, half on its side and manipulate the exposed lobe of the liver so that its edge comes to be over the transparent membrane (areolar tissue of rabbit) which covers the Roy-Graham-Brown apparatus, which I use for measuring capillary pressure. The liver clings to this membrane, and by gentle traction on the animal the edge of the lobe becomes sufficiently thin to be transparent to illumination from a small

For further information on this subject see Hill and McQueen *Brit. Journ. Exper. Path.* 1928 9 p. 127.
† See *Brit. Journ. Exper. Path.* 1928 9 p. 145.

are reflected by the mirror under the microscope. A half-inch objective suffices to show up the portal venules, hepatic venules, and network of capillaries joining the two, and the blood is seen scurrying along in continuous stream, with no sign of stasis or of pulse in successful preparations. In less successfully made preparations, as respiration becomes feeble stasis appears, and as the state of shock increases becomes general.

A pressure of 2 to 3 mm. of mercury suffices to stop the flow from the portal venules, and even to reverse this flow and blanch the edge of the lobe, this is compressed between the membrane of the apparatus and a glass cover which is brought gently down upon the edge of the liver so as barely to touch it. A drop of Ringer's solution ensures that the compression is equally applied. The membrane closes a chamber with glass floor for transmitting light, the chamber is in connexion with a manometer and a tubing for producing compression. The edge of the liver pulsates with each respiration, and this is taken as a sign of freedom from compression, as should be the case when the pressure in the apparatus stands at zero. The low pressure which suffices to maintain the flow in the capillaries is balanced by the tissue pressure of the liver, the whole being enclosed in the capsule of the liver. There is then no adequate pressure for producing a filtration of lymph in the liver, as has been assumed. As in other organs, both secretion and flow of lymph are governed by the action of the living liver cells.—I am, etc.,

LEONARD HILL,
National Institute for Medical Research
Hamstead N.W.3

November 7th.

MODERN PROBLEMS IN NEUROLOGY

SIR,—It is an old and rather discredited method in criticism to assign views to an author which he does not hold or in so many words state, and then to proceed to demolish them. The writer of your leading article reviewing a recent book of mine has none the less resorted to this particular technique.

I do not attribute the escape of emotional reflexes "exclusively" to lesions involving cortico-pontine and cortico-bulbar paths. I do not ascribe various Parkinsonian symptoms mentioned by your reviewer solely to rigidity. In each of these instances (and, indeed, in still another) my views have been misrepresented more or less seriously, as might easily be shown by citation.

I am also criticized for under-estimating the importance of the constitutional factor in epilepsy. As I was not concerned with etiology, and mention it only incidentally, this is mere para-criticism, to which there is no end.—I am, etc.,

London W 1 Nov. 10th.

S A KILNER WILSON

HYPOCHONDRIA

SIR,—Dr Crichton-Miller's letter (November 10th, p. 866) on this topic has raised several points on which he professes disagreement with the views propounded by me at the discussion at the Royal Society of Medicine. I do not know on what ground he can base his criticisms, since he cannot have read more than the relatively brief summary given in your columns, and since so far as I know, he was not present at the discussion. If he was present he did not air his contribution then.

Most writers on hypochondria refer not only to an arterio-sclerotic factor in many cases, but to a variety of other predisposing conditions of an organic nature. Vagotonia, however, I did not mention, some personal inquiries made some years ago into that topic taught me that vagotonia is a doubtful concept to play with.

I am glad that Dr Crichton-Miller is, even unwittingly, in agreement with me on what I emphasized in the discussion—namely, the absence of anxiety in the clinical sense in the true hypochondriac. I also mentioned the probable etiological role of excessive egocentricity in some cases at least. It is a source of regret to me that in my endeavour to clarify the distinction between hypochondria and hysteria I should appear to Dr Crichton-Miller merely to obfuscate the issue. But these and a number of other points he will find described, in more detail than

was possible at the discussion, in a paper now in the press for the forthcoming number of the *Clinical Hospital Reports*, of which I propose to give myself the pleasure of sending him a copy, if he will be kind enough to accept it.—I am, etc.,

London W 1 Nov. 10th.

R D CILLESPIE

PRIVATE PRACTICE

SIR,—In the *Supplement* to your issue of November 3rd is published the draft report of the Private Practice Committee which was constituted by the Council of the British Medical Association after an enthusiastic resolution passed by the Representative Body to inquire into the encroachments on private practice now so prevalent, and to suggest remedies for that state of affairs. Every Division should study it most carefully and also read the very admirable report by Dr Cox on his visits to different areas of the country to collect pertinent information. The Committee suggests various recommendations to deal with the question. All members of the Association should study these carefully before deciding to accept or reject them.

There will be plenty of opportunity for debate on the revised report when it comes before the Council, the Divisions, and the Representative Meeting, so I shall only now draw attention to one of the recommendations which suggests as a solution of most of the difficulties a system of insurance. This is, in my opinion, a decent camouflage for a policy of extending the Insurance Act to all or many of the dependants of insured persons, and therefore deserves very careful consideration. Were this ever adopted it would indeed cut the Gordian knot, as, for all except a very few millions of the better off and upper classes, it would do away with private practice altogether. Such a state of affairs would be in direct conflict with the declared opinion and policy of the Association, which is that the best form of practice is that carried on between doctor and patient, subject only to the common law of the land and the ethics of the profession, and that contract practice should only be tolerated in such conditions that ordinary private practice is impossible.

If such an extension of insurance services were ever set up in such circumstances the work of the insurance practitioner would be increased far beyond what might be expected for women and young children in every class of the community require more attendance than the mere male, and a very great deal more of that work would entail home visiting. A dispeptic workman can walk to the consulting room. It would not be right to expect a young child with early measles or incipient bronchitis to wait its turn in the surgery. Also, I am not an expert on remuneration for such services, but I will take the dictum of one who is, and who stated in the Council, when the question of the inclusion of dependants was considered some years ago, that the practitioner could not expect to get the same capitation fee for dependants as that paid at that time under the Insurance Act, but that he would be lucky to get three-quarters of it, or it might be even less.

The whole financial question looms large. How would the enormous sum of money required be raised? (1) By contributions from employer, workman, and State, as in the panel system. (2) By the employer only. (3) By the workman only. (4) By the State. There are tremendous objections to each of these methods which in mercy to your space I will not particularize at present, but every practitioner should decide for himself and make his voice heard, whether he wishes to continue, even if only in part, a "private practitioner," or become one of a unit in a system of contract work, regulated, inspected, and limited, which will extend a most definite invitation to any Government, in the interests of economy and ease of administration, to set up a whole-time State salaried service, which I myself as a looker-on who has seen most of the game all over the kingdom during the last ten years, consider would be exceedingly bad, both for the health of the community, for the well being of what is still a learned profession, and the science and art of medicine and surgery.—I am, etc.,

London W 1 Nov. 9th.

G B TURNER

PAEDIATRICS OR PEDIATRICS

SIR,—I should like to support my friend Dr Still in his protest against the spelling "pediatrics." As you have the choice, please, await not the decision of the Society for Pure English, but let us have it in our *Journal* in the old English form, "paediatrics," and not in the new American, "pediatrics."

I like not the representation of "ae" and "oe" by "e," and other petty tricks of spelling. A gynaecologist is in America a gynecologist. In my book on *Caesarean Section* I have shown that eminent American obstetricians spell it *Cesarean*, and then proceed to enlighten their readers by giving the derivation from *cedo, cedere*. Shado of Phny, what next?—I am, etc,

London W Nov 8th

HERBERT R SPENCER

FUNCTION AND POSTURE

SIR,—I can fully endorse all that has been written about the importance of Mr F Matthias Alexander's contribution to medical science and the need for an impartial examination of his work, especially now that it is supported by the results of the physiological experiments of the late Professor Magnus. It is a gratification to those who have known how closely Alexander has kept his work to the strictly scientific principles he has laid down in his books to find that the report in your columns of Professor Wm Colin Mackenzie's researches on muscle function and development, together with your own acceptance of the principle of the relationship of posture to function, has opened the pages of a medical journal to a discussion of Alexander's work.

My object in writing, however, is to point out that Alexander has gone much further than Mackenzie, in that he insists upon the impossibility of separating functioning from the general use of the mechanisms, this general use being responsible for the erect posture as well as for every other. Indeed, I would go so far as to say that it is only when we understand and accept Alexander's position about "use" that the full significance becomes apparent of the connexion Mackenzie makes between functioning and posture. According also to Magnus, posture implies active functioning, but that is not all that Alexander means by "use," and it is because of the importance he attaches to the manner of the general use of the mechanisms that Alexander's work differs from any other that I know.

Mackenzie says, "We may define health as a correlation of all the bodily systems to the erect posture, and ill health as a failure of one or more systems to correlate to it," and he concludes by saying, "We are intent on surgical wards, theatres, and equipment, but an essential in any public hospital is a great department of myology wherein a scientific examination can be made for muscular defects, and their importance assessed." I may be wrong in assuming that by "muscular defects" Professor Mackenzie means those defects which arise from developmental causes, from paralysis or injury, or from a failure of some of the essential functions of the muscle cells. If so, these causes might in certain groups of muscles bring about want of correlation of the bodily system to the erect posture, but they would not account for those troubles which fill our consulting rooms and our hospitals with patients who are suffering from chronic diseases of every organ of the body and who (with no specific "muscular defects") still show a bodily system out of correlation with the erect posture.

Alexander's approach, however, throws light upon this problem. For, according to him, wrong use of the mechanisms, such as, for instance, the prevalent backward set of the head and the curve of the spine with the consequent shortening of stature, alters the conditions of the torso in such a way as to interfere with the satisfactory functioning of every organ and member of the body, resulting in ill health and chronic disease both of body and mind. He claims that unsatisfactory general use of the mechanisms of the body (with its consequent adverse effect upon posture) is always associated with disease, and that, as long as this general use remains unsatisfactory, defects in posture, with the associated unsatisfactory functioning and disease, must continue, despite every effort we may make to cure them, so that human beings by their unsatisfactory use of themselves, not only in the erect posture, as in standing and

walking about, but in every other, may be said to be slowly but surely inducing in themselves those conditions which we always find associated with functional disorders and disease.

With the appliances of clinical medicine and physiological science that we have at our command, it is surely possible to establish the truth or otherwise of Alexander's claim. It is for clinical physiology to test whether in a given case any improvement in the conditions of posture and vital functioning has taken place as the result of an improvement that has been brought about in the manner of the general use of the mechanisms.—I am, etc,

Bexhill, Nov 8th.

A MURDOCH, M B, C M

INJECTION TREATMENT OF VARICOCELE

SIR,—In his paper on injection treatment of varicose veins, read before the Sussex Medico-Chirurgical Society, as reported in the *British Medical Journal* of November 10th (p 848), Mr Delisle Gray suggested that varicocele also might be amenable to treatment by injection. Some varicoceles are. Within the last few months I have so treated seven cases.

The patient stands with buttocks against the side of the examination couch, and his cleansed scrotum is grasped and manipulated by the fingers and palm of the operator's hand so that turgid loops of varicocele are pressed firmly against the lower anterior scrotal wall and their outline is made clearly protruding and visible. Then, without relaxing this grip, the operator carefully passes the sharp needle of the syringe containing the injection fluid through the scrotal wall into the lumen of what appears to be the most protruding loop of vein. With unengaged finger, or fingers, of the syringe hand the piston can be sufficiently withdrawn to suck blood into the syringe, thus making certain that the needle is really in a vein. The scrotum is then released gently and steadily, to ensure that the needle remains in the vein, and the injection given. The needle is now withdrawn, while the operator's free fingers and thumb pinch the varicocele and scrotum at the point injected, and, while the varicocele is so held, the patient is told to lie on his back on the couch. The pressure is then released, and the scrotum and contents lifted up towards the pubes, and kept so raised for ten minutes.

No haematoma of the scrotum has followed this technique. The puncture point in the scrotum is sealed with collodion and the patient allowed to go about his business. Twenty-four hours later the varicocele can be felt as a soft, solid, and tender structure. After seven days the veins are hard and still tender. During this time the patient has suffered more or less dull, dragging pain in the scrotum and in the inguinal canal, the cord on palpation being slightly thickened and tender. No inflammation of the scrotum itself has been noticed. Four of these seven cases examined over three months after injection were apparently completely cured, the veins of the former varicocele being still palpable as very thin, hard, wiry cords, and the testicle apparently unaltered. About the other three cases it is too early to predict, as only two to three weeks have elapsed since they were injected.

In each case one injection only of 1 c cm of a solution of quinine hydrochlor 4 grams, urethane 2 grams, aq dest 30 c cm was given. They were all "large" varicoceles—large enough to make the operation comparatively easy. Quite recently I have attempted, but without success, to treat a decidedly smaller varicocele. On three separate occasions my needle point failed to enter any one of the varicocele loops. In the end this patient was told to wait till his varicocele became large enough to be injected.

Tinct iodi on the scrotum masks the outline of the varicocele loops: it should therefore be washed off with methylated spirit. This alcoholic cleansing admittedly causes contraction of the dartos, and, what is worse, of the varicocele, yet plainly, the scrotum calls for even more careful

the leg with varicose veins. How large the varicocele must be for successful injection appears to be conditioned mainly by the operator's skill. Hot weather or a hot bath, and a patient able to grasp his own scrotum properly, make the operation easier. So does a skilled assistant.—I am, etc,

London, W 1 Nov 8th.

H M HANSCHELL

HEART SOUNDS

SIR,—May I draw attention to the extraordinary statement in the *Epitome* of October 27th (p 55) headed "Common cardiac problems" that "recurring unduly loud first sounds produced by auricular reinforcement and auricular systolic sounds in the long pauses are of diagnostic value in heart-block." What authority is there for the suggestion that the thin-walled auricle is capable of producing any sound at all? I have pointed out repeatedly that a muscled when it contracts produces no sound whatever, and to suggest that the thin-walled auricle is capable of doing so is absurd. The number of vibrations per second of the muscled fibres is much below that required to produce an audible note. How "auricular reinforcement" whatever that may mean, can produce a sound is beyond my comprehension, and readers are entitled to know what is meant by such a phrase. We are told in this extract that these sounds are of diagnostic value in heart-block, but one is forced to think very poorly of diagnosis dependent on such questionable theory.

I have pointed out on several occasions that if the valves have anything to do with the production of heart sounds, it is extraordinary that when they are destroyed by disease and cannot possibly "flap" the first sound is magnified into a murmur. To say that the whirling of the blood in the heart is partly responsible for some of the heart sounds is incorrect, because everybody knows that a rubber ball full of water cannot possibly produce a sound when shaken. A ball only half full of water can, when shaken, produce quite a loud sound, because of the free surface of water in contact with air. There is no such free surface of the blood in the heart. The only freely moving fluid with a surface tension varying between systole and diastole is the pericardial fluid. I maintain that the normal heart sounds are produced by the movements of this fluid. If the pericardium be filled with an effusion the movements of the fluid are so restricted that no sound is heard, whilst were the sounds produced by the muscles or valves of the heart they would be heard all the more plainly, because fluid is such an excellent conductor of sounds.—I am, etc.,

G ARNOUR STEPHENS,
Consulting Cardiologist, King Edward VII
Welsh National Memorial Association

Swansea Oct 29th

DEFINITION OF DRUNKENNESS

SIR,—As police surgeon I frequently have to certify drivers of motor cars as "drunk." Before the magistrates I am always asked if I consider the prisoner to have been "drunk." I reply by asking what is meant by "drunk." No one has been able to tell me in court what "drunk" means. I then refer them to recent definitions of the word given by two judges and also by the British Medical Association. These definitions are roughly the same—that a man should be declared drunk if, as the result of alcohol, he is unable to do with safety that which he is attempting to do at the moment of his arrest. If, therefore, a medical man considers that as the result of alcohol a man is unfit to drive a car, this man, having been arrested in attempting to do this, can be declared drunk according to the above definition. This satisfies the court.

I have always found that accidents occur most frequently with those who, while taking alcohol, have abstained from food, and I always stress this fact in court.—I am, etc.,

H J FARDON
Reigate Nov 2nd

TETANY INVOLVING THE RECTUS ABDOMINIS

SIR,—Dr Lerner in his memorandum published on September 15th (p 489) says that he can find no mention of a similar case in the literature. I would suggest that the contraction of the upper part of the rectus abdominis was in the nature of a simple spasm or cramp produced by coughing or stooping. I can supply three cases of a similar nature the first myself, the second my father-in-law, the late Kaid Sir Harry Maclean of Morocco, and the third a woman patient. I have had attacks for twenty-five years. They come on when I am stooping, and sometimes when coughing or sneezing. A very hard and very painful lump

misses in the top part of the rectus abdominis, in the left side. The remedy is to stand upright, lean back as far as possible, take a deep breath and hold it, and heavily press on the lump with both hands. My father-in-law had been bothered with similar attacks for some years, and many and varied were the diagnoses. One day he mentioned it to me, and was interested to find a fellow sufferer. Some months afterwards he had had a long day in the saddle and, entering the house, stooped down, and an attack occurred. I was there and looked at the lump, and the simple remedy suggested above was effective. The case of the woman was exactly similar, her attacks occurred when stooping at gardening, and the remedy was the same. In all three cases, before the cause and cure were explained the attacks were severe and relatively frequent. As soon as these were discovered the attacks declined in severity and number. Apprehension used to prolong the attacks. In all three cases the lump was in the upper part of the left rectus abdominis.—I am, etc.,

HORACE HILL, M R C P,
Surgeon Commander R N

R N Hospital Chatham

THE JEWISH PATIENT

SIR,—I venture to suggest that Dr Robert Hutchison's views on the Jewish patient, as exemplified at the Royal Society of Medicine on October 23rd and elsewhere, are a trifle obsessional. It is a mistake to draw conclusions as to the Jewish mentality in illness from experience among Jews around the London Hospital. My practice among Jews and Gentiles leads me to state that it is all a question of environment. Foreign Jews view their symptoms of illness with Continental excitement and demonstration, English Jews and English Gentiles contemplate the same symptoms in themselves with English calmness and control. It is not a matter of being Jewish or otherwise, but rather of being of English or of foreign upbringing.—I am, etc.,

Colden Green N W Nov 4th

L S WOOLF, M R C P

A GIRLS' SCHOOL FOR ORPHANS OF DOCTORS?

SIR,—It seems to me that the time has arrived to make an effort to found a school for girls, the orphans of medical men and women on the lines of the great work done by Epsom College for boys.

On the back page of the *Times* on most days are printed advertisements of country mansions and lands to be obtained at a very reasonable price, sufficient to house twenty or more girls as a beginning. Could not the Medical Women's Federation and the Royal Medical Benevolent Fund Guild take this matter up and start say, a St Christopher's College for Girls, which could grow in the same way as Epsom College has grown? "Great oaks from little acorns grow." I am willing to give a small annual subscription as I do to Epsom College, and I believe that many others would also.—I am, etc.,

Wimbledon Oct 30th

D R POWELL FRANKS

THE GENERAL MEDICAL COUNCIL ELECTION

SIR,—May I be allowed to express in your columns my warmest thanks to all concerned for their generous support of my candidature in the recent election?

The large number of votes recorded indicates an increased interest in the work of the Council, and will be to me an added stimulus to devote my best ability to the work, and to endeavour to justify the confidence placed in me.—I am, etc.,

Wimborne Nov 6th

E KAYE LE FLEMING

SIR,—May I, through the medium of your columns, thank all those who voted for me in the recent election of two direct representatives as members of the General Medical Council? I shall endeavour to justify their confidence.—I am, etc.,

Luton Nov 10th

JOHN W BONE

Obituary

SIR NESTOR TIRARD, M.D., F.R.C.P.,

Emeritus Professor of Medicine, King's College, and Consulting Physician to King's College Hospital, London

WE regret to announce the sudden death on November 16th, at the age of 75, of Sir Nestor Tirard, consulting physician to King's College Hospital, whose name was well known to the medical profession generally through his work in the revision of the *British Pharmacopoeia*.

Nestor Isidor Charles Tirard was born on September 23rd, 1853. He came of French stock on his father's side, and part of his childhood was spent in France. From King's College School, then in the Strand, he went to study medicine at King's College Hospital, and had a distinguished student career, winning a scholarship and gold medal in forensic medicine and obstetrics, and a gold medal in physiology. He graduated M.B. Lond. in 1877, with honours in medicine, and proceeded M.D. in 1881. He obtained the diploma of M.R.C.P. Lond. in 1880, and was elected a Fellow of the Royal College of Physicians in 1886. From that time onwards he acted for many years as one of the examiners for the College, and served on the Council from 1908 to 1910.

At an early stage in his career Tirard began to interest himself especially in pharmacology and therapeutics, and he also carried out at King's College some useful researches in the pathology of renal disease. His published works included three books: *Diphtheria and Antitoxin* (which appeared in 1897), *Albuminuria and Bright's Disease* (1899), and a *Textbook of Medical Treatment* (1900), as well as contributions on nephritis and uraemia to the *Encyclopaedia of Medicine*. He was also for some years editor of the *King's College Hospital Reports*. In 1914 he delivered the Bradshaw Lecture before the Royal College of Physicians on "Clinical contributions to the study of glycosuria." His abiding interest in general clinical medicine was made evident to a succession of students during the many years he served as physician to King's College Hospital, and as professor of the principles and practice of medicine at King's College. Other appointments held by him included those of physician for twenty-six years to the Evelina Hospital for Sick Children, consulting physician to the Church Missionary Society, and physician to St. Luke's Hostel.

From 1895 to 1915 Tirard acted as secretary to the Pharmacopoeia Committee of the General Medical Council, and was intimately associated with the preparation of the 1898 and 1914 editions of the *British Pharmacopoeia*. In 1910 he was one of the delegates appointed by the British Government to take part in the international conference, held in Paris, on the unification of methods of analysis of alimentary substances. On several occasions the General Medical Council placed on record its appreciation of his skilful and assiduous work in connexion with successive revisions of the *British Pharmacopoeia*, of which he became senior editor in 1914, with Professor H. G. Greenish as junior editor on the pharmaceutical side. Largely, no doubt in recognition of these services, he was appointed in 1922 a Crown nominee on the Council for five years. After his retirement from the secretaryship of the Pharmacopoeia Committee he continued his services as honorary secretary. He became also a member of the Advisory Committee set up by the Minister of Health, the Secretary for Scotland and the Minister of Home Affairs for Northern Ireland, under the Therapeutic Substances Act of 1925, and was one of the British delegates at the International Pharmacopoeia Conference at Brussels in 1925.

Soon after the outbreak of war in August, 1914, he was placed in command of the Fourth London General Hospital with the rank of lieutenant-colonel R.A.M.C. (T), and threw himself into the administrative duties of commandant with characteristic zeal. He received the honour of knighthood in 1916, and in 1920 the Order of St. Sava was conferred upon him by the King of Yugo-Slavia.

Sir Nestor Tirard was for many years a member of the British Medical Association. He was vice president of the Section of Pharmacology and Therapeutics at the Annual Meeting at Edinburgh in 1898, and president of the same

Section four years later when the Association last met at Manchester. He was an active and valued member of the old Therapeutics Committee of the Association, serving as its honorary secretary from 1894 until 1902, when he was appointed chairman.

A memorial service, attended by many old friends and colleagues, was held on November 14th at All Saints', Margaret Street.

THE LATE DR J. J. PERKINS

Captain S. L. BHATTIA, I.M.S., M.D., M.R.C.P., Dean of the Grant Medical College, Bombay, writes:

As an old student of St. Thomas's Hospital, and one who came early under the influence of the late Dr J. J. Perkins, I may be allowed to add my humble tribute to his memory. It was in 1913 that I first came in contact with him in the class on systematic lectures in medicine at St. Thomas's. His lectures were most attractive and inspiring, each utterance bore a personal touch, which was at once captivating. His manner by the bedside made a deep impression on the minds of those around him. His infinite patience, practical wisdom, quick and thorough mind, and a talent for illustrating his remarks with humorous anecdotes made him one of the most popular teachers in the hospital in my day. He had a knack of quickly grasping essentials from a mass of clinical evidence, and his diagnosis was as accurate as it was brilliant. He took personal interest in his pupils, and was ever sympathetic and helpful, and, as one who is indebted to him for many kindnesses, I know that he felt deep and genuine delight in watching the progress of his old students. He was a great admirer of Sir William Osler, and, like him, was well versed in the classics and the humanities. The impression he has left behind on those who knew him is of one possessed of infinite sympathy for all, especially the young, and of stores of wisdom and knowledge held in a modest reserve. He was in every respect an ideal physician, and the influence of his personality and teachings is bound to be reflected in the life and work of his numerous pupils scattered in all parts of the world.

The following well-known medical men have recently died: Dr. GEORGE ROSOLIMO, director of the clinic for nervous diseases at Moscow, who has given his name to a finger reflex; Dr. CHAPOIS, director of the medical school at Besançon, aged 87; Dr. LUCIUS DUNCAN BULELEY, an eminent New York dermatologist, author of a work on syphilis in the innocent, which was awarded the Alvarenga prize in 1891 by the College of Physicians of Philadelphia; Dr. FLORENT JANSSENS, doyen of the medical profession at Louvain; Dr. XAVIER ARNOZAN, director of the *Journal de médecine de Bordeaux*, successively professor of therapeutics and clinical medicine in the Bordeaux faculty of medicine, associate member of the Académie de Médecine, author of a manual of therapeutics and a treatise on hydrology, and officer of the Legion of Honour, aged 76; Dr. WALTER BOOTH ADAMS, emeritus professor of pharmacology, therapeutics, and dermatology at the American University at Beirut, Syria, aged 64; and Dr. A. G. LUTKÉVITCH, professor of ophthalmology at Voronezh, South Russia, aged 65.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE

At a congregation held on November 9th the Vice-Chancellor (the Rev. Dr. T. C. Fitzpatrick) presiding, it was resolved to accept with gratitude the offer of the International Education Board of the Rockefeller Foundation to contribute £700,000 towards the cost of erecting the new University Library and to provide for much needed developments in the physical and biological studies of the University (see *British Medical Journal*, October 13th, p. 680).

The following medical degrees were conferred:

M.B. B.CHIR.—H. H. Stewart W. P. Parvis D. J. MacLennan
M.B.—The Hon. W. S. MacLennan

UNIVERSITY OF LONDON

The following have been recognised as teachers in the subjects indicated:

St. Bartholomew's Hospital Medical College: Dr. Geoffrey A. Harrison (chemical pathology); Dr. Rupert S. Scott (ophthalmology); London School of Medicine for Women: Miss Mariel Bond (physiology).

A grant of £130 from the Thomas Smythe Hughes Medical Research Fund has been made to Kathleen Cheevers M.B., to

be expended wholly on special apparatus and partly on special assistance for the purpose of investigations on the etiology and treatment of disseminated sclerosis.

Mr W G Spencer M S E R C S, has been appointed a member of the Board to Promote the Extension of University Teaching. The Senate has appointed Sir Maurice Craig, C B L, a governor of the Hospital Trust, Bedford.

Prosecutors' certificates have been awarded to John R B McBride (St Bartholomew's Hospital), Peter B Ashcroft (Middlesex Hospital) and Lennox W Willway (King's College Hospital).

Arrangements have been made with the Horton Mental Hospital for the instruction of students of the school in clinical psychiatry. Dr J R B Lord has been appointed honorary lecturer in clinical psychiatry.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.

The dates of the three lectures in the history of medicine to be given by Dr Charles Singer have been revised. On November 19th the lecture will deal with small pox, on November 26th with plague and on December 3rd with diphtheria. The lectures which begin at 4.15 p.m. will be illustrated by lantern slides and are open to all medical students of the University of London.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

An ordinary Council meeting was held on November 8th, when the President, Sir Berkeley Moynihan Bt, was in the chair.

The Diploma of Fellowship was granted to Roland Hodgson Beggan who has now complied with the regulations.

Diplomas of Membership were granted to 157 candidates, whose names were included in the list receiving the licence of the Royal College of Physicians printed in our issue of November 3rd (p. 826).

The President reported that Richard Anderson Hickling M B Ch Camb, M R C S, M R C P, of Westminster Hospital, had been appointed the fourth Stratfield scholar, the subject of his research being 'An investigation of the living cells of the blood and of the fusion into serous cavities by means of Sablin's survival staining technique in clinical cases.'

The President reported that Mr Warren Low's term of office on the Court of Examiners would expire in December. The vacancy will be filled at the next meeting of the Council. Applications should be sent in before November 28th.

UNIVERSITY OF GLASGOW

The degree of M.D. was conferred upon James Baird on November 10th.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

A QUARTERLY meeting of the College was held on November 6th, when the President, Dr Robert A. Fleming, was in the chair.

Dr W T Benson and Dr R H H Newton were introduced and took their seats as Fellows. Dr J D Stuart Cameron and Dr A N S Cairnichael were elected Fellows.

The Hill Pattison Struthers Bursary in Anatomy and Physiology was awarded to Wai Ming Tso and the Hill Pattison Struthers Bursary in Clinical Medicine to Alan Mackenzie Fraser.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At the monthly meeting of the President and Fellows, held on November 2nd the following admissions took place:—Fellow Timothy Maurice Healy. Members and Licentiates of the College J G Cullinane, L T Freeman, R T Jackson, V O McCormick, R A Q O'Meara, Eva H Tuug.

Captain F J O'Meara, R A M C, was elected a Fellow of the College on St Luke's Day, 1928.

The Services.

DEATHS IN THE SERVICES

Lieut Colonel Charles Thomas Blackwell, R A M C (ret.), died at Monaco on October 6th, aged 67. He was born in London on May 31st, 1861, and, after taking the Edinburgh double qualification in 1884, entered the army as surgeon on May 30th 1885. He subsequently graduated as M.D. Durh. in 1903, and took the D.P.H. of the London Colleges in 1904. He attained the rank of lieutenant colonel after twenty years service and retired on December 26th, 1917. He served in the Burmese campaign in 1888-89, receiving the Indian frontier medal with two clasps, in the North West Frontier campaign of 1897-98, with the Tichu Field Force receiving the medal with a clasp, and in the South African war in 1902, taking part in the operations in the Transvaal, the Orange River Colony, and Cape Colony, and receiving the Queen's medal with four clasps, and also in the recent great war.

Surgeon Captain Henry Arthur Kellogg Knight, R N (ret.), died in London on October 5th. He was educated at Bart's, and, after taking the M.R.C.S. and L.R.C.P. Lond. in 1903, entered the navy, attained the rank of surgeon commander on June 1st, 1917 and retired with an honorary step as surgeon captain on October 18th, 1926. He qualified as interpreter in French in 1905, and in German in 1910. During the late war he served throughout, and received the medals.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

THE House of Commons ended the Debate on the Address on November 14th. Its other business during the week was to advance the Unemployment Insurance Bill and the Expiring Laws Continuance Bill. The text of Mr Chamberlain's Local Government Bill, comprising 115 clauses and twelve schedules, has been published. The Government hopes to secure the second reading of this bill and to make progress with the Committee stage before Christmas. As now issued the bill offers local authorities stronger financial guarantees than were contained in the previous draft. It also provides that in rural areas the administration of poor relief shall be delegated from the county authorities to local guardians committees, who may also be entrusted with the management of Poor Law institutions. Part II of the bill is concerned with the registration of births, marriages, and deaths. It reproduces the provisions of the bill formerly sponsored by Dr Fremantle, which Captain Gunston last session got through the House of Commons, but proposes, however, to confer on the county councils and county borough councils duties which Captain Gunston's bill left to boards of guardians. New clauses are added on town planning. They propose to make the county councils statutory town planning authorities. Other clauses deal with the salaries of medical officers of health, propose that these shall be full time officers and provide that the Minister of Health may prescribe the qualifications of medical officers and health visitors. Schemes are to be submitted to the Minister for contributions from counties and county boroughs for financial assistance towards the cost of services rendered by voluntary associations for maternity and child welfare.

The Parliamentary Medical Committee has not yet considered this bill in detail.

Debate on the Address.

During the debate on the address on November 12th Mr Hayes drew attention to the Government's policy in regard to tuberculosis ex-service men. The treatment of these men, whose disability was accepted as due to war service, had been handed over by the Ministry of Pensions to the Ministry of Health. A case of a man aged 50 in Liverpool who was in receipt of 100 per cent pension for tuberculosis had come to his notice. The man was living in a slum with five other members of his family. On the advice of his panel doctor the man applied for sanatorium treatment but he was informed by the local representative of the Ministry of Pensions that his case had been referred to the local authority which in Liverpool was the Port Sanitary Hospitals Committee. After consideration that committee decided that they could not admit the man to any of their sanatoriums. He had therefore to return home to bed. What he (Mr Hayes) was concerned about was the statement by the local authority that they could not admit this man to a sanatorium while there were other patients on the waiting list who had not yet had an opportunity of benefiting from sanatorium treatment. Further the local authority stated that sanatorium accommodation on Merseyside was fully occupied so that if this man was given a bed another patient would be deprived of it.

Dr SIMES said that the unemployment problem had not been seriously tackled. Since the war nearly £400,000,000 had been spent just to keep people alive, and no more than alive. There was nothing to show for it, and these people had been subjected to a very serious ordeal and to great suffering and privation. The problem should have been tackled just like the war and a general staff should have been appointed to deal with it. It was not sufficiently realized that the amount given in unemployment relief was not sufficient to keep in health those to whom it was given.

The Ministry of Health sometimes stated that there seemed to be evidence that people were making claims for national health insurance who were not entitled to do so. He believed a very great deal of that was primarily due to unemployment and that the physique and health of the people were being steadily undermined by it. That in itself from the point of view of the physical fitness of the nation, especially in view of the revelations of the war was a subject which should appeal to all patriotic people. While he agreed with emigration the Canadian winter was very hard and he was anxious that conditions in Canada and Australia should be such as would justify them in encouraging people to go there. A great deal of injustice had been done to the disabled ex-service men. They had found it practically impossible to obtain work and many of them, with their small pensions, had had a very miserable time. Their pensions ought to be brought up to the subsistence level.

Dr VERNON DAVIES said that if the Labour party instead of going about making so many vain promises would concentrate on the work to their hand and see that the conditions of the workers abroad were brought closer to English standards, we should very quickly overcome one of the great causes of unemployment. Dr Shiels had spoken about unemployment benefit but he was criticizing an Insurance Act and not a relief scheme. It was never suggested that the money paid under that Act would be sufficient to keep a healthy man or woman in good condition but it was an insurance scheme, and those concerned

were getting a good return for the contributions that they had made. Apart from all that the unemployment problem was causing great anxiety in the country. People generally had no conception of what people in Lancashire had been going through during the last seven years. Recently in Lancashire he was astonished to see how well dressed the people were but he was told that in more than one place they were saving money on their food. They were not spending half as much on food as in the good times. He suggested that an effort should be made to bring peace in the cotton industry.

Mr RHYNS DAVIES said that in some of the mining districts local authorities who had hitherto been able to provide meals for necessitous school children were in dire straits financially. In a little district in his division called Aspall there was a population of 7,000. Nearly all the pits were closed, and some of the men had been unemployed for two, three, and even four years. The infantile mortality rate which was 85 per thousand for Great Britain as a whole, was 128 per 1,000 in that area. The Government ought really to study the terrible effect of unemployment on infantile mortality as well as on mortality generally. The figures relating to the payment of sickness and disablement benefits to the insured population of this country were an additional proof that the people were suffering much more severely than many members and the Government would admit.

National Health Insurance.

Increase in Expenditure on Sickness and Disablement Benefits.—On November 8th Sir WALTER RE FREE asked Mr. Chamberlain whether he had any evidence that the increase in the expenditure on sickness and disablement benefit was in any way attributable to the administration of certain friendly societies or to the laxity of doctors in the issue of certificates and if so, what remedial action he was taking. Mr. CHAMBERLAIN said that, in endeavouring to ascertain how far the recent abnormal increase in expenditure on sickness and disablement benefits was attributable to causes which could and should be removed, he was receiving the full co-operation of approved societies of all types in inquiries for the purpose of securing that their administrative methods should be fully efficient and of the Insurance Acts Committee of the British Medical Association who recently submitted to a conference of Local Medical and Panel Committees a number of detailed proposals (to which the conference agreed with certain amendments) for improving the procedure under which insurance practitioners at present carried out their duties with respect to medical certification.

The Retail Pharmacists Union and the Drug Fund.—Dr. LITTLE asked Mr. Chamberlain on November 8th if when making the agreement with the Retail Pharmacists Union relating to the National Insurance Drug Fund, described in the annual report of the Ministry of Health 1927-28, the British Medical Association was consulted, if its approval of that agreement was obtained and if in the view of the unanimous condemnation of the agreement as being against public policy recorded by two full sessions 1927 and 1928 of the annual conference of Panel Committees he would rescind that agreement. Mr. CHAMBERLAIN replied that before the agreement with the Retail Pharmacists Union was actually concluded the Insurance Acts Committee of the British Medical Association were made acquainted with its terms by letter and subsequently a conference took place at the Ministry, when various criticisms and suggestions were fully discussed. The approval of the British Medical Association to the agreement as a whole was not invited, and had not therefore been obtained. At the conference of Panel Committees in 1927 considerable difference of opinion was manifested, though the resolution mentioned by Dr. Little was ultimately passed. It had been reaffirmed without discussion in 1928. He was not prepared to rescind the agreement.

Local Government Bill Position of Voluntary and Poor Law Hospitals.—On November 9th Dr. LITTLE asked Mr. Chamberlain what arrangements had been made to secure the co-operation of voluntary hospitals and the hospitals now under Poor Law administration as contemplated in the Government's bill for the reorganization of local government. Mr. CHAMBERLAIN said this problem had been actively discussed in many quarters for a considerable time. Definite local arrangements on the new basis could not be entered into until the Local Government Bill became law. Dr. LITTLE asked if any estimate had been made of the probable cost of the provision at municipal hospitals of medical and nursing services on the same scale as now obtained at the voluntary hospitals, where the medical services were mostly unpaid, and if he could furnish any information as to the measure of increase in the rates likely to follow upon the competition of the municipal hospitals with the voluntary hospitals in the event of no co-operation being achieved between these two classes of hospitals. Mr. CHAMBERLAIN answered that in the meantime it was impossible to accept the assumptions underlying this part of Dr. Little's question or to have any estimates upon them.

Grants to Ex-service Men.—During the year ended in September ninety pensions had been granted to ex-service men or their dependants whose claims were outside the seven years limit. About 1,400 patients including cases of re-amputation and second disabilities received a grant or further grant under special sanction during the past twelve months.

Unnecessary Noise.—Answering questions on November 8th Colonel ASHLEY said he had convened a conference of all interests concerned to advise what steps could be taken to mitigate unnecessary noise made by mechanically propelled vehicles. Sir

WILLIAM JOYNSON HICKS stated that since January 1st the police had brought 10,000 prosecutions for noisy motor cycles.

Marriage of Mentally Deficient Persons.—Mr. CHAMBERLAIN told Mr. Erskine on November 8th that he could not undertake at present to initiate legislation dealing with the far-reaching and controversial issue of the marriage of mentally deficient and unfit persons. Many local authorities were making further provision for mental defectives, and others were being urged to take action. He anticipated that one of the results of the scheme of local government reform would be that local authorities would have spare accommodation available for this and other services of public health.

Foot-and-mouth Disease.—On November 12th Mr. GUINNESS told Mr. Alfred Williams that twenty-three outbreaks of foot and mouth disease had been confirmed since August 1st, 1928, involving eight new centres. No fresh sources of origin had been discovered.

Examination of Carcasses for Caseous Lymphadenitis.—Sir KINGSLEY WOOD replying to Mr. W. Thorne on November 12th said it was the practice in the City of London to examine all sheep's carcasses for caseous lymphadenitis before they were distributed to retailers. The Port of London Sanitary Authority had recently decided to examine for this disease a percentage of the carcasses arriving at the docks and to release the remainder to cold stores in the London area on condition that they were not removed therefrom without the permission of the local medical officer of health. The Minister of Health hoped it would be possible to arrange for uniform action at all ports for preventing the distribution of meat infected with this disease.

Prevention of Contamination of Food.—Sir KINGSLEY WOOD in reply to Mr. Couper on November 12th said that the Public Health (Meat) Regulations and the Public Health Act 1925 contained provisions for preventing risk of contamination of food offered for sale. The Minister of Health did not think there was any need for further legislation to extend the powers of control already possessed by local authorities.

Metal-grinding Industries (Silicosis) Scheme.—On November 12th Sir W. JOYNSON HICKS told Mr. W. Thorne that no medical test for employment was imposed by the metal grinding industries (silicosis) scheme. Workmen employed by certain firms in those industries had been required by their employers for the purposes of insurance, to pass a medical examination and some of them who failed to pass had been discharged but he had no information on the number affected. A workman employed at or after the commencement of the scheme had a right to claim compensation for total disablement after he had left the employment provided he had been employed in dusty processes within the previous three years.

Slum Areas.—Mr. CHAMBERLAIN replying to Mr. Bennett on November 12th said that it was the intention of the Government to introduce at the earliest practicable moment legislation dealing with slum areas, which would provide for an amendment in certain respects of Section 46 of the Housing Act 1925.

Disinfection of Dental Tubules.—Sir G. HENNESSY replying on November 13th to Mr. Johnston, who asked whether he was aware that Dr. Watson of Cathcart Glasgow had submitted to the Medical Research Council in 1927 proposals for the better disinfection of the tubules of teeth, and that repeated requests for a report on this process had been asked for without result, said that Dr. Watson had made a claim of the nature indicated. This was insufficient however for any report to be made upon it. Dr. Watson's proper course was to follow the customary practice of making full scientific publication of his methods and results with a view to trial and criticism by his professional colleagues.

Salaries of Post Office Medical Officers.—On November 12th Viscount VOLMER informed Mr. Graham Little that the salaries paid to officers in the Post Office Medical Service were recently the subject of a claim before the Industrial Court, who had referred the matter back to the parties for reconsideration. Pending further developments, Lord Volmer could not make any statement in the matter.

Bills

The Expiring Laws Continuance Bill was introduced in the House of Commons on November 8th.

On November 12th Mr. CHAMBERLAIN presented the Local Government Bill to amend the law relating to the administration of poor relief, registration of births, deaths and marriages, town planning and local government. The bill was formally read a first time.

Sir JOHN GILMOUR on November 12th presented the Local Government (Scotland) Bill. The measure transfers to county councils and the town councils of certain burghs in Scotland the functions of existing local authorities relating to poor relief, lunacy and mental deficiency, education, public health and other matters. The bill was read a first time.

A bill for the better regulation of road vehicles has been introduced into the House of Lords by Viscount CECIL of CHILWOOD. It requires all drivers to take out a licence after examination into their skill and physical fitness and proposes to empower the Ministry of Transport to make regulations requiring the production by the applicant for a licence of evidence, by a doctor's certificate or otherwise, that he is fit to drive a mechanically propelled vehicle.

Mr. Chamberlain stated on November 8th that he had not received the report of the Committee appointed to inquire into the London Lock Hospital.

Medical News.

THE first extra Metropolitan dinner of the University of London Medical Graduates' Society will be held at the Queen's Hotel, Birmingham, on Friday, November 23rd, at 7.30 for 8 p.m. The president, Sir St. Clair Thomson, will be in the chair. The honorary treasurer, Mr. McAdam Eccles, one of the honorary secretaries, Dr. Dorothy Hare, Sir Charlton Briscoe, and Professor Hey Groves, among others, have promised to attend. No tickets are being issued, and any University of London medical graduates wishing to be present are requested to communicate with Professor W. Billington, 58, Harborne Road, Edgbaston, Birmingham. The price of the dinner is 10s. 6d., payable to the hotel.

THE annual reunion dinner of the British Serbian Units Branch of the British Legion and of all friends of Serbia will be held on Saturday, December 1st, at 7.15 p.m., at the Victoria Mansions Restaurant, Victoria Street, Westminster. The president, Dr. Alice Hutchison, will be in the chair. Tickets can be obtained from the honorary secretary, J. R. Chappell, 123, Queen's Road, W.2.

THE fourth annual Norman Lockyer Lecture will be given, under the auspices of the British Science Guild, by Professor J. Arthur Thomson, of the University of Aberdeen, on Wednesday, November 28th, at 4.30 p.m., in the Goldsmiths' Hall, Foster Lane, E.C., the subject being "The ultimate value of natural history." Applications for tickets should be addressed to the secretary of the Guild, 6, John Street, Adelphi, W.C.2.

SIR ROBERT ARMSTRONG JONES will deliver four lectures on physics at Gresham College, Basinhall Street, E.O.2, on November 20th, 21st, 22nd, and 23rd, at 6 p.m. The first will deal with care of mental illness, the second with the brain and sense organs, the third with old and new psychology, and the last with sleep. Admission is free to the public.

DR. S. VERE PEARSON, physician to the Maudsley Sanatorium, will read a paper before the North Western Tuberculosis Society on pitfalls in the diagnosis of pulmonary tuberculosis, on Thursday, November 22nd, at 3.15 p.m., in the Public Health Laboratory, York Place, Oxford Road, Manchester. The attendance of all medical practitioners is invited.

A DISCUSSION on ante natal methods with special regard to disproportion will be held at a meeting of the Maternity and Child Welfare Group of the Society of Medical Officers of Health at the Royal Free Hospital, Gray's Inn Road, W.C.1, on Friday, November 24th, at 8 p.m. The speakers will include Professor Molloy, Dr. Eardley Holland, Professor F. J. Browne, Dr. Annie McCall, Dr. Alec Bonrne, and Dr. Lane Roberts. On the following day, at 2 p.m., Professor Molloy will hold an ante natal clinic and Dr. Chodak Gregory a children's clinic at the hospital.

THE Fellowship of Medicine and Post Graduate Medical Association announces that a lecture will be given by Mr. L. C. Rivett on Monday, November 19th, at 5 p.m., at the Medical Society of London, 11, Chandos Street, Cavendish Square, on "The signs and symptoms of the common disorders of the menopause." On Tuesday, November 20th at 4.30 p.m. Dr. Saxby Willis will lecture on bronchiectasis at the Royal Chest Hospital, and on the same day, at 11 a.m., Mr. Graham Brown will give a clinical demonstration in the ear, nose, and throat department of Charing Cross Hospital. Demonstrations will also be given on Wednesday, November 21st, at 4 p.m., by Dr. E. G. French at the Wellcome Museum of Medical Science on "The etiology of various skin diseases," and on the following day, at 3.30 p.m., by Mr. Cardell at the Central London Ophthalmic Hospital. There is no fee for these lectures or demonstrations. A two weeks course in neurology at St. Peter's Hospital and a four weeks course in neurology at the West End Hospital begin on Monday, November 19th. Other courses are in progress at the London Lock Hospital, in venereal diseases, in ophthalmology at the Royal Westminster Ophthalmic Hospital, and in medicine, surgery, and gynaecology at the Royal Waterloo Hospital. Copies of all syllabuses and information relating to the general course of the Fellowship may be obtained from the Secretary, 1, Wimpole Street, W.1. The list of special courses for 1929 is now available and will be sent on application.

A SPECIAL course in infant diseases for medical officers of welfare centres and others will be given at the Infants Hospital, Vincent Square, Westminster S.W. from December 3rd to 16th. The fee for the course is £3.3s. Further information can be obtained from the Secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1.

DR. T. RITCHIE ROGER, a recent chairman of the East Yorks Division of the British Medical Association, has been unanimously elected sheriff of the city of Hull.

THE following members of the medical profession were among the mayors elected on November 9th: Dr. H. J. Campbell (Dartmouth), re-elected, Dr. J. F. C. Hossack (Ipswich), Dr. I. G. Modlin (Sunderland), Dr. L. Price (Nuneaton), Dr. H. Robinson (Kensington).

AT a meeting of the Joint Tuberculosis Council on October 17th Dr. Sutherland reported on the conference at Rome. A valuable statistical study on "The fate of young children in tuberculous households" was presented by Dr. Lissant Cox. A total of 1,023 children up to 5 years had been considered, and the figures controlled by standard modern statistical methods. The Lancashire figures of deaths of young children from tuberculosis do not agree with those of Professor Calmette. A striking point revealed by this study was the number of deaths from non-pulmonary tuberculosis in young children exposed to infection from pulmonary cases, which was some ten times as great as that of the controls. The council recorded its appreciation of the care taken by the chairman and hon. secretary to make the dinner to transatlantic colleagues such a brilliant success.

LORD MELCHETT presided at the eighth annual reunion dinner of Queen Alexandra's Hospital for Officers, held at the Hotel Cecil on November 8th. A letter of good wishes to all present from H. R. H. Princess Victoria was read. The chairman paid a tribute to the work done at the hospital by all the staff, and in particular by Mr. Herbert Paterson, who acted throughout the war as honorary surgeon in charge. Lord Waring, who equipped and maintained an annexe to the hospital, was also present.

AT the last session of the League of Nations Health Committee, which concluded on October 31st, Dr. Lutrario, president of the Malaria Commission, dealt with recent criticisms of the Commission's work, to examine which a conference of leading malarialogists met at Geneva in June. A summary of the report of this conference was published in the *Journal* of October 13th (p. 664). The conference agreed that a close study of local conditions was of the first importance, especially as there did not exist any method of fighting malaria clearly preferable to all others. It proposed also the creation of a permanent and autonomous scientific central research organization. As a result of the conference, Dr. Lutrario stated, the danger of opinion on the methods of dealing with malaria had disappeared. Several subjects suitable for international study have been suggested, and the president and members of the Health Committee in consultation with Dr. Lutrario, will decide which studies can best be undertaken within the limits of available resources.

A BILL to amend the Pharmacy and Poisons Ordinance is to be considered at the next meeting of the Legislative Council of British Guiana. Under Section 3 of the bill it is provided that "No person shall keep open shop for selling, retailing, dispensing or compounding, or shall sell, retail, dispense or compound drugs or poisons or patent or proprietary medicines unless such drugs or poisons or patent or proprietary medicines are sold, retailed, dispensed or compounded in a shop which is under the immediate personal control, management, and supervision of a duly registered chemist and druggist employed therein for such purpose who is not acting in a similar capacity for any other person or in any other shop and unless such drugs or poisons as aforesaid are sold, retailed, dispensed or compounded by or under the direct charge and supervision of such chemist and druggist." It is noteworthy that under this section patent and proprietary medicines come under the same restrictions as those applying to drugs and poisons, whereas in this country there is no legislative provision restricting the selling of these articles to registered chemists and druggists. Under Section 7 (1) of the British Guiana bill the Governor in Council is empowered to authorize the sale of drugs and patent or proprietary medicines by persons not registered as chemists and druggists in areas remote from the coastlands.

A VERBATIM report of the proceedings of the National Conference on Maternity and Child Welfare, which was held at the London Guildhall in July under the presidency of Sir George Newman, has been published by the National Association for the Prevention of Infantile Mortality, and may be obtained from the office of the association, 117, Piccadilly, W.1, price 2s. 6d. An account of some of the more important discussions was given in the *Journal* on July 14th (p. 59). The full report contains a valuable collection of information and opinion on all phases of the subjects under discussion. The association has also published a new and effective poster embodying a warning against the use of the "dangerous, dirty, deadly dummies."

In the annual report of the medical department of the United Fruit Company for 1927, a generously illustrated and well printed volume of over 350 pages, an account is given of a medical service under private enterprise on a scale practically unknown in Europe. The company, whose head office is in Boston, has extensive plantations in the West Indies and throughout Central America, with its own rail ways and ships. Its medical department includes over fifty qualified practitioners, and it maintains an extensive system of hospitals and dispensaries to provide for the needs of the 228,000 persons dependant upon it for treatment. The greater part of the report consists of original articles, case notes, and memoranda contributed by members of the staff, a large amount of space being devoted to a discussion on the use of plasmoquin in the treatment of malaria. Dr W. E. Deeks believes that it promises to be the most important discovery for malaria control since the value of quinine in malaria was first recognized. An interesting section is devoted to snake-bite problems, in the investigation of which the company is co-operating with the Museum of Comparative Biology at Harvard University. A snake census in Honduras in 1924 and 1925 yielded the necessary basic information, which has since been amplified from other sources. Arrangements have been made with the Antivenom Institute of America (a subdivision of the Mulford Biological Laboratories) for the supply of specific antivenoms, a note on the preparation of these appeared in our columns on December 18th, 1926 (p. 1206). The company has provided a serpentarium at Tela, Honduras, and readers assist also in the capture of snakes and in their transportation.

ACCORDING to a recent publication of the office of statistical investigations of the United States Public Health Service a definite recrudescence in the incidence of malarial fever in the United States since 1925, the recorded rate in the first spring of 1928 being the highest since 1918. This recrudescence has not yet appeared in other countries.

THE increase in the number of medical practitioners in Switzerland in 1928 was 39 per cent over that in 1926, while the increase in the number of inhabitants was only 6 per cent, so that there was 1 doctor to every 1,238 inhabitants. In Austria, where, as in this country, there is a considerable excess of medical practitioners, there is 1 doctor to every 966 inhabitants. In Germany the proportion is 1 to 1,500, in Holland 1 to 1,550, in France 1 to 1,603, in Denmark 1 to 1,629, and in Spain 1 to 1,222.

A COMMITTEE has recently been formed in Paris, under the patronage of members of the French Academy and the deans of the French medical faculties, to honour the memory of the historian, Dr Cabanès, who died recently. The president of the committee is Professor Sbrayès of Bordeaux, president of the Association of French Medical Journalists, and the treasurer M. Albin Michel publisher, 22, Rue Huyghens, Paris XVI* to whom subscriptions should be sent.

UNDER the title of *Wells and Springs of Warwickshire* the Geological Survey has issued a further memoir, by Mr L. Richardson, of the series describing in detail the sources of underground waters in the counties of England. The author surveys the geological structure of the county in his introduction and proceeds to review serially in the sources of water supply in each rural and urban district, and each municipal and county borough. A considerable amount of space is given to Birmingham and Coventry, while Leamington Spa and its waters are fully described. Numerous water analyses are given, there are several useful sketch maps and sections, the bibliography is very extensive. The book is published by H. M. Stationery Office, London, or may be obtained through any bookseller the price being 5s net.

MESSRS SIEBE, GORMAN and Co., Ltd., safety engineers, etc., 187, Westminster Bridge Road, London, S.E.1, have issued a new catalogue of breathing apparatus and other protective and first-aid appliances for all purposes. The catalogue includes descriptions of a wide variety of apparatus for use in physiological research and other purposes ancillary to medical science. This includes apparatus for determining the basal metabolic rate, and for determining the total respiratory exchange in man, a recording spirometer, an ergometer, sphygmomanometers for blood pressure tests, and apparatus for air and gas analysis, etc. Various types of resuscitation apparatus are shown, and the catalogue gives in short almost every conceivable kind of equipment for "safety" work in industry, mining, and other fields.

AT a recent conference the Smoke Abatement League of Great Britain adopted a resolution expressing the opinion that the production of solid smokeless fuel is now upon a sound commercial footing and calling upon local authorities in general, and health departments in particular, to take steps to popularize the use of such fuels, and so to help to solve the domestic smoke problem. In this work the League

pledged itself to co-operate. A memorandum circulated to medical officers of health and public health committees advocates the organization of exhibition, health weeks, lectures, and displays, and the widespread distribution of literature. Pamphlets in popular language are being prepared for this purpose. The memorandum states that there are now several excellent fuels on the market, which are superior to raw coal in respect of cost and efficiency, and are infinitely cleaner. Attention is also drawn to the value of the now quantities of gas coke, and to the advantages of gas and electricity over raw coal. The memorandum concludes: "It is hoped that progressive health departments and municipalities, recognizing the gravity of smoke pollution, will take immediate steps to mitigate the evil, and to restore the atmosphere to that state of purity which is essential to the health of every city and town."

THE following appointments have recently been made in the foreign medical faculties: Dr C. Cenci of Cagliari, professor of nervous and mental diseases at Bologna; Dr G. Boscchi Arana professor of operative surgery at Buenos Aires; Dr A. Gutlich professor of otolaryngology at Cologne; Dr V. Gerbasi of Bari, professor of nervous and mental diseases at Genoa; and Dr S. Weber, professor of radiology at Riga.

THE late Dr Edgar March Crookshank emeritus professor of bacteriology at King's College Hospital, and treasurer of the Royal Veterinary College, left estate of the value of £73,123, with net personalty £49,472.

THE first stone of a leper sanatorium was recently laid at the Hôpital St. Louis, Paris, under the patronage of the Order of Malta.

THE well known medical publisher, M. Pierre Masson of Paris, has recently died.

Letters, Notes, and Answers.

ALL communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

ALL communications with reference to ADVERTISEMENTS as well as orders for copies of the *Journal* should be addressed to the Financial Secretary and Business Manager.

THE TELEPHONE NUMBERS of the British Medical Association and the *British Medical Journal* are MUSEUM 9361, 9362, 9363, and 9364 (internal exchange four lines).

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QUERIES AND ANSWERS

DELAYED MENSTRUATION

A NUMBER of correspondents have replied to A.E.'s inquiry on November 3rd (p. 828) for advice as to the treatment of delayed menstruation in a woman aged 25.

Dr E. G. MUIR (Glasgow) reports the case of a woman aged 28 with a history of amenorrhoea for two years. The patient (he says) weighed 14 st 9 lb. her mentality was apparently but not so fully low. her voice was deep and husky, and there was a tendency to hair growth on her chin and lip. She was given ultra violet radiation in amounts ranging from a tonic to an erythema three days a week and thyroid extract to the limit of her tolerance. At the sixth week of treatment she not only had a period but her general attitude towards life was improved and she steadily lost weight.

Dr L. CUNNINGHAM (London N.W.) thinks that the symptoms of A.E.'s patient may be associated with some disturbance of the development of the uterus. He suggests prescribing oestrogen which contains the hormone of corpus luteum and has been shown experimentally to cause increase in the growth of the uterus in rabbits and to give the oestrous test

In rats. In a similar case he gave two tablets of agomemsiu thrice a day and an ampoule of sstomemsiu intramuscularly every third day, with good effect, which was afterwards maintained by using the tablets alone.

Dr G. D. FAIRLEY (London, W.C.) Dr W. G. BURNS (London, W.C.) Mr B. B. Loud "C. W. A." and "S. W." also report favourable results from the administration of sstomemsiu and agomemsiu.

EGG PRESERVATIVES

Dr T. D. HARRIS (Aberystwyth) writes. In reply to the inquiry of R. B. G. on November 10th (p. 878) whether any harm to the consumer can result from eating eggs preserved in water glass I may mention that in 1927 I was consulted by three maid servants who were ill after indulging freely for over a week in preserved eggs. The eggs had been in the water glass for about nine months and several were cracked. I wrote to Mr John Hargreaves, I.C., I.C.S. (an authority on silicates) asking his opinion as to the action of water glass on eggs. Mr Hargreaves replied that water glass could hardly affect eggs with unbroken shells but suggested the trial of milk of lime. An analysis of eggs that had been in water glass for a long time would be useful and interesting.

INCOME TAX

Assessment of Partners

"A. C. G." and his partner have been assessed for fifteen years as independent practitioners and he inquires as to what difference, if any, the making of the assessment in future as for a firm, will effect.

* * * The fact that the assessment will be made—as is legally the correct course—on the partnership in respect of the income of the practice will not make any difference to the amount of income tax payable. The allowances will be due to each partner as against his share of the assessment, and in substance the assessment will merely be an aggregate of the amounts which would have appeared on separate assessments. The partners will remain liable to separate assessment in respect of any non-partnership income, and will show their respective shares of the firm's liability in their statements of total income—the "amount of tax" payable is not shown. If either partner desires his co-partner not to be informed as to the amount of his allowances—for example, from life assurance—the only way to avoid having that amount shown on the partnership notice of assessment is presumably to arrange with the Inspector of Taxes for the allowance to be given in some other way—for instance by repayment or by set-off from any other income tax that may be payable.

Cash Basis

"A. G. C." is in the second year of his partnership and has hitherto been assessed on the basis of 'bookings'. He inquires whether it is not possible to transfer to the simpler basis of cash receipts.

* * * It has to be admitted that the 'bookings' basis is legally correct and that the cash basis can properly be applied only where it is more convenient and where the circumstances are such that the amount of cash received in any particular year is approximately equivalent to the value of that year's bookings. It is, however, always very difficult to persuade the revenue authorities to depart from the legally correct basis where it has once been applied and in addition a newly formed practice such as this one may very well be receiving in cash less than the true gross income on the basis of the value of the year's bookings.

Acquisition of Additional Practice

A and B purchased an additional practice in March 1928 for £1200. For the year 1928-29 the Inspector of Taxes wishes to add to what would otherwise have been the amount assessed for that year a sum of, say, £203 as representing the additional income derived by A and B. Is this right?

* * * Yes. A and B have succeeded to the small practice previously carried on by X and are assessable for 1928-29 in respect of the income from the combined practice on the profits of A and B plus those of X for 1927-28. The cash basis cannot be applied to the whole (now) practice without qualification in such circumstances. The £1200 represents an outlay of capital to acquire a source of income and no part of it can be treated as a professional expense.

LETTERS, NOTES, ETC.

VARIOLA FOLLOWED BY HERPES

Dr N. GRAY HILL (Garshilton) writes. With reference to Dr Lyth's very interesting memorandum (October 20th p. 700), it may be noted that, although cases in which a typical herpes rash follows varicella appear to be very rare they have from time to time been reported. Willcox and Rolleston (*British Journal of Children's Diseases*, October-December 1926) describe the case of a boy, aged 4, who first developed a characteristic eruption of herpes of the left side of the chest and four days later a generalized eruption of varicella. G. Dudley (*British Medical Journal*, August 22nd 1925) records the case of a boy aged 7

who complained of pain in the upper part of the chest for five days and then developed a herpes of the third left dorsal nerve and a generalized well marked chicken pox eruption. Onslow Smith and Williamson (*British Medical Journal*, March 5th, 1927) described a somewhat similar instance of a boy, aged 10, in which the herpes preceded the varicella by two or three days and Trolster and Doland (*Bulletin de la Société des Hôpitaux de Paris*, May 29th, 1925) record still another case in which a generalized varicella like eruption followed twenty-four hours after the appearance of herpes. A great number of cases have been recorded in which the medical practitioner has found both the herpetic eruption and the rash of chicken pox present at the same time but careful record has not been made as to which was the first to occur or whether they appeared simultaneously. For the herpes to precede the varicella seems, however, to be the more common. Afzelius mentions the case of a woman, aged 68, in whom an occipital zoster was followed seven days later by a generalized rash. Maloney demonstrated a very similar occurrence at the New York Academy of Medicine on October 3rd, 1922 and others have been recorded. Epidemics, even small outbreaks of herpes zoster seem to be exceedingly rare, and if any have been observed they would be well worth recording. Cases of symmetrical herpes encircling the trunk are also rare although a certain number are on record.

FORMALIN IN THE TREATMENT OF CANCER

Mr J. D. McFEE (Liverpool) remarks that since the publication of his paper on the treatment of cancer by formalin which appeared in the *British Medical Journal* of November 8th, 1902 (p. 1523) little attention has been devoted by others to this method. Very satisfactory results were obtained by him in cases of rodent ulcer, sarcoma of the hard palate, laryngeal cancer and epithelioma of the lip, injections of pure formalin being used in some instances and surface applications in others. He writes: "I feel thoroughly convinced that the treatment by pure formalin of malignant growths—especially primary or in the early state of recurrence—meets the requirements of what is admitted to be a cure for cancer—namely, the destruction of cancer cells with which it comes in contact, without material interference with the growth of normal tissue. It is true that formalin may destroy normal cells if pushed too far. The important point is, therefore, after removal of the cancer growth, to touch the edges of the wound once daily, when formalin will be found to stimulate normal growth and not to destroy healthy cells. My practice was to discontinue the frequent application of it to the edges of the wound after normal cell growth was well established, or alternatively to use it more sparingly every second or third day. As regards the limitations of the treatment, I do not think it can be expected in the case of any, a second or third recurrence with a large area of infiltrated cancerous tissue, that formalin will give satisfactory results. Surely there can be found, say, ten surgeons of good will to give a fair, honest, and exhaustive trial to this treatment and to publish the results."

HAEMOPHILIA IN THE TROPICS

Dr J. TERTIUS CLARKE (Harrow) writes. I notice in the *Journal* of November 10th (p. 844) a memorandum headed "Haemophilia in the tropics." The case is described as occurring in the Southern Punjab and the letter is addressed from Amhala. May I point out that no part of the Punjab is in the tropics and that Amhala lies about 420 miles north of the tropic of Cancer? The mention of geographical distribution of disease almost always engenders climatic influence and I believe I am right in saying that the climate of the Punjab is unlike that of any part of the tropics.

MEDICAL TREATMENT IN CHINA

F. BARLOW, R.N. writes. I am stationed near Yangtze and have been at Chungking, China, in the very heart of China. I feel that I can reply to Fleet Surgeon Home's letter (August 4th p. 228). I have made inquiries concerning Chinese doctors, and find that the statement with regard to their fees is partly correct. A wealthy Chinaman pays his medical adviser a fixed salary. For this the doctor must treat his patron, he must also attend to any of the dependants in the surrounding villages free of charge. But on "joss" days the doctor can demand a gift of money as offering to the gods, to protect the interests and to insure the health of his patron.

MISS AT THE COLLEGE OF SURGEONS

WE learn that the catalogue of manuscripts in the library of the Royal College of Surgeons of England, reviewed in our last issue (p. 858), has not been placed on sale. Copies of the book may, however, be obtained from the Librarian at the College, Lincoln's Inn Fields, W.C.

A DISCLAIMER

MR. ALEX. C. ROCHE (R.C.S. (London, W.)) would like it known that the mention of his name at a recent inquest on a case with which he had no connexion was without his knowledge and consent.

VACANCIES

NOTIFICATIONS of offices vacant in universities, medical colleges and of vacant resident and other appointments at hospitals will be found at pages 49, 50, 51, 54, 55, and 56 of our advertisement columns and advertisements as to partnerships, assistantships and locum tenencies at pages 52 and 53. A short summary of vacant posts notified in the advertisement column appears in the *Supplement* at page 227.

Observations

OF

THE EARLY TREATMENT OF THE PSYCHOSES
AND PSYCHONEUROSES *

BY

A HELEN BOYLF, M.D.,

Honorary Senior Medical Officer, Lady Chichester Hospital for
Women and Children, Hove

We all want the best treatment at the earliest practicable moment for the psychoses and psychoneuroses, as for all kinds of disease. On that we are agreed, although we may differ as to what that is, as to how best to set about obtaining it, and as to the size and nature of the problem.

The discussion divides itself naturally into two parts (1) *early treatment in the individual*, and, having evaluated this as to the size of the demand for it, its importance, at what stages it should be undertaken, and so on, to consider, in the event of a decision in its favour, (2) *how we can best attain it*.

The psychoses and the psychoneuroses are diseases which have been much discussed and still have a blurred outline, and this is inevitable, for the pathology is often obscure.

The first proposal I would make towards the attainment of early treatment is to scrap both those unclear words, which Dr Bernard Hart has done in his splendid little book *The Psychology of Insanity*. It would be far better to revert to the old description by symptoms: depressed, excited, or disturbed, as the Americans have it, maladjusted, anxiety states, phobias, kleptomania, etc. Meantime, as the title thrusts these unwelcome guests upon us to-day, it may be said that under the heading "psychoses" there seem to be included the various forms of insanity, while under that of "psychoneuroses" are grouped the mental disturbances which are not insanity. If, however, we are going to talk of early treatment we must recognize that insanity begins before a person is insane—that is, that the insane paranoid with delusions of persecution shows signs of this attitude to life, this habit of mind, with its belief that the other members of the herd are against him, for a long time, probably for years, before he develops recognizable delusions or insane behaviour and is regarded as insane. In other words, for a long time he was forming a paranoid adjustment to life, while still sane, which by no means always results in definite insanity, any more than, to use a physical analogy, every case of tuberculous infection develops into fatal tuberculosis. No one doubts that the treatment of tuberculosis should be undertaken at the first sign of it, nay, even before there is a sign, in the pre-tuberculous stage in children. I submit that the same sound line of action should be taken with regard to the onset of mental and nervous disorders.

In demanding early treatment on a wide scale for individuals we may be asked what evidence there is that the need is a great one.

We have evidence in the report of the Board of Control that a large number of persons are suffering from definite insanity—"135,626 were notified insane" and under care in England and Wales on January 1st, 1927. All these patients have been at one time early cases, in some the developing period may have been short, but in many it has been long. Of these, 120,911, or "88.5 per cent of all notified insane," were rate-aided patients and therefore a serious burden on the community, 874 were criminals (of whom 399 were charged with murder), who are not only now being supported by the country, but who have besides taken a heavy toll in the protective measures, in police and courts, that they impose upon us, and in the anxiety, worry, and loss that they have caused. In addition to the above there were 796 voluntary boarders. If to these are added 35,167 mental defectives "subject to be dealt with," and 25,067 who may become "subject to be dealt with"—that is, 60,234—and it is also recognized that in

many cases ascertainment is entirely inadequate, the size of the problem of mental health begins to show itself insano, mental defectives, and voluntary boarders—197,656.

Admitting that early ascertainment and treatment in the case of mental defectives will not lead to cure, it can in many cases protect the community by helping to make the patients partly self-supporting or less dependent, and by segregation it can obviate the possibility of their bringing mentally defective children into the world and release them from a hopeless battle with life, for which they are insufficiently equipped.

With regard to the insane cases—while there are still some die-hards who are entirely fatalistic about mental disease, believing that, like the wind, it bloweth where it listeth and nothing can be done about it, there is a growing belief that, while heredity and inherent constitution have great influence, in some or many cases they form a fertile ground only, and that if seeds of mental disorder are not planted and cultivated by events and environment there is a reasonable probability of escape. It is possible that the expert safeguarding may have to start in early days, and that the proposed child guidance clinics will be the first line of defence against adjustments to life which may later develop into paranoid trends, the formation of fantasies to the exclusion of a faithful tackling of life and its difficulties, the acquirement of regressive tendencies leading to fixation and a childish outlook, or the protean forms which may be evolved in the effort to make tolerable what appears to be an intolerable situation. The development of insanity follows the same lines as physical disease—the symptoms are evidence of Nature's effort to cure, or to adapt to an unsatisfactory environment. Fantasy-building, for instance, is a protective and healing mechanism in its proper place. It remakes a sordid world for us, it keeps hope alive, it guards happiness, it favours discovery, even to giving us the wings of a dove—a fantasy held in men's minds for many centuries before realization.

Fantasy (like the unnecessary formation of scar tissue in keloid), out of proportion to life, makes the introvert, passing later into dementia praecox and analogous states. We should see to it that this adaptation, if in faulty degree, is dealt with early. Surely as experienced and as carefully trained an expert is needed for the early stages of these mental cases as is required for treating eyes, throats, or noses. If this be so there is indeed a demand which should be met.

There is other evidence of failure to cope efficiently with the problem of mental health in the reports of the Prison Commissioners. In the last report attention is called to a residue of persons who, though not certifiable under either the Lunacy or Mental Deficiency Acts, "are in medical opinion in an unsuitable environment in prisons" owing to their mental state. "These people form a subnormal group and include the simple feeble-minded and those of borderline intelligence." These include "cases of mental deficiency", "imperfectly developed states of insanity, mental weakness after attacks of insanity," and so on. Of 77 such men, 41 had six to fifty-four previous convictions. Of 29 such women, 22 had six to 109 previous convictions. Is it too much to hope that with greater facilities for treating such cases they may be dealt with in a way more satisfactory to the community and themselves than is shown by the above figures?

There were 178 girls between 16 and 20 years old under sentence of imprisonment, and, without counting charges dealt with under Section 1 of the Probation Act, 47 per cent had been previously convicted from once to eleven times or more. There were 2,464 lads between 16 and 20, 50 per cent of whom had been previously convicted, 16 of them from eleven to twenty times, 2 over twenty. Surely with youngsters such as these it is not beyond the bounds of possibility to devise some psychological or medical approach which, undertaken early enough, should prevent this faulty adjustment to life. The recidivism is marked amongst adults also. 37,237 (64 per cent) men and 7,000 (87 per cent) women received during the year had been previously convicted, 2,945 men and 2,978 women had been previously convicted over twenty times. Is this a satisfactory result of the treatment we now accord to criminals, or, as I should

* Made in opening a discussion in the Section of Mental Diseases and Neurology of the Annual Meeting of the British Medical Association, Cardiff 1923.

like to call these recidivists, mental patients? It is interesting also to note that the numbers of these worst recidivists correspond roughly to the proportion of men and women in the country, and not to the number of the delinquents relatively.

In an appendix in a previous report the medical officer to Birmingham Prison writes

All abnormal conduct tends to be antisocial what we term criminal conduct is only one branch of the tree. The problem of the delinquent should not be envisaged apart from that presented by other mentally abnormal persons. Many of our cases present the problems of social maladjustment. Only the closest investigation will supply the clue for the rectification of them.

The fact that on admission to some prisons wise and humane regard is had to the mental condition of the prisoners, and measures are taken in many cases for ascertaining and treating it, is no valid argument against the necessity for facilities for the help of mental maladjustments outside. These very cases, if capable of being efficiently handled after conviction, would be a *fortiori* cases needing help before the maladjustment manifested itself in such antisocial conduct as to lead to conviction, and it should not be necessary to be sent to prison to secure this help and consequent health of mind.

Still further evidence of the need for expert work is exhibited in the *Criminal Statistics* published by the Home Office, which show that 4,408 suicides occurred in England and Wales in 1926, and 2,194 attempted suicides were known to the police—altogether 6,602. To these must be added a large number, probably the majority of attempted suicides, which have not come to the notice of the police, and some successful suicides which are never found out.

As well as these suicidal cases there are recorded a large number of sex offences known to the police. The total was 4,935. This included 126 cases of rape and 1,961 of indecent assaults on females. The remainder was made up of cases of indecent exposure (1,973), unnatural offences, incest, etc. While in no way minimizing the power of the human being to exert control, it may be suggested that, without staining probability unduly, it is more than likely that many of the above offences are evidence of want of mental balance. Also it is certain that all such cases are not known to the police, and that there are many which are responsible for marital unhappiness and the wreck of wholesome family life short of insanity. No one who has been in practice for long and has the intimate confidence of his patients can fail to have met these cases. All those who are concerned with nervous and mental work will know that they are many. Alcoholism also is often a sign of mental and nervous instability.

I am well aware that in adducing the above as evidence of the size and widespread nature of the problem of mental health, and of the need for the prevention and early cure of mental and nervous disease, I am laying myself open to the accusation that I am an empire-builder in this department, that I seize colonies illegitimately from others, and that some of the territory I have suggested as within the realm of mental medicine is really in that of Jurisprudence, Pedagogical Science, Ecclesiastical Authority, or Religion. Is this so? Is it not truer that all of these must co-operate to succeed, and that a League of Experts with intimate understanding and trust might discover a better way of helping man in his development than has yet been evolved? Has medicine up to now contributed its quota to the solving of these problems? Has mental medicine nothing more to say, no message with regard to these maladjusted people? It may well be that such a league may be a necessary corollary or precursor to the full functioning of the League of Nations.

The above by no means exhausts the numbers needing special help. There exists another, and larger class of patients, "unwept, unhonoured, and unsung" in any Government statistics. These are the so-called psychoneurotics, who while not insane, nor mentally defective, nor delinquent, often suffer mental torture to a degree little understood. The patients at the few existing clinics for nervous and mental disorders are largely of this type. Their illness varies in degree from mild forgetfulness of time or things, slight insomnia, nervous dyspepsia, phobias such as fear of a mouse, a cat, or a thunderstorm, up to a state

when death may supervene, as in anorexia nervosa, or when suicide appeals as incomparably more attractive than the terror of existence in this world. These are the patients, far more numerous than is thought, for whom most can be done. It would be of interest to know how many of the chronic dyspeptics, gynaecological cases, rheumatic patients, in fact chronic cases altogether, which haunt the outpatient department of any general hospital—inevitable as the weather and quite as tiresome—are primarily or in part due to unsolved mental conflicts, to anxiety states with fear causing dyspepsia or diarrhoea, as it does acutely in many students before an examination.

A question often asked is, What type of patient is it that is meant by an early case and suitable for early treatment? Including in early treatment preventive measures, such as dealing with faulty mental attitudes in children as well as adults, the best definition that I can suggest is. Those who have special difficulty in their mental and moral adjustment to life. All of us have some difficulty, and it is a recognition of this fact which has led us to ignore early maladjustments in the hope, often ill founded, that they will be "grown out of." A tendency to regard such troubles as a dispensation of Providence or domination by the devil, and to struggle unintelligently for a foolish resignation, or submit to a sense of inferiority or a constantly recurring conflict, leads to inhibition, fatigue, and unnecessary expenditure of effort. We have only to consider the results attained by the National Institute of Industrial Psychology to see how important the work of an expert may be from the psychological side. It is easier to prevent a nervous breakdown than to cure one. It is also easier to prevent the strain and stress that comes from these maladjustments and psychoneuroses than it is to cobble up again the destroyed family life or the individual bankruptcy which may be the result of them. It is easier to promote mutual confidence and trust than to mend the tatters in the garments of industrial peace torn by the conflict of a strike. This idea of the connexion between industrial unrest and psychological maladjustments is no far-fetched fad of my own. In the last number of the *Journal of the National Institute of Industrial Psychology* Dr. Myers, after explaining that the methods used "follow precisely the familiar principle of bodily healing," said

"Is it surprising then that holding these views and proceeding along these lines the Institute has met with such success in increasing both output and contentment in actual practice and with such widespread approval not only from the more progressive employers but also from the workers and the trade unions of this country?"

The mental readjustments secured (combined with physical ones) are making for trust and understanding. This is surely closely allied to, if not part of, mental medicine.

To sum up so far. Many if not most of the difficulties found in education, criminology, religion, industry, general medicine, and in securing the peace of the world can only be solved with the aid of mental medicine, an understanding of the mind of man, in health and disease. No doctor would admit that an understanding of the body in health was foreign to his purpose of grappling with disease. No doctor should any longer admit that an understanding of the mind in health is redundant, and still less of the mind diseased. The intricacies of its connexion with the body still need elucidating, and are intimate and inmovable.

The psychoses and psychoneuroses in the individual provide useful material for this study. What are the first signs of these diseases? How do we recognize them? Can they be prevented or cured? In other words, are we pursuing a "mad for fire" ourselves in endeavouring to ascertain and recognize ever earlier signs and symptoms, in the belief that we may be enabled ultimately to prevent their development and to cure them in their early stages? Is it a fact that the psychoneuroses, and to a greater extent the psychoses, are dependent upon inherent or innate factors in the individual which are impregnable to any attack from outside, that we cannot hope to cure or greatly alleviate and that it is useless and wasteful of time to try? Surely not. It may at least be claimed that in many alleviation can be gained, and cure also in

some, if by that is understood a capacity for a satisfactory, or passably good, adjustment to life. This is analogous to physical diseases. You do not exactly cure an appendix by cutting it out. The physical condition is not perfect afterwards. You leave a scar and other damage behind, but it is worth it if you get functional success or improvement. In like manner a recovered pleurisy may leave adhesions. Illness and operations on the mind may leave scars, may cause pain, but you may secure functional success or improvement, and it is for a measure of this that we must look.

In searching for evidence that this is obtainable I must refer you to the reports and opinion of those who are engaged in doing this work, and though the number of these is still woefully meagre the widespread nature of the work they are doing in the country is very encouraging. The early treatment of recent cases in mental hospitals has improved immensely of late years. The hospitalization of asylums—a word coined, I believe, by Colonel Ford—is progressing apace, but I must ask you to dwell now not on the certifiably insane treated in mental hospitals, but on the patients whom it is harmful to certify or who are uncertifiable, and the large number of the maladjusted, the patients labouring under obsessions, phobias, inhibitions, and so on. These are the cases for which early treatment is so necessary if we wish to prevent the faulty adjustments, criminal and others, which I have tried to indicate in this paper.

At the Lads' Clchester Hospital, established in 1905 nearly a quarter of a century ago, I have had the honour to be senior honorary physician since its start. Here we find that the patients are thoroughly convinced of its value, and continue to apply for help in numbers which, though we have several times increased our number of beds, have proved the hospital to be still inadequate to cope efficiently with the waiting list.

The demand of patients for treatment we share with quacks—it is no necessary proof of value, but the sources from which the patients come are of more significance. We have analysed 100 consecutive cases in 1917 and 100 this last year.

Given that the demand and need for early treatment are urgent and widespread, how can we best attain it?

Facilities for Treatment in General Hospitals

I submit that the first and most important step now is to establish as soon as possible facilities in connexion with every general hospital in the country. The patients are attending at the hospitals now, and will always be more readily found there than anywhere else.

All the other specialties—eyes, throats and noses, teeth, and so on—have gone through the same initial stage of being obliged to start hospitals of their own, after which the general hospital takes the work on and complains of overlapping. Let us not waste time and money over this.

I suggest that the need for the treatment and its value are established by the work already done in this and other countries.

Dr Carswell was the pioneer who started wards for borderland patients in connexion with the Poor Law—in 1904, I believe. The Lads' Clchester Hospital was the first hospital for these cases.

The pioneer in providing out-patient facilities was the late Dr Ravner, who with energy and foresight, about 1889, induced the governors of St Thomas's Hospital to open an out-patient department for early mental cases. He was succeeded there by Dr Percy Smith, who had in 1900 started the second out-patient department for mental diseases at Charing Cross Hospital.

Since then many others have followed suit, notably Cardiff under your President. There has been a steadily growing recognition of the need by general hospitals both in London and the provinces.

Facilities in Separate Clinics

The Tavistock Clinic for out-patients, under Dr Crichton-Miller, opened in September, 1920, and also does fine instructional and propaganda work with courses of lectures for lay and professional people.

The question of beds is a more thorny one, and so far has been largely buried.

The Maudsley Hospital (177 beds), under Dr Mapother, owing its existence to the late Dr Henry Maudsley's generosity, aided by the late Sir Frederick Mott, was planned many years before it was started in 1923, after its previous use as a war hospital. It is carried on under very special conditions, and is a centre for training and research of immense value, supported by the London County Council. It would be impossible to have many of such elaborate and complete institutions—though possibly there should be several connected with universities for teaching purposes on the lines of Professor Robertson's scheme in Edinburgh.

The Cassel Hospital, under Dr Ross, made possible by the grand gift of about a quarter of a million by the late Sir James Cassel, is providing for those who can afford moderate fees. For many years the wealthy have been catered for.

No provision elsewhere can efficiently supplant treatment in the general hospitals. They are well known, convenient, and no one objects to go to them, the patients present themselves there in any case, the earliest cases are to be found there, the general practitioners, who have the best chance of seeing the first mental difficulties, are in close touch with the hospitals, where the appointment of a specialist in this particular work will do more to secure the treatment of this illness on the same lines as others than any other move that can be made. Cases can readily be referred to the mental and nervous department, and even what can take place between the members of the staff with regard to them. Thus co-operation is invaluable on both sides. Moreover, for the teaching of medical students it is essential.

It has been said that there are not enough experts to go round, and, on the other hand, that there is no object in qualifying specially for this work, for there are not enough posts to go round. These are mutually destructive arguments. Meantime, there are good county mental hospitals all over the country, whose staffs are often willing to help if required, and the suggestion of the British Medical Association that no officer already holding a whole-time post should be eligible would presumably only apply if an equally expert applicant appeared. The welfare of the patients comes first. There is little doubt that, given the posts, even honorary ones, suitable applicants will shortly qualify for them.

I submit that there should be no more difficulty in providing a complete department, with facilities for out-patients and beds, for this specialty than for any other. Admittedly it has its own peculiarities, but so have surgery, radiology, maternity, and others. Notable steps have been made in this direction by St Mary's Hospital, the Middlesex, which has a scheme also for reciprocity in nursing with St Luke's Mental Hospital, and some others. In my view these hospital departments should be free from any compulsory detention, so that there might be no question of interference with liberty. There should be no locked door, nor should definitely insane patients be admitted.

Child Guidance Clinics

Still earlier than those cases we have been considering are those of children who show maladjustments in school life or before, and for them the child guidance clinics offer useful help. They are, as before said, the first line of defence. Two are already in existence in England, and an elaborate one in London is being planned with American help.

Voluntary Boarders in County Mental Hospitals

Apart from the general hospitals and the institutions in connexion with the teaching universities, we need also to be allowed to send voluntary boarders to county mental hospitals. This is absurdly obvious, and agreed to by almost everyone, and yet has been held up for years because it has formed part of a debatable bill.

Permission to Treat the Early Insane Patient on two Doctors' Certificates

To compass early treatment another measure is needed also—that is, to allow certifiable patients to be treated on the certificates of two doctors only, for a limited time. It is the legal intervention which the patients and their friends dislike. Many people approve of it in theory, but

in practice—though few object to seeing two doctors and acting on their advice—all would like personally to avoid the magistrate.

These two last suggestions, however, deal with cases more advanced than those suitable for general hospitals, and it is the exceedingly early maladjustment that I am most concerned about.

To those who fear to advocate these reforms on account of the expense I would say that they will come slowly enough, however much we may push for them, and it is probable that measures properly thought out would lead to economy, industrial peace, and a happier race, and justify all expenditure. Early treatment for these badly oriented people is as necessary, and quite as profitable, to the country as for tuberculosis. Why should not funds be forthcoming from the same source?

Summary

To sum up I would suggest that it is desirable

- 1 That every general hospital should have facilities for treating early nervous and borderline patients
- 2 That child guidance clinics should be available for the young maladjusted children and be under the charge of doctors
- 3 That delinquents should have expert examination with regard to their mental adjustment—on the first offence—repeated if necessary
- 4 That voluntary boarders be allowed in county mental hospitals
- 5 That early insane patients should be able to be treated on two doctors' certificates
- 6 That vocational guidance should be available for all who wish it—as at the National Institute for Industrial Psychology—as a preventive measure against maladjustments and unrest
- 7 That every medical student should be obliged to devote some time to the study of all forms of mental disorder
- 8 That examining boards should require evidence of knowledge of all forms of mental disorder

It is better to pay for this than for insanity, delinquency, unemployment, and industrial unrest. May we all live to see a goodly measure of the above reforms in this our beloved and on the whole stable country.

THE HISTORY OF SCARLET FEVER *

BY

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THE study of the history of scarlet fever is beset with two chief difficulties, inasmuch as, not only in the remote past, but until comparatively recent times, it was often almost impossible to disentangle the description of scarlet fever from that of other acute exanthemata, especially measles and erysipelas, on the one hand, and from that of diphtheria on the other.

An attempt has been made by some writers to trace back the history of scarlet fever to classical antiquity. Some, such as Malfatti, Collier, and Clifford Albbutt, have tried to identify it with the celebrated pestilence of Athens which occurred in the year 430 B.C., but the description given by Thucydides (Lib. II, cap. 47-54) indicates typhus rather than any other acute infectious disease.

Sanné remarks that certain passages in Hippocrates have given rise to the belief that the Father of Medicine was familiar with scarlet fever, owing to his speaking of an illness attended with a severe sore throat though he makes no mention of a rash. As Sanné points out, however, the mere existence of ulcers on the tonsils does not justify the diagnosis of non-eruptive scarlet fever. The same objection applies to writers such as Willan, who think they have found allusions to scarlet fever in certain passages in Celsus, Caelius Aurelianus, Aretaeus of Cappadocia, and Aetius of Amida, whereas diphtheria was probably the disease in question.

Herodotus, a physician belonging to the pneumatic sect, who flourished at Rome under Trajan about half a century before Galen, is credited by Bateman with having described "with considerable precision" the rashes of scarlatina as well as those of measles and small-pox. Bateman's account, however, is far from convincing.

The Arabian physicians, such as Avicenna, Ali Abbas, and Rhazes, have also been credited with allusions to scarlet fever. Rhazes, for example, stated that measles of vivid coloration was more dangerous than that which was but moderately red. It is but useless conjecture, however, as Welch and Schamberg remark, to regard such sentences as references to scarlet fever.

The first undoubted description of scarlet fever in medical literature is to be found in a work by John Philip Ingrassias (1510-1580), who was first professor at Naples and during his last twenty years lived at Palermo, where he was equally celebrated as an anatomist and as a medical practitioner. In his book entitled *De Tumoribus praeeter Naturam*, published at Naples in 1553, he speaks of a disease popularly known by the name of "rossalia" or "rosania," which consisted of "numerous spots large and small, fiery and red, of universal distribution, so that the whole body seems on fire." "Some there are," he continues, "who think that measles is the same as rossalia, but we have often seen that the two affections are distinct, trusting in our own eyes and not merely in the description of others."

Willan has identified the pestilential sore throat described by Wierus as spreading through Lower Germany in 1564 and 1565 as epidemics of scarlatina anginosa. It was particularly fatal to infants, and the sore throat was accompanied by violent fever, vomiting, swelling of the parotid glands, and an erysipelatous rash.

The next most important writer on scarlet fever was Baillon (Ballonius), who, under the title of "*rubiola*," described the principal varieties of the disease, including scarlatina anginosa. In an epidemic which occurred in Paris in the winter of 1574-75 there was a very high mortality, and medical art was of no avail.

Jean Cottyn of Poitiers, a contemporary of Baillon, in his work entitled *De febre purpura epidemiale et contagiosa libri duo*, published in Paris in 1578, is generally credited with having given the first description of scarlet fever in France, but Noirot considers his account is far from possessing the importance attributed to it by some persons who have probably never seen it. Cottyn describes the initial symptoms as general weariness, headache, redness of the eyes, sore throat, and fever which may be mild or violent. Some patients, he says, are comatose throughout the disease, while others are wakeful and restless. Purpura appeared on the second or third day, accompanied by delirium and soreness of the throat.

A much more important position in the history of scarlet fever is occupied by Daniel Sennert (1572-1637), who described an epidemic which occurred at Wittenberg in the beginning of the seventeenth century. He identified it with the rossalia of Ingrassias, and described the eruption in similar terms to those used by the Neapolitan writer (in statu vero universum corpus rubrum et quasi apparet ac si universali erysipellate laboraret). Sennert was the first writer to mention scarlatinal desquamation ("epidermide squamarum instar decedente"), the early arthritis ("in declinatione materia ad articularia transfertur ac dolorum et ruborem ut in arthritide excitat"), and post-scarlatinal dropsy and ascites ("mox pedes ad talos et suras usque intumescent"). It is noteworthy that though the occurrence of dropsy was recognized as a sequel of the disease before scarlet fever was given its name, it was not until two hundred years later, after the appearance of Bright's work in 1827, that its connexion with renal involvement was realized. The epidemic which Sennert witnessed was obviously severe and often fatal ("malum hoc grave et saepe lethale est"), and convalescence was protracted ("aegrique non sine magno labore et post longum tempus pristinae sanitati restituntur"). In more than one passage (*De febribus, Op. omni, T. vi, Lib. ii, cap. 12, pp. 483-484, Aegrius, Cent. II, Ep. 20*) he expresses his doubts as to what name he should give the disease. "I should have regarded it," he says, "as

* A paper read in the Section of History of Medicine at the Annual Meeting of the British Medical Association at Cardiff 1928.

erysipelas and some of our women call it 'Rottnuf,' but for the fact that it does not attack adults but only children. The vulgar look upon it as measles, and say of it 'Die Maseln laufen zusammen'."

Before taking leave of Sennert mention should be made of his son-in-law, Michael Doering, who observed an epidemic in Poland during 1625, and also noted the desquamation, rheumatoid pains, and anasarca characteristic of the disease. Contrary to what is stated by Norret and Sanno, he expressly mentions inflammation of the tonsils and surrounding parts among the symptoms of the disease (Sennert, *Epist.*, Cent I, Tp 88, Cent II, Lp 18).

In 1665 scarlet fever reappeared in Poland, where it was described by Simon Schultz under the name of "epidemie malignant purpura." In the following years it was observed by Ravger in Hungary, Ettmüller and Lange at Leipzig, Schrock at Augsburg, and Ramazzini at Modena. Ravger describes a case of which he was in charge in 1636, in a girl aged 20, and did not hesitate to identify it with the "rosalia" of Ingrassias. The patient not only had a dense rash, but also inflammation of the tonsils. "As the fever declined a windy tumour attacked the left hand whereby the fever was dissolved" (obviously a case of early scarlatinal arthritis).

The term "scarlatina" is generally supposed to have been first introduced into medical literature by Sydenham about 1675. Hirsch, however, doubts if he was the first to use the term, as in Lancellotti's *Monum. stor. Moden.*, 1, 208, 382, there is a reference under the year 1527 of persons dying of "malo da scarlatina." Goodall, in the latest edition of his work on infectious diseases, has also drawn attention to the term "scarlett fever" being used in Pepys' *Diary* on the date November 10th, 1664, the passage being as follows: "My little girl Susan is fallen sick of the meazles or at least of a scarlett fever." It is, however, an open question whether scarlet fever was really meant in either of these passages, especially in the last where Pepys applies the indefinite article to "scarlett fever."

Richter has pointed out that Sydenham's chapter on scarlet fever did not appear in the 1666 and 1668 editions of the *Medical Observations*, which were then entitled *Methodus curandi febres propriis observationibus instructa*, but was first published in 1683 at Amsterdam, only six years before Sydenham's death, in the first complete edition of his works, while the *Processus integri in morbis fere omnibus curandis*, which contains a shorter account of the disease in Chapter VIII, was first published in 1693, or four years after Sydenham's death.

Sydenham's description of scarlet fever in the *Medical Observations* (Sect VI, Chapter 2) runs as follows:

"Scarlet fever may appear at any season. Nevertheless it often breaks out towards the end of the summer when it attacks whole families at once and more especially the infant part of them. The patients feel rigors and shivering just as they do in other fevers. The symptoms, however, are moderate afterwards, however the whole skin becomes covered with small red maculae thicker than those of measles, as well as broader redder and less uniform. These last for two or three days and then disappear. The cuticle peels off and branny scales remain lying on the surface like meal. They appear and disappear two or three times."

The disease, in his opinion, was merely a moderate efflorescence of the blood arising from the heat of the preceding summer or from some other exciting cause.

As regards treatment Sydenham expressed himself as chary both of blood letting and elsters on the one hand and of cordials on the other. Complete abstinence from animal food and fermented liquors he regarded as sufficient treatment. Although the patient should keep indoors it was not necessary to stay continuously in bed. When the desquamation was complete the patient should be purged with some mild laxative suited to his age and strength.

By treatment thus simple and natural, he continues "the ailment we can hardly call it more is dispelled without other trouble or danger whereas if on the other hand we overtreat the patient by confining him to bed or throwing in cordials or other superfluous and over-learned medicines the disease is aggravated and the sick man dies of his doctor (*nimia medici diligentia*).

In the concluding paragraph he alludes to the possibility of fits or coma occurring at the onset of the eruption, for

which he recommends the application of a large blister at the back of the neck and a draught of syrup of poppies.

The mild character of the disease as Sydenham knew it is shown not only by what he expressly says ("hoc morbi nomen, *vix enim altius adsurgit*"), but also by his making no mention of the sore throat and of the complications of rheumatism and dropsy already described by Sennert and Doering. It is possible, however, as J. F. Payne suggests, that when Sydenham saw a bad case of scarlet fever he failed to recognize it as such. Payne adds that the inadequate description of the disease given by Sydenham largely contributed to the misunderstanding of scarlet fever and sore throats in the next century. On the other hand, inadequate as Sydenham's description undoubtedly was, we must be grateful to him for having established the autonomy of scarlet fever and given it a name to distinguish it from the other acute exanthemata, particularly measles.

It is, therefore, a regrettable fact that Sydenham's contemporary and successor Richard Morton maintained that scarlet fever was absolutely the same as measles, and only differed from it in the character of the eruption. "Let this fever," he says, "be expunged from the roll of diseases, unless it seem good to give it the name of confluent measles." Unlike Sydenham, he described a malignant as well as a mild form, and recorded eleven cases which had occurred in his own practice, in both children and adults, including two of his own daughters, aged 7 and 8 years.

Lake Sennert and Deering, and unlike Sydenham, Morton expressly mentions inflammation of the fauces in the acute stage and alludes to dropsy and ascites as sequels. He also appears to be the first author to note the occurrence of scarlatinal otitis, in a sentence where he speaks of an acrid and corrosive discharge of pus from the nose, ears, and throat (*Exercitatio tertia*, Cap 5).

In spite of Morton's attempt to identify scarlet fever with measles, the distinction established by Sydenham was henceforward accepted by subsequent writers in the seventeenth and eighteenth centuries, such as F. Hoffmann, Juncker, Cullen, Frank, and Vogel. Juncker in particular, in his *Compendium medicinae theoretico-practicae* (1724), adopts Sydenham's view of scarlet fever being an attempt of Nature to rid herself of acrid caustic matter, and as a harmless disease if left to itself, but likely to be troublesome if treated by a too hot regimen.

It is true that an attempt was made in the beginning of the nineteenth century by John and Piorry and Libérét to revive Morton's unitarian doctrine, the last two writers inventing the term "hème dermite morbillense" to include both scarlet fever and measles. Their views, however, did not meet with any acceptance.

Scarlet fever seems first to have been recognized in Scotland at the end of the seventeenth century. Sir Robert Sibbald, physician to Charles II, president of the College of Physicians of Edinburgh, and geographer of Scotland, in his work *Scotia Illustrata*, published in 1684, speaks of scarlatina as one of many other diseases which had arisen in that century, and suggests that it was due to the "depravities of the humours which have resulted from a growth of luxury." In the experience of Sibbald, who describes a case in the daughter of a judge of the High Court, the disease was rare and not often fatal.

According to Lützhoft the epidemic at Copenhagen in 1677, described by Ole Borch under the name of "rossalia squamosa," was scarlet fever and was probably the first outbreak of the disease in Denmark. It was not, however, until 1760 that the first Danish monograph on the disease, entitled *De febre scarlatina*, was published by Wernicke.

During the eighteenth century numerous epidemics of scarlet fever occurred throughout Europe and the United States, and were described by various writers, the best known of whom were Huxham, Fothergill, and Withering in this country, Storch and Zimmermann in Germany, De Haen in Holland, Plenciz in Austria, Rosen von Rosenstein in Sweden, Tissot in Switzerland, and Benjamin Rush in the United States, where scarlet fever first appeared in 1735.

Though scarlet fever was generally regarded in the eighteenth century as a distinct disease from measles, there

was a tendency to confuse it with angina maligna, which was not finally established as a distinct disease until the next century, when Bretonneau gave it the name of "diphthérie" in 1821. Withering, for example, at first was of opinion that scarlatina anginosa and angina gangrenosa were distinct diseases, but afterwards became convinced that they constituted but one species of disease, and Willan had no hesitation in ranking the "garratillo" among the varieties of scarlet fever. Cullen, on the other hand, expressed the opinion that scarlet fever was specifically different from angina maligna.

From perusal of the English writers in the first half of the eighteenth century, especially Huxham and Fothergill, who described epidemics of sore throat with and without a rash in Plymouth and London respectively, it appears that these were concurrent outbreaks of scarlet fever and diphtheria accompanied by some cases of ulcerative sore throat or pseudo-diphtheria.

Among the eighteenth century writers special mention must be made of Rosen von Rosenstein, who, in his work on diseases of children, describes the occurrence of scarlet fever at Upsala in 1741 and at Stockholm in 1761, and notes the appearance of secondary adenitis on the eighth or ninth day and of anasarca between the eighteenth and twenty-second. He is also one of the earliest, if not the first writer, to mention the possibility of a non-eruptive scarlet fever.

The disease, in his experience, varied considerably in severity.

The scarlet fever, he says, is sometimes and in some persons so favourable and gentle that the patient only requires a good nursing, whereas sometimes it is so lethal that it will carry off the patient in a day or two.

In like manner De Haen, after speaking of the mild form of scarlet fever seen by Sydenham, describes malignant outbreaks at the Hague in 1748 and 1749, and alludes to a malignant epidemic which had occurred some years previously in Belgium.

During the last thirty years of the eighteenth century, even when allowance is made for the prevalence of diphtheria, there was a considerable increase in the incidence of scarlet fever, epidemics of which occurred in England, France, Germany, Italy, Holland, Sweden, Denmark, and also in North America. The outbreaks for the most part were mild in character, but an epidemic in central Germany, which lasted from 1795 to 1805, was attended by an unusually high mortality, which was attributed to the abuse of sudorifics and stimulants.

In the commencement of the nineteenth century the tendency of malignant and extensive epidemics to be followed by periods of lesser prevalence and low mortality is well illustrated by the experience of Graves in Dublin and of Bretonneau in Tours. According to Graves the epidemic of 1801-4 was extremely fatal, death sometimes taking place on the second day, whereas the frequent epidemics which followed during the next twenty-seven years were always of a mild character. Subsequent epidemics of malignant scarlet fever which broke out in Dublin in 1831 and 1834 caused more deaths than cholera had done two years before or typhus did some years later.

Similarly Bretonneau, who had never seen a death from scarlet fever in his practice during the period 1789-1822, in less than two months of the year 1824 experienced an epidemic at Tours attended with so high a mortality that he came to regard scarlet fever as no less deadly a disease than plague, typhus, or cholera (Trousseau).

Bretonneau clearly differentiated scarlatinal angina from diphtheria by pointing out, first, that in scarlet fever the inflammation is widely diffused over the tonsils, palate, and pharynx, and is not, as in diphtheria, at first limited to one spot, and secondly, that the scarlatinal inflammation of the pharynx has no tendency to spread into the respiratory passages. Trousseau who is constantly acknowledging his debt to his old master, epigrammatically sums up the last distinction in the sentence "La scarlatine n'aime pas le larynx."

The chapter on scarlet fever in Trousseau's clinical lectures contains a masterly description of the disease, in which he not only develops the doctrines of Bretonneau, but also draws attention to the characteristic tachycardia,

fall of temperature by crisis, and frequent occurrence of albumina, and gives his celebrated account of the "formes frustes" or defaced types of the disease.

In the course of the nineteenth century several parts of the world which had hitherto escaped received their first visitation of the disease, such as Madeira in 1806, South America in 1829, Greenland in 1847, Australia and New Zealand in 1848, and California in 1849.

In his recent report to the Ministry of Health Dr. Allan C. Parsons points out that though it became possible, after the establishment of general registration of deaths by the Act of 1838, to compute rates of mortality from scarlet fever, the old confusion between malignant angina and scarlatinal angina prevented the earlier returns from being strictly comparable with more modern data. The mortality from scarlet fever in this country was undoubtedly very high for at least fifty years after the introduction of registration, the maximum being reached in 1863. During the last fifty-five years the mortality from scarlet fever in this country has shown a steady decline, which is particularly striking in comparison with that in eastern Europe, especially in Poland, Bulgaria, and Rumania.

Since the war an enormous advance has been made in our knowledge of the etiology, prophylaxis, and treatment of scarlet fever. Although Klein suggested a streptococcal origin for scarlet fever as long ago as 1887, there was a tendency until about five years ago to regard streptococci merely as secondary invaders. George and Gladys Dick, however, proved by experiments on human volunteers that scarlet fever is a local infection of the throat caused by a particular type of haemolytic streptococcus which is capable of producing a soluble toxin, absorption of which causes the general manifestations of the disease. In 1923 they successfully inoculated volunteers by swabbing their tonsils and pharynx with four days old cultures of the haemolytic streptococcus grown from the pus of a finger of a nurse who had contracted mild scarlet fever. In the following year by intracutaneous injection of the filtrates of the culture of the scarlatinal streptococcus, they devised a test, now known as the Dick test, which determines whether the subject is susceptible or immune to the disease.

Their results were confirmed by other observers, and although they have not found universal acceptance, especially in Germany and Italy, they have had far-reaching practical applications both in prophylaxis and treatment. Active immunization against scarlet fever has been undertaken on a large scale in the United States and on the Continent, especially in Poland, by injection of scarlet fever toxin modified or not by various methods, while a less durable immunity is conferred by specific scarlet fever antitoxin. A emetico serum, prepared by injection of a horse with the specific toxin, is one of the most valuable additions to therapeutics in recent years, and far surpasses in efficacy the use of the serum of convalescents, which was tried by a few clinicians some years previously.

Before the introduction of specific methods isolation of the patient was the only procedure which could be said to have had any prophylactic value. As in the case of diphtheria, however, in the pre-antitoxin era almost all the agents in the materia medica were tried in turn. The most popular preservative was belladonna, which was introduced by Hahnemann, the founder of homoeopathy, and enjoyed a considerable vogue for some time, especially in Germany.

Good results were claimed by Miguel of Amboise in 1834 from inoculation of the fluid obtained from puncture of the eruption, but he does not appear to have had any followers to confirm his results. The methods of treatment were also very varied, and included bleeding, cold or hot effusions, and a host of drugs of an emetic, purgative, diaphoretic, tonic, or narcotic nature.

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THE LIGHT SENSE IN MINERS' NYSTAGMUS *

BY

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I am fully aware that this communication is incomplete and inconclusive, but I have some hopes that it will open up a fresh aspect of the subject with which it deals, and induce others to investigate the changes which occur in the light sense in miners' nystagmus, and possibly find in it some help in elucidating the mysteries of that most complicated condition.

My attention was first directed to the subject by a paper read by Mr. Pernal at the Oxford Congress,¹ in which he stated that in all cases of miners' instagmus which he had examined he had invariably found the light minimum greatly increased, while their light difference was very little if at all greater than his own. At the same meeting he demonstrated the simple apparatus which he used in making the examination. It consists of black and white discs with sectors of white and black of varying sizes on them which, when rotated on pins, show grey circles of varying intensity. My tests have been made with this apparatus, but recently I have checked the light difference with Young's discs, and find that it is easier to work with them and that the results are similar so far as I can judge. Unfortunately Young's portfolio does not contain a light minimum test.

The accompanying table is founded on the records of

The Night Scene in 100 Cases of Others' Astigmatism

LIGHT MINIMUM				LIGHT DIFFERENCE			
Total	No Miners Vystagmus	Miners Vystagmus or Neurosis		Total	No Miners Vystagmus	Miners Vystagmus or Neurosis	
200	8	4 } 29	4 } 30				
100	51	2 } 29	6 } 30	100	51	25	25
50	31	12 } 16	19 } 25	50	35	14 } 19	21 } 30
25	7	3 } 16	4 } 25	25	11	5 } 19	6 } 30
15	3	1 } 16	2 } 25	12.5	3	0 } 19	3 } 30
100	45		55	100	45		55

Light Minimum—Normal or practically normal=59 per cent
reduced=41 per cent

Light Difference—Normal=51 per cent. reduced=49 per cent.

100 cases and the first thing that strikes one is that my results are exactly the reverse of Percival's as they show reduction in both the light minimum and the light difference in about 50 per cent of the cases. This naturally puzzled me, and on thinking the matter over I came to

A paper read in the Section of Ophthalmology at the Annual Meeting of the British Medical Association Cardiff 1928

the conclusion that Percival's observations must have been made on fresh cases, while mine were made on old ones, which were sent to me for examination with a view to ascertaining whether they had recovered. I wrote to Mr Percival, and he kindly replied, stating that this suggestion was correct, and that he agreed that both light senses are reduced in old cases. I have not been able to verify the observations on fresh cases, but if it is true that they have an increased light minimum which later turns into a deficiency it is a remarkable phenomenon. Percival attributes the early increase to an increase of endogenous stimulus and considers that this also accounts for the intolerance of light, but this latter may persist after the light minimum has become reduced. It would seem that either the increased endogenous stimulus must be sufficient to overcome the reduction in light sense which becomes manifest after it has passed off or that the reduction is something fresh which develops after the men have ceased working underground.

Coming to nine cases, and adopting Perceval's nomenclature and standard, only 8 per cent had a normal light minimum, but 51 per cent had the next grade labelled as 100, while in the remaining 41 per cent the light minimum was definitely reduced. I have divided these cases into two groups according to whether I considered from their other signs and symptoms that they were still suffering from miners' nystagmus or neurosis arising out of it, or had recovered. Of course this is only an opinion to be taken for what it is worth, but it indicates that, although 50 per cent of the cases with full light minimum still showed evidence of the disease, and one of those with the lowest grade measurable by the test was free from symptoms, there was a definite increase in the proportion of those still suffering from miners' nystagmus to those who had recovered as the light minimum diminished.

Dealing with light difference I found a similar condition. It was normal in 51 per cent and subnormal in 49 per cent, while the proportion of cases with signs or symptoms of nuer's nystagmus to those without them tended to increase more definitely than in the case of light minimum.

I am aware how inadequate these records are, both in numbers and in the manner in which they have been worked up but in spite of this I suggest that possibly there are some lessons to be learnt from them. The first is, unfortunately the negative one, that I have not found any evidence that examination of the light sense will help us in definitely deciding whether a man has recovered from miners' nystagmus. Another arises from a consideration of the possible causes of the symptom. At first sight it would seem to be obviously a part of the neurosis which is the true cause of most of the incapacity arising out of the disease, but it is possible that this may not be so in all, or even in the majority, of the cases. During the war Ransome Pickard and G. W. Lloyd* found that a number of men who were invalided suffered from a mild form of scurvy with night-blindness due to deficiency of vitamin from insufficient supply of vegetables, and had symptoms somewhat resembling those of miners' nystagmus, and Barton states that the blood of men suffering from the disease is deficient in haemoglobin, the average being 75 per cent of normal. It may seem a far-fetched theory that some of the prolonged cases of miners' nystagmus are really suffering from vitamin deficiency, but these men cannot be in a position to afford expensive food and it is possible that they may be using margarine, which is notoriously deficient in vitamin D. I throw out the suggestion as indicating a line on which investigations might be carried out with regard to the general condition of the sufferers from this most serious disease, on the lines suggested by Mr. Freeland Fergus, with some possibility of doing something for the patient. I cannot refrain from expressing my opinion that in spite of all the discussions which have taken place on miners' nystagmus, and all the money which has been spent on compensation and deciding whether individuals are entitled to it or not, the poor patient has been most shamefully neglected, and very little attention has been paid to his general condition or to the measure which ought to be adopted to improve it.

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AN UNUSUAL CASE OF SELF-INFLICTED WOUNDS
THROUGH THE SKULL FOLLOWED

BY RECOVERY *

BY

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On May 22nd, 1926, a European married woman, 27 years of age, was admitted to the gynaecological wards of the General Hospital, Johannesburg, under Dr Gibson, with a tentative diagnosis of salpingitis. At the laparotomy, which was performed on May 25th, both tubes were found to be inflamed and both ovaries cystic. There were dense adhesions in the pelvis. The appendix, which was long and slightly congested, was all that was removed.

On October 9th, 1927, this woman was admitted to the hospital again, under the care of Mr Ramsay Daly, with the head of a nail visible in the right temporal region of the scalp and an incised wound on the flexor aspect of her left wrist. She received immediate treatment from Dr Coetzee, house surgeon to Mr Daly, to whom I am indebted for the notes of the case at that time.

The history obtained from the woman, who was quite conscious although somewhat dazed, was that she had driven the nail into the right temporal region herself, with the back of a chopper. The exact situation of the puncture was one and three-quarter inches behind the right zygomatic process and three-quarters of an inch above the zygomatic arch. She had also cut her wrist with a pair of scissors, severing the flexor carpi radialis and the palmaris longus tendons. The head of the nail, with a quarter of an inch of its stem, was visible externally. The nail was removed with a pair of dental forceps, and was found to be three inches in length (see the shorter of

the two nails in the illustration). The wound was cleaned with ether, painted with iodine, and sealed with a collodion dressing. It healed by first intention and gave no further trouble. Under general anaesthesia the tendons of the wrist were sutured, the skin wound closed completely, and the patient was discharged on October 26th.

Dr Coetzee is of opinion that from the direction of the nail

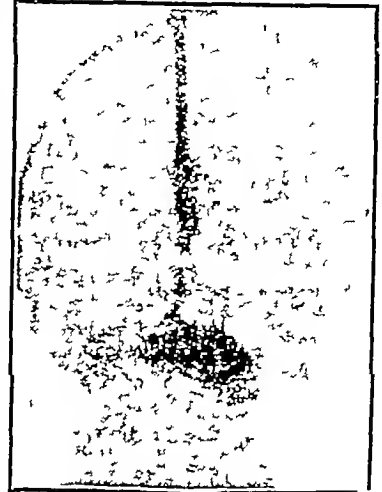
when he extracted it the right temporal lobe of the brain must have been penetrated. He also remarks in his notes that there were no signs of gross mental aberration when she left the hospital.

On November 28th this same woman was admitted to the General Hospital suffering from signs and symptoms of gall bladder disease. On this occasion she was placed under my care. Her mentality at this time can best be described by saying that she was garrulous and silly, yet I could not definitely state that she was grossly mentally deranged. In other words, she required no special attention as regards her mental condition. I operated on her on the day of her admission, and found the gall bladder full of gall-stones. I removed the gall-bladder. She made an uninterrupted recovery, and was discharged on January 24th, 1928.

On March 23rd the woman was again admitted to the hospital under my care. On examination, at 4.15 p.m., I found the head of a nail six inches from the nasion and half an inch to the left of the middle line in the scalp. A skinogram showed a long nail right through the brain

(see illustration). She was conscious, and there were no signs of paralysis. She recognized me and addressed me by name. She gave a history of having driven the nail into her head with the back of a chopper. She asked me please to remove the nail as it was painful. There was an incised wound on the left wrist. No tendons had been cut. Under general anaesthesia I removed the nail, which

proved to be four inches in length (see the longer of the two nails in the illustration). I believe it to be the correct procedure in all punctured wounds of the skull and in all depressed fractures to trephine, and this is my usual practice. Therefore I proceeded to remove a button of bone around the punctured wound in the skull. I found that the inner table had been damaged very little more than the outer table of the skull. The dura



bulged into the wound on account of subdural haemorrhage, and no pulsation was observed. I opened the dura by a cruciform incision and evacuated a good deal of fresh blood clot, and when this had been removed there was still some oozing from the cavity. As I could not see where the haemorrhage was coming from I plugged the cavity in the brain which had been made by the effusion of blood, and left the end of the plug protruding through the skin incision. The skin flap was closed by silk-worm gut suture. Forty-eight hours after the operation I removed the plug, and as I did so there was an efflux of what I took to be slightly blood-stained cerebro-spinal fluid. The wound healed by first intention. On March 29th she exhibited a double Kernig's sign and her neck was a little stiff. A lumbar puncture was performed, and showed the cerebro-spinal fluid under pressure, but perfectly clear.

The report from the South African Institute for Medical Research on the cerebro-spinal fluid was as follows:

'Microscopic examination of this specimen showed the presence of an occasional polymorphonuclear leucocyte, lymphocyte, and Gram positive bacillus. Cultivation has resulted in a scanty growth of diphtheroid bacilli only.'

Physically the patient improved day by day, and there were no further signs of meningitis or any other complications, she deteriorated mentally, however. For example, one day she imagined that her right leg was shorter than the left, on another day she told me she was deaf, although she heard my whispered remarks to her, and on most days she wailed and cried on the slightest provocation. In addition to this I obtained from her husband the history that she had more than once tried to do away with herself. On one occasion she drank tincture of iodine, on another she tried to cut her throat. Moreover, he informed me that she had attempted to strangle her children. Taking all these things into consideration, I thought she would be safer in a mental hospital, so after she had been up and walking about the wards for some days I certified her and sent her to the Pretoria Mental Hospital on April 18th, 1928.

Dr Dorothy Holmes of the Pretoria Mental Hospital has kindly given me some notes about this patient's condition since her admission to that hospital, and also some notes of her condition when she was in the Mental Hospital as a voluntary patient in 1927.

'The patient was born in Ireland being the third eldest of a family of seven children. Her parents are both alive. Patient reached the seventh standard at school at the age of 14 years. She came to South Africa when she was 11 years old. Her girlhood was uneventful. Her home conditions were comfortable and happy

* Shown at the meeting of the Southern Transvaal Branch of the Medical Association of South Africa held in April 1928.

She worked as a typist earning £6 to £7 per month. Later she married and had two children. At the birth of the second infant the doctor advised that she should be sent to Valkenberg Mental Hospital. Her mother, however, would not agree to this and nursed her herself. The patient recovered and returned to her husband. This husband deserted her and she obtained a divorce from him in 1922. Her life with this man was very unhappy.

A year after her divorce she married her present husband who had been divorced from his first wife. His first wife is at present an inmate of the Pretoria Mental Hospital being mentally disordered suffering from manic-depressive psychosis of the mixed type. The patient has two children by the first husband living with her. On the advice of the probation officer in Johannesburg the patient applied for admission to the Pretoria Mental Hospital as a voluntary boarder on July 14th 1927. Previous to this she had become very sleepless her nerves were all upset, she stated that her husband gave her no money and no servants, that he ill-treated her and that she had to work very hard. She attempted to cut her throat with a razor.

On admission to the Mental Hospital in July she was depressed, unhappy and hysterical weeping readily. She conversed rationally and gave a correct account of herself. Her memory and orientation were intact. No delusions or hallucinations were elicited from her. She slept badly. By August 1st 1927 she showed some improvement was more cheerful and took an interest in her surroundings. She expressed herself as being quite better and wanted to return home. On August 9th 1927 she returned home.

It will be noted that on October 8th, 1927, she was admitted to the General Hospital, Johannesburg, after having driven the first nail into her head. Dr Holmes's notes on her condition on her second admission to the Mental Hospital, on April 19th 1928, are as follows:

The patient is acutely depressed, cries easily, and is oriented for time and place. She does not give a correct account of herself and feigns amnesia. She begins to speak and then says, "Oh! I can't remember my memory has completely gone." (Obviously not true.) She threatened suicide and emphatically told the nurse that she would do it properly next time. She is under constant observation. On May 1st the patient was still very depressed and looked miserable. She maintained that her memory was lost. She stated that she was lame but when she thought she was unobserved her gait and station were normal. She complained readily and was hypochondriacal. She slept badly and sedatives had to be administered.

By May 26th she had improved mentally and occupied her time by reading. She sleeps and eats well and desires to go home to her mother.

Her emotional tone is unstable but her consciousness is clear and her attention can be obtained and retained. Her behaviour is irresponsible. She converses rationally, but her reasoning and powers of judgement are slightly impaired. Her memory and orientation are intact. No delusions or hallucinations can be elicited. Her psychomotor reaction is slightly retarded.

Diagnosis: Manic-depressive psychosis—depressed type. **Prognosis:** (1) Immediate favourable (2) ultimate bad. Will recover from present attack but will probably relapse.

FURTHER OBSERVATIONS ON ADRENALINE MYDRIASIS AT THE MENOPAUSE

BY

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IN a preliminary communication to this Journal,¹ and elsewhere,^{2,3} I have presented evidence that women at the menopause show an increase in sensitiveness to adrenaline. It has been shown that no mydriasis occurs in normal individuals following the instillation of adrenaline into the conjunctival sac, whereas I have demonstrated that a transitory mydriasis occurs at the menopause in some women who complain of severe "flushing."

Our knowledge concerning the internal secretion of the ovaries has been considerably augmented by the work of Allen and Doisy and others working on the mode of action and methods of standardization of the oestrus-producing autacoid. Up to the present, however, the practical value of this work, particularly in connexion with the treatment of women with ovarian extracts has been somewhat doubtful, since the condition of oestrus, as such, does not occur in women, and the system of standardization based on the production of oestrus in lower animals is, therefore not strictly applicable to ovarian therapy in women. Furthermore it has been shown that there is more than one active substance present in the internal secretion of the whole ovary.

It will be seen that some investigation was necessary to determine if a symptom common to both man and to lower animals occurs following oophorectomy. Work was there-

fore undertaken to determine if adrenaline mydriasis following oophorectomy occurs in rats as it does in some women at the menopause.

EXPERIMENTAL TECHNIQUE

Test for Adrenaline Mydriasis

One drop of adrenaline hydrochloride was instilled into the animal's conjunctival sac, at five-minute intervals, for twenty minutes. The adrenaline mydriasis reaction was considered to be positive if the pupil on the treated side became obviously dilated within this time when compared with the untreated eye.

Over a period of twelve months a large number of young mature animals—rats, rabbits, and guinea-pigs—have been subjected to this test, but in no instance has mydriasis occurred.

On October 20th, 1927, 6 albino female rats having regular 3-4 day oestral cycles, were oophorectomized under ether. From this time until June 6th, 1928, the adrenaline mydriasis test has been applied at regular intervals to these animals, 64 individual observations having been made during this period. All the rats in this experiment showed adrenaline mydriasis commencing at different periods, in no instance did a rat which had once shown adrenaline mydriasis fail to reproduce the phenomenon at subsequent tests.

The reaction to adrenaline commenced in the animals under consideration on the 91st day of the experiment, and all rats showed mydriasis by the 154th day.

EFFECT OF ADMINISTRATION OF THE OESTRUS-PRODUCING AUTACOID

I have recently shown⁴ that the oestrus-producing autacoid is effective when administered in adequate doses by the oral route, and that it will produce changes characteristic of oestrus in the vaginal smears in test rats. The dose which is effective by the mouth is some sixty times larger than that which is effective when given subcutaneously. It was decided to treat the adrenaline sensitiveness of the rats by the oral administration of the autacoid, in doses of the size which had been found necessary to produce oestrus. Only 5 of the 6 rats were at this time available for the experiment, as one had been accidentally killed some time previously.

Experiment I—Twelve sows ovaries rich in follicles were given to the 5 rats in one cage. The adrenaline mydriasis test was applied on the third day of the experiment and was found to be positive in four instances, negative in one. An observation on the eighth day showed a return of the mydriatic reaction in all the rats.

Experiment II—Five hundred rat units of a tested preparation of the autacoid were mixed with the animals drinking water. On the third day of the experiment no adrenaline mydriasis occurred in any instance; a further observation on the eighth day showed a return in all instances of the mydriatic reaction.

Experiment III—In this experiment the number of rat units of the preparation administered in water was reduced to 150. Observations on the third and eighth days of the experiment showed adrenaline mydriasis in all instances.

DISCUSSION

It will be seen from these experiments that 500 rat units of the autacoid cured the adrenaline sensitiveness of all 5 rats, 12 sows' ovaries produced a cure in only one case, 150 rat units of the autacoid failed to produce any effect.

In my experiments on the production of oestrus similar doses of the autacoid and sows' ovaries were administered to litters of 6 rats, as compared with the batch of 5 animals used in this experiment, and it is interesting to note that the dosage of the autacoid which I had found necessary to produce oestrus corresponded roughly to that which was necessary to control mydriasis in the investigation under consideration. It will also be observed that the controlling influence of the autacoid passed off in all instances by the eighth day of the experiment.

In my work on women, to which I have drawn attention previously in this paper,⁵ only 6.2 per cent. of those women at the menopause who were tested showed adrenaline mydriasis whereas all the rats gave positive results.

In order to explain this phenomenon the point which first arises is that women suffering from the normal menopause have still some ovarian tissue left, and are but

suffering from a diminution in the amount of the internal secretion, whereas the rats had all ovarian tissue removed. If this were the explanation one would expect to find that normal menopause would not all show whereas all women suffering from a surgical menopause associated with total removal of the ovaries should show the reaction.

Dealing with the first point, an effort was made to obtain some rats of menopause age, and here considerable difficulty was experienced, and an interesting point arises which has an important bearing on claims which have been made in the rejuvenation of old animals. I have found that either old animals are pets, and are therefore not available for experimental work at any price, or, if they are not pets, for economic reasons are never allowed to grow old.

After considerable trouble, however, 6 rats, all guaranteed to be 2 years old or more, were obtained, but one of these has had a litter, 4 show oestrous cycles at regular intervals, and only one rat was found to have no oestrous cycles. It is interesting to find that this rat, which has a senile cataract in one eye, gives a constant mydriatic reaction.

With regard to the testing of women who have had all ovarian tissue removed, some difficulty has again been experienced owing to the reluctance with which most surgeons remove all ovarian tissue. Twelve women who have undergone Werthorn's radical operation for carcinoma of the cervix have been tested, however, and in only one instance was adrenaline mydriasis present. It is therefore obvious that some other explanation of the difference in the percentage of reaction between rats and women must be found. As I have shown elsewhere,¹ adrenaline mydriasis in women invariably passes off when the symptoms of "flushing" cease, and that not all women who suffer from "flushing" at the menopause show adrenaline mydriasis. I have advanced a hypothesis in this *Journal*² that the disturbance of the sympathetic nervous system, in particular the abnormal adrenaline effects, is but a temporary phenomenon consequent upon the withdrawal of part or whole of the internal secretion of the ovaries, and that the duration of the symptoms depends entirely upon the speed at which the compensatory activity of the general endocrine system occurs. It would seem, therefore, that this compensatory activity is much more rapid in women than in rats.

Finally, I would suggest that the experimental work which I have outlined in this paper justifies the following conclusions:

- 1 The adrenaline mydriasis phenomena associated with the menopause in women occur also in oophorectomized rats.
- 2 The adrenaline mydriasis reaction occurs with more regularity in rats than in women.
- 3 The oestrus-producing antacid can cause rats to lose the adrenaline mydriasis effect if administered in adequate doses.
- 4 The antacid is effective when administered by the oral route in doses corresponding to those necessary to produce oestrus.
- 5 Diminution in the amount of the oestrus-producing hormone is responsible for adrenaline mydriasis at the menopause, and, as this phenomenon is always associated with severe vasomotor phenomena in women, is also probably responsible for these symptoms of the menopause.
- 6 The oral administration of the oestrus-producing antacid is rational treatment for the vasomotor symptoms of the menopause.
- 7 The dose will have to be repeated within seven days if a permanent effect is required.
- 8 Though administration of the antacid at the menopause is rational treatment, the enormous doses required will prevent the maximum benefit from such treatment being attained until preparations of increased activity are available.

I wish to record my appreciation of the helpful criticism and advice which I have received from Professor Swalo Vincent and from Mr J H Thompson of this department.

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CARDIOSPASM.

BY

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THE use of the term "achalasia" implies a pathology analogous to that of Hirschsprung's disease and of congenital hypertrophic stenosis of the pylorus, both these diseases are probably congenital in their origin, both are accompanied by demonstrable hypertrophy affecting the muscular coat of the alimentary tube, whereas in cardiospasm the condition is certainly not congenital, and the existence of any hypertrophy of the muscular coat remains a subject of contention.

The term "cardiospasm" has an established place in the literature, and clinical observation bears out its descriptive accuracy, it would seem that the term "achalasia" is a premature attempt at generalization, facile and tempting, but quite unjustified by the present state of our knowledge.

The opinions expressed in recent literature by eminent authorities¹ show a lack of unanimity as to the cause of the disease, nor is there general agreement about the counsel of perfection in treatment.^{2,3,4,5}

The symptoms, slowly progressive, fall roughly into three stages (1) Discomfort, not amounting to pain, in the epigastrium and behind the sternum (2) Precipitate vomiting, coming at intervals, later occurring at every meal, pain, sometimes severe, usually precedes the vomiting and is relieved by it (3) The vomiting becomes less precipitate. The oesophagus has become dilated so that it will hold a pint or more, the propulsive power of the oesophageal wall has weakened, and food enters the stomach mainly by hydrostatic pressure.

The disease usually occurs "in individuals of middle and late life" (Wright). The youngest case in the series recorded by Walton⁶ developed symptoms at 21 years of age, the average age of onset was 46 years. In a case sent to me by Dr Moore the age of onset was earlier—16½ years. The symptoms developed in the manner described above, there were, however, other features of an unusual character that are interesting.

The patient an unmarried man, now aged 25, became an apprentice at the age of 16 in an engineering works one and a half miles distant from his home. The long hours of hard physical labour and his rapid growth during the period of adolescence demanded abundant food. Half an hour's rapid uphill walk a similar period to return, left only a few minutes for a substantial meal at noon. In the evening, reaching home tired at 6 o'clock he had another hearty and hasty meal, hurrying to reach the technical college for evening classes at 7 o'clock. His teeth were very defective. In consequence all his meals were imperfectly masticated and were followed immediately by active exertion. The penalty of this constant bolting of food was the onset of symptoms of cardiospasm at the age of 16½ years. For several months the dilated oesophagus was emptied from time to time by vomiting, and relief from the pain followed. One day, after running rapidly up and down stairs, he discovered that the usual oppression in the chest and the sense of impending vomiting were suddenly relieved, and he felt something pass on into the stomach. He thereupon adopted the ingenious manoeuvre of springing up in the midst of a meal (when the symptoms invariably bad their inception) and jumping with a curious side-to-side action first on one leg and then on the other, until he felt a mass slide suddenly through an obstruction, he experienced an immediate freedom from pain, and he was able to resume his interrupted meal.

His general health began to suffer and he was obliged to abandon his employment at the works. He went abroad to Malaya, and there although now equipped with efficient dentures and no longer condemned to hurried meals the symptoms persisted unabated. During the last few years they have, indeed grown worse and he has slowly but steadily lost weight a stature of 6 ft 1 in consoled ill with a weight of 9 st 8 lb. Sometimes pain and oppression were such prominent and urgent features that vomiting would alone serve to relieve his distress. He consulted various medical men and ingenious explanations were offered but the cause was usually ascribed to nerves, an attribution probably influenced by his curious salutory movements.

Whilst on 'long leave' he was referred to me and I had several opportunities of seeing typical attacks during meals, ushered in by a growing expression of distress, and culminating in a sudden spring from his chair the execution of his curious jumping dance sometimes lasting a few minutes sometimes as long as fifteen minutes before sudden relief came, was very striking and suggested the existence of an oesophageal pouch or of cardiospasm.

A barium meal and x-ray examination by Dr Godfrey Mitchell (April 16th 1928) revealed clearly the typical appearances of an advanced case of cardiospasm (See Fig 1.) Since it was imperative that he should return to Malaya in about three months' time he wished to obtain a cure as nearly certain and as permanent as was attainable.

The various possible courses were outlined to him; he rejected as impracticable the tedious and uncertain dilatation by the repeated passage of bougies by Plummer's bag¹ or by the mercury tube so confidently recommended by Hurst.² Constrained by circumstance he elected to submit to the operation so ably and convincingly advocated by Walton.³ With his preference I concurred the more readily in that his father, a medical man, counselled this course. Where time and the tolerance of the patient are limited it is well to remember that Mitchell has recorded his having "seen patients who have passed the mercury tube 35 times a week without obtaining any permanent relief."

Accordingly on April 22nd 1928 under gas, oxygen and ether I opened the abdomen at Glenwood Nursing Home. He was very wasted, the chest long and narrow, the epigastric angle acute, the liver enlarged and low lying (possibly from the frequent attacks of malaria that he had endured), so that access to the stomach was rather difficult. Contamination of the rest of the abdomen was prevented by large gauze packs. The stomach was then opened on the anterior aspect by an incision in its long axis, the free bleeding from the edges being arrested by "mosquito" forceps and ligatures of fine catgut. The initial difficulty encountered was the finding of the cardiac orifice, but by patience this was located, a small tightly closed dumple-like opening resembling an anus spasmodically contracted by a fissura

enjoys an ordinary diet, and is steadily losing his emaciated appearance.

On July 2nd, 1928, Dr Godfrey Mitchell again x-rayed the patient, and reported as follows:

"Food now passes very much more freely into the stomach and even when thick paste was swallowed no large accumulation took place in the oesophagus. There is still some dilatation of the gullet but considerably less than at the time of the previous examination."

The x-ray appearances are seen in Fig 3. Although there is still some dilatation the tube of the gullet is seen to be flaccid, muscular tone is not yet regained, but there is no arrest of food. It is evident that any repetition of his former habit of swallowing large unmastered masses of food, which could not at once pass onward into the stomach, would assuredly cause recurrence of symptoms. Herein there possibly lies the explanation of the relapses that occur in a certain proportion of successful cases. In like manner the recurrence of gastric ulcer and the formation of jejunal ulcer some months or years after a gastrojejunostomy is more closely related to a reproduction of the same factors that caused the original lesion—oral sepsis, defective mastication, grossly unsuitable food, overindulgence in alcohol and tobacco—than to any inherent



FIG 1.—Antero-posterior view of dilated oesophagus April 16th 1928 before operation



FIG 2.—Oblique view of the same case April 16th, 1928 before operation



FIG 3.—Radiogram after barium meal, July 2nd 1928 after operation

in ano. The little finger, then the forefinger followed by the ring and middle fingers, were cautiously inserted until after about fifteen minutes the thumb too with the hand in the obstetric position gained admission.⁴ Stretching was cautiously continued until the opening became lax, the fingers then passed easily along the 1 inch of intra-abdominal oesophagus to the diaphragm where the aperture seemed slit-like and required less force to secure relaxation than did the true cardiac orifice.

Despite abstinence from food for the antecedent twenty-four hours the anticipated gush of dark green fluid flecked with fragments of undigested food followed the dilatation at least half a pint was mopped away and a similar quantity flowed later into the stomach whilst the gastric incision was being sutured, another 6 ounces were vomited seven hours later after which none was returned.

The period of moderate shock with intense pain in the left chest behind lasted twenty-four hours and would seem to be a sequel inseparable from any severe operation in a region so sensitive to trauma; however gentle the manipulations employed. A bronchitis, with shallow distressed breathing was not unexpected and happily subsided at the end of three days. During these three days nothing was given by the mouth, abundant fluid (with sodium bicarbonate and glucose) being supplied by the rectum. From that time onward the swallowing of fluids and later of solid food was painless.

Healing and recovery were uneventful, the complete disappearance of all symptoms being remarkable. None the less gratifying has been the steady increase in weight, so that three months from the date of the operation he weighed 10 st 9 lb, he now weighs over 11 st.

The symptoms in this case etched clearly the clinical picture of cardiospasm. The ingenious and effective manoeuvre of jumping in order to relieve the urgent sense of pain and oppression appears to be original.

The patient is now completely free from any symptoms.

* This description applies to a small hand taking a 61 glove.

defect in the operation, whose consequences would become apparent within a few weeks. It is always difficult to eradicate long-established habits whose evil tendency is not fully realized by the patient.

Hurst has denied the existence of spasm, and has assumed an exact parallel between cardiospasm and congenital pyloric stenosis. In the latter there is undoubtedly a hypertrophy of the circular muscle at the pylorus. One cannot but be impressed in doing Ramstedt's operation with the (relatively) enormous mass of muscle that needs division in an infant a few weeks old. Surely such a condition is either congenital or develops soon after birth, antecedent to and not caused by the spasm that gives rise to the symptoms of obstruction. It does not follow that the spasm has given rise to the hypertrophy. Nor does the absence of any hypertrophy of the circular fibres around the cardiac opening of the oesophagus negative the existence of a spasm seen and felt in a case which is clinically one of cardiospasm. After feeling with the finger the tightly closed cardiac orifice slowly then more rapidly, yield to pressure there can remain no doubt in the mind of the surgeon as to the presence of spasm.

A closer parallel is found in a fibrous stricture of the urethra on which has been superimposed a spasm that yields to persuasive measures. The absence of any demonstrable hypertrophy of the urethral sphincter does not invalidate a diagnosis of spasmodic stricture in the living subject.

Rake⁵ has carried a stage further our knowledge of the changes found *post mortem* in Auerbach's plexus. Whilst

admitting the reality of the lesions described, it is difficult to follow the process of reasoning which converts the degenerated nerve fibres of any share in the causation of the disease. If such a lesion were the true causative agent, or even one factor, by what magic do these cases recover so rapidly, so completely, and so permanently after the simple procedure of overstretching the constricting tissues?

Acute controversy has arisen as to the cause and pathology,^{12, 13, 15} in the course of which fact and fantasy have not always been clearly distinguished. Brown Kelly¹³ dissected two specimens and "demonstrated both muscular coats to be of uniform thickness and without any special aggregation of fibres at or near the cardia. These findings seem to admit of only one interpretation—namely, spasmodic contraction." They certainly prove that hypertrophy of the muscle forms no essential feature or a case of cardiospasm, and effectually preclude any analogy with hypotrophic stenosis or Hirschsprung's disease, in both of which muscular hypertrophy forms a prominent and invariable feature. This analogy has gained a certain amount of credence by a parrot-like repetition, unsupported by facts. Pure theory is admissible if it helps to formulate treatment, but such a theory as this one neither satisfies reason nor directs practice.

There is a parallel to be found in the dysphagia duo to spasm at the upper end of the gullet at the "post-crucoid" level.^{10, 11, 12} In the symptom-complex of "dysphagia with anaemia" described by Jones and Owen¹ pathological changes in the mucous membrane at the site of obstruction are stressed as a prominent part of the clinical picture. Again, Brown Kelly and Paterson¹⁶ give evidence that, in a goodly proportion of cases of spasm at the upper end of the gullet there have been observed fissures, erosions, bands or membranes, chronic glossitis, or early carcinoma. Sometimes no lesion of the canal is detected by the oesophagoscope,¹¹ but that does not negative their existence. Whether or no any lesion was found, all observers agree that the element of spasm was constant.

Wright¹ states, "It is an undoubted fact that spasm at the entrance of the oesophagus occurs in association with superficial fissures and erosions." Although I can find no record in any *post-mortem* reports of cases of cardiospasm in which fissures and erosions were found at or near the cardiac orifice, it is possible that these would not be distinguishable through the oesophagoscope, and may readily escape detection at the necropsy unless definitely looked for. In Sir St. Clair Thomson's case¹⁶ of cardiospasm he remarks on the presence of a profuse growth of *Oidium albicans* on the wall of the dilated oesophagus. Certainly the demonstration of cracks and erosions would yield a more illuminating pathological picture than does the mere presence of degenerated nerve fibres in Auerbach's plexus. The latter might be expected as a natural sequence, their existence has been demonstrated by Rake¹, that they are in any way the ultimate cause of cardiospasm is pure theory and extremely improbable.

Hurst¹² writes of "the accompanying oesophagitis in the earlier stages, before the degeneration of Auerbach's plexus is complete." Surely when the nerve plexus becomes completely degenerated there is an end to all hope of cure or even improvement by bougies, mercury tube, or operation. There is an ingenuousness about the statement that the mercury tube "closely approximates to what happens under natural conditions." The weight of the mercury tube is about the same as that of the column of food in the dilated oesophagus.¹⁴ It might be inferred from this that the mercury tube is no more potent as a curative agent than the 8 in. column of food.

In the published cases there is a dearth of information regarding the habits of the patients in the years antecedent to the onset of the disease. Consideration of the case detailed above suggests a simple and, I believe, an adequate explanation of the origin of the disease. The repeated hurried swallowing of large masses of imperfectly masticated food too large to pass at once through the cardiac orifice, so that they must remain for long periods in the lower oesophagus causes a mechanical dilatation of that tube. The oesophageal wall, insulted by unduly prolonged

contact with disintegrating food, yields grudgingly, the dilatation of the contiguous cardiac opening induces a reflex protective spasm.

Comments

1 In the case reported there was very definite powerful spasm. Doubts as to the existence of spasm have been expressed, but the "pathology of the living" is more convincing than any theoretical speculations, or even experiments, on the cadaver.

2 The degeneration of the nerve fibres in Auerbach's plexus is interesting, but not germane to the question of cause. If the integrity of the plexus is essential to proper function the immediate and complete recovery after the various forms of stretching postulates an immediate and complete recovery of the nerve lesions, which is obviously impossible.

3 The disease is an acquired one, not comparable with congenital conditions, such as Hirschsprung's disease or congenital hypertrophic stenosis of the pylorus. Therein lies the hope of permanent cure.

4 The early age of onset (16½ years) in the case recorded is of interest.

5 The curious saltatory gymnastics adopted to obtain relief do not appear to have been previously recorded.

6 The bolting of food was clearly the cause in this case, and will probably be found to be the main factor responsible in all cases.

7 Plummer with the help of his bag only claims 81 per cent of cures, and of these some relapse. Operation as advocated by Walton offers more certain, less tedious, and possibly more permanent cure.

8 Correction of faulty habits will go far to prevent relapse.

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THE PREVENTION OF COMPLETE RUPTURE OF THE PERINEUM

BY

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THE conduct of maternity cases by the general practitioner has recently been somewhat severely criticized by eminent gynaecologists, it is therefore with a certain amount of diffidence that I, one of the rank and file, venture to make this intrusion into the domain of obstetrics. My justification is that complete rupture of the perineum—the subject dealt with in this paper—is a disaster the importance of which can be scarcely exaggerated, and that I believe it to be preventable by the method of reinforcing the perineum presently to be described.

I do not propose to enter into the causes of severe perineal lacerations, nor need I stress the obvious dangers of impatient and violent intervention. There is, however, no doubt that from time to time cases will occur in which, in spite of every care, the perineum may be torn right into the rectum. In such cases after the tear has attained certain dimensions it is hopeless to expect the perineum to go on stretching—Nature has begun to take a short cut to secure the necessary room, and the line of least resistance will be followed until the orifice is big enough to let the head pass. Whether the necessary room will be secured

before the tear extends into the rectum is largely a matter of luck unless the obstetrician can take active steps to limit the damage.

I suggest that, if he can strengthen the weak spot in the circle and can ensure that the perineum shall tear so far and no farther, he may make it possible for the extra room still required to be obtained by the resumption of the ordinary process of stretching. Acting on this idea I have for the past seven or eight years practised perineorrhaphy as a preventive rather than a reparative measure.

At the first sign of the perineum giving way I reinforce it by putting in a series of sutures of silkworm gut—from three to five in number, according to the amount of room in each patient between the fourchette and the anal sphincter—starting at the level of the perineal tear and

proceeding from before backwards. The needle carrying each stitch is inserted about an inch to the left of the central line of the perineum, passes between the scalp of the foetus and the deep surface of the

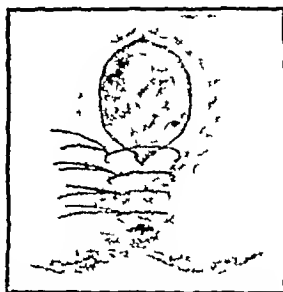


FIG 1.—Showing sutures inserted and tied in loops which gradually become tighter as anus is approached.

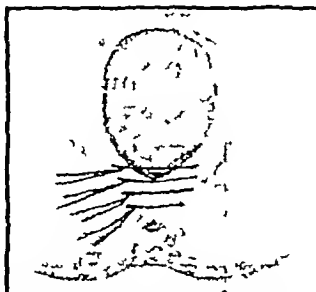


FIG 2.—Showing birth of head, sutures are now taut, preventing any further splitting of perineum.

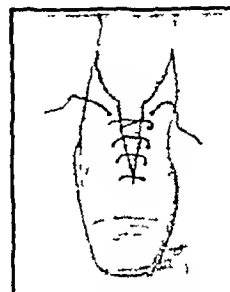


FIG 3.—Showing analogy of the loosened shoelace.

perineum, and is made to emerge again through the skin an inch to the right of the central line. By using a long needle and taking in a wide area on each side of the central line a good purchase for the sutures is secured.

Now comes the most important part—the tying of the stitches. The accoucheur has to decide in advance how far he is prepared to allow the perineum to split. The uppermost stitch is tied loosely enough to allow that amount of splitting but not sufficiently loose to allow more, the next stitch must be a little less loose, and so on until the last one just in front of the anus, is reached—this is tied firmly. We now have a sort of lattice work of sutures which may be compared to the laces of a shoe after they have been loosened to allow the foot to be withdrawn.

As the head advances the stitches become taut, if they have been properly tied they should take the strain more or less simultaneously. If the top stitch is too tightly tied it will cut through the perineal tissue until the strain is taken by the sutures below. No single stitch would avail to hold in check a severe rupture of the perineum, it is the combination of a number of sutures all taking the strain together that saves the situation.

Several colleagues of mine have objected that the stitches must inevitably cut through. I can only urge sceptics to try this method for themselves. They will be surprised to find how well the stitches hold. So far I have not encountered a case in which there has been any serious cutting through.

In tying the sutures I do not use reef knots for after the child is born the sutures have to be drawn tight to bring together the edges of the torn perineum. A double turn is sufficient* to fix the suture (already sticky from its passage through the perineal tissue) in the state of looseness temporarily desired, or it may be tied in a bow, which can be pulled apart later. Another alternative is to take a single turn and clamp the half-knot with pressure forceps.

Naturally the greatest care has to be taken to prevent too great and sudden a strain being put upon the now reinforced perineum. The use of midwifery forceps helps to control and steady the advance of the foetus's head. In occipito-anterior positions the forefinger should be inserted to steer the baby's eyes, nose, and mouth safely past the upper stitches. Taking this precaution I have never experienced any difficulty in preventing damage to the face.

After the birth of the placenta it only takes a moment to draw the series of loops tight and to bring into exact apposition again the edges of the perineal tear. The sutures below the tear, having served their purpose, are snipped with scissors and pulled out.

It seems hardly necessary to warn the accoucheur that the stitches should be inserted *between* the pains, and that the needle must not be put in too deep, I happen to know of a case in which the doctor, trying this method for the first time, anchored the baby's scalp to the perineum.

As regards the value of these experiments, I must confess that I have not had enough cases to dogmatize. Rupture of the perineum is fortunately a relatively rare complication. The procedure described above is, at any rate, harmless, if proper precautions against sepsis are

taken, and the favourable results which I have experienced in every case in which I have employed it during a number of years encourage me to think that even in the worst cases it may, if rightly used,

prevent a tear from extending through the internal sphincter into the rectum. I think I may claim for it that it limits the damage and acts as a brake.

The description of this method is published in the hope that others will take the opportunity of testing its value and improving the technique. Hitherto I have only tried interrupted sutures, very probably the use of a single continuous suture (following more exactly the analogy of the loosened shoelace) would be simpler and equally effective.

THE RELATIONSHIP OF PLASMA CHOLESTEROL AND BASAL METABOLISM

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In a communication in 1922 Epstein and Lande¹ endeavoured to demonstrate the existence of an inverse relationship between the blood cholesterol and the basal metabolic rate. Such a correlation was suggested by the fact that in subacute and chronic parenchymatous nephritis the basal metabolism is subnormal while the blood cholesterol is increased above normal. Epstein believes that this disease is really a metabolic disorder involving a hypothyroidism, and that the renal manifestations are only a part of the picture.

In support of this thesis Epstein and Lande have determined the blood cholesterol and basal metabolism in a number of cases of hyperthyroidism, in which they maintain that the same inverse relationship of these two factors also holds good. Their figures, however, hardly warrant the conclusions they have drawn. The colourimetric method they used for estimating the total cholesterol of whole blood, as has been repeatedly proved,^{2,3} is open to serious objection but, perhaps, a more important criticism is the use of the total cholesterol of whole blood as a significant value. They ignore the fact that the total figure includes the cholesterol of the corpuscles, which is in the "free" form only, and which is remarkably constant in health and disease, and also the fact that the plasma cholesterol exists both in "free" and in combined form as ester. The ratio

* Since writing the above I have had a case in which the double turn was not sufficient to fix the suture as desired. The suture was subjected to a sudden and violent strain and began to slip and a reef knot had to be made to save the perineum. I should therefore in future prefer the third method as the safest—that is taking a single turn and clamping the half knot with pressure forceps.

TABLE I

Case No	Age	Basal Metabolic Rate	Respiratory Quotient	Percentage Cholesterol In Plasma			Percentage of Total Cholesterol as Ester
				Free	Ester	Total	
Women							
1	13	+43.7	0.80	0.0418	0.082	0.120	65.9
2	37	+74.7	0.79	0.0374	lost		
3	55	+23.85	0.5	0.02.9	0.1885	0.2154	87.5
4	21	+37.4	0.4	0.0442	0.0583	0.1025	38.8
5	13	—	—	0.0400	0.0417	0.0817	46.0
6	25	+26.8	1.04	0.0491	0.1213	0.1704	71.2
7	60	+60.8	0.9	0.0562	0.0466	0.1028	32.6
8	23	+68.2	0.76	0.0259	0.0461	0.0720	64.05
9	39	+64.4	0.78	0.0422	0.1163	0.1585	73.6
10	50	+29.7	0.79	0.047	0.0410	0.0887	49.6
11	37	+45.9	0.68	0.1239	0.1069	0.2308	45.3
		+57.9	0.81	0.0476	0.0521	0.100	52.0
12	42	+58.7	0.74	0.0278	0.049	0.0768	9.5
Mean				0.0505	0.0729		
Normal ¹⁵ { Mean Limits of variation				0.041	0.096		
				0.0205	0.0544		
				0.0314	0.1402		
Men							
13	47	+33.5	0.79	0.0028	0.1631	0.1659	98.2
		+81.4	0.0	0.0416	0.0996	0.1442	69.0
14	42	+4.5	0.73	0.0319	0.0731	0.1050	58.4
		+63.0	0.80	0.0197	0.073	0.1230	59.6
		+46.8	0.85	0.0764	0.0272	0.0966	21.9
Mean				0.045	0.0859		
Normal ¹⁵ { Mean Limits of variation				0.054	0.1193		
				0.0049	0.046		
				0.0819	0.1451		

of these two forms of cholesterol in the plasma is subject to almost unexplained variations, and from a metabolic point of view the two forms cannot be considered as so identical that they can be estimated and considered as one substance.

Furthermore, they explain such figures as do not quite fit in with their thesis by assuming that in longstanding cases of hyperthyroidism there can be an "exhaustion of lipid," an expression which is meaningless to us, and also that at the characteristic the blood cholesterol is apt to be raised, for neither of these assumptions is there any definite foundation. Luder⁴ also investigated, in a similar manner, a case of myxoedema, with and without thyroid administration,

and reported the same inverse relationship between blood cholesterol and basal metabolic rate.

Epstein's views as to the nature of subacute parenchymatous nephritis (so-called nephrosis) are now well known, and the many changes in the body metabolism in this condition have led to the increasing acceptance of the view that it is a metabolic disorder, the renal changes being secondary. His method of treatment by high protein feeding and thyroid administration is also based on this hypothesis. The results reported by Epstein and Lando are important as a basis for these theories, and we have thought it worth while to investigate the matter further.

Two types of patient were investigated: cases with hyperthyroidism, and cases with hypothyroidism, the latter type both during treatment with thyroid preparations and without such treatment. The basal metabolism was estimated, using a Douglas bag, according to the accepted method. The blood for analysis was taken immediately after the filling of the Douglas bag by the patient, when he was in a "fasting" condition—that is, he had had no food for fourteen hours. The plasma was separated, and the "free" and ester cholesterol estimated by the digitonin method, using the procedure which we have described in detail elsewhere.⁵

Before proceeding to discuss our results it is important to set out certain considerations. We have shown in a study of the cholesterol content of normal human plasma that the variations in cholesterol content are so considerable that an average figure for the normal plasma cholesterol is devoid of meaning, unless the normal limits of variations are taken into account.⁵ A single individual, however, tends to keep, in fasting state, a more or less constant level of cholesterol content of his plasma.⁶ Consequently it is by no means easy to demonstrate hypercholesterolaemia or hypocholesterolaemia of small degree, except, perhaps, for an individual the cholesterol content of whose plasma, under normal conditions, is known.

Furthermore, the level of the plasma cholesterol can be affected by feeding, and though this alteration is by no means necessarily in the sense of a hypercholesterolaemia—the change being sometimes in the opposite direction—this result of feeding should be avoided by examining whenever possible the plasma of subjects when in the "fasting" condition.⁶

RESULTS

In Table I we present the results of estimations in cases of exophthalmic goitre. In the case of one of the men and one of the women more than one investigation was made. These two cases are particularly interesting in that the plasma cholesterol shows wide variation bearing no relationship to the basal metabolic rate at the time of observation. Taken as a whole the cholesterol figures yield an average a little lower than we have found in normal

TABLE II.—Showing Results in Four Cases of Hypothyroidism

Case and Date	Basal Metabolic Rate	Respiratory Quotient	Percentage Cholesterol in Plasma.			Percentage of Total Cholesterol as Ester	Treatment
			Free	Ester	Total		
J B aged 55 Myxoedema. February 26 1927	-18.4	0.99	0.0919	0.2179	0.3098	70.0	Nil
March 5 1927	-14.65	0.99	0.0591	0.1741	0.2335	71.6	After 0.2 mg thyroxin daily
March 12	-7.5	0.83	0.0542	0.0633	0.1175	53.9	After 0.4 mg thyroxin daily
March 29	-9.1	1.18	0.0408	0.0874	0.1282	68.2	After 15 grains thyroid gland daily
G D aged 42 Myxoedema January 14 1925	-7.1	0.94	0.0785	0.2021	0.2807	72.2	After increasing doses of thyroid gland from 9 grains to 15 grains a day
January 25	+13.4	0.74	0.0509	0.117	0.1746	65.1	
A M aged 62 Myxoedema. April 12 1925	+2.1	0.91	0.0857	0.1935	0.2792	69.3	After 12 grains thyroid gland daily
April 19 , ...	+15.1	0.66	0.0931	0.1769	0.2700	65.5	
A C aged 24 Cretin April 21 1925	+42.9	1.18	0.0657	0.1116	0.2073	68.4	After 16 grains thyroid gland daily
April 29	+10.2	1.09	0.0528	0.1167	0.1695	68.8	Thyroid omitted since April 29th
May 4	+10.8	0.97	0.0562	0.099	0.1661	62.2	Idio

individuals but nevertheless the figures are practically all within the normal limits of variation

It seems reasonable to conclude from our figures that, in cases where the basal metabolic rate is above the normal, an inverse relationship between the basal metabolism and the plasma cholesterol does not exist, either as regards free, or ester or total cholesterol

In Table II are given the results of the investigation of four cases of hypothyroidism, three being cases of myxoedema and one a cretin who had had thyroid treatment for twenty years. The most fully investigated case was that of I. B., who presented a classical picture of myxoedema. Here, definitely, the increase of basal metabolic rate called forth by the administration of thyroxin or of thyroid gland led to a lowering of the plasma cholesterol, most noticeably in the case of the ester cholesterol. G. D. gave a very similar result, but A. M. who was examined after administration of thyroid gland for a somewhat shorter period did not show the same effect. In the case of A. C. the estimations were first made while the patient was taking thyroid, a treatment he had been having regularly for twenty years. Thyroid administration was then omitted during the rest of the experiment. The alteration of cholesterol level is, in this case only of relatively small degree, and in an opposite direction from that suggested by hypothyroidism. However, this case is perhaps not entirely comparable with the cases of myxoedema for it is not certain that after such long-continued thyroid administration omission of this treatment would lead to a sharp effect

CONCLUSIONS

We do not find that cases of hyperthyroidism provide any support for Epstein's theory that the blood cholesterol is inversely proportional to the basal metabolic rate

As regards the cases of hypothyroidism there does appear to be some such relationship, and the cholesterol of the plasma is certainly above normal in the untreated cases of myxoedema

It is however, important to note that the hypercholesterolaemia shown in these cases of myxoedema does not reach the level of hypercholesterolaemia so frequently found in subacute parenchymatous nephritis, where the increase of plasma cholesterol is quite out of proportion to the lowering of the basal metabolic rate and this increase is often present in the later stages of the disease when the basal metabolic rate has become normal

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A JAM JAR IN THE RECTUM

This case seems to be a surgical curiosity, and the clinical details may therefore be of general interest

A man aged 55, who was admitted to the Northern Hospital, Liverpool had suffered from a rectal prolapse for many years which recently had become difficult to reduce. He was advised by his friends to try to reduce it by pressure with the bottom of a half pound jam jar, and by some extraordinary mischance forced the jar up past the tuber ischi to the rectum. He attempted to remove the jar himself but failed and it was not until three days later that he visited his doctor. In the meanwhile the anal region had become very septic as the result of efforts at removal and pressure by the foreign body. His doctor having tried unsuccessfully to extract the jar sent the patient to hospital.

The house-surgeon made further attempts and found that the anus was so stretched that it was possible to remove a quantity of dirty rags which had been pushed into the open end of the jar which lay bare up. Even with anaesthesia and the use of all the available forceps and retractors it was impossible to extract it. I found that although the anus readily admitted the whole hand, and the jar was lying free above the tuber ischi on either side yet its diameter was just too wide to allow it to come through in any plane. Probably the explanation as

to how it had been introduced was that at the time there was no oedema or inflammation of the rectal wall, and it could then only just be forced past the tuber ischi. The patient described how once partially inserted the jar shot up into the rectum. As the anus and rectum were in an extremely septic and oedematous condition with some oozing of blood from small lacerations it was obvious that whatever else might be required a temporary colostomy was essential. The patient already under ether anaesthesia was prepared for an abdominal operation.

Through a median subumbilical incision the pelvic rectal junction was exposed. The gut wall was very congested and the jar was easily located in the upper rectum. The pelvic colon was examined with a view to ascertaining its mobility for the colostomy. An attempt to milk the jar down from above past the pelvic outlet failed, even with the aid of an assistant at the rectal end. It could not be manoeuvred past the ischial plane. After completely isolating the area with packs the jar was therefore extracted through a longitudinal incision in the lower pelvic colon and the opening was closed transversely. Flapine was applied and a corrugated rubber strip was placed close to the suture line for drainage purposes. A left inguinal colostomy was performed over a glass rod and the incisions were closed. The jar measured 24 in. in diameter at base and was 3 in. in height. The colostomy was opened in forty-eight hours and the lower colon and rectum were treated with lavage from above using hypertonic saline at first and later normal saline.

In three weeks time the rectal condition had returned to the normal and the external sphincter also had regained excellent tone. As there had been severe inflammatory reaction in the rectal and perirectal tissues and consequent fibrosis the probable result would be the cure of the prolapse. An intraperitoneal plastic operation was performed a month and a half later to close the colostomy, the spur having been previously more or less obliterated with a Paul's enterotome.

The colostomy wound healed satisfactorily and the patient was discharged as cured. The rectal prolapse has not recurred and the bowels act normally.

Liverpool

PHILIP HAWE, Ch M., F.R.C.S. Eng

AN EXTERNAL TERATOMA

The accompanying photograph of an anatomical curiosity, the like of which is, fortunately, rarely seen, may be of interest.

The body is that of a full-time European female infant born on September 19th at 6.10 p.m. The child, which was well nourished, gave out one or two gasping breaths and expired.

From below the left mamma there protruded an arm and shoulder, fully formed and developed. On examination a clavicle and part of a scapula could be felt. The arm and hand were perfectly normal in every respect, and the joints were articular. The left forearm of the body was composed of two radii and two ulnae with the hands complete. These two forearms were fused on their anterior surfaces. The humerus, although thicker in girth than



normal, was only single. The digits of this double hand were perfectly formed and tipped with nails. Lying laterally to the extra arm and shoulder below the left mamma was a cauliflower-like mass resembling two ears joined by their lobes. There was also a piece of tissue resembling a penis, but not penetrated by a urethra. Next to this was the heart lying uncovered by pericardium and pulsating rhythmically. The left foot was everted in the position of talipes equinovarus.

The body weighed 8½ lb. and was well developed and nourished. The fusion of the two bodies does not seem to have impaired the development of either despite the rather cramped quarters.

Unfortunately I was unable to persuade the parents to allow me to do a dissection.

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British Medical Association

CLINICAL AND SCIENTIFIC PROCEEDINGS

ULSTER BRANCH NORTH-EAST DIVISION

The "Acute Abdomen" from the General Practitioner's Point of View

At a meeting of the North-East Division of the Ulster Branch on October 5th, the chairman, Mr D Huxy, read a paper entitled "The acute abdomen from the general practitioner's point of view."

Mr Huxy said that he proposed to differentiate all the affections in the abdomen and pelvis which were likely to be mistaken for one another. Better understanding of the transference of pain which often occurred in the acute abdomen would be obtained by recalling the nerve supply of the abdomen and pelvis. The skin of the anterior abdominal wall was supplied by the lower six thoracic nerves and the first lumbar. The ilio-hypogastric and the ilio-inguinal branches of the lumbar nerve supplied the hypogastric region, the skin over the pubes the inner aspect of the thigh, and the upper part of the scrotum. The tenth thoracic supplied the skin in the region of the umbilicus. These nerves ran obliquely around the chest. The eighth intercostal was placed posteriorly at the inferior angle of the scapula, anteriorly it ended midway between the xiphoid process and the umbilicus. The skin of the posterior abdominal wall was supplied by the posterior divisions of the same nerves. The anterior divisions of the first and second lumbar nerves, with the lower thoracic nerves, were connected with the corresponding ganglia of the sympathetic, with both white and grey rami communicantes. The nerve supply of the abdominal viscera was derived from the lower six thoracic and the first lumbar segments, and afferent impulses from the viscera reached the same segments of the spinal medulla, as did the afferent impulses from the skin of the abdominal wall. In pathological affections the afferent impulses from the viscera might become so altered in character as to overflow those cells for which they were originally intended, and stimulate neighbouring cells which were accustomed to receive impulses from the skin of the abdominal wall. When the stimuli of these latter cells reached the brain they were interpreted as painful sensations of the skin area supplied by the segments of the spinal cord involved. Pain of this variety, which might be felt in a different region from the viscus at fault, is spoken of as referred pain, and the whole reflex is called the viscerosensory reflex of Mackenzie.

The term "acute abdomen" implied uncertainty as to exact diagnosis, and appendicitis was the most prominent cause that produced the acute abdomen. In seven cases out of ten of pain in the abdomen, with some temperature and a history of vomiting, the correct diagnosis would be appendicitis, but other conditions had to be remembered. Mr Huxy cited the case of an old woman, aged 72, who had been ill for several days, she had a temperature and a marked swelling in the right iliac fossa, under an anaesthetic it was easy to see that it was not an appendix case, since the swelling came over to a central position, it was traced up the abdomen, and eventually found to be a twisted gall bladder containing about half a pint of fluid and ten or a dozen twists in the neck of the gall-bladder, which was becoming gangrenous. Complete recovery followed removal.

It was necessary to diagnose appendicitis from gastrointestinal catarrh, in which there were severe cramp-like abdominal pains, with vomiting, but the pain and tenderness were situated above the umbilicus and remained so, and the tenderness was only present during a spasm. There was no fever or tenderness, and the pain was rather relieved by pressure, the muscles were not rigid between the spasms. In a perforated gastric or duodenal ulcer the onset was more abrupt, the pain more intense, and the rigidity of the muscles was most marked in the upper part of the abdomen above the umbilicus. In perforation of a duodenal ulcer the rigidity often extended down to the right iliac fossa, simulating appendicitis very closely. In

children certain conditions might simulate appendicitis: pneumonia of the right base, diaphragmatic pleurisy, an acute *Bacillus coli* affection of the pelvis of the kidney, and acidosis with a temperature and constipation. In some cases of appendicitis the pain and tenderness were not in the right iliac fossa, because the appendix had not come down to its usual situation, but remained close against the liver and in front of the right kidney. Such a case was very like a perforated duodenal ulcer, but the patient did not have the intense look of suffering as after a perforation, nor the boarded muscles, and the pulse was much better. In the end exploration was necessary. In acute cases of this kind cholecystitis, cholelithiasis, and renal colic had to be remembered. In gall stone colic there was intense vomiting when the pain was severe, the pain radiated round the right side, and perhaps over on to the left side or on the tip of the right shoulder. The site of greatest tenderness was below the tip of the ninth rib and half-way to the umbilicus. Cholecystitis could be distinguished from acute appendicitis by the site of the tenderness. In children with acidosis or pyelitis it was sometimes difficult to decide, but the abdomen was not rigid and moved freely on respiration. Diaphragmatic pleurisy and pneumonia were recognized by the sudden onset of pain and shivering, and pneumonia by the high temperature, the referred pain in the upper part of the abdomen, and the usual auscultatory sounds—crepitous sounds in pneumonia and friction sounds in pleurisy.

In perforated duodenal ulcer—another cause of an acute abdomen—the onset was sudden, the pain intense, and the abdomen was boarded and firm, not moving on respiration, there was usually a history of a good appetite, with heartburn and acid coming up in mouthfuls, severe pain at night awakened the patient, and was relieved by food. The only thing likely to be mistaken for it was a perforated gastric ulcer, but in this there was usually pain and vomiting shortly after taking food, and relieved by alkalis. In both cases an operation was required. If a perforated gastric ulcer on the anterior wall was properly treated it gave no trouble in the future. There was sharp pain and localized swelling, but none of the usual urgent symptoms, the ulcer had perforated, but was walled round by adhesions. Mr Huxy had seen several of these cases which recovered. In young girls with gastric ulcer there was sometimes intense pain simulating perforation which ended in a few hours, the etiology was unknown. Acute intussusception was a common cause of an acute abdomen in children, boys being more often affected than girls. The attack began as colic, causing the child to scream and draw up the knees and become pale, the eyes were widely dilated, and the pain was usually followed by vomiting. A normal motion might be passed, followed by violent tenesmus and a considerable quantity of mucus and blood being expelled at frequent intervals. On palpating the abdomen it was noticed that the right iliac fossa was empty, and there was a sausage-shaped swelling in the abdomen, with its convexity towards the umbilicus, this was caused by the mesentery dragging the tumour into a horseshoe shape. There was no rigidity of the muscles unless a spasm was present, and no temperature until inflammation set in. Acute colitis was the only disease likely to be confounded with intussusception, and ought to be easily excluded. Volvulus of the colon occurred in men between 40 and 60 years of age who were constipated. The onset was usually sudden, and there was complete obstruction with severe pain of a colicky character generally referred to the region of the umbilicus, tenderness in the left iliac fossa, and severe tenesmus. The most striking and characteristic sign was the early and extreme distension of the abdomen. As the seat of the lesion was low down in the abdomen vomiting was seldom an early or prominent symptom, the left side of the abdomen became prominent, and yielded a drum-like note.

Cholecystitis and cholelithiasis were frequent causes of an acute abdomen. The clinical signs of cholecystitis varied considerably, according as gall stones, if present, were situated in the gall-bladder, the cystic duct or the common bile duct, and were or were not associated with suppuration. The usual signs of indigestion might be accompanied by feelings of chilliness and attacks of violent pain, high

temperature, vomiting, and nausea. All forms of gall-bladder disease were common in stout plethoric women past middle life, many had borne children, and in many cases the earliest symptoms occurred during pregnancy, when the bile had a higher cholesterol content, favouring the deposit of concretions. The patients might otherwise be healthy and energetic. Men were less often affected. The acute recurrent non-suppurative form, associated with biliary colic, was the one likely to produce an acute abdomen; there was an acute attack of pain, with vomiting and prostration. The pain came on without warning and was agonizing, of a twisting colicky character, being most severe in the epigastrium, it radiated to the right shoulder and side, spreading over the ribs and back between the shoulders. In a certain proportion of cases there was severe pain over the deltoid. There was hyperalgesia of the skin over the painful area, and the abdominal muscles, especially the rectus, were rigid, the attack was followed by considerable shock, the pulse was fast and full, the temperature raised by a few degrees, and the breathing was rapid and shallow. The absence of rigidity did not exclude gall stones. Biliary colic was distinguished from renal, appendicular, and intestinal colic by the history of the prodromal stage, the location and radiation of the pain, the site of tenderness on pressure, and the absence of urinary symptoms.

In acute pancreatitis the illness started suddenly, and was not easily differentiated. There was usually a history of indigestion with cramps in the stomach, attended with colic and vomiting, or symptoms suggesting cholecystitis or duodenal or gastric ulcer. The initial pain was agonizing, and was referred to the epigastrium and upper part of the abdomen, marked epigastric tenderness was a constant symptom, vomiting of bilious matter was present, and might be so severe as to suggest an acute obstruction of the upper part of the small intestine. The vomit was never stercoraceous. The most reliable diagnostic signs were the localized tenderness across the epigastrium and a resistant mass in the situation of the pancreas. The pain in acute pancreatitis was felt across the back as well as in the epigastrium, and might be colicky, the vomiting was repeated with eructations of gas, and the rigidity in the early stages was not nearly so marked as in a perforation of an ulcer. As a rule the majority of cases of acute pancreatitis came to the operator as a disagreeable surprise. On opening the abdomen the existence of an acute pancreatitis was recognized by the presence of fatty necrosis in the shape of flat golden yellow patches scattered through the mesentery and the pancreas was found to be enlarged, with an effusion in the lesser sac of the peritoneum. In embolism and thrombosis of the mesenteric blood vessels the symptoms indicated an acute obstruction of a paralytic type, diagnosis was rare before the abdomen was opened. After obstruction, passing on to diarrhoea and the loss of large quantities of blood, the bowel became gangrenous and peritonitis started. Inflamed tuberculous glands in the right iliac fossa gave rise to an acute abdomen, with tenderness but little rigidity, the pulse and temperature were better, but the diagnosis was rarely made before operation. Acute prehlitis might be mistaken for an appendicitis before examination of the urine. Nephritis, colic, and stone in the ureter could usually be diagnosed by ordinary clinical methods and an x-ray examination.

Torsion of an ovarian tumour had been found to occur in 2 per cent of the cases brought to operation; the extent varied. The effect produced by twisting the pedicle was congestion, and, if the tension was tight, necrosis. Detachment might occur from a twisted pedicle atrophying and the tumour forming fresh connections. Rupture of an ectopic gestation might cause an acute abdomen, with severe abdominal pain, sudden in onset, and situated in one or both iliac regions. This was often followed by vomiting, and occasionally by diarrhoea, which might confuse the diagnosis. Commonly there was faintness and less often actual loss of consciousness from syncope upon these symptoms there supervened in the case of severe bleeding the signs and symptoms of concealed haemorrhage with usually slight haemorrhage from the uterus. When the loss of blood was spread over several days these symptoms were less severe, and pallor with a quick pulse might alone be

present. In a ruptured tubal pregnancy the occurrence of severe bleeding internally would be very evident, a recent history of a short period of amenorrhoea giving place to slight uterine bleeding would suggest ectopic pregnancy. Pelvic examination might show softening of the cervix and a swelling behind or to one side of the uterus representing the gravid tube. The space behind the cervix was full and had no palpable outline, being soft and doughy when pushed up with the finger. The fluid was not inflammatory, as there was a complete absence of tension; it was not a cyst, as the line was impalpable. In fulminating appendicitis the symptoms were mainly a profound toxæmia, and resembled shock more than tubal rupture. Uterine bleeding was not met with in appendicitis, but was almost always present in extrauterine pregnancy. The more common forms of appendicitis were easily distinguished from a severe internal bleeding. In perforation of a viscus the prominent symptoms were shock, followed by signs of an acute abdomen, and later by peritonitis. The general indications of pregnancy and of uterine bleeding were absent.

Pelvic hæmatocele was usually, but by no means always, due to ectopic pregnancy; it might be caused by rupture of a blood cyst of the ovary or of a tubo-ovarian hæmatocele. The diagnosis from a retroverted gravid uterus was not easy, but was very important, since treatment for the retroverted gravid uterus might spell disaster in a hæmatocele. The history usually presented well-marked differences: retention and incontinence of urine were present when the retroverted uterus was large enough to fill the pelvis, it was exceptional in hæmatocele. Bleeding from the uterus might occur with either, but the discharge of decidual tissue, apart from abortion, was only encountered in extrauterine cases. Attacks of abdominal pain strongly favoured the diagnosis of uterine pregnancy. On bimanual examination the gravid uterus was more uniform than a hæmatocele, and might sometimes be felt to undergo intermittent contractions. The point of chief diagnostic importance was that in a hæmatocele the body of the uterus was always found in front of the swelling which fills the pouch of Douglas. An ovarian cyst becoming incarcerated by adhesions in the pouch of Douglas and large enough to fill the pelvic cavity, gave the same displacement to the uterus as a hæmatocele. The swelling in the case of a cyst was more uniform and tense, the general outline was better defined, there was no softening of the cervix, and no irregular bleeding. Inflammatory effusions into the pouch of Douglas and inflammatory enlargements of the Fallopian tubes could best be distinguished by a careful consideration of the history, fever was common in inflammation at the beginning, but it was several days before it occurred in hæmatocele. In inflammation there was no pallor, the pulse, though quick, was of high tension and the general condition of the patient did not suggest hæmorrhage; the local tenderness in inflammation was much greater than in hæmatocele.

In the case of incomplete abortion the diagnostic error usually consisted in regarding a case of hæmatocele as an abortion, and in many cases the uterus had been explored and emptied before the true nature of the condition had been recognized. The mistake might be followed by serious consequences if the hæmatocele was ruptured or if septic infection occurred. Both were attended by the general signs of pregnancy, abdominal pain, bleeding from the uterus, and discharge of a membrane from the uterus, the cervix was found to be softened and on a perfunctory examination a peritubal hæmatocele might be mistaken for the body of the gravid uterus. The only safe rule was great care in examination of the position of the swelling, its correspondence in size with the presumptive period of pregnancy, the severity of the uterine hæmorrhage (which was hardly ever profuse in hæmatocele, but frequently was so in abortion) and the nature of the discharged tissue. Chorionic tissue being readily recognized by the naked eye. Acute cases of salpingitis might develop rapidly, grave symptoms such as occurred in other forms of the acute abdomen without any localizing signs being discovered in the pelvis. The main symptoms were fever and pain, vomiting except for the first few hours, was rare. The fever was usually severe and might be associated at the

beginning with chilliness or a rigor, thereafter the temperature ran an irregular course like septicæmia. In some cases the fever subsided rapidly, and in a few days might be normal, thus indicating that the inflammatory focus had been limited by adhesions. In other cases there might be exacerbations, with high fever, when fresh tissue was involved. The pulse rate was usually in proportion to the temperature, if the pulse rate was disproportionately rapid general infection was probably occurring. Abdominal pain and distension were usual in the hypogastric zone, they were in a special sense indications of peritonitis. There was great tenderness on pressure, and micturition and defæcation might be painful. The general condition of the patient was good, a high and increasing leucocyte count obtained on several occasions was the clearest indication of active suppuration. The swelling formed by the inflamed adnexa almost invariably lay in the posterior compartment of the pelvic cavity, as a rule not mesial, but posterolateral in position. In 75 per cent of cases both sides were involved. The rectal bimanual examination should always be practised, for it would show the close relation of the swelling, if large, to the anterior rectal wall. A general anaesthetic in cases where there was much tenderness was often indispensable.

Reports of Societies.

TREATMENT OF CONDITIONS CONDUCTIVE TO MENTAL DISTURBANCE

At a meeting of the Section of Psychiatry of the Royal Society of Medicine on November 13th the President, Sir MAURICE CRAIG, delivered his address from the chair, his subject being "A survey of some conditions conducive to mental disturbance, with suggestions as to their treatment."

Sir Maurice Craig said that fifteen years' residence in a mental hospital had inspired within him a desire to approach psychological medicine from the preventive side. He agreed whole-heartedly with those who believed that much mental disorder was preventable. The fatalistic attitude of the public towards the subject was pathetic, the apathy of the medical profession was more difficult to understand. Scientists to-day professed to investigate the sequence of phenomena, and recoiled from an expression of opinion as to why they succeeded each other. Thus, years ago experimental medicine aimed at the discovery of causes, now it was concerned with sequences. Certain clinical sequences had impressed themselves on his mind, both because of their frequency and because, in a given instance, the order of symptoms was predictable. If the principle that inherited tendencies largely determined the danger areas in any given man was accepted it became necessary to find what stresses might so reinforce these tendencies as to make them operative. For many years he had regarded hypersensitivity, with which a weak inhibition or lessened control was frequently associated, as one of the most important potential factors in the production of mental disorder. The threshold of minimal sensitivity differed in individuals, some children from their earliest years reacting unduly to weak stimuli, others acquiring extreme sensitivity later in life. If such undue sensitivity occurred in a person with neuropathic inheritance other changes commonly followed as sequences to the primary sensitivity. These changes might at first be either physical or mental, but the latter were followed inevitably by bodily changes. Disturbed emotion was so common a sequence to hypersensitivity that this condition had to be treated before the emotions became involved. On this assumption he had for over twenty years made a practice of keeping certain types of children continuously on small doses of bromide. To children under the age of 4 he gave 2½ grains of potassium bromide, to those over 4 twice that amount once a day. Under this treatment children who, owing to their over-reaction to stimuli, had been almost uneducable, became quiet and teachable, others less hypersensitive were helped in varying ways. He had noted that children who had been taking these doses of bromide for long periods and then had ceased to take them, slowly regressed, their

excitability sometimes increasing until epileptic fits occurred. To control the initial hypersensitivity he had further advised certain nervous types of men and women going out to the tropics, and certain active types at home to take 5 grains of potassium bromide daily, and in these cases also the results were equally beneficial. Pavlov's work appeared to confirm and explain these clinical observations. In excitable dogs the inhibitory function of the cortical elements was weak, yet following the administration of bromides there was no diminution in the magnitude of the positive reflexes, these, on the contrary, were extremely constant. Bromides, Pavlov concluded, were to be regarded not as sedatives, but as drugs regulating the activity of the nervous system by strengthening the intensity of internal inhibition. His own experience, said Sir Maurice Craig, coincided with Pavlov's observations, for small doses of bromide taken daily even for many years, far from dulling, appeared to increase mental capacity, no doubt by preventing wastage. Bromide in larger doses could be an extremely toxic drug, but if its action was to strengthen a weak inhibition, then the smaller the dose that would produce the desired effect the better.

Much mental disorder, he continued, was due to weakening of the inhibition, and not to any positive condition. Though certain malignant disturbances of the mind ran a definite course, and were classifiable under recognized names, there was a much larger group, embracing the exhaustion and intoxication types, different in character and far more accessible to treatment. Once the inhibitory function of the cortical elements had become weakened, the next steps downward were almost constant. The emotions became involved, and preoccupation, false reasoning, and ultimately failure of adaptation to environment followed in turn. All these could not occur without equally important changes on the physical side. The gastro-intestinal, cardio-vascular, and genito-urinary systems might all become affected, and the defensive mechanism of the vegetative nervous system might give rise to a disturbed endocrine balance, with the result that the physician, seeing the patient for the first time after these had progressed, might find it difficult to decide what was the initial cause of the mischief. Year by year he became more convinced that the changes in the vegetative nervous system were usually secondary, though, once established, they might have an important bearing on the illness. Experience had convinced him that the psychologist could not ignore the physical aspect in a case any more than a man who leaned towards the somatic aspect could neglect the psychical. The important matter in a lifetime sufferer from phobia was not the phobia, but the condition which permitted it to become effective. Much benefit might accrue from foretelling to the patient the course that his false reasoning would take him, or, if his outlook was already distorted, much good might result from going back as far as possible to the beginnings, and pointing out how the error of reasoning arose, and how in turn it had brought about a failure of adaptation to environment.

Passing to the question of sleeplessness—a symptom the importance of which had been increasingly impressed upon him, so that for fifteen years he had given it priority of place over all others—Sir Maurice Craig said that it was sometimes argued that sleeplessness had no apparent bad effect, but he was not convinced by the evidence for this view. It had also been said that it was the psychical effect of sleeplessness which was important, and this was true up to a point, but animals deteriorated and died when deprived of sleep, and this could not be due to psychological disturbances. Moreover, young children who did not sleep deteriorated more rapidly than adults. Before turning to the therapeutic aspect of the subject, it was helpful once again to consider Pavlov's observations. The dogs employed in his experiments had either an excessive or moderate tendency to excitation, or an excessive or moderate tendency to inhibition. Two different types of neurosis were thus produced, in the one group of dogs by the extreme weakening of the inhibitory function of the cortex, in the other by affecting the excitation of the corresponding cells. Both types of neurosis tended to persist even after a break in the experiment. Bromide produced rapid recovery in dogs with weak inhibition, but

no therapeutic measures were found to help the other variety, though these recovered spontaneously when left alone for a long time. These experiments, suggested Sir Maurice Craig might in the course of time help to explain the different types of nervous instability. For example, hypnotic drugs seemed almost to increase the excitement in certain maniacal states, though patients suffering from these *mania* states, if left alone, might spontaneously recover, but sleeplessness in patients corresponding to Parlor's former type was quickly corrected by suitable therapy, especially if this was taken early. The prescription of sedatives in sleeplessness was still a matter of controversy. All would agree that morphine, heroin, or opium should never be given for ordinary sleeplessness. With ordinary hypnotics, however, pleasurable sensations did not occur, and considering the number of persons for whom sedatives were prescribed it had to be admitted that addiction was very rare. The term "addict" should not be applied to the person who, under medical advice, took a sedative every night. The term "sleeping draught" was also used loosely and generally incorrectly. Most of the sedatives and narcotics did not produce sleep in the strict sense of the word. The barbitone group given in therapeutic doses by day induced no desire for sleep. It was also suggested by some that the sleep following the administration of any sedative was artificial sleep, and this was certainly not the case. He thought that drugs of the barbitone group might act, not as sedatives, but by protecting the weakened inhibition, and the prolonged use of this group was therefore invaluable in preserving the mental stability of certain types of persons. There was no evidence that the taking of drugs of the barbitone group for long periods was damaging to physical life. Many patients he had known who took dial or medinal continuously were professional and business men, representing every form of mental activity. In a very different class were patients suffering from a maniacal-depressive type of mental disturbance. He had kept four patients of this type on 5 grains of medinal daily throughout the period that they were well, in seven years two of these had not broken down at all, and two, though they had phases of mild excitement and depression, had had no attack comparable to those attending the taking of medinal. Finally there was the question of persistent sleeplessness in children: such sleeplessness was followed by mental and physical deterioration. For younger children he had prescribed 5 grains of potassium bromide, if necessary with 5 grains of chloral hydrate, every night for a long period, with excellent results, for children over 12 one tablet of dial or 5 grains of medinal was very helpful. If treatment was continued for eighteen months or more these children reached a very high standard of health but when the medinal or dial was stopped he continued to prescribe a small dose of potassium bromide each day. Mental breakdown in early life was a serious matter, leaving a tendency to further attacks between the ages of 16 and 20 and again during later years. Short treatment did not prevent these relapses, whereas the prolonged treatment just indicated did. The writer of the leading article on sleep and its disorders in the *British Medical Journal* of August 11th, 1928, had aptly and correctly summed up the clinical position when he said, "It need hardly be said, indeed, that we do not treat insomnia, but an individual who cannot sleep."

Dealing with the prevention of emotional and mental disturbances sometimes associated with surgical operation, Sir Maurice Craig emphasized the value of administering sufficient quantities of paraldehyde to apprehensive patients, in addition to the usual small quantities of morphine. This procedure induced such sound sleep that often the patients were unaware of being put under the anaesthetic. Repeated immediately after the operation, a dose of paraldehyde enabled the patient to sleep for so many hours that by the time he woke all severe pain had usually disappeared and mental trauma was thus averted. Medinal, dial, and allonal for some weeks before and several weeks after an operation also helped to make convalescence more rapid and more complete. Sir Maurice Craig suggested in conclusion that those who were seeking to prevent mental disorder had to seek out and correct

conditions which from clinical experience would appear to be fundamental in bringing about these disorders. The theory of a weakened inhibition appeared to him to explain so much. It defined the influence of inheritance, it explained why certain brilliant persons broke down, and why their normal mental activity only became involved as sleep and other bodily functions were affected, it explained the effect of toxæmias on the nervous system of certain individuals, or of surgical operation on others, it suggested why some persons broke down from over-stimulation or with advancing years it indicated to what end any treatment should be directed and why some persons relapsed when certain treatment was discontinued. This theory appeared to fit better than any other with his clinical and therapeutic experience and he believed that research from this standpoint would add much to our knowledge of the prevention and treatment of functional nervous disorder.

URINARY INFECTIONS AFTER RECTAL EXCISION

At a meeting of the Subsection of Proctology of the Royal Society of Medicine on November 14th, Dr CURTIS DUKES opened a discussion on urinary infections after excision of the rectum.

Dr Dukes described how, in a series of 50 cases of excision of the rectum (14 women and 36 men), the frequent cause and prevention of urinary infections had been investigated by daily quantitative tests for pyuria and repeated bacteriological examinations of the urine. Pyuria appeared on the sixth to the eighth day in all the women patients and in the 14 men patients in whom the retained catheter was sealed by a wooden peg. In some cases the pus disappeared in four to five weeks, but in the majority pyuria continued for several weeks. For two or three days before the flow of pus began staphylococci were recovered in pure culture from the urine, but later cultures usually showed a mixed growth of coliform bacilli and cocci. The lesion in the women patients and majority of the men was a cystitis, but in a few of the men patients it was possible that the pus might have been due to a severe proctitis. During convalescence from excision of the rectum urinary infections rarely produced obstructive symptoms and the presence or absence of an infection could only be determined by regular microscopic examinations for pus. Post-operative urinary infections were not due to the operation itself but to the means used for draining the bladder. In men patients the commonest source of infection was the wooden peg used for closing the retained catheter: the substitution of a better seal in the last 22 instances resulted in the prevention of infection of the bladder urine in two-thirds of the cases. When these methods of protection failed the subsequent infection ran a different course from that described for peg infections. The primary focus and manner of spread of these delayed infections had not yet been determined. In women the prevention of infection was a more difficult problem because of the danger of contact between the catheter and local septic foci. Dr Dukes said that the prevention of urinary infections after excision of the rectum was a task which demanded the close co-operation of the surgeon and pathologist. Regular microscopic examinations of the urine for pus were necessary, six tests at weekly intervals being the minimum for settling whether or not infection had occurred and revealing it at an early stage. To prevent infection of the bladder urine the end of the retained catheter must be kept sealed with antiseptic. An irrigation apparatus was demonstrated which provided an antiseptic seal and allowed the bladder to be washed out. This had been most successful in the prevention of sepsis. Although the risk of infection could be very considerably reduced by improved catheterization, this alone had been insufficient to prevent urinary sepsis in a small minority of men patients. In women a modification of the same apparatus might reduce the frequency of infection, but was unlikely to abolish it altogether. In view of the desirability of some additional protection it was recommended that patients about to undergo the operation of excision of the rectum be given two doses of vaccine, prepared from the bacteria which caused post-operative urinary infections, the first dose to be given as soon as possible after diagnosis, and the second after an interval of seven to ten days.

THE ROLE OF RADIOLOGY

The inaugural meeting of the Medical Society of University College, Dublin, was held in the College on November 14th. Dr. M. R. J. HAYES, in acknowledging the honour of being chosen president for the coming year, said he appreciated this all the more since it was bestowed at the moment when the status of the branch of medicine with which he was so closely identified had been raised to its rightful place in the curriculum.

Tracing the development of the science of radiology, Dr. Hayes paid a tribute to the pioneer work in Dublin of the late Dr. Lano Joynt and Dr. W. S. Haughton. The radiologist, he said, must not be blamed for the introduction of the "ready reckoner" methods of diagnosis, and if the high standards of the pro-Roentgen era were to be maintained it was the duty of clinical teachers to set the example to the student by making full use of all the ordinary means before calling on ancillary methods. The student should also remember that when he went out to practise he must rely on his own resources, and he must be able to assign proper values to symptoms and signs, for the services of well equipped departments would not then be at his disposal. The value of x-rays in the diagnosis of thoracic disease was now universally recognized, but they should not be employed as a short cut to early diagnosis. Sometimes the radiological findings might be conclusive, but nowhere was the correlation of clinical and radiological evidence more essential than in the diagnosis of thoracic disease. Wide variations were found in the x-ray appearances of the normal chest, and with the boundaries between the normal and abnormal so elastic there was scope for fallacy. Errors could be minimized, however, by prudence and common sense, and by a more thorough appreciation of the possibilities and limitations in the field of diagnosis by the radiologist and physician alike. In the diagnosis of pulmonary tuberculosis radiography almost invariably revealed the extent of the disease to be much greater than was suspected, and where there was clinical evidence of disease in one lung deposits were often found bilaterally. The radiogram was a trustworthy record, and a reliable aid in estimating progress, but the final judgement as to the activity of a pulmonary lesion must depend on the clinical manifestations of the disease. The introduction of the opaque meal had been one of the greatest advances in radiological science. If the diagnostic centre of gravity seemed to be shifting from the wards and the laboratory to the x-ray department in the recognition of one of the commonest and the most fatal of all abdominal diseases, the radiologist, while encouraged by this recognition of his science, was all the more conscious of his responsibilities. There were some, however, who thought him incapable of making any but "an x-ray diagnosis." The scientific radiologist must try to see the clinical perspective in his work equally with the clinician, who should endeavour to visualize the radiological perspective when summing up all the evidence and making his final judgement.

Dr. Hayes then passed in review recent advances in the applications of x-rays to the diagnosis of diseases of the gall-bladder and urinary tract, and in gynaecology, ophthalmology, laryngology, and dentistry, and noted some of the latest advances in radiotherapy. The ramifications of radiology were now so widespread that the question of instruction was becoming more urgent. During the anatomical course the reading of radiographic illustrations of bones and joints would form the groundwork of the interpretation of films. Films illustrating the growth of bone, the epiphyseal centres, supernumerary bones, and stereoscopic studies of the cranium would be very valuable. Stereoscopic views of the thorax after injection of cadaver with opaque media would give a mental conception of the pulmonary circulation and of the bronchi such as could be obtained in no other way. The full significance of abnormalities which the student saw later in the wards could not be understood without a thorough appreciation of the normal, which must be learned from anatomy. Since certificates of proficiency in radiology had become essential for candidates for certain appointments at home, it was most important that henceforth adequate instruction should be given in this new subject.

Reviews.

EWING'S "NEOPLASTIC DISEASES"

No treatise on tumours has received such widespread recognition as Ewing's *Neoplastic Diseases*.¹ It has been well merited. Probably no other author has brought to the task of compiling a complete textbook on the subject of tumour growths the same combination of great pathological experience, intimate acquaintance with the clinical aspects, mature judgement, and extensive knowledge of the literature. Published first in 1919 it soon became the standard work on new growths. A second, not much changed, appeared in 1922, but this, the third edition, has been considerably revised, so that it contains practically everything of note that has been added to our knowledge in recent years. The main alterations are to be found in the chapter devoted to tumours of bone and bone marrow. Thanks to the information collected by the Codman Registry of Bone Sarcoma, and more especially to the large experience of Professor Ewing himself, this section gives a much needed clarity and order to what has hitherto been a chaotic group of tumours. Considerable changes will be found, too, in the section devoted to brain tumours, and the classification of mammary cancers has undergone simplification.

It would be strange to come across any pathological laboratory where this book did not show the signs of frequent consultation. To the surgeon it is a necessity if he would seek to be more than a mere operator. The specialist and the practitioner will find it a mine of useful information.

The volume is divided into two main parts, the first dealing with the general aspect of neoplasms, history, classification, chemistry, theories of causation, and experimental research, and the second devoted to a detailed consideration of tumours according to the organs or tissues affected. Every chapter is practically a monograph on the particular department with which it deals, and all are excellent. One of the features of the book is the illustrations, of which there are as many as 546, and they are models of what textbook illustrations should be. Almost all are admirably clear and informative photographs of specimens and histological sections, chosen by one who has not only an eye for a photographable piece of a section, but a wealth of material at his disposal.

At the end there are over fifty pages of bibliography, from which the student may gain access to the original communications on any particular tumour. A rough calculation shows that there are about 6,000 such references—a demonstration of the immense amount of reading on the part of Professor Ewing. These references, the author tells us, "have all been verified by two competent bibliographers, and are believed to be accurate."

TREATMENT OF GASTRIC AND DUODENAL ULCER

We have received the fourth edition in Spanish of the monograph by Professor F. FERNÁNDEZ MARTÍNEZ on the treatment of the gastro-duodenal ulcer,² and also a translation of this work into French³ for the Practical Medicine and Surgery Series, which has been appearing at intervals during the past few years. The book contains a very clear account of the modern position with regard to this important subject, and the author's personal view is made clear in his dictum that ulceration of the stomach and duodenum is a malady which can be cured by medical treatment properly applied and properly directed. Attention to detail is of the utmost importance, and the bulk of the book is concerned with this in four sections dealing in turn with rest, dietetic treatment, medical treatment, and the author's own method. He quotes freely from

¹ *Neoplastic Diseases*. By James Ewing, A.M., M.D., Sc.D. Third edition, revised and enlarged. Philadelphia and London: W. B. Saunders Company, 1923. (Roy. 8vo pp. 1127, 646 figures, 63s. net.)

² *Tratamiento de la Úlcera Gastro-duodenal*. Fidel Fernández Martínez. Segunda edición. Madrid: Javier Morata, 1928. (5½ x 8, pp. 277, 13 figures, 6 plates.)

³ *Traitement de l'Ulcerus Gastro-duodénal*. Paris: Masson et Cie. (12 fr sans majoration.)

authorities, with comments as to the advisability of the various forms of treatment advocated, and in a very important section considers the treatment of the complications of gastro-duodenal ulceration. The eradication of sources of infection he regards as of great importance, and there is a particularly wise section on the treatment of pain in this condition. The concluding part of the work is concerned with surgical measures, and here the author is at pains to be judicious in his summing-up of the position. The book is thoroughly up to date—as, for example, in mentioning x rays in the treatment of gastric ulcers.

LACTIC ACID IN BLOOD AND URINE

SUPPLEMENT XXIV to *Acta Medica Scandinavica* comprises yet one more of those elaborate reports upon biochemical investigations of the blood which that journal appears to have made it its special duty to publish. The subject in this case is the *Investigation of the Concentration of Lactic Acid in Blood and Urine*,⁴ and the author is Dr JERVELL. It is not possible to give in brief space an account of the great variety of conditions under which determinations have been made. Suffice to say that all those who may be interested in the relation of the concentration of lactic acid to diet, muscular activity, oxygen supply, and phosphorus metabolism will here find much material for their consideration. In respect of the pathological field it is recorded that the lactic acid of the blood is often increased in cases of cardiac insufficiency, and that the normal rise with muscular activity is found to be greatly accentuated. In anaemia, on the other hand, increased lactic acid is only found in the blood if the organism is unable to compensate for the reduced oxygen capacity of the blood by an increase in minute volume. In pneumonia, in pulmonary tuberculosis, and in spastic conditions, hyperlactacidaemia is frequent. It is not a primary symptom in fever, nephritis, liver disorders, or carcinoma.

We think it unfortunate that the author has chosen to employ a method of estimation not generally practised. There are available well-tried methods which yield consistently lower results than does that here employed. In this matter of the concentration of lactic acid in biological fluids it will be agreed that the lower results are generally nearer the truth. At the same time, the author's arguments are comparative only, and we do not suggest that our technical criticism questions these.

POPULAR BOOKS ON HEALTH

THE mass production of books on health for lay readers is being speeded up each year. The public, it appears, is hungry for this knowledge, so hungry that in the opinion of some publishers it will swallow anything it is offered. The great idea apparently is to go on feeding it, it does not matter in the least with what. So, we have heard, in famine areas people will eat earth and stones, not under the delusion that these may contain nourishment, but to enjoy the sensation of a loaded stomach.

Of the popular health books of to-day it may be said that a little of the pabulum offered to the public is very good, the bulk of it is poor, and some is definitely bad. In the first category is *What you should know about Health and Disease*,⁵ by Dr HOWARD W. HAGGARD, a book designed to instruct the lay public in the scientific foundations on which the structure of hygiene must be erected, and to display in a broad survey the whole field of modern medicine. These are ambitious aims, yet the author achieves them. The chapters on physiology are admirable—well arranged, clearly and simply written, and amply stocked with accurate, up-to-date information. The account of the practice of medicine is to be commended not only to the lay reader but to the first-year medical student who would like to have one good look at the forest before he concerns himself exclusively with trees. The value of this section

of the book to the general reader is that it shows him medicine not as an esoteric mystery to be revealed only to the specially endowed, but as a logical superstructure on established scientific fact. In these days, when the practice of medicine is making increasing demands on the patient's power of co-operation, when impressive guesswork is giving place to the patient accumulation and synthesis of data from biochemical and other sources, a public has to be created with a new attitude towards medicine.

Practically all that has been written of Dr Haggard's book would apply with equal force to another American work, *Personal Hygiene Applied*,⁶ by Dr JESSE FEIRING WILLIAMS, first reviewed in our issue of February 10th, 1923, and now in its third edition. The two books, indeed, bear a close resemblance, both in aim and method, but the latter ranges a little wider. The author is not content to give an account of the foundations and methods of modern medicine, he carries the war into the enemy's camp, and the field is strewn with the battered remains of osteopaths, chiropractors, Christian Scientists, patent medicine vendors, and the vultures who prey on the victims of chronic disease. It is a book that any doctor may safely recommend to his more intelligent patients.

Keeping Young after Forty,⁷ by Dr EUGENE R. WHITMORE, is a little more restricted in its aim than the two books just considered. The author attempts, however, to correlate hygienic advice with an account of the bare minimum of physiology and pathology on which it is based, and he writes with a sanity and freedom from sensationalism that is all too rare in books designed to fortify the courage of the middle-aged. Mr Bernard Shaw, in one of his plays, has suggested that men must try to live very much longer if for no other reason than that the problems of adaptation in our complex modern society are so great that most of us remain adolescents, still unlearned in the adequate reactions to the difficulties besetting us, almost until it is time for us to die. Mr Shaw, as a neo-Lamarckian, believes that some people may live to 300 because they "will" to do so, just as he believes that the giraffe grew a long neck for the same reason. Evolution, however, is more fertile in its expedients. The giraffe need never have troubled to grow a long neck if he had grown a better brain, then he might have invented a ladder. A man will make his adaptations to a changing environment not so much by altering his structure as by inventing ladders. He will have a longer and healthier life by probing deeper and deeper into the problems of physiology and pathology, and by applying the results of his discoveries to his body and to its environment. It is to be regretted that most of the books purporting to instruct the general reader in the technique of keeping young are written by the victims of obsessive neuroses. Dr Whitmore's book may be recommended because the author, although he confines himself to the subject of how to keep young, has succeeded in not discovering the elixir of life.

NOTES ON BOOKS

THE poor father has been too much neglected by the flood of literature provided for the education of parents. At the maternity and child welfare centre his very existence seems to be forgotten, or remembered only to be abused. At last someone has thought of educating him, and we are glad to find that one of the authors of the father's guide is a medical man himself face to face with parental problems. In *On Being a Father*⁸ the instruction is given with a plentiful spice of humour—the same sort of whimsical entertainment Mr KENNETH WALKER gave us in his earlier book *The Log of the Ark*. The illustrations are excellent, and a great ornament to the book. Every middle class father should read this little volume, but he ought to get it before the baby is born because the chapters on the expectant father are among the best.

⁴ *Investigation of the Concentration of Lactic Acid in Blood and Urine under Physiologic and Pathologic Conditions*. By Otto Jervell. *Acta Medica Scandinavica Supplementum xxiv*. Oslo: Nationaltrykkeriet, 1928. (Med. 8vo pp. 135.)

⁵ *What you should know about Health and Disease*. By Howard W. Haggard. With an Introduction by Landell Henderson. New York and London: Harper Bros. 1928. (Demy 8vo pp. xiii + 5.8, 74 figures, 15s. net.)

⁶ *Personal Hygiene Applied*. By Jesse Feiring Williams, A.B. M.D. Philadelphia and London: W. B. Saunders Company, 1928. (Post 8vo pp. 438, 29 figures, 10s. net.)

⁷ *Keeping Young after Forty*. By Eugene R. Whitmore, B.S. M.D. New York and London: D. Appleton and Co. 1928. (Cr 8vo pp. viii + 278, 6s. net.)

⁸ *On Being a Father*. By E. M. and R. M. Walker. With an Introduction by Cecil Delella Burns. London: J. Cape, 1928. (Cr 8vo pp. 191, illustrated, 5s. net.)

Mr HOUSTON PETERSON'S work on *Havelock Ellis*⁹ contains a sympathetic study of a man who is equally well known as the principal founder of the scientific study of sex and as a distinguished man of letters. As likely to be of special interest to our readers we may recommend the chapters entitled

Physician and surgeon, 'The sex theme', 'Havelock Ellis on trial', and 'Fieud and Ellis'. Bibliographies of Dr Havelock Ellis' principal books and other contributions to literature, as well as of the numerous translations of his works into foreign languages, are appended.

Since the first edition of Dr GERSTMANN'S book on the malaria therapy of general paralysis¹⁰ (see *Journal* September 12th, 1925 p 481) the number of cases treated in the clinic of Professor Wagner Jauregg who first introduced the method, has risen to over 2,000, and an enormous literature on the subject has accumulated. The second edition of which we have received a copy, has been enlarged by 80 pages and of these nearly 30 are devoted to the bibliography as compared with barely 15 pages in the first edition. The text has been revised throughout. Some of the sections have been rearranged, and two new sections have been added dealing respectively with the condition of the parasites in preserved malarial blood and the treatment of general paralysis with other infections, besides malarin and relapsing fever, such as rat bite fever, framboesia, living strains of *Spirochaeta pallida*, and a proprietary preparation consisting of a mixture of non-pathogenic micro-organisms. Almost all authorities, however, are agreed that these substitutes are inferior to tertian malaria in the treatment of general paralysis. The experience of the last three years has confirmed the author in his belief that general paralysis is no longer an incurable disease and the degree to which it can be affected depends merely on the stage at which the treatment is applied, the most important principle being to start it at a sufficiently early date.

The little work on microbial associations and their therapeutic applications,¹¹ by Drs G. PAPACOSTAS and J. GATÉ of the Institut Pasteur of Lyons, is the latest addition to the *Bibliothèque de Microbiologie*, edited by Professor F. Bezançon which in turn forms part of the *Encyclopédie Scientifique*, of which Dr Toulouse is the general editor. The book is divided into three unequal parts. The first and shortest consists of two chapters devoted respectively to the consideration of symbiosis and parasitism in vegetables, animals and bacteria. In the second part the writers discuss the association of various micro-organisms *in vivo* and *in vitro*, showing that the action of one micro-organism upon another may be of four different kinds—namely, one of stimulation like that of *Cladotrix* on the diptheria bacillus, antitoxin or secretion by certain species of micro-organisms of products injurious to other species living in the same environment, like *B. pyocyaneus* which has a destructive effect on a large number of other organisms, synergy, which is usually one-sided, like that of *B. proteus* on the pneumococcus, but occasionally reciprocal, as in the case of the streptococcus and typhoid bacillus and lastly, antagonism, like that between *B. pyocyaneus* and *B. anthracis*. The third part is devoted to the practical application of microbial antagonism or bacteriotherapy, of which the most important examples are the treatment of various conditions by lactic ferments, *B. pyocyaneus* and pyocyanase, and yeasts. An extensive bibliography, which is much more international than that usually found in French works, is appended.

*Practical Biochemistry for Students*¹² by Professor E. W. H. CRUICKSHANK is a textbook written to meet the needs of the medical students of Patna University. In that university biochemistry follows organic chemistry, but wholly precedes physiology. The author, therefore, has to present his subject in a very elementary manner, without assuming any knowledge of physiology. He has succeeded in compiling a very simple but clear introduction to the study of biochemistry which is well worth the attention of those teachers who are confronted with a like problem.

⁹ *Havelock Ellis: Philosopher of Life*. By Houston Peterson. London: G. Allen and Unwin Ltd. 1928. (Med. 8vo pp. xiii + 432. illustrated. 18s. net.)

¹⁰ *Die Malariabehandlung der progressiven Paralyse*. Von Privatdozent Dr. Josef Gerstmann. Mit einem Vorwort von Prof. Dr. Julius Wagner Jauregg. Zweite, neubearbeitete und wesentlich vermehrte Auflage. Wien: J. Springer. 1928. (Roy. 8vo pp. vi + 305. 17 figures. R. M. 22.40. bound. R. M. 24.40.)

¹¹ *Les associations microbiennes. Leurs applications thérapeutiques*. Par Georges Papacostas et Jean Gaté. Paris: Doin et Cie. 1928. (4½ x 7 pp. 438. 20 fr.)

¹² *Practical Biochemistry for Students*. By E. W. H. Cruickshank, M.D. Aberd., D.Sc. Lond., Ph.D. Camb., M.R.C.P. Lond. Calcutta, and London. Butterworth and Co. Ltd. 1928. (Roy. 8vo pp. viii + 275. 21 figures. 12s. 6d. net.)

The chemical contribution to the study of induced anaesthesia¹³ is the title of a thesis by Dr G. LORENCE. The author studied a series of isomers of the ureid of bromo valerianic acid. He measured the oil-water distribution coefficient and the narcotic dose of each derivative, and endeavoured to correlate the chemical constitution, physical properties, and narcotic action. The work was done under the inspiration of Professor Fournieu.

Dr W. F. LLOYD has published a booklet of naive little plays, of which the setting and sentiment will appeal, we imagine, to Welsh rather than to English audiences. In *The Welsh Fasting Girl*,¹⁴ which gives its name to the volume, is set forth a true story of a justic maiden who maintained a bogus fast for the pecuniary benefit of her family. The heroine dies on the stage in a mingled odour of sanctity and fraud, a Welsh doctor and a Welsh nurse from Gwynedd discover the simple trickery, but are prevented by a lofty sense of moral and professional rectitude from interfering with the natural consequences of patiently imposed starvation. A farce entitled *The Locum* depicts the trials and troubles of a doctor whose best patient is first cured, and then supposed to be done to death, by a newly qualified youth, who seems to be ignorant alike of the use and abuse of drugs. Another little play, *Cwm Farn*, abounds in passages from the Scriptures by an aged grandmother, whose voice during quotation gradually rises to a 'hwy!' Doubtless Dr Lloyd is correct in suggesting that the plays will be more effective, if given before a bilingual audience, with the judicious introduction of some Welsh expressions.

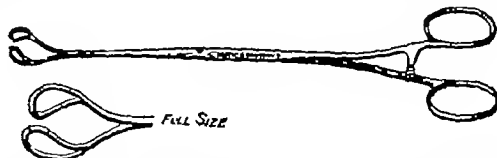
¹³ *Contribution Chimique à l'Etude de la Narcose provoquée*. Par Professeur Gabriel Lorence. Lyons: Editions du Service Photographique de l'Université. 1928. (Roy. 8vo pp. 88.)

¹⁴ *The Welsh Fasting Girl and Other Plays*. By W. F. Lloyd. Swansea: Thomas and Parry, Ltd. 1928. (5 x 6 pp. 156. 2s.)

PREPARATIONS AND APPLIANCES

FORCEPS FOR SIMPLIFYING RAMMSTEDT'S OPERATION

Mr G. D. F. McFADDEN, M.Ch., F.R.C.S. (Belfast) writes: In performing Rammstedt's operation for hypertrophic pyloric stenosis, undue delay and increase in shock are frequently caused by the intestine and omentum protruding from the wound. This protrusion is due to the size of the incision necessary for the fingers to grasp the pylorus, and to the light anaesthesia produced by the gas and oxygen mixture which is the anaesthetic of choice. To eliminate these difficulties and simplify the operation I have devised a special pair of forceps which are very useful. These forceps have their grasping ends shaped like a pair of midwifery forceps, and are lightly constructed to prevent any harm being done to the tissues. The handles are fitted with a ratchet, the first teeth of which lock before the grasping ends are in contact, the other teeth taking purchase as the forceps are closed. In this way the varying size of the hypertrophied pylorus in infants is allowed for. The forceps are made with a curve to permit the handles to lie flat on the abdomen when the pylorus is pulled up into the wound. With this instrument the peritoneum need only be



incised sufficiently to admit one finger. The finger is passed down to the pylorus. The forceps, held in the other hand, is then passed along the finger to the pylorus, which is grasped and pulled out through the wound, no other of the abdominal contents has an opportunity to protrude. When the pyloroplasty is completed the pylorus is allowed to drop back and the incision in the abdominal wall is closed. These forceps have been constructed for me by Messrs Allen and Hanburys, Wigmore Street, London, W.1.

QUININE FOR INTRAMUSCULAR INJECTION

Solvochin and transpulmin (E. H. Spicer and Co., Ltd., Watford) are preparations of quinine in a form suitable for intramuscular injection. Solvochin is a 25 per cent aqueous quinine solution with a neutral reaction and it is said to be non-irritant on intramuscular injection. Transpulmin is stated to be a solution of basic quinine and camphor in 'ether-oil', by this term we presume that volatile oils are meant. The vendors recommend these preparations of quinine particularly for use in pneumonia, and they put forward some very remarkable claims concerning the pharmacological actions and the clinical effects produced by these drugs.

BRITISH INSTITUTE OF RADIOLOGY

MEETING IN LONDON

THE British Institute of Radiology, with which the Röntgen Society is now incorporated, held what was virtually an annual congress from November 14th to 16th at the Westminster Central Hall. The lectures and discussions were combined with an exhibition of x-ray apparatus and photographic materials, to which the leading firms contributed. The president of the Congress was Dr G. W. C. KAYE, director of the Physics Department of the National Physical Laboratory, and the principal events were his presidential address, the Mackenzie Davidson Memorial Lecture, by Professor W. L. Bragg (the subject of an annotation elsewhere), the Silvanus Thompson Memorial Lecture, by Mr Sampson Handley, various papers on physical subjects, and a medical discussion, under the chairmanship of Sir Humphry Rolleston, on the value of the opaque meal in diagnosis. The principal contributors to this discussion were Sir Thomas Horder, Mr A. J. Walton, and Dr A. E. Barclay, who dealt with it respectively from the position of a physician, a surgeon, and a radiologist. Each of them discussed the special considerations relating to the stomach, duodenum, and large and small intestine, but they also made some observations of a general kind on the value of radiology.

Sir THOMAS HORDER said that he still believed that if patients were parcelled out amongst radiologists, bacteriologists, and biochemists, the practitioner of clinical medicine was not doing his best for them. Instrumental and graphic methods had become so prominent of recent years in the diagnosis of disease that clinical medicine was almost a Cinderella. Patients were rather surprised when the consultant did not at once unpack their collection of radiograms. But even the best—perhaps in one sense especially the best—set of radiograms might contain a whole heap of appearances which were irrelevant so far as the patient's disease was concerned, on the other hand, they might contain appearances which were like a revelation to the observer whose eye had been sensitized to this particular case by thorough acquaintance with the patient. The great art of diagnosis did not lie in the accumulation of a vast quantity of data, nor in trying to establish superiority for one set of data over another, but in separating the essential from the non-essential. It was a truism to say that the contribution made by radiology to the diagnosis of diseases of the alimentary tract was incalculable, but the contribution would be still greater if consulting rooms were not still flooded with a large amount of indifferent work. Nothing darkened counsel so much as a bad radiograph. Sometimes, after having been faced with such a series, he felt that if one could only neglect the whole lot and rely upon other methods the case would be less difficult, but then there came such a splendid series of pictures, of exquisite technique, that he was lured back to a pardonable reliance upon the method. He concluded with a warning addressed to clinicians as well as radiologists, that it must not be thought that as technique improved and results got better the interpretation of them became more easy, the contrary was the case.

Mr A. J. WALTON said that not only the public but able practitioners were beginning to regard x-ray investigation, carried out even by an untrained man, as a valuable means of diagnosis. A large number of patients had wasted both time and money on useless investigations, which had to be repeated at a later date, because too much reliance was placed upon the x-rays. Cases were sent up for an x-ray picture to determine whether a certain lesion was present when the most superficial clinical examination would have made the matter clear. Again, cases of doubtful stomach or intestinal lesions were sent up with one poor film taken by an amateur, and accompanied by no report. This was not only wasteful but dangerous, because it subjected the patient to unnecessary x-ray exposures, gave rise to erroneous diagnosis, and brought into being a false sense of security. On the other hand, careful investigation by a man well trained in this branch of work and accompanied by a detailed report was of inestimable value.

Dr A. J. BARCLAY admitted at once that no elaboration of apparatus or perfection of technique would of itself give accuracy of results. This was not, and never could be, a machine-made diagnosis. There had been two discussions recently on pitfalls and fallacies in radiological diagnosis—one at the Royal Society of Medicine and the other at the Annual Meeting of the British Medical Association. Commenting on these, the writer of a very able leading article in the *British Medical Journal* on October 6th (p. 617) laid his finger on the weak point, the biggest fallacy of all, the fact that those in authority had not realized the vital importance of obtaining the services of the best men available for this very specialized task. But the radiologist also could point out clinical mistakes. Very often radiological and clinical conclusions were at variance, but by the operation findings the radiological report was shown to have an extraordinary degree of accuracy—an almost unbelievable accuracy to those of them who had seen the whole method evolve from its infant fumbings. The diagnosis of conditions in the abdomen was inevitably difficult, without radiological examination it was nothing more than intelligent guesswork, but with a competent and thorough radiological examination this guesswork was correlated with the facts of actual observation, and the deduction of an accurate diagnosis became a possibility. The radiologist deduced from shadows that recorded facts, the clinician had to rely on signs and symptoms which, in the abdomen, were as uncertain as an English summer.

Dr H. E. GARDEN and Dr GILBERT SCOTT spoke briefly, and at a later session the subject was resumed, and several speakers gave their experiences.

Annual Dinner

The annual dinner of the Institute was held at the Trocadero on November 16th, when Dr G. W. C. Kaye presided over a large company, including many eminent guests. Before any of the complimentary toasts were taken, these present stood in silent memory of Robert Knox. Mr CUTHBERT ANDREWS, in a witty speech, proposed the health of the Institute. The amalgamation, he said, had not yet been perfected. It was a new venture, with more difficulties than the outsider could appreciate, but he had every hope for its future success. "It is going to be the best and most complete thing of its kind in the world." Dr KAYE, in response, said that this November meeting, the second of its kind, had done fair to become an annual congress. The attendance had been wonderfully good, the discussions well sustained, and that dinner was a happy reunion of friends in town and country. The Institute included in its membership and activities three elements—those represented by medical men, by physicists, and by manufacturers. The trinity had been described as faith, hope, and charity, but he would not venture to say which was which! In response to the toast of "The Guests," proposed by Dr L. A. ROWDEN of Leeds, Sir THOMAS HORDER referred to a number of radiological pioneers whom he had known and all of whom in their different spheres he honoured—Robert Knox, Archibald Reid, Hugh Walsham, Lewis Jones, and Ironside Bruce. He believed that there was no ancillary science which gave clinicians so much help as radiology, not even excepting the science of bacteriology, and he maintained this in spite of a paragraph which appeared in one of the London journals that evening, under the heading of "Bad radiology," purporting to give some of his remarks in the discussion of the morning. Mr H. T. TIZARD, F.R.S., secretary of the Department of Scientific and Industrial Research, who also responded, praised the close co-operation of medical men and men in adjoining fields of science which the Institute exemplified and furthered. Colonel KENELM EDGECOMBE, president of the Institution of Electrical Engineers, congratulated the Institute upon its splendid achievement at the recent International Congress of Radiology at Stockholm in getting the British point of view of the subject of protection adopted by a gathering representative of many countries. Sir HUMPHRY ROLLESTON called upon the company to drink the health of the chairman and said how much the work of the X-ray and Radium Protection Committee had been facilitated by Dr Kaye's efforts.

HOSPITALS PAST AND PRESENT.

PRESIDENTIAL ADDRESS TO THE LONDON ASSOCIATION OF
THE MEDICAL WOMEN'S FEDERATION

At a meeting of the London Association of the Medical Women's Federation, held on October 23rd, at the House of the British Medical Association, Dr FRANCES HUXLEY, the new president, delivered an inaugural address on the scope and trend of hospitals past and present.

Dr Huxley traced the origin of institutions for sick poor from ancient Babylon where the sick were placed in the public ways so that passers by might give advice as to treatment. In the earliest refuges for the sick the care of the soul and the body were closely associated, and rested in the hands of the priests. In ancient Greece the rite of incubation was practised in temples raised to Aesculapius. By this rite, also practised in Egypt, sufferers from disease slept in the shade of the temple, that the god might inform them in their dreams of their treatment. A papyrus, named after Professor Ebers, and dating from circa 1550 B.C., gave detailed information about a hospital associated with the temple of Heliopolis. Excavations of ancient Egyptian shrines resulted in the uncovering of the great temple of Dindara, with Laboratory Officers over one door, and Place for the Preparations of the Superintendent of the Laboratory over another. The date of this also was about 1500 B.C. In Egypt, in the eleventh century B.C., there was a college of physicians in receipt of public pay, and regulated by law as to the nature and extent of their practice. Women were said to have practised there. The physicians had to treat the poor without fee and there were probably, as later at Athens official houses where the poor attended corresponding with out-patient departments of to-day. The physicians were allowed to receive payment from private patients. There were already then specialists, and each was allowed to practise only his own branch of medicine.

In Greece, by the fourth or fifth century B.C., there were as many as 300 temples where the healing art was practised. One was at Epidaurus. From the time of Hippocrates who was born in Cos about 460 B.C., a splendid hydropathic hospital developed there in association with the old temple. Hippocrates used to prescribe sunlight, pure air, pure water, and shelter from cold winds—a good basis for modern treatment. At about the same time numerous hospitals sprang up in the East, at first associated with Buddhist monasteries. In China only was there no record of them. In the Buddhist period Charaka and Susruta practised laparotomy, the suture of intestines, and rhinoplasty. The ruins of one Buddhist hospital remained at Surat, and others were still extant in Burma and Siam. In the early days in Persia, Greek physicians had seized the court. A hospital with a medical school existed at Gondishapur, in Persia, and about A.D. 550 Barjora was sent to India to study the Buddhist medical system. After this the school and hospital, under the combined teaching of the West and East, was a great centre of learning for many generations. While Europe was in complete cultural ignorance this school giving rise to medical education in the Moslem world, produced several hospitals. In 1295 the Grand Vizier Rasidu built a hospital at Tabriz and sent agents to foreign countries to collect good and rare drugs. There was a staff of oculist surgeons and physicians and students employed as clerks and dressers.

Only with the acquirement of scientific knowledge from Greece was the native Roman delivered from pagan practice. Asclepiades taught in Rome. A follower of his Celsus described plastic operations on the face, the removal of nasal polypus, and operations for goitre and stone. The Romans excelled in the development of hospitals. Valetudinaria were built primarily for infirm soldiers, but later for the use of citizens, rich and poor. A Roman matron Fabiola built a type of hospital known as nosocomium, and linked up convalescent homes in the country with institutions in Rome. In A.D. 335 Constantine abolished many Roman hospitals but the edict probably concerned only pagan shrines. Before the Christian era women were already practising medicine perhaps in Egypt, certainly in Greece and Rome. Hyginus recorded that before the practice of medicine was permitted to women in Greece one Agnothe studied medicine unrecognized. Her practice was successful, jealousy was aroused and she was brought into court for breaking the law. However, her women patients protested and the laws were modified so that any free woman might practise in Greece.

While Christians were still oppressed the care of the sick had to be undertaken secretly by deacons. As Christianity

became established the bishops were made responsible for such care, and hospitals were built in the vicinity of the bishops' dwelling. Later hospitals associated with monasteries spread throughout Europe. In England in the Middle Ages numerous hospitals were founded, but, being ecclesiastical foundations, they were for the cure of the soul rather than of the body. Most of them were not hospitals in the modern sense of the word, it was difficult to get any record of institutions for the care of the acutely sick. Among the earliest English hospitals were St Leonard's at York and a house at Flinton, also in Yorkshire, both founded in the tenth century. In 1123 Rahere founded the Hospital and the Priory of St Bartholomew. The hospital was run by a master, usually a priest, eight brethren, and four sisters. After the dissolution of the monasteries in Henry VIII's reign, opportunities for in-patient treatment were scanty. By the beginning of the eighteenth century there were only two general hospitals in London—St Bartholomew's and St Thomas's—and one special hospital—namely, Bethlehem. In the country there were no hospitals, as late as 1736 cases requiring surgical treatment were forced to travel to London for it. To replace the provisions for the poor made by the religious charities until 1537 Queen Elizabeth had established a Poor Law system. Each parish was to provide work for its able-bodied and dwellings for its aged and infirm. The system was not satisfactorily carried out, because the parishes were not rich enough to build the required houses. In the latter half of the seventeenth century more workhouses were built, but Poor Law relief was very inadequate. Furthermore, the chartered hospitals, owing to lack of funds had limited very seriously their numbers of out-patients, and were charging in-patient fees. At Bart's in 1673 out-patients were limited to eight a week. This number was increased to fifty in 1695. A patient requiring admission, however urgently, had to have a governor's letter, or pay 19s. 6d. for burial fees. Fees were required also for the sisters and porters. The medical staff was salaried.

In the eighteenth century considerable impetus was given to medical study by the establishment of certain university chairs. There was also a great revival of religious feeling, which turned public attention to the state of the sick poor. The motive for securing the protection of the healthy gave way to a desire to alleviate the sufferings of the sick. In the eighteenth century the Westminster Hospital, St George's Hospital, the London Hospital, and the Middlesex Hospital were founded. The conditions of these voluntary subscription hospitals, as contrasted with the chartered institutions, were (1) they were unendowed and wholly dependent on the benefactions of the public, (2) their administration was in the hands of subscribers, (3) their medical and surgical staffs were honorary, and voted (as subscribers) on matters relating to general management, (4) no fees were taken from applicants for admission.

The Royal Free Hospital was founded in 1829 by Dr William Marsden. One evening, when passing St Andrew's, Holborn, he saw on the church steps a young girl almost dead from disease and starvation. She had been refused admission at Bart's because she had no governor's letter and no money. Dr Marsden opened a small dispensary to which the sick poor were admitted without payment and without formality, this was the beginning of the Royal Free Hospital. The general use of hospitals remained for some time limited. Hospital construction was faulty, sanitation primitive, and overcrowding the rule. Sepsis was rampant. It was only with the rapid progress of medical teaching, the acquirement of knowledge of asepsis and the development of a scientific nursing service, that hospitals began to assume their rightful position in the health scheme of the country.

In dealing with hospitals at the present day, Dr Huxley pointed out that after the war increased expense and decreased subscriptions had made the position of hospitals very serious. Temporary help was given by the Government, a grant of £600,000 having been distributed. Now the position was better, but voluntary hospitals, as charitable institutions for the free treatment of the sick poor, no longer existed. The voluntary hospital still received a proportion of its income from charitable sources, but it also received a large and growing proportion from patients' payments. Pay beds had come into being, and were being extended, the proportion of entirely free cases was small. Poor Law hospitals were being brought up to date and before long would be taken over by the local authorities. More co-operation between voluntary hospitals and municipal hospitals was bound to come in the future. Nearly everyone in England said Dr Huxley, regarded the voluntary system with great affection, and were anxious to maintain it, but all the voluntary system now meant was freedom from interference and red tape, and this could, in her opinion, be maintained only by making the voluntary hospitals self-supporting, and by a willingness on their part to co-operate with each other and with the municipal hospital service, which was rapidly coming abreast of them.

British Medical Journal.

SATURDAY, NOVEMBER 24TH, 1928

YELLOW FEVER PROPHYLAXIS

INTEREST in yellow fever and its prophylaxis has been awakened by recent reports and correspondence in the *Times* referring to a protective vaccine and its use in South America. The history of yellow fever investigations is both interesting and tragic, for others besides Adrian Stokes, Noguchi, and Young have lost their lives while probing into its secrets. The first definite advance in our knowledge of the etiology was made in 1901 by the American Commission, consisting of Reed, Carroll, and Agramonte, who, working at Quemados, proved that the vector was the mosquito *Stegomyia fasciata*, or, as it is now known, *Aedes argenteus*. It is true that many years before then both Beauprethuy and Finlay had suspected this mosquito, but the results of the American Commission placed the matter on a sure foundation. Two years later, at Rio de Janeiro, the observations were confirmed by the French Commission, composed of Marchoux, Saluberni, and Simond. This newly acquired knowledge placed at the disposal of hygienists a method of prevention of which they availed themselves to the full in Central and South America, largely under the auspices of the Rockefeller Foundation. The yellow fever mosquito, which breeds in collections of water in and around houses, was relatively easy to attack. By stringent regulations and untiring inspection it was found possible to keep the mosquito index below the critical level, so that yellow fever as a terrible menace has ceased to exist in the great foci in the New World. There is, however, always the danger that it will appear where the anti mosquito measures have not been applied, or should the energy of attack be abated. The disease is also endemic in West Africa, and from time to time occurs in serious epidemic form. Though some believed that the African disease was not yellow fever, there is no longer any doubt as to its nature.

It would appear that the application of the anti mosquito measures which have proved so successful in America presents greater difficulties in West Africa, owing probably to the more primitive native population. Thus being so, it was all the more desirable that some other method of combating the disease should be discovered. Great hopes in this direction were raised by the announcement by Noguchi in 1919 that he had isolated the causative organism—*Leptospira icteroides*—which was allied to that which produces infectious jaundice or Weil's disease. With it a vaccine was prepared and an antiserum in horses, and these were issued for prevention and treatment. Though some observers appeared to confirm Noguchi's findings, there gradually accumulated evidence that Noguchi's leptospira was identical with that of Weil's disease. At this juncture, in 1925, the West African Yellow Fever Commission of the Rockefeller Foundation went to West Africa, where medical officers in the Colonial Service had repeatedly failed to recover a

leptospira from cases of yellow fever. The late Adrian Stokes, who joined the Commission as a British representative, together with Bauer and Hudson, made the most important discovery that the disease was inoculable to Asiatic monkeys, particularly *Macacus rhesus*. In it the virus was easily maintained by direct inoculation of blood and tissues, or by mosquito transmission. Thus at once opened up a field for experimental investigation. It was shown that the disease was caused by a filterable virus and not by a leptospira. Noguchi then, as an independent worker, went to West Africa from the Rockefeller Institute, and commenced his work at Acera at the laboratory of which W. A. Young, who had long experience of the disease in West Africa, was the director. As is well known, Noguchi and then Young fell victims to the infection. Though Noguchi's results have not yet been published, it is understood they are in agreement with those of the West African Yellow Fever Commission, which was working at Lagos.

Finally, A. W. Sellards of Harvard University went to Dakar and with Mathis again confirmed the susceptibility of the Asiatic monkey. Sellards, as recorded in this *Journal*,¹ on his return came to London and brought with him frozen virus, which proving infective, enabled work to be carried on in this country. With this strain of virus Edward Hindle, the Beit Fellow in Tropical Medicine, carried out investigations in London at the Wellcome Bureau of Scientific Research. Applying to the experimental disease in monkeys the methods which had proved successful for the production of vaccines in the hands of Laidlaw and Dunlop in the case of dog distemper, and of Todd in the case of fowl plague, Hindle found, as noted in this *Journal*,² that a phenol glycerin emulsion of the liver would confer on monkeys an absolute immunity against enormous doses of virulent virus. Meanwhile Aragao (1928), working at the Oswaldo Cruz Institute in Rio de Janeiro, demonstrated the susceptibility of the Asiatic monkey to the South American disease, and by a cross immunity test proved the identity of the American and West African viruses. Receiving Hindle's paper on the preparation of vaccine, Aragao repeated the observations with the American strain, and, after administering the vaccine to a number of laboratory workers with no untoward results issued it for use in a small epidemic. In all, between three and four hundred people were vaccinated without accident, and, though no unwarranted conclusions are drawn, it is noted that none of the vaccinated contracted the disease. These encouraging results are being followed by the production of the vaccine on a larger scale, so that it will be available for use by the Public Health Department of Brazil.

One other aspect of the question deserves mention—namely, the protective action of immune serum of convalescents. It was shown by the French Commission in 1903 in the case of human beings and by Stokes, Bauer, and Hudson in monkeys, that a comparatively small dose of serum from a recovered case of the disease would protect against infection. There is here a method of diagnosis in doubtful cases which may be of the greatest service. Furthermore, convalescent serum will confer an immediate

¹ Sellards and Hindle. *British Medical Journal* April 23rd 1928 p 713.
² Hindle. *British Medical Journal* June 9th 1928 p 876.

immunity, and will have its uses when it is desired to immunize more rapidly than by vaccine. Inducible vaccine, however, if it proves to be as effective in human beings as it is in monkeys will be of the utmost value in the prevention of yellow fever, which hitherto has depended on a precarious and ceaseless vigil over the ubiquitous insect vector.

NOISE AND THE PUBLIC HEALTH

THE British Medical Association has reason to feel gratified at the reception accorded by the press to its Memorandum on Preventable Noises, submitted to the Minister of Health on October 23rd and published in the *Supplement* to our issue of November 10th. Most of the great national newspapers have made the memorandum the subject of favourable, even enthusiastic, leading articles; nearly all of them have given it prominent notice on their chief news pages and quoted extensively from its proposals. Not merely public support, but public gratitude is due to the British Medical Association for the forcible memorandum which they have addressed to the Minister of Health on the subject of preventable noises. It emphasizes with the weight of those speaking with authority, the very serious injury to which the health of the community is exposed by the conditions of the present day—conditions which have been created by the mechanical age and allowed to accumulate until they have become intolerable. The British Medical Association's Memorandum to the Minister of Health about the noise nuisance represents the best medical opinion seriously applied to a practical question. We should ignore it at real peril to our health. 'It is the most forcible statement of the case concerning the damage to health from avoidable noise that one has seen. We quote these typical extracts from the daily press because we believe they represent a widespread feeling that the British Medical Association has done a service to the community by insisting that the problem of noise is closely bound up with the public health. This, so far as it goes, is all to the good. It means that the public now realizes that something more is threatened than its comfort, that its mental and physical health is endangered by the incessant din of to-day. But it must not be taken to mean that the Association may now gracefully accept the bouquets that have been showered on it and regard this piece of work as accomplished, or that the public, secure in the belief that something is now certain to be done, may once more sink into inertia. The price of freedom from noise is eternal vigilance.

There are already signs that Mrs Partington is getting busy with her mop. The traffic experts, it is said, are preparing to solve the whole problem by standardizing the motor car horns to be used in city streets. There is a real risk that their proposal may be accepted, and the public told that the noise nuisance has now been taken in hand. A premature closing of the campaign might very well leave us where we were—the noise from electric hooters perhaps abated a little, but all the other components of the general pandemonium left untouched, and, for all one knows, even intensified as the years go by. Thus while the Minister of Transport is showing how severe it can be with a whipping boy, the other offenders must not be allowed to continue their clatter and din. The Government should be made to understand that tinkering with this huge problem is a waste of time and that comprehensive measures on the lines suggested

by the British Medical Association are needed to abolish the curse of unnecessary noise. Here we would repeat that noise and speed are so closely interrelated that any attempt to deal with the one without controlling the other is doomed to failure. Unfortunately, a large section of the public wants more and more speed. These restless folk appear to believe that motion relative to the earth is the thing that really matters, and in this belief they devote the greater part of their lives to what is to them the all important business of getting somewhere else in the shortest possible time. Devotees of sheer speed will not willingly acquiesce in radical proposals to lessen the din of traffic.

Meanwhile we welcome the news that at a recent meeting of the Edinburgh Town Council it was unanimously resolved to take immediate steps, by a clause in the next Provisional Order, to secure legislation along the lines of the British Medical Association's resolutions on noise. This, so far as we know, is the first attempt to deal with the evil by local legislative action. It is fitting that Edinburgh should give a lead in this matter. The Edinburgh and Leith Division of the British Medical Association was the first responsible body to initiate a campaign against noise and vibration on the ground that these are a menace to the public health. In October, 1927, Dr T G Nasmyth and Judge Monson Millar, of the Public Health Committee of the Edinburgh Corporation, invited their committee to consider the question of preventable noise, especially noise at night, in its relation to the public health, and in May, 1928, the Public Health Committee approved and supported the resolutions formulated by the Edinburgh and Leith Division, and then about to be forwarded for inclusion in the agenda of the Annual Representative Meeting of the British Medical Association at Cardiff. We hope that other municipalities will follow the example set by the Scottish capital, and that the public agitation against noise will not be allowed to die down.

THE INTERNATIONAL CANCER CONGRESS

A FEATURE of the present age is the holding of conferences, and there is no doubt that in elucidating questions of etiology and treatment much assistance can be derived from the joint consultation of experts from various countries who approach the same problem from different standpoints. The ultimate value of such co-operation depends, however, upon the extent to which the information thus made available can be considered at leisure, and therefore the appearance this week of the full official report of the International Cancer Conference,¹ which, on the initiative of the British Empire Cancer Campaign, was held in London last July, is much to be welcomed. In our issues of July 21st and 28th we dealt at some length with the outstanding contributions of various distinguished workers to the discussions on that occasion, and the extent of the ground that was covered in the conference makes it impossible to discuss at all fully here any particular part of the present volume, or even to enumerate the titles of the many papers. It can be said with confidence, however, that this volume will long be a most valuable book of reference, in some respects it is a textbook with which all interested in cancer research will have to be familiar. Professor Archibald Leitch, the editor of the report, deserves high credit for the way in which the vast amount of scientific information has been made available for quick reference and careful study. The report is arranged in sections according to the subjects

¹ *International Conference on Cancer* London 1928 Bristol J Wright and Sons Ltd London Simpkin Marshall Ltd 1928

discussed. The first section is devoted to consideration of the causes of cancerous growth and the mechanism of the cell changes, and the opening paper by Professor James Paving of New York sums up in a readable manner the chief recent developments in this respect. Here and elsewhere in the papers comprising this section are signs of the variety of directions in which research is proceeding to trace the principal factors implicated. The second section is devoted to the relative values of surgery and radiation in the treatment of cancer, and contains what are possibly some of the most interesting and provocative contributions to the whole conference, outstanding prominence is necessarily accorded to radium, which, by general consent, has

come to stay." A shorter, though important, section is devoted to methods of treatment by chemotherapy, with special reference to lead. A considerable amount of opposition to this line of treatment was manifested at the conference, and it is clear that a settled judgement has not yet been reached. From the pathological standpoint the discussion on occupational cancer was of considerable significance, and illustrated plainly how circumstances vary in different countries. Mention may here be made of an authoritative paper, contributed by medical inspectors of factories under the Home Office, relating to the occurrence of cancer in industries. On the surgical side special attention is paid to the early recognition and treatment of gastric cancer and of bone sarcoma, while medical interests were uppermost in the consideration of cancer cachexia and pulmonary carcinoma. Many diagnostic methods are discussed, and several papers relate to the effects of radium and x rays on the blood, vascular, and lymphatic systems, with special reference to malignant growths. The report concludes with statistical papers on the geographical and racial prevalence of cancer, and practical conclusions are deduced with regard to public action, including cancer campaigns and the provision of anti-cancer centres.

THE MOLECULE UNDER THE X RAY MICROSCOPE.

THE late Sir James Mackenzie Davidson once expressed regret that he had not devoted his career wholly to physics instead of to medicine. One can imagine with what delight he would have listened to the eighth Mackenzie Davidson Memorial Lecture which was delivered at the House of the Royal Society of Medicine on November 14th by Professor W. L. Bragg, F.R.S., on the new science of x-ray optics. The lecturer, who furnishes a happy example of how a genius for science and its exposition can be transmitted from father to son, made this recondite subject as clear as it can be made to any audience simply by pursuing the analogy of x rays and light rays, and showing how the examination of atomic arrangements by the former is only an extension of the examination of small bodies under the microscope. At the outset Professor Bragg complained of the term "x ray," which, he said, should be "x wave." The word "ray" conveyed a false idea, whether applied to the emanation from an x-ray bulb or to light. It was a mere convention, owing its existence to the fact that Newton first plotted out things by rays, actually, however, waves and not rays were concerned in these phenomena. The special features about x waves as distinct from light waves which made them so interesting were, first of all, their penetrating power and different laws of absorption, which made ordinarily opaque bodies appear transparent, and secondly, the fact that the type of radiation was so extremely minute. The discovery of the very short waves emitted from an x-ray tube, said Professor Bragg, had meant to the physicists exactly what the discovery of the microscope originally meant to the chemists and biologists. It had made possible a great step forward in the investigation of the structure of matter as the microscope itself at an earlier day had done. While the microscope

enabled detailed structure to be observed on a scale smaller than the wave-length of visible or ultra-violet light, the use of x rays as the illuminating agency increased this range ten thousandfold. On the x-ray scale of wave-length the molecule had relatively a large body. Its characteristic shape was imprinted by the scattered waves and could be measured, and a picture of the molecule could be drawn, just as a drawing could be made of any small object under a high power microscope. There was nothing mysterious, Professor Bragg continued, about x-ray optics. All the methods used had their parallels in ordinary microscopical examination. So much was this the case that he could devote almost the whole of his lecture to the discussion of some properties of the microscope, and at the end make the necessary qualifications for the fact that instead of looking at an amoeba under the microscope one was looking at a molecule by means of x rays. There was this difference, of course, that in the case of the microscope the final recording instrument was the retina, whereas in x-ray optics a more indirect method had to be employed. But this difference was not fundamental, the main feature, common to both processes, was the discernment of the form of a minute body by noting the way in which a beam of light fell upon the object and was scattered by it, just as a stone thrown into a pool caused a scattering of ripples on the surface, from the pattern of which rippling certain information about the projectile and its place of impact could be deduced. About fifty years ago Abbe in Germany formulated a treatment of the resolving power of the microscope which now turned out to be equally good for the new science of x-ray optics. Abbe considered cases where a body with a series of fine regular striations, or a reticulated pattern such as that of a diatom, was placed beneath the objective and illuminated with transmitted parallel monochromatic light. He showed that the scattered light formed a series of interference maxima or spectra just behind the objective, which spectra acted in their turn as sources of light, sending out waves which crossed and interfered with the image-plane of the microscope. These waves gave certain information about the form of the body concerned, and built up the visible image. The image was never a perfect one, and the fewer the spectra which could be got into the objective the more vague and diffuse it was. With every fresh order of spectra admitted the image became sharper. It was as if, said Professor Bragg, the light was asked to paint a picture of what was under the objective, but to do so with something which was the equivalent of a scrubbing-brush, with each new order of spectra which could be brought in, a tool of increasing fineness was made available, and the picture accordingly became more detailed. All this corresponded with the infinitely more minute observations in x-ray optics, except that, in x-ray examination, the microscope was, as it were, cut short at the region where the spectra were formed, and as physical conditions made it impossible to coerce the spectra into recombining to form the image, the spectra had to be measured by suitable instruments, and the image built up by calculation. Thus although images of atoms and then molecules could not be formed directly, devices could be used to show what the images would be like if one could see them and Professor Bragg exhibited a series of such "photomicrographs" of atomic arrangements, which, he said, if the element of calculation might for the moment be neglected could be regarded as x-ray photographs of ultimate matter with an enlargement of many thousand million diameters. Major C. J. S. Phillips, in moving a vote of thanks, said that this work which already had many laboratory and industrial applications might not be without its medical interest also opening up the possibility of discerning finer differences in tissue structure than the microscope could reveal.

THE DURATION OF PREGNANCY

METHODS of calculating the date of parturition are at present admittedly unsatisfactory, and any attempt to trace the laws which govern the duration of pregnancy deserves careful consideration. In the summer number of the *Journal of Obstetrics and Gynaecology of the British Empire* W. A. Jolly, professor of physiology in the University of Capetown, has submitted clinical evidence that the period of human gestation is intimately related to the length of the mother's menstrual cycle in any particular case. He concludes that the physiological period of gestation extends over eleven cycles, counting from the middle day of the last menstrual flow, and not over ten cycles as is generally assumed. He believes that this constitutes a law in those pregnancies in which the maternal cycle is short. When the cycle is one of twenty-four days, and regular, the pregnancy, counting from the last menstrual flow, lasts for 264 days—that is, eleven cycles. The actual period of gestation, reckoning from the fourteenth day of the cycle (when ovulation and conception are assumed), is 252 days—that is, ten and a half cycles. Again, when the cycle is one of twenty-six days the corresponding figures are 286 and 273 days. When the cycles are longer the law is modified by a complication resulting from the age of the foetus, and birth is likely to occur when the tenth missed period following conception falls due, or shortly afterwards. In the human female the twenty-eight-day cycle is usual, and the data in textbooks apply directly to this case. Professor Jolly remarks that, in view of the admitted fact that parturition commences on an average about ten cycles after the last menstruation, it may seem at first sight unreasonable to deny that this represents the physiological law of gestation and to deduce a law from short-cycle cases which are relatively rare. When, however, account is taken of the great variations in the duration of human pregnancy, the considerable difficulty in accurate prediction of the date of birth, and the manner in which this date is affected by extraneous circumstances, it becomes evident that a complication exists for which allowance has not been previously made. He suggests that the length of the cycle may have tended to increase in course of time in the human race, in consequence of this the increased age and size of the foetus lead in many cases to uterine evacuation before the "endocrine clock" is ready to strike. The evidence submitted by Professor Jolly in support of this interesting view is certainly worthy of critical examination, and further investigation along these lines should yield results which the clinician as well as the physiologist will be glad to have.

INFLUENZA AND THE ONSET OF ACUTE PSYCHOSES

THE frequency with which mental disorders and diseases of the central nervous system follow epidemics of influenza has been noted on various occasions, and particularly in the serious outbreak in 1918-19, which led Sir George Savage to conclude that of all the infectious diseases influenza was most likely to have mental sequels, though this type of mental disorder pursued generally a favourable course. In the October issue of the *Journal of Neurology and Psychopathology* T. C. Graves remarks that the most dangerous age for influenza in this respect is early youth, and that other critical periods are those of the puerperium and the climacteric. It appears to be generally agreed that the character of the influenzal attack bears no relation to that of the ensuing psychosis, and that there is no correspondence between the extent of the pulmonary affection and the severity of the mental symptoms. Apart from the lungs, other regions of the respiratory tract may become involved in influenza, and the infection may especially affect such cavities as the nasal sinuses and middle ear, which lie inside the skull and are adjacent to, though outside, the immediate brain case. The influenzal sym-

ptoms displayed by a normal person may differ considerably from the symptoms in patients with chronic septic processes in the head. After the primary influenzal attack has come to an end the infective process may persist in a chronic form, and give rise to pathological changes in other parts of the body. Graves recalls that, during the epidemic of influenza in the first quarter of 1927, many patients suffering from acute psychosis and presenting influenzal histories were admitted to mental hospitals, through the remaining months of last year, and only in 1928, patients continued to be admitted with clinical histories clearly traceable to the epidemic. He divides acute influenzal psychoses into two groups, according to whether the sequel is immediate or delayed. He recognizes, further, three types of those cases in which the onset of the psychosis is in close relation to the influenzal attack. In the first type there is a predominant and profound general toxæmia, in the second there are pronounced mental symptoms and toxæmia, in the third the mental symptoms predominate.

BCG THE NEED FOR STATISTICAL INQUIRY

THE medical short story that follows might have been headed "The mystery of Denise D." This puzzling French child was born at Châteaubourg, near Vitré, Ille-et-Vilaine, on August 26th, 1926. Within ten days of her birth she swallowed, on the recommendation of Dr. F. Pantrel, three doses of BCG at the intervals prescribed by Professor Calmette. It does not appear that the family of Denise D. was prone to tuberculosis, but doubtless Dr. Pantrel was impressed by the fall in the general mortality of infants which is said to follow the ingestion of BCG. In February, 1927, Denise D. was smitten with an attack of impetigo, combined with adenitis in the glands of the right side of the neck, and her mother, having transferred her allegiance from the doctor at Châteaubourg to a chemist at Vitré, called in a surgeon, who performed an extensive removal of the inflamed glands. Shortly afterwards the condition of the infant became worse, and in December, 1927, she died. Four months before the death of Denise D. her mother gave birth to another child, Marie. Although Marie did not ingest BCG, in January, 1928, she also had suppurating glands in the neck. These do not seem to have required surgical intervention, and it is reported that Marie is now on the road to recovery. It happened that Professor J. Lignières, a veterinary surgeon of Buenos Aires, who professed great admiration for the work of his dear colleague in the Académie de Médecine of Paris, Professor Calmette, was looking around for evidence to show that the dear colleague's BCG was dangerous to the human organism. He had already discovered a leprosy doctor who had succumbed after trying to cure himself with BCG, but in this case not much had been done in the way of bacteriological investigation. In the case of Denise D. the chemist of Vitré conceived the idea of preserving some of the pus in sterilized tubes, and this, as also some pus from the glands of Marie, was mixed with distilled water by Professor Lignières in June of this year, and injected into guinea-pigs. Both samples of pus contained large numbers of acid fast bacilli. When the guinea-pigs were killed they showed no sign of tuberculous lesion, but the professor, while admitting his difficulties in separating the acid-fast organism from the masses of cocci which were also present, was satisfied that the organism in the glands of Denise D. was the *Bacillus Calmette-Guérin*, and that Marie was infected with this organism by her sister. Some portions of this chronicle of the D. family were presented to the Académie de Médecine by Professor Lignières last July, but his charges failed to draw an answer from Professor Calmette. On October 23rd, however, Professor Lignières returned to

the attack, aimed with slides and descriptions of the deceased guinea-pigs. Incidentally he expressed himself as hurt that his learned colleague Professor Leon Bernard, vice-president of the Health Committee of the League of Nations, had forgotten to invite him to the international discussion of BCG by that body. Professor Bernard denied that he was vice president or responsible for the invitations, and Professor Calmette replied to the rest of the charge. It appears that Professor Calmette also obtained some of Denise D's pus in October, 1927, and in January, 1928, he was supplied with some pus from Marie D. He came to the conclusion that both infants had been infected from the same source with bacilli of human type, which were only mildly virulent, and were certainly not the BCG. The latter organism had been shown to be inoffensive, even in formidable doses and if Professor Lignieres's deductions were correct the doctors who had given BCG to 110,000 infants in France would certainly have recorded a number of accidents. They had not done so. Moreover, the international conference organized by the League of Nations had, according to Professor Calmette, unanimously affirmed the perfect harmlessness of the vaccine BCG. As Professor Calmette refused to contemplate making any further answer to Professor Lignieres, it will presumably be impossible to elucidate the mystery of Denise D. It would seem, however, that out of 116,180 infants vaccinated in France with BCG since July, 1924, Professor Calmette has managed to collect records of 3,607 who were born of tuberculous mothers or brought up in tuberculous surroundings. In *La Presse Médicale* for November 7th he gives an account of the fate of these infants, from which it appears that the death rate among them was much less than among the non-vaccinated population. Professor Calmette's new statistics still seem open to doubt, and in view of the information contained in a report by Professor Léon Bernard published in the same issue of *La Presse Médicale*, there is no need to examine them further. This report deals with the findings of the conference promoted by the Health Committee of the League of Nations for the investigation of vaccination against tuberculosis by BCG. The conference was attended by a large number of distinguished scientists, including Professors Madsen of Copenhagen, Bordet of Brussels, Neufeld of Berlin, Roux and Bernard of Paris, Krans and Gerlach of Vienna, and representatives from New York, as well as from many of the smaller European States. Curiously enough, no Englishman appears to have attended the conference. The result of the investigations was to show that BCG is unlikely to produce tuberculous lesions, and that it confers a certain degree of immunity. But the conference thought a request should be made to the League of Nations for expert statisticians to go into the question of the best method for collecting and analysing the mortality and morbidity tables of infants, both vaccinated and unvaccinated. We hope that the League will see its way to accept this proposal, so that if possible the dispute as to the value of Professor Calmette's method of pre-immunization against tuberculosis may be definitely settled.

THE LEAGUE AND SLEEPING SICKNESS

A second conference, arranged by the League of Nations on sleeping sickness began in Paris on November 5th. It may be recalled that the first conference was held in London during May, 1925, and references to the important discussions were made in our columns on May 23rd, 30th, and June 6th of that year. Various measures were recommended to the administrations and doctors of central African territories infested by the tsetse fly. It was urged, for example, that there should be a medical service bearing an adequate relation to the numbers of the popula-

tion and to the areas to be controlled. The institution of a uniform system of health passports for natives and the demarcation of uninhabited zones on each side of the frontiers so as to minimize frontier traffic were suggested. The conference further recommended that an international commission should be sent to tropical Africa to study various scientific problems concerning the forms of the disease, the way in which it spread, and possible remedies. This investigation was conducted in Uganda and districts round Lake Victoria between the end of 1925 and August, 1927. The commission has recommended measures with a view to controlling the disease. The second conference, at which Great Britain, Belgium, France, Italy, Spain, and Portugal are represented, is dealing with the difficulties encountered in the application of administrative measures recommended by the first conference, and with reports submitted by delegates on the methods employed in their territories. It is also considering what further investigations should be undertaken in laboratories and in the research centres of those regions of Africa which are infested by the disease. Lastly, the agenda includes a study of veterinary problems concerning the elimination of trypanosomiasis in domestic animals.

BOOKS IN ELEMENTARY SCHOOLS

THE report recently issued by a consultative committee appointed by the Board of Education "to inquire as to the selection and provision of books for public elementary schools and to make recommendations for the improvement of their quality and supply" contains several passages that will interest the medical reader. The committee has collected a considerable amount of evidence bearing upon the possible conveyance of infection through books, from the Medical Department of the Board of Education, the Pathological Laboratory of the Ministry of Health, several school medical officers in county and urban areas, and from the medical officers of three great public schools. The conclusion reached is that the risk of spread of infection from books is insignificant compared with the commoner and more important modes of dissemination of infection. Discussing the supply of bibles in schools, the committee notes that these are often printed in too small type. This is a fault we have often had occasion to deplore, inasmuch as it discourages the study of a work which, apart from religious considerations, is indispensable in the teaching of good English. In another passage we read that though the Board of Education has issued various publications dealing with physical exercises and games for elementary schools, including the *Memorandum on Physical Education* and the *Supplement for Older Girls*, as well as a pamphlet entitled *Notes on Campy*, the committee do not think that a separate book on hygiene is required for pupils in elementary schools, especially as the Board has recently issued a *Handbook on Health Education*.

THE Huxley Memorial Lecture will be delivered before the Royal Anthropological Institute by Sir Arthur Keith, M.D., F.R.S., on Tuesday, November 27th, at 8.30 p.m., in the Lecture Room of the Royal Society, Burlington House, Piccadilly. The title of the lecture is "The evolution of the human races."

¹ Board of Education. Report of the Consultative Committee on Books in Public Elementary Schools. London: H.M. Stationery Office, 1928. 1s. 3d. net.

At a quarterly meeting of the Royal Medical Psychological Association, to be held to-day (Friday November 23rd) at the British Medical Association House, Tavistock Square, W.C., at 2.30 p.m. with Professor J. Shaw Bolton in the chair, there will be a discussion, under the auspices of the General Paralysis Subcommittee, on certain points raised in papers on general paralysis read by Drs J. Brauder and J. F. Smyth at the annual meeting.

ROYAL SOCIETY OF MEDICINE

ANNUAL DINNER

THE annual dinner of the Royal Society of Medicine was held at the May Fair Hotel, London, on November 15th, when a company which must have numbered five hundred assembled under the presidency of Lord Dawson of Penn, who was supported by the immediate past-presidents—Sir John Bland Sutton, Sir William Hale-White, Sir St Clair Thomson, and Sir James Berry—and by the presidents of the twenty-five Sections. The principal guests on either side of the President wore the Right Hon Winston Churchill, M P, Mr Rudyard Kipling, Sir Ernest Rutherford (President, Royal Society), Sir John Ross Bradford (President, Royal College of Physicians), Sir Berkeley Moynihan (President, Royal College of Surgeons), Sir Ewen Maclean (President, British Medical Association), and Sir William Bragg (President, British Association). Others at the high table included Lord Ashfield, Sir Anthony Bowlby, Sir Holburt Waring, Sir George Buchanan, Dr J W Carr (President, Medical Society of London), Surgeon Vice-Admiral Gaskell (Medical Director-General R N), Major-General Fawcus (Deputy Director-General A M S), Sir Thomas Hughes (Chairman, General Council of the Bar), the Editors of the *British Medical Journal* and the *Lancet*, Dr F N Kay Menzies (Chief Medical Officer, London County Council), and the Headmaster of Epsom College.

Mr WINSTON CHURCHILL, in proposing the health of the Royal Society of Medicine, praised it for a record of service to science and humanity which held comparison with any scientific or similar body in the world. In contemplating its history, which extended back to the year of Trafalgar, he was impressed by the formidable march of knowledge. Lord Balfour, on his eightieth birthday, reminded his audience that it was the ambition of Bonham to live until he was eighty that he might read every book worth reading in the world—in the early nineteenth century not an unreasonable ambition. But since that time human thought had unceasingly expanded. It would be futile now for anyone even in a single branch of science to attempt to master every valuable work bearing upon his subject. It was because of this increasing knowledge that such bodies as the Royal Society of Medicine had acquired a vital and essential position in the intellectual and practical life of the community. There was an increasing need for focusing and combining the results of human study in the different branches. "We have to be sure that the furthest point reached by the most adventurous patrol at dusk is entrenched and occupied before dawn by the whole army."

The Chancellor of the Exchequer went on to say that he must not be expected to lay down the law on the subject of medicine. "I have tried my hand on a good many things, but I am not going to poach on your preserves. Your task is too difficult, but I can understand how difficult it is, because in its continual contact with unknown factors it resembles in a good many respects the political profession with which I am more or less acquainted." Every human being might be likened to an empire, embracing innumerable populations, of different races, covering a vast province holding different conditions of pressure and climate, and usually in a state of internal or external war. As long as the presiding genius in the shape of the central governing control was seated firmly on its throne there was order throughout the complex mechanism, but when that central control began to weaken or to age or was upset by any cause, sudden or gradual, then disorders, discontents, riots, mutinies, revolutions broke out, and the story of the decline and fall of the Roman Empire or of the Russian Empire of recent memory was repeated. In politics several of the diseases with which medicine was grappling had their parallels. Communism the Chancellor likened to cancer—the revolt of a single cell, subverting and corrupting those immediately around it, establishing a foreign principle of life within the body politic, manifested by the most violent symptoms and requiring remedies about which there was much difference of opinion, some said the knife, but all were agreed that the remedies

must be prompt and drastic. The resources of invention which could be employed in the treatment of disease were growing, but so was the variety of conditions requiring treatment. He looked upon the Royal Society of Medicine as a sort of League of Nations, bringing co-operative effort to bear upon the disordered state. He paused to point out how much had been achieved by medicine in every experience of daily life, in every development of imperial work, the advance of medicine played a noteworthy part. Having served at the Colonial Office on two occasions, separated by a long interval, he had seen something of the great advance in tropical medicine which had eradicated from immense territories the diseases by which they had been for centuries tormented. Marvels had been wrought, and these were only an earnest of what the future had in store. However great the achievements already performed in the medical sphere, and whatever substantial results those in the political field might be able to show, both were asking for more, and expecting better results in the future. Politicians looked to the medical profession to lay its hands on a great many of the evils of modern life which caused them a vast amount of worry at the present time.

In conclusion, Mr Churchill said that, having dealt with the troubles of the medical profession in dealing with human bodies and those of politicians in dealing with the body politic, he would utter one word of advice to the "patients" who were not represented on that occasion. He would urge the patients not to be in too much of a hurry to change trusted and sober-minded advisers for the latest quack who came in with some potent cure or specific to sweep away the evils which had racked mankind since the dawn of time. He had spoken as one who had the sincerest admiration for the medical profession, whose activities he had witnessed in war and in peace. "With my own eyes, at little more than the distance across this room, I saw, in South Africa, a doctor gain the Victoria Cross. I know how nearly the role of the medical profession corresponds to that of a self-sacrificing priesthood in its devotion to causes and humanities which in this world bring no material reward."

Lord Dawson, in responding to the toast, after expressing his appreciation of the Chancellor's speech, said that he would not tarry over the internal affairs of the Society except to say that, with its many component Sections, it continued to grow in wisdom, stature, and comprehensiveness. Among other illustrations of the trend of medical thought and the spirit of its service, Lord Dawson made a reference to anaesthesia, suggested by the discovery by Mr C J S Thompson that, in the year 1827, a young doctor named Hickman produced anaesthesia in animals by inhalation of CO₂ and N₂O, performed painless operations upon them, and brought his results to the notice of the medical professions in England and France, trying to persuade them to institute the same anaesthesia for man. Coming to more recent events, Lord Dawson touched upon the Harveian tercentenary, and recalled the acclamation given to the Russian genius Pavlov, a heroic figure indeed, who had kept the lamp of knowledge burning through war and revolutions. He next recounted the tragic adventure of the commission of inquiry into yellow fever, which involved the deaths from infection successively of Adrian Stokes, Noguchi, one of Japan's great sons, and William Young. Linked with these great names for sacrifice he mentioned Robert Knox, who had not, indeed, perished on a tropical coast, but had doubtless shortened his life, full of happy work and friendship, as a result of his absorption in the study of radiology, of which he was a pioneer and leader. All these men represented the spirit of service in medicine.

After pointing out that the steady move of medical thought was towards the threshold of disease, that medicine was passing from the age of acute to subacute infections in which the state of the host counted as a greater factor, and that future thought would be occupied with forces rather than with lesions, with the dynamic rather than the static, Lord Dawson in a lighter vein contrived to draw a further parallel between medicine and politics by a reference to the four Hippocratic humours. The blood,

he said, was the prime of ministering humours, which was propelled by a great heart and permeated and held the other humours. The phlegm, in its parliamentary equivalent was that force which begot ideas, and penetrated everywhere, even into the taxpayer's pocket. Then there was the yellow bile, to which humour a group of statesmen had paid such homage as to name their official boot after its colour. Finally, there was the black bile, which took origin in the spleen, a "red" organ, useful in health, but at times becoming overgrown and swollen, and seeking to destroy good blood, in which circumstances the spleen was removed and the body got on quite well or even better without it. He also placed at the disposal of Mr Churchill the secret of nature that these humours were seasonal in their influence, that the blood and the phlegm were at the height of their power in the month of June, whereas the bile humours gained the ascendancy in the late autumn.

Lieut Colonel W. P. MacArthur, D.S.O., in a most felicitous speech, proposed the health of "The Guests." He spoke of Mr Churchill's versatility—statesman, journalist, author, soldier in the field, artist of no mean merit, and bricklayer! As for Mr Kipling, Colonel MacArthur told how, many years ago, he took the perfect story of how the fairies forsook England, translated it into Gaehe, and recited it to a fisher audience in the ultimate island of Tory. Such was the response of the audience to the ancient magic recaptured by Mr Kipling's artistry that even the author himself would have been moved, weaned though he must be with the plaudits of his admirers. As for the rest of the company at the high table, they might be likened to that company of Chaucer's time who assembled at the Tabard Inn in Southwark, including the doctors of "physik," unrivalled "to speke of physik and of surgerye," and in every branch of their art "verray parfit praktisours," also the generous benefactor of medical research who, like the Clarke of Oxford, having earned a golden pipe, "on bookes and on leynge he it spente," the man of law "war and wys" and of great reverence "for his science and for his high renown," and finally the leaders of the press, who might be likened to the host of the Tabard, busy in repressing the over-uberant, encouraging the worthy, and generally shepherding the flock.

Mr Rudyard Kipling responded to the toast.

[With regard to Mr Kipling's speech the press representatives were informed on arriving at the dinner that copies of the speech had been sent by Mr Kipling's secretary to the Associated Press. It was afterwards discovered that on the copies there was an intimation to the effect that the copyright reverted to Mr Kipling two days after the delivery of the speech. This unusual course—stated by one authority on copyright matters to be unprecedented—prevents a weekly journal from publishing any considerable extract.]

Mr Kipling's speech was on the theme of Nicholas Culpeper, the astrologer-physician of the seventeenth century, who diagnosed a case by erecting a horoscope and inquiring of the face of the heavens. Mr Kipling suggested that Culpeper, if he returned to earth to-day, would still be at ease in the medical Sion. He had believed in the transmutation of metals, but he could still be shown that in full blast at a Royal Society soirée. Nor would he be astonished to see men snatch out of the air an influence or humour of which they knew nothing more than that it lighted, warmed, and worked for them, and transmitted their speech and vision from one side of the world to the other. The news that unknown influences from the skies lashed and tore through all matter everywhere and at all times would be received by him with perfect calm. He pictured Culpeper visiting Greenwich and the B.B.C., and finding some confirmation of his own early speculations, and finally he asked some questions of those present. Was it not likely that the multitude and significance of the revolutions that had been heaped on mankind during the past few years had made men, in self-defence, specialize more and more narrowly? Had they not been driven headlong to abandon their conceptions of life, matter, and motion, and was it not human that in that upheaval men might have carried off each his own cherished prepossession and camped beside it just as refugees did after an earthquake? Was it not arguable, then, that they might be still mistaking secondary causes for primary

ones, attributing to instant and visible agents of disease unconditioned activities which in truth depended on some breath drawn from the motion of the entire universe? At some future time, when the bacteriologist and physicist were for the moment at a standstill, the problem might be taken to the astronomer and the question of Culpeper—of course in modern scientific language—put to them. "What was the aspect of the heavens when such and such phenomena were observed?"

Mr FURST BIRMINGHAM, O.M., P.R.S., also responded to the toast. Alluding to his own efforts to teach physics to generations of medical students, he said that when he recalled the raw and restive groups to which he had lectured, and then looked round that banquetting hall and beheld the resulting product, he felt that something more wonderful than the transformation of radium had occurred, and something which must have involved much more energy in the process. Until some fifty years ago the medical profession was in a sense complete within itself. It advanced only by the accumulated experience of its own adherents. Then there began a change which had greatly influenced these latter days of medicine—namely, the application to medicine of scientific methods and the growth of the ancillary sciences, including physiology, bacteriology, and, more recently, biochemistry. This had led to a multitude of discoveries and to great advance. Within the last ten years especially had numbers of men been set aside for research into the problems which lay at the basis of medical practice. He mentioned in this connexion the work which the Medical Research Council was doing, also the Imperial Cancer Research Fund, the Otto Beit Trust, and the Rockefeller Foundation at University College Hospital and elsewhere. The Royal Society also had endeavoured to do its best by founding the Fullerton professorship, and in other ways to assist the scientific side of medicine. He was sure that all this was only a beginning. He foresaw the time when much more help would be available to extend in a multitude of directions the scientific work ancillary to medicine. Those present knew better than he how relatively little had been done and how much territory remained unexplored. He looked for an increasing international attack upon the problem of disease in general. Even from the purely economic point of view, disregarding the human, it would be many times worth while. It seemed to him that the medical domain was almost the only one left to science for the pursuit of its dreams and visions. Twenty or thirty years ago, if a company of intelligent men and women had been asked what it was they most wished to see fulfilled in their time they would have replied variously, saying that they desired such things as had been since fulfilled in aviation, wireless, television, and the like. It was difficult to say what remained for mankind to wish for, with the great exception of health, and more health, and the happiness which it brought, and it was the medical profession alone which was in a position to give that guerdon to humanity.

SOCIETY OF MEDICAL OFFICERS OF HEALTH

ANNUAL DINNER

THE annual dinner of the Society of Medical Officers of Health was held at the Piccadilly Hotel on November 15th, with Dr J. HOWARD-JONES of Newport, Mon., President of the society, in the chair, the principal guests being the Right Hon. H. P. MACMILLAN, K.C., Chairman of the Lunacy Commission; Dr H. B. BRACKENBURY, Chairman of Council of the British Medical Association; Dr Andrew BALFOUR, Dr Catherine CHISHOLM, President of the Medical Women's Federation; and Mr Henry LESSER, President of the National Association of Insurance Committees.

Mr H. P. MACMILLAN, in proposing the toast of the society, said that he welcomed the opportunity of expressing—what all people engaged in public health felt—a sense of indebtedness to the medical officer of health for the work he performed in the public interest. Since the days of Disraeli the developments that had taken place in public

health administration had been nothing short of revolutionary. He had tangible evidence of that recently, when the representatives of one of the leading insurance companies asked him the surprising question whether, within their constitution, they could reduce their life premiums. They informed him that the expectation of life had been so greatly increased in consequence of modern sanitation and public health administration that they were in a position to discard the mortality tables which formerly ruled and to quote lower premiums to those who desired to insure. The country was suffering from many disadvantages and embarrassments as the result of the war, but at least it was possible for them to congratulate each other on the fact that the people in general had benefited enormously of recent years as the result of public health legislation and administration. It should be a principle of such administration, however, not to do everything for the people, but to teach them to do things for themselves. People must be taught how to face up to their responsibilities, and how best to utilize their lives and improve their conditions. Mr Macmillan said in conclusion that it had been his own good fortune to be associated with many medical officers of health and with numbers of other medical men on various public bodies, and he yielded to none in his admiration for their work. To medical officers the lucrative prizes of the profession might not come, but they had the greater reward, which was the result of public duty—the reward of a happier and better community, more suitably housed, healthier, and economically more prosperous.

The PRESIDENT (Dr Howard Jones), in responding, referred to the birth and growth of the society. It had now thirteen branches, extending to the South of India and the Malay States, and also six groups concerned with special departments of its work. Dealing with the cost of public health services, the president said that in a recent year, out of the total sum spent in administration by local authorities, only about one-thirtieth was spent on the services usually controlled by medical officers of health. Referring to the exchange visits of public health officers effected under the auspices of the League of Nations, he said that this had probably brought about more good fellowship among the nations than any other department of the League's work, he understood also that the medical officers of other European countries who had visited Great Britain had returned to their homes with a profound respect for the public health work of this country.

Dr CHARLES PORTER proposed the health of the guests, to which several responses were made.

Dr HADEN GUEST referred to the Government's de-rating bill and the far-reaching changes which it would bring about in local government, making an appeal to medical men and women to play a larger part in national and local politics, because in his view scientific ideas and the scientifically trained mind were greatly needed in legislation and administration.

Dr BRACKENBURY spoke of the cordiality which pervaded the relations between the society and the British Medical Association. It seemed to him that the distinction between curative and preventive medicine was growing less sharp. Members of the profession, no matter in what branch they were engaged, had had the same training, and the medical officer did not cease to be influenced by his clinical training when he took up his future work, any more than the general practitioner or the specialist. The distinction between clinical and administrative work was also becoming less sharply defined. Medical officers of health were first appointed to diagnose and treat the diseases of the community, which also had been considered to be the primary object of the ordinary practising member of the profession. Later, however, it had become clear that in diagnosing and treating such illnesses they were all actually practising preventive medicine. He hoped that his presence in a representative capacity on that occasion would be regarded, as it was meant to be regarded, as an earnest that members of the profession generally adopted the same attitude, and were uniting to effect the improvement of the health of the community.

Mr H. LESSER urged the need for a more complete liaison between national health insurance bodies and medical

officers of health. What eventual form such co-operation might take it was difficult at present to say, but by its health propaganda and by assisting to consolidate the efforts of the various bodies concerned in public health, the society was rendering very important service. The Mayor of Newport (Mr Walter Griffiths) spoke of the high esteem in which the president of the society was held in Monmouthshire, especially for his establishment in Newport of a very fine maternity and child welfare organization, the work of which was linked up with the health services of the educational authorities. The president's health was pledged at the instance of Professor H. KERR, and with Dr HOWARD-JONES's brief reply the proceedings were brought to a close.

A PRIVATE HOSPITAL SYSTEM:

THE SHANGHAI EXPERIMENT

[FROM A CORRESPONDENT]

In the practice of modern medicine and surgery it is being found to an increasing extent that patients, especially if acutely ill, stand a much greater chance of recovery if treated in hospital. Ionization, actinotherapy, vaccine and serum therapy, the urgent treatment of complications, and methods of more accurate diagnosis all demand closer supervision and more suitable surroundings than can be provided in the home. In America this seems to have been recognized to a greater extent than in England, where the upper and middle classes have restricted facilities for entering the large hospitals, and have to depend mostly on private nursing homes. As a rule, nursing homes often lack the complete equipment that is necessary, and, by their nature, are being run as a source of profit to the owners, the cost is higher than many middle-class people can afford. There should be room in every city of any size for at least one private hospital, complete with all departments for every kind of treatment, where patients can continue in the care of their own medical practitioner. Such a hospital depends entirely on the goodwill of the profession, for doctors are often reluctant to send their clients to an institution where the case would pass out of their hands.

In these days of motor cars and telephones it rarely happens that a doctor can remain long out of call to his patient. Patients know this, and benefit by the peace of confidence they regard themselves as being in a hotel for the sick, with a known tariff, they have no uncomfortable feeling that they are taking advantage of the charitable subscription list.

It would, of course, be desirable that a private hospital should open its doors free of debt, and there is here an outlet for philanthropic citizens to benefit their fellow men, but, as has now been shown in the United States, it is not impossible for a hospital to support itself and provide for the sinking fund while restricting its charges sufficiently to bring them within the scope of ordinary purses.

During the summer of 1926 Mr C. E. Rayner, who was retiring from business life in Shanghai, built and equipped an institution known as the Country Hospital, which he presented to the International Settlement anonymously, though his name has since become known. It cost £300,000, and embodies all the features (some of them on a lavish scale) of a modern hospital of 125 beds. By the deed of gift the donor intended it to be run on business lines like a hotel, but owing to local and abnormal causes there has been a deficit, which has been met out of municipal funds. The prospective benefit to the community was such that the Shanghai Municipal Council had no hesitation in guaranteeing the bank that any overdraft would be met.

With the exception of two free wards, male and female, endowed by the donor, the hospital deals with three classes of paying patients. Those in the first class have separate

private rooms, each with a bathroom, second class rooms have two beds, with a bathroom; and third class patients are accommodated in six-bed wards. The charges are 30s 15s, and 8s per diem respectively, these include food, nursing, drugs, and all the benefits of comfortable furnishing and complete equipment.

There is a suite of operating theatres, and radiological, hydrotherapeutic, and ophthalmological departments, retinotherapy, electric massage, and Zander Institute treatments are available. The clinical laboratory gives results as promptly as possible, and there is a well-equipped pharmacy. The kitchen, at the top of the building, is in charge of two qualified dietitians, who ensure that every diet is exactly as ordered by the patients' doctors. By its own mechanized laundry a plentiful and ready supply of clean linen is ensured, and the general works (heating, lighting, etc.) are looked after by a resident engineer.

The ratio of nurses is one to every three patients. The sisters are international, and possess the diploma of the

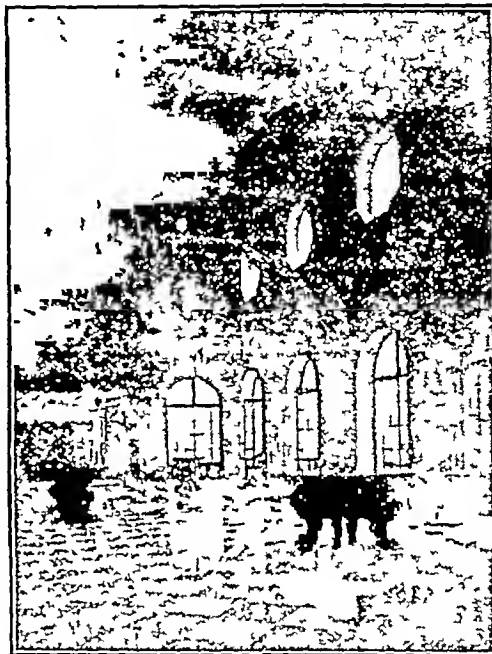
any change in his patient, and, should any complications set in, the superintendent is available for emergency treatment. In practice, however, it hardly ever happens that the patient's own doctor does not arrive in time to deal with the matter himself. No patient is admitted unless by his own doctor's order, should anyone arrive without this he is asked to nominate a medical man, and the superintendent can help by impartially suggesting names that he may deem most suitable.

Professional fees are arranged between the doctor and patient as in nursing homes in England, doctors arrange for their own consultants. A moderate fee is charged for operation room expenses, the surgeon walks in to find everything, from instruments to gloves, provided for him.

By these methods the medical profession in Shanghai feels it has in the Country Hospital a very great convenience for proper treatment and every doctor is therefore more or less an outdoor agent. It has been observed that



The Main Entrance.



The Reception Hall

hospitals of the country from which they come. The probationer nurses attend a course of lectures given by doctors on the visiting staff, and can qualify by an examination, which is of a standard approved by the General Conference of Nurses. The radiologist is resident, and available at all times for emergency examinations.

The hospital is administered by a resident medical superintendent, who also acts as executive secretary to a board of governors, this board of public men meets regularly, and keeps in touch with the best methods by which the hospital can meet the public interests.

Any general practitioner who wishes to have his patients admitted must first submit his name and credentials to the superintendent, who then places his name, if found satisfactory, on a list, this is especially necessary in Shanghai, where there is no registration and where degrees and diplomas are of varying quality. The fact that a doctor has his name on the visiting list gives him an added interest in the place.

Every patient on admission has to provide a guarantor, rarely is any difficulty found in this respect, and it is of great use in helping to keep free of bad debts. The care of a patient remains wholly in the hands of the private practitioner concerned, and the hospital activities are confined to nursing and to seeing that individual instructions are obeyed. The doctor is informed by telephone of

patients seek admission much more readily when they know they are to remain under the care of their own doctor.

With regard to income, the following figures, at fees much the same as those in the Country Hospital, give the computation of earnings in an American private hospital.

14 private rooms at \$7.50 — 85% occupancy	\$32 576.25
20 two-bed rooms at \$5 — 85% "	31 025 00
9 four bed rooms at \$4 — 85% "	11 169 00
Operation room fees at \$20 and \$15	13 616 00
Special nurses	8 500 00
Total	\$96 886 25*

*Equivalent to £19 377 sterling

The whole difference between an institution such as this and an ordinary nursing home lies in the much wider facilities that a hospital can offer. If in the hands of a capable administration there need be no call for appeals to charity, while at the same time not only the local medical profession, but patients too, who dislike the lack of privacy in a public hospital, are catered for. A point of importance in the erection of such a hospital is the necessity for providing a nurses' hostel in the vicinity, for this greatly adds to the amenities of a nurse's life and makes the staff contented.

Such a system might well be introduced into England and be further extended.

PUBLIC HEALTH CONGRESS IN LONDON

SINCE 1920 a Public Works Congress and Exhibition has been held biennially in London. Its promoters have been urged to widen its scope to include public health interests, but the programme has been too fully occupied. Therefore it has been decided to arrange, probably in alternate years, a similar congress and exhibition dealing with public health and sanitation. The first such event, organized by a committee under the chairmanship of Sir Frederick Willis, and including representatives of the Ministry of Health, the County Councils Association, and other bodies, has been held at the Agricultural Hall, Islington, during the present week. Eight hundred delegates, from 350 local authorities and from a number of voluntary societies, took part in the proceedings.

Mr NEVILLE CHAMBERLAIN, Minister of Health, who attended the opening function, said that this was an interesting moment in the history of the health services. Those services were comparatively of recent growth, but they had attained in the estimation of the public an importance and value quite remarkable. The fact that the British population was still increasing was due to the improvement which these services had effected in the death rate, otherwise, with a falling birth rate, the British would now be a dwindling stock. Some obstinate problems still remained, as was shown by the 30 million weeks' work lost through sickness in 1927 by the insured population alone. The Minister, in a reference to the new proposals for local government which he was shortly to introduce into Parliament, said that one of the considerations had been the opportunity of getting a better return in health services for the money expended by making one authority responsible for such services in each area, instead of two, so that the single authority could make a proper survey of health needs, and rearrange and classify its institutions, utilizing some perhaps for a different purpose from that which they had hitherto served, closing altogether some which were hopelessly out of date, and working throughout, he hoped, in full co-operation with voluntary hospitals.

At a subsequent session Sir GEORGE NEWMAN, in speaking on the purpose of the public health service, traced four great stages in its evolution. The first was land drainage and agricultural development in order to avoid pestilence and famine, the second was the institution of by-laws for securing cleanliness and dealing with infection in cities, the third was marked by attention to environment, and the fourth, following largely the discoveries of Pasteur and Koch, by attention to the problem of personal hygiene. Sir George went on to show how medicine had captured for its own purposes many non-medical agencies and powers, and how the medical services were increasingly using science and invention for maintaining the life and health of the community.

Sir WALTER FLETCHER also addressed the delegates on research in relation to public health. He pointed out that there must be a certain lag arising out of differences between the nature of research and public health administration, the investigator was necessarily critical and aggressive, while the administrator longed usually for peace and uniformity. The lag was due partly to the imperfection of the parliamentary machine or the exigencies of political life, partly also to social customs and prejudices, and perhaps to the wrongheadedness of cranks and fanatics. He described the progress made in bacteriology, the rise of which had coincided with the first coherent efforts of the legislature in the direction of public health services. All the great triumphs in public health work had depended largely on bacteriology. It was curious to remark the variations in the success with which the policy of immunization had been applied in different areas. In Scotland the number of persons immunized against diphtheria was twice the number immunized in England and Wales, and, in proportion to the population of the two countries, eighteen times the number. Sir Walter Fletcher also spoke on industrial hygiene, expressing the hope that the progressive industrialization of native races in our African and Asiatic empire would not be mismanaged, as was our own industrial revolution, from the hygienic point of view.

With regard to national fitness, there was a disposition to assume that things were better now than they were shown to be by the national service recruiting during the war, but the recruiting statistics for the fighting services still caused grave disquiet.

Other subjects of discussion during the week were the housing problem, the national milk supply, food protection, hospital construction and equipment, water pollution, and sewage disposal. More than a hundred commercial exhibiting firms occupied the floor of the Agricultural Hall.

Lectural Dinner

On the evening of November 20th a banquet was held at the Savoy Hotel. Sir FREDERICK WILLIS presided, and among his supporters were Sir Arthur Robinson, the Right Hon. H. P. Macmillan, K.C., Chairman of the Lunacy Royal Commission, Lieut-General Sir Matthew Tell, Mr L. G. Brock, Sir Robert Robertson, F.R.S., Surgeon Vice-Admiral Gaskell, Air Vice-Marshal Munro, Dr Hubert Bond, Sir Walter Fletcher, and Sir Henry Keith. Proposing the toast of "Parliament," Mr MACMILLAN paid a high tribute to the work carried on in the committee rooms, and made special reference to the improvements which had been effected in this way in public health administration. Replying to the toast, Dr VERNON DAVIES, M.P., delivered an interesting speech, in which he touched intimately on the various experiences of Members of Parliament, and discussed the attributes they required. Sir HENRY KEITH, with many deft Scottish touches, proposed the toast of "The Public Health Services," and referred particularly to the way in which these Services might be concerned in projected legislation. He was convinced that a great future lay before public health administration, which was still only in its infancy. With skillfully interwoven stories of Abordonian flavour he relieved any tension aroused by a trace of political bias in some of his remarks. Dr W. M. WILSON, medical officer of health for the City of London, responded briefly, and spoke of the extent of the ground covered by the Public Health Services. He indicated the ideals which were being pursued and which prompted them to continuous activity. The toast of "The Chairman" was proposed by Sir EDMUND BARNARD, who in a clever speech touched delicately upon some points which had been previously raised and spoke warmly of the work done by Sir Frederick Willis. The toast was received with musical honours, and the chairman, in replying, described how the congress had taken its origin in a desire to bring together more intimately the scientific and mundane sides of public health activities. He mentioned his personal connexion with the Local Government Board, and quoted a recent remark of Mr Neville Chamberlain, that the Public Health Department was the most important of all. He paid a high tribute to the work of Mr Warner Terry in connexion with the congress organization, and added that it was hoped eventually to use any financial proceeds resulting from such congresses for the advancement of research.

ROYAL MEDICAL BENEVOLENT FUND

SUBSCRIBERS and donors to the Royal Medical Benevolent Fund are asked to forward their subscriptions for the current year before December 31st. Not only the scope of the Fund's work, but also the amount of assistance given, depends upon the subscriptions received, and in view of the many cases in which help is greatly needed especially during the winter months an urgent appeal is made for contributions. Cheques should be sent to the Honorary Treasurer, 11, Chandos Street, Cavendish Square, London, W.1.

At the last meeting of the committee forty two applications for grants were considered and £704 was voted to thirty eight applicants. The following were some of the cases relieved.

Widow aged 62, of M.B. Since the death of her husband in 1915 the applicant has been entirely supported by her elder daughter who was on the wage. This daughter died early in September 1928, after a short illness leaving her mother without means of support. Voted emergency grant of £10 and a yearly grant of £36 in four instalments. Other medical charities have been approached to augment the widow's income.

Widow aged 65 of M.R.C.S. Left penniless on her husband's death in 1920. This daughter is earning £2 10s. a week which is the only income for these three persons. Voted £36 in four instalments. Daughter aged 32, of L.R.C.P. Living with her brother who is able to earn only 47s. 10s. and lives rent free in three rooms. On many occasions it has been found that the applicant was practically starving. Voted £25 in four instalments, clothes to be supplied by the Guild. The local Council of Social Welfare is interested in this case.

Ireland.

Vital Statistics of Northern Ireland

THE sixth annual report¹ of the Registrar-General for Northern Ireland, which has now been published, contains the vital statistics for the year 1927. It is intended in the next annual report to show death rates adjusted for sex and age distribution according to the census of 1926, the final reports on which will shortly all be published, the rates given for 1927 must therefore be regarded as subject to the limitations necessarily attached to crude rates. The enumerated population from the census of 1926 was 1,256,561, and the estimated population in the middle of 1927 was 1,251,000. Registrations in 1927 show that the marriage, birth, and death rates are all slightly below the 1926 levels and considerably below the averages for the ten years 1917-26 inclusive. The birth rate per 1,000 of the estimated population was 20.7 in 1917, and rose to the exceptionally high figure of 25.9 in 1920, since then there has been a relatively steady decline, the rate of 21.3 last year compares with 22.5 in 1926, and an average of 22.8 for the years 1917-26. At 14.6 per 1,000 the 1927 death rate is 2.0 below the average for the preceding ten years and 0.4 below the rate for 1926, the next lowest figure since 1917 was recorded in 1923, when the rate was 14.9. In the course of this period the rate has shown considerable fluctuations, rising to 20.6 in 1918 and being at its lowest last year. The principal causes of death, and the percentage of each group to the total of deaths from all causes, were heart disease, 13.9, tuberculosis (all forms), 9.7, cancer, 8.1, pneumonia, 6.9, bronchitis, 6.1, cerebral haemorrhage, 6.0, influenza, 4.1—these diseases accounting for over 50 per cent of the total. Since 1918, when the death rate from all forms of this disease was 2.54 per 1,000, the tuberculosis death rate has generally shown a downward tendency, and a further reduction last year brought the figure to 1.41. In 1927 more than 50 per cent of the deaths at ages 15 to 25, and 40 per cent of those at ages 25 to 35, were attributed to tuberculosis. The cancer death rate of 1.18 per 1,000 in 1927 showed a slight increase over the previous year's figure, and is the highest yet recorded in Northern Ireland. Deaths from measles, influenza, and respiratory diseases were below the average for recent years. Infant mortality rates showed an improvement, deaths under 1 year per 1,000 births registered being 77.7 in 1927, as compared with 84.9 in 1926 and an average of about 88 for the ten years 1917-26. The rates were noticeably higher in the town districts, urban areas showing an aggregate rate of 91.7 per 1,000 births and rural areas 60.9.

Hospital Amalgamation in Dublin

Speaking at the Meath Hospital at the opening of the clinical session, Dr W. Boxwell, in dealing with hospital work in Dublin, said they had all heard of the suggested amalgamation of a number of the smaller hospitals to form one great hospital of 800 or 1,000 beds. There was a time when he was dazzled by such a project, but now, when he was older, he was not so sure. Apart from the wisdom of such a scheme, from sentimental reasons, did not the small hospital, he asked, serve a very useful purpose as it now existed? The 120 beds occupied gave ample material for teaching medicine and surgery to a class of 25 or 30, the ideal number was 6, and it was impossible for one man to teach the elements of anything practical to a large class at one time. In the small hospitals the student came into direct touch with disease and with the general management of the sick, and the patient in such an institution had a larger share of the doctor's individual attention, as well as that of the student, in a great hospital there would be a class of 100, with eight or ten qualified men who would stand between the student and the practical work he was anxious and quite fit to do. He had no sympathy with the argument that by the amalgamation of four hospitals they would save the salaries of four secretaries, four matrons,

four housekeepers, etc.—whose salaries would not pay for the super secretary of the big hospital. The whole basis of the scheme was a hypothetical endowment of £500,000. It was said that by such an amalgamation they would gain centralization, that there would be greater opportunity and a wider field for the men at the head of the profession, and that accurate records would be kept. Research of a limited but very useful kind, it was argued, would become possible, but the true researcher had to be born, and money did not mean successful research. He doubted if there were a hundred men in Ireland who were setting about the investigation of the cause of cancer in any useful way. A small beginning had been made in this direction. The Government, with admirable foresight, had sent young doctors to America to learn something of the methods employed in that country with regard to bacteriology and public health. Concluding, Dr Boxwell said that so long as the face of secular education in this country was scarred by political and religious strife, and so long as they had Ministers strangling the intellectual development of a whole people, they might look in vain to the Rockefeller and every other foundation for grants in aid of scientific progress. In proposing a vote of thanks to Dr Boxwell, Mr W. S. Colles, chairman of the joint committee, said he dissented from some of Dr Boxwell's remarks on the amalgamation of hospitals. There was a great deal to be said on both sides. He ventured to suggest that the amalgamation of some of the hospitals would be very desirable if the money was forthcoming, it was an uneconomic position to have hospitals overlapping in the same district. In a hospital of 500 beds the students, he believed, would have greater opportunities of gaining experience than in hospitals of 100 beds.

Encroachments on Private Practice by Medical Officers of Health

At a meeting of the Irish Committee of the British Medical Association held at the Irish Offices in Dublin on November 14th, Dr J. Mills, chairman, presided, and Mr H. T. Warnock, F.R.C.S.I., Donegal, and Dr W. W. Murphy, Coolgreany, Inch, county Wexford, were elected chairman and vice-chairman respectively for 1928-29. Dr Walter Rabilly, Cork, requested the assistance of the Committee to prevent encroachments on private practice by whole-time medical officers of health, with regard especially to the custom of local authorities of referring to voluntary hospitals for special and institutional gratuitous treatment cases inspected by their medical officers of health. The Committee adopted the following recommendations by the Association: (1) That the function of the health authority should be confined as much as possible to the prevention of disease. (2) The work of the whole-time officer should be confined to administration, inspection, and institutional or consultative work. (3) Health visitors and nurses should be definitely responsible to a local practitioner for patients dealt with by them, including expectant mothers. (4) That in the case of private patients they should be always referred to their usual medical attendant to make arrangements for their medical treatment. The Committee discussed at length the following matters which were on the agenda of the Irish Medical Committee for its meeting, reported below, on the same date: (1) Change of area of pool for medical certification, and (2) Draft Committee of Inquiry into the working of the Local Authorities (Officers and Employees) Act, 1926. A vote of condolence was passed by the Committee with Mrs. Cassidy, on the death of her husband, Dr. Louis Cassidy.

Change of Medical Certification Pool Area

At a meeting of the Irish Medical Committee held in the Royal College of Surgeons, Dublin, on November 14th, the following members were present: J. Power (in the chair), P. J. Buttery, P. J. Clery, C. J. Corby, A. D. Courtney, P. J. Cusack, J. M. Day, J. Dalton, M. F. Delaney, W. M. Donovan, G. Fitzgerald, P. J. Hamilton, W. Hederman, E. T. King, J. J. McKenna, J. Mills, W. W. Murphy, J. Murray, J. W. O'Brien, B. O'Hanlon, J. O'Meara, H. Raverty, H. Roche-Kelly, R. J. Rowlette,

¹ H.C. 158. H.M. Stationery Office or through any bookseller. Belfast 1928. 2s. 6d. ret.

J P Shanley, D Walshe, Sir William I de Courcy Wheeler. Apologies for absence were received from Dudley Forde, J J Elliott, P McKenna, J Stuart, H T Warnock. Sir Joseph Glynn, chairman of the Irish National Health Commission, and Dr W J Maguire, medical commissioner, with the secretaries of the Commission, Mr J Honahan and Mr J Short, were present by arrangement, to discuss the proposed substitution of the county for the dispensary district as the pool area for payment for medical certification. The discussion lasted for more than two hours. Sir Joseph Glynn said that he was prepared to modify the county scheme by taking out of each county towns of a population of 2,500 and upwards, and making them certification pools in the same manner as urban areas of 10,000 and above are now constituted, and that the Commission would be also prepared to consider a diversion of a portion of the capitation fees from these urban areas to rural districts. Apart from these towns the remainder of each county was to be constituted into one pool, and the existing dispensary district pools abolished. The Medical Committee considered carefully the proposals made by Sir Joseph Glynn, and the following resolution was unanimously adopted. That the Irish Medical Committee decline to recommend the acceptance of the proposal of the Irish National Health Insurance Commission for revision of the scheme for distribution of remuneration for certification of insured persons, as the proposed change is likely to interfere with the efficiency of the certification system, and that the Minister for Local Government and Public Health be requested to receive a deputation from the Committee to discuss the question. It is understood that the Minister is prepared to receive such a deputation. A further meeting of the Medical Committee will be held at an early date to receive the decision of the Minister and to define the attitude of the profession. A discussion also took place on certain defects in the working of the Local Authorities (Officers and Employees) Act 1926, and it was agreed to refer the matter to the executive subcommittee to prepare and to submit evidence in the event of the terms of reference permitting the receipt of evidence other than from departmental or official sources.

Scotland.

The Local Government (Scotland) Bill

WITH the issue at the end of last week of the Local Government (Scotland) Bill the legislative proposals of the Government in connexion with the reform of local government and with the de-rating scheme in Great Britain are complete. In general the policy embodied in the Scottish measure follows the same lines as the proposed reforms in England and Wales, but the important differences existing in the systems in force north and south of the Border necessitate corresponding differences in the reform methods adopted, and the resulting administrative machinery after the change has been made will still leave substantial divergences in conditions in the two countries. The "discontinued" percentage grants are the same in each case, including those given for health services. The main features of the proposed reforms in Scotland are the application of de-rating the transfer of responsibility for the administration of the Poor Law, of the major health services, of lunacy and mental deficiency, of classified roads, and of certain other services to the county councils and the councils of the large burghs (that is, burghs with a population of not less than 20,000) the transfer of education to the county councils and the councils of the city-counties of Edinburgh, Glasgow, Aberdeen, and Dundee, and the abolition of the existing education authorities, which are at present bodies of the district committees in county districts, of the parish councils and of the district boards of control. The arrangements for the calculation and apportionment of the grants designed to replace the deficiency caused by the withdrawal of certain percentage grants in aid, and by de-rating will be similar to those proposed in the case of England and Wales. It is intended that the reforms should come into force in May, 1930. Consideration of the bill

by Parliament will probably be delayed until the English bill has passed through all its stages in the House of Commons. The general effect of the scheme will be to increase the importance of the councils of the counties and large burghs at the expense of the lesser authorities. In the city-counties of Glasgow, Edinburgh, Dundee, and Aberdeen the town councils will be the local authorities for all purposes, in the larger burghs the councils will control all local services save education, the county councils will be supreme in their areas except in those parts where the small burghs will preserve some degree of independence in respect of certain services. The number of Poor Law authorities, which is at present over 850, will be reduced to 52. Among the functions of the small burghs which are to be transferred to the county councils are those relating to registration of births, marriages, and deaths, to infectious, epidemic, and endemic disease, and those exercised under a variety of statutes concerning the notification of infectious disease and births, midwives and maternity homes, maternity and child welfare, venereal disease, blind persons, milk and dairies, food and drugs, and other public health subjects. Other functions may be transferred by order of the Secretary of State. It may be added that, while the county councils are to be authorized to delegate to the town councils of small burghs certain functions, it is expressly stated that the delegated functions may not include any form of medical or surgical treatment. As in the case of England and Wales, county councils in Scotland will be required to prepare for approval by the Secretary of State schemes of the administrative arrangements which they propose to make for dealing with the transferred functions, such as the Poor Law, public health, and lunacy and mental deficiency. These schemes may employ committees and local subcommittees, and where local committees or subcommittees are established they must include as members at least one-third of the total who are not members of the county council. The conditions relating to administrative schemes are less strictly defined than in the English bill. Another point of difference is the omission of any direct reference to the acceleration of the appointment of whole-time medical officers of health, it is provided, however, that when the post of a medical officer of health or a sanitary inspector in a small burgh falls vacant the corresponding official for the county shall be appointed. The result will be, in the course of time, that all medical officers of health will be in the service of either a county council or the council of a large burgh, and will therefore presumably be whole-time officers. Certain amalgamations for administrative purposes of counties and burghs are decreed in the bill, and provision is made for facilitating voluntary unions for specific purposes by local authorities. Power is taken, where a small burgh has failed to discharge its functions in respect of water supply, sewers, housing, or any other functions relating to public health, to transfer such functions to the county council for a prescribed period. While the above survey covers the main points of the bill it is by no means exhaustive, but it may be noted that the measure is in many respects simpler than the English bill, and, further, that the reformed system which is contemplated will be more highly unified than the reformed system of local government in England. The effects in the sphere of public health, and of the hospitals in particular, will be considerable. Nine-tenths of the population of Scotland will be in areas in which control, for all local government purposes except education, will be exercised by one authority, so that there is clearly scope for a great unification of health services. The hospitals and other institutions now forming part of the Poor Law service will come under the sway of the county councils and the larger municipal authorities, and the fact that the bill requires the preparation of administrative schemes relating to public health suggests that the way has been opened for a sweeping reorganization. In some cases, notably in Aberdeen and Glasgow, the Poor Law institutions—either in co-operation with the municipality or otherwise—have been developed in recent years on the lines of large general hospitals, and their association with the city and county councils will probably accelerate the movement in this direction. Only about fifty authorities will be concerned in the administration of the major health services, and the total number of local authorities in the country will not exceed 120.

Quarterly Vital Statistics

According to the report of the Registrar-General for Scotland for the quarter ended September 30th last the birth rate for that period was 19.1 per 1,000, the marriage rate 7.5, and the death rate 11.0. This birth rate is markedly below the average, and the death rate also is comparatively low. The infantile mortality rate was 69 per 1,000 registered births. The death rates from all forms of tuberculosis and from tuberculosis of the respiratory system were 87 and 60 per 100,000 respectively. The death rate from malignant disease was 137 per 100,000. The actual number of deaths from all causes registered during the quarter was 13,457. In the larger burghs, taken individually, the quarterly death rate varied from 13.1 in Dundee, 12.7 in Coatbridge, 12.6 in Greenock, and 12.3 in Perth to 8.4 in Kirkcaldy, 8.8 in Hamilton, 8.9 in Motherwell, and 9.0 in Dunfermline. In Glasgow the quarterly death rate was 11.9, in Edinburgh 11.1, and in Aberdeen 11.4. The actual deaths of children less than 1 year old numbered 1,610. In the larger burghs, taken individually, the infantile mortality rate varied from 97 in Ayr, 95 in Glasgow, 91 in Dundee, and 82 in Falkirk to 41 in Kirkcaldy, 46 in Dunfermline, 50 in Kilmarnock, and 55 in Edinburgh. The actual deaths from all forms of tuberculosis were 1,071, and the actual deaths from malignant disease 1,681. Deaths from diseases and accidents of pregnancy and childbirth numbered 147, equivalent to a death rate of 6.3 per 1,000 registered births. There were 37 deaths from cerebro-spinal meningitis, 23 from encephalitis lethargica, and 13 from acute poliomyelitis.

Hereditry and Health

A lecture delivered as one of a series promoted by Glasgow Corporation and the Burgh Insurance Committee was given by Professor Crew of Edinburgh University in Glasgow on November 14th on "Hereditry and health." Professor Crew said that hereditry had developed into a science only some twenty-eight years ago, and the time that had elapsed had hardly been sufficient to allow much application of this new science to human affairs. He considered it important that family history should be kept, for it was important both to be well born and to remain well. They could not remain healthy if the environment in which they lived was of a kind not conducive to the full self-expression of what they had inherited. He believed that for every individual exhibiting mental defect there were ten carriers of this defect, the problem of the practical application of hereditry was to identify and cure the carrier rather than to attempt to cure the defective, and he thought it was quite reasonable to ask those who were defective to remain celibate. He believed there was an indication of a general determination that as knowledge grew there should also develop a public morality fitted to use that knowledge for the betterment of humanity.

Fifty Years in Practice

Dr A. Leslie Curror was, on November 14th, entertained to dinner in Kirkcaldy by his patients and fellow townsmen in celebration of his having been fifty years in practice there. Viscount Novar presided, and during the evening Dr Curror was presented with a cleque and a silver tray bearing an inscription recording the high esteem in which he had been held during his long period of medical practice. The toast of "The Medical Profession" was proposed by the Rev. Evelyn Gall, minister of Kirkcaldy Parish Church, and acknowledged by Dr C. E. Douglas of St. Andrews.

England and Wales.

Post-graduate Course on Cancer at Leeds

A POST-GRADUATE course of four lectures on cancer, under the joint auspices of the Leeds and West Riding Medico-Chirurgical Society and the Yorkshire Council of the British Empire Cancer Campaign, will be given during the winter months at the Medical School, Leeds. There is no fee for the course, and all medical practitioners are invited to attend. The lectures, the first three of which will be illustrated by lantern slides, will in each case be given at 3.30 p.m. on a Wednesday, the first being on November 28th, when Professor A. H. Burgess will discuss cancer

of the breast. At the second lecture, on January 9th, Professor Blain Bell will deal with lead in the treatment of cancer. The remaining lectures, on February 13th and March 13th, will be given by Dr. Archibald Leitch, director of the Cancer Hospital Research Institute, London, on "The lessons of recent researches in cancer," and Mr. Cecil Rowntree, surgeon to the Cancer Hospital, London, on "Cancer and the general practitioner." Tea will be provided at each lecture, and those intending to be present are therefore requested to inform the secretary of the British Empire Cancer Campaign, 47, Park Square, Leeds, at least two days before each lecture.

St Mary's Hospitals, Manchester

The St. Mary's Hospitals, Manchester, have just issued a report, prepared by Dr. J. W. A. Hunter, on the clinical work done in their maternity department during the year 1926. Dr. Hunter points out that, owing to changes in the registrarship, it has not been found possible to compile this report in accordance with the suggestions of the Maternity Hospital Reports Committee. During the year 3,222 patients were treated, of whom 1,761 were admitted to the hospital wards. Of the latter, 17 were cases of ectopic pregnancy, 8 of tumour operated upon during pregnancy, and 230 of abortion. Thirty-six patients were admitted after delivery, mostly on account of the occurrence of puerperal complications. The mortality rate for all admissions was 2.38 per cent. Among the causes of death were heart disease complicating labour, eclampsia, obstetric shock, post-partum haemorrhage, puerperal embolism following labour, accidental haemorrhage, placenta praevia, hyperemesis gravidarum, puerperal sepsis (one case only), ruptured uterus, and abdominal pregnancy. The morbidity rate was 12.08 per cent., the standard adopted for the estimation of morbidity being that suggested by the British Medical Association—that is, "all fatal cases, and all cases in which the temperature reaches 100° F. in any two of the bi-daily readings from the end of the first to the end of the eighth day after delivery." Two hundred and six cases of contracted pelvis were treated during the year by operation. Most of these were among patients who had been kept under regular observation at the ante-natal clinic and admitted whenever treatment was considered advisable. Thirty-four patients were admitted with eclampsia, and of these seven died. The routine treatment adopted was (1) absolute starvation during the eclamptic state, (2) gastric lavage and purgation, (3) colon lavage, (4) moderate narcosis. The report is furnished with twenty-four statistical tables giving a detailed account of the clinical work done by the department during the year.

Local Government Reform in London

A special committee of the London County Council, under the chairmanship of Sir Cyril Cobb, has been examining the changes proposed in local government by the Minister of Health in connexion with the de-rating scheme in so far as they affect London, and reported to the Council on November 13th in a sense favourable to the Minister's proposals. The general nature of the scheme, which is linked up with the Government's proposals for the relief of productive industries, was explained in our issue of October 27th (p. 765). The application of the scheme to London is generally on the same principles as to the rest of England and Wales, with modifications on account of the special conditions of the metropolis. If the proposals take effect all the London Poor Law authorities will be abolished as from April, 1930, and their functions (with minor exceptions) will be transferred to the London County Council, which will become responsible for, among other things, domiciliary medical relief (as part of what has hitherto been Poor Law assistance), the provision of institutional treatment, the functions relating to lunacy and mental deficiency now performed by the guardians, and the services maintained by the Metropolitan Asylums Board.

The London County Council does not anticipate any insuperable difficulty in adapting and supplementing the present organization so as to enable the Council to undertake the new duties. With regard to the setting up of committees and of local subcommittees for the administration of the transferred functions, it is pointed out that the Minister's provisional scheme has provided that on

all such bodies persons might be co-opted who are not members of the Council, subject, however, to the maintenance of a majority of elected members. While the requirement to maintain a majority of elected members could be met on committees of the Council itself, it is felt that this would be impracticable on the local subcommittees in London, and it is therefore suggested, on behalf of the County Council, that this condition be waived in the metropolis, and that the Council be at liberty to appoint local subcommittees without a majority of its own members. Another suggestion is that in order to liberate members of the Council to serve on the new bodies dealing with the transferred functions, the principle of co-option should be extended to the existing committees (except the Finance Committee), subject to the number of co-opted members not exceeding one-third of the total membership. This suggestion is important, because many medical men and others who would be eminently useful on committees dealing with health and hospital services might be unable or unwilling to run the gauntlet of election or to take part in general administration. The Council also desires the greatest possible freedom in distributing the transferred functions, and suggests that the Minister should be enabled on application by the County Council, to make an order attributing to the metropolitan borough councils any of its powers or duties. This desire is, in fact with certain restrictions, met in the Local Government Bill, and, further, the provisions of the bill relating to the constitution of guardians committees do not apply to London. It is proposed to empower the County Council instead to provide in its administrative scheme for the appointment of local or other subcommittees of the public assistance committee, to form these committees wholly or partly of members of that committee, and to prescribe their functions. Functions under the Vaccination Acts are transferred by the bill to the City Corporation and the borough councils.

The Minister's provisional scheme proposed that the County Council should be the supervising authority for the health services in the county. The London County Council asks power to conduct periodical surveys of health services in the county and to require authorities and bodies administering health services to furnish necessary information. Surveys of this character have been made from time to time in respect of individual services, but there has been no statutory authority for them.

As the London County Council has on several occasions indicated that its policy is the abolition of Poor Law authorities and the merging of their powers in general municipal government, it was not anticipated that any opposition would be raised to the Minister's proposals, except possibly on the ground of finance. After a conference with the Minister who recognizes the special circumstances of London, which are not to be met by any general formula, it appears to the special committee that London will not be adversely affected in the matter of total grants for many years to come. After a debate in which various amendments were negatived, the recommendations of the Special Committee were agreed to by the Council.

London University Purpose of the Bloomsbury Site

In the course of a lecture to the London Society on "The physical relations of a university to a city," in the hall of the Royal Society of Arts, on November 16th, Sir William Beveridge, a former vice-chancellor of the University of London, spoke of the purchase of the Bloomsbury site by the University, and outlined the scheme for its development. The University of London, he said, had about 14,000 students, 1,100 appointed and recognized teachers, and many other teachers but these students and teachers could not be found by visiting what was called the University of London in South Kensington, they could only be found in the colleges—particularly the great colleges in the central area of London—University College, King's, The School of Economics Bedford Park, and the medical schools. Hitherto, while the bulk of the University was in the centre of London, it had no centre of its own. A year and a half ago, with the help of the Rockefeller Foundation it bought the site on the Bedford estate during the past year it had obtained powers to

close all the roads across the site so as to make an island area of ten acres. This area lay next to the British Museum, between the central colleges, near the centre of gravity of the University. The possession of the site did not mean the uprooting of any of the colleges, it was primarily for the central purposes of the University. It was hoped that it could be made for social and residential

a faculty club for teachers and administrators, and a students' union, or day house, bringing together students of many colleges. Much could be done to give to that half of the London students who did not live at home a chance of living, whether in halls of residence or approved lodgings, in an academic quarter close to the colleges. To use the site the University would need gifts on a scale not dreamed of before, these gifts would go, not to some temporary undistinguished purpose, but to benefit the lives of generations of students. The buildings erected on this site would, it was hoped, be the outcome of creative imagination in architecture. Whatever the design, two things were certain. Nothing would be built on the Bloomsbury site that was not beautiful, and nothing would be built that would not be characteristic of London and of this age.

Brompton Hospital for Consumption

Lord Derby, who is president of the Brompton Hospital for Consumption, opened, on November 14th, a new x-ray department, surgical wards, and an operating theatre. The urgent need of more convenient radiological facilities has been felt for a long time, and the present enlargement and remodelling of the old x-ray department will enable the work to be carried on with much less difficulty than hitherto. The new surgical unit consists of wards containing twenty-five beds, and, together with the operating theatre, will give great assistance to an important side of the treatment of tuberculosis. The nurses' home has been extended in order to provide for additional nurses and the establishment of a preliminary training school. One central kitchen has now been instituted and equipped with modern labour saving devices, other improvements include a new almoner's department and more electric lifts. The cost of this work of extension has been over £40,000 rather less than half of which sum has been raised already. Lord Derby commented on the excellent work for which the hospital has been responsible in past years, and emphasized the importance of such hospitals continuing to be voluntary, rather than State aided. Sir Arthur Stanley, chairman of the National Association for the Prevention of Tuberculosis said that over 4,000,000 out-patients and about 100,000 in-patients had been treated since the Brompton Hospital had started. During this time the general death rate for tuberculosis had declined by 50 per cent. For the great improvement which had taken place in the treatment of tuberculosis no small credit was due to the work of the Brompton Hospital.

Correspondence.

HOSPITAL POLICY

Sir,—As chairman of the meeting of hospital staffs in the county mentioned by Dr Norman Macfadyen in his letter in your issue of November 10th (p. 866) I should like to say at once that I do not disagree with his impressions. He seems to have put the case of the small hospitals very fairly, had the *British Medical Association* scheme been designed for these alone.

But, in starting a discussion on hospital policy, a much larger vista is opened up. The British Medical Association has pointed out—and it cannot be too much insisted upon—that the whole aspect of hospital practice has altered, particularly since the war. Whereas such institutions were formerly meant for the indigent poor, and entry thereto was regarded only as a necessity and as making the best of a bad job, they are now used by an ever-increasing number of classes, who regard them as places where the most up-to-date methods are employed, and where good treatment and comfort are alike studied. This increase in their clientele has led governing bodies to seek new

sources of income in order to keep out of debt, and it has become a fact that larger and larger numbers of patients are charged for their maintenance and nursing (In my own hospital 95 per cent pay something.) This method, however, has not sufficed to meet costs, and so contributory schemes have arisen all over the country, some on the lines suggested by the British Medical Association and some not.

The result of this revolution—as one might call it—in hospital policy is that the work of the honorary staffs has been enormously increased, on the one hand, and on the other the natural sources of their private incomes have undoubtedly been diminished. If, as Dr Macfadyen suggests, the honorary staffs were permitted to charge their patients in general wards when they could reasonably do so, the question of payment to them by the committees, in any form, would probably never arise. Dr Macfadyen, in using such terms as “free men” and “honourable independence,” seems to suggest that we should limit our present usefulness and make our action appear undignified did we take payment for hospital work.

What is there undignified in receiving payment—even if small—for work done, whether as part of a mass contribution or as a fee charged for specific service in the ward? Does not the old classic itself say “the workman is worthy of his hire”? If we were still attending the “indigent poor” then perhaps it would be undignified. But why should all these paying and contributory patients be forced to accept charity? That is what we are doing in attracting more and more patients to our hospitals by these schemes without recognizing financially the services of the staffs. Has it been suggested that it is undignified to receive five, ten, or fifteen shillings per year for friendly society attendance? Is it undignified to accept the present rate of pay under the Insurance Act? If not, then why should it be so to accept a percentage of all payments made by tariff and contract patients in hospitals?

The worker, to whom Dr Macfadyen concedes intelligence, knows perfectly well that a penny or twopenny per week individually would not pay for hospital or any other kind of treatment, but he knows also that if that sum is multiplied by ten thousand or more, it should pay for maintenance, lodging, nursing, and medical attendance, and, what is more, large numbers of contributors do believe the doctors are getting some proportion of these payments for their labour. The income from these essentially co-operative schemes is something enormous and much more than covers hospital ordinary charges.

Acting on this general knowledge of the question, it seems to me the British Medical Association suggests a scheme which appears to be dignified, fair, and business-like, and, with an eye to the future rather more than to the present conditions of the profession, the statesmanlike view is taken that the profession as a whole should be all for one and one for all.

It is the big view I would ask Dr Macfadyen, and those who think with him, to take, for without a doubt the future work, or rather future pay, of the general practitioner will become less and less. People of all stations will continue to go to hospitals in ever-increasing numbers, and, if this means increased work for the staffs, then they should receive proportional remuneration.

Some think the status of the hospital and its staff would thereby be altered, and that voluntary hospitals would cease to be such. I do not believe this for a moment. The essential feature of a voluntary hospital is voluntary management, and there is little fear, to my mind, of hospitals becoming State institutions in this country so long as there are able committees to manage them—I am, etc.,

Watford Nov 11th

G FRANCIS SMITH

SIR,—The repetition almost every second day in the last press of articles headed “Hospital treatment for all” is becoming a cause of discontent on the part of the public and I think it is only fair to the community that the medical profession should explain certain things.

First of all, hospital treatment for all classes will not be an accomplished fact for ten or twenty years. At present the accommodation for paying patients is almost negligible,

and owing to the effect of these hysterical articles in the press a surgeon spends half his time with his patient in telling him what is wrong, and half of it in explaining that he cannot take him into a private ward because there is no vacancy, and that he must go into a nursing home. There is a violent prejudice against nursing homes, because undoubtedly there have been some very bad ones. But nursing homes have the following advantages: (1) The personal interest is greater, (2) the food is better than food cooked in an institution for 200 to 600 people, (3) in all good homes, of which there are many, all the nursing staff is fully trained, whereas in hospitals part of the staff is being trained, with the patients, necessarily, as the raw material. The impression some people have received, on reading these outbursts in the lay press, is that nobody has so far ever been treated efficiently except in a hospital.

The scarcity of private wards is partly due to surgeons using them for cases which can be operated upon perfectly well in a nursing home. Private wards, as long as they are scarce, should not be used for hernias, interval appendicitis, or straightforward gastric or gall-bladder cases, but should be reserved for pyelograms, passage of opaque ureter catheter, and other procedures involving the coincident use of x-rays. The mere fact that x-rays and bacteriology help the diagnosis is not an indication for hospital treatment. Both of these forms of help can be obtained outside.

The thing that surprises me as a surgeon is that the medical profession does not realize that when hospital treatment is available for all—that is, when the country has been systematized, hospitalized, Americanized, and Germanized—it will see the end of the British general practitioner, who is the greatest in the world. If and when a case, whether the patient be rich or poor, is whipped off to hospital the moment it becomes interesting, no longer will men of ability go into that most difficult branch—general practice. The result will be that surgeons and physicians will make far more mistakes, because they will be robbed of the help of the one man who knows the patient better than any consultant can know him—I am, etc.,

Liverpool, Nov 14th.

FRANK JEANS

CEREBRAL STATES CONSEQUENT UPON HEAD INJURIES

SIR,—I have read with great interest the paper by Dr C P Symonds published in the *Journal* of November 10th (p 829), and I am in such complete accord with all that he says that I should not venture to trouble you with this letter were it not for the fact that I was unable to be present to take part in the discussion on Dr Symonds's paper when it was read at the British Medical Association Meeting at Cardiff.

The subject dealt with is of such great importance from a medico-legal standpoint that there is one aspect of it that should, I think, be emphasized.

Dr Symonds says

“My impression is that the frequency of traumatic neuroses following head injury is a good deal exaggerated and that the minor mental symptoms so often encountered are mainly due to organic damage. The argument to the contrary that such symptoms are commoner amongst workmen is to my mind of no great weight. Mental stress is an important aggravating factor in the symptoms of true concussion, and one can hardly imagine a greater mental strain than that of a lawsuit for compensation hanging over a man who has nothing to show as evidence of his disability besides his own word.”

And he adds

In this connexion I would urge the importance of teaching the legal profession that the brain may be seriously damaged without any fracture of the skull without any objective physical signs and occasionally in the absence of any history of concussion.

In endorsing these views it is, I think, necessary to call attention to the fact that the lawyers are encouraged in their belief by a section of our own profession, indeed, it is probable that their attitude is largely the outcome of views that they have heard so often repeated by certain medical men in the courts of law. It would seem to me, therefore, that we are called on to put our own house in order before we can expect the lawyers to change their view.

In considering why there should be such a divergence of opinion on this subject in the medical profession, one cannot help feeling that many doctors who adopt the attitude they do so with an inadequate knowledge of the subject, in that they have not had proper opportunities of studying these cases. If they were to study the subject with the same amount of care and thoroughness that Dr Symonds has done it would be difficult to understand how they could arrive at any opinion contrary to that which he has expressed—I am, etc.,

London W 1 Nov 12th

J S RUSSELL

WEIGHT AT BIRTH

SIR,—With reference to Dr Hubbard's query (November 10th, p 878) if 1 lb (450 grams) is an unusual weight for a child living at least seven days, I think the answer is unquestionably in the affirmative. Curiously enough in the last number of the *American Journal of Diseases of Children* an article appears on a baby of 680 grams who was living at the age of 3. The article referred to Hess's *Premature and Congenitally Diseased Infants*, in which he refers to twenty-three infants under 1,000 grams at birth as surviving. Hess himself records an infant of 690 grams living seventy-one days, and another of 740 grams living two days. It would be extremely interesting if Dr Hubbard would report the duration of life of his infant of 450 grams.

The largest infants on record appear to be one of 10,733 grams and one of 11,300 grams, reported by Dubois—I am, etc.,

Blackley Manchester Nov 16th.

J D'FWANT

SANOCRYSLIN, SUNLIGHT, AND THE SKIN

SIR,—I was much interested to read Dr Beaumont's report on the treatment of a case with sanocryslin in your issue of November 3rd (p 818). I have at present one patient—in a series of sixteen cases—who has shown a similar lilac-coloured pigmentation of the face and neck.

In this case the discoloration was particularly noticeable on the posterior aspect of the neck just above the collar, and also on his lips. As the patient developed a troublesome dermatitis all over the body, excepting the hands and face (the uncovered parts), sanocryslin was discontinued after a series of small doses (totalling 1.85 grams). The last dose of 0.35 gram was given on September 28th, and the discoloration was first noticed some three weeks later.

It never occurred to me that sunlight was the cause of this unusual manifestation, although there was certainly a good deal of sunlight here during September and early October, the patient being out in the sun for an hour or so every day.

Thiosulphate of soda was given, at first intravenously in 6-gram doses and later in large doses of 15 grams, orally, thrice daily, with local application of Lassar's paste for the extensive dermatitis. This treatment has caused the disappearance of both the discoloration of the skin and of the dermatitis, but the patient has still some small ulcers on the tongue, and, strangely enough, on the glans penis. In spite of this troublesome complication, the patient, who previously had a very long period in bed with evidence of marked toxæmia and a troublesome pyrexia, is feeling so much better that he is anxious to continue the treatment—I am, etc.,

Grampian Sanatorium Kingussie Nov 13th.

FELIX SAVA

HEART SOUNDS

SIR,—Dr Arthur Stephens (p 916) asks what authority there is for the suggestion that the auricle is capable of producing any sound. Sir Thomas Lewis has pointed out that an audible auricular sound may be an early clinical sign of the widening of the A-V interval, which is one of the earliest manifestations of heart-block. "It may not be known to everyone that auricular systole produces a distinct though muffled sound, and that while this sound is inaudible when the heart's mechanism is normal it is frequently heard when the auricular and ventricular systoles are sufficiently

separated" (*Clinical Disorders of the Heart Beat*). The precise mechanism of the production of the sound is not here specified, though it is certainly implied that it is due to muscular contraction. The same may be said of the words which Dr Stephens quotes from your *Epitome* of October 27th, and against which he directs his complaint. But the important point surely is that auricular systole is accompanied by a sound, however produced, in just the same way as is ventricular systole. Reduplication of the heart sounds may, therefore, be an early sign of heart-block.

One is naturally tempted to break a lance with Dr Stephens over his unconventional views on the production of the normal heart sounds. This temptation will be resisted, however, except with reference to one point. Speaking of the absence of heart sounds in pericardial effusion Dr Stephens says, "were the sounds produced by the muscles or valves of the heart they would be heard all the more plainly, because fluid is such an excellent conductor of sounds." It is true that liquid (not fluid) is a good conductor of sound. It is also true that the normal pulmonary sounds become inaudible, in the vast majority of cases, when the pleural cavity is filled with liquid (a good conductor) or with gas (a fluid and a bad conductor). We do not, therefore, argue that the pleural fluid is responsible for the normal breath sounds. The physical factors involved in the transmission of audible vibrations from within the thorax, via the stethoscope, to the ear of the auscultator seem still to be very imperfectly understood. There are two main causes for the loss of intensity of a sound in its passage from heart or lung to the surface: they are diffusion and reflection. A sound will lose half its intensity, by diffusion, in spreading from a sphere of given size to one of double its dimensions. In addition, reflection of sound waves occurs at the planes which separate media of different density. Assuming that we have to deal with a pericardial effusion which has doubled the cubic contents of the pericardium the effect of diffusion will be to halve the sound. The added effect of the reflection of the sound waves as they enter and leave the liquid medium is quite sufficient to account for impaired or absent heart sounds.

A very simple experiment will convince Dr Stephens that liquid, although a good conductor of sound, may be a potent obliterater of sound. If he will bury his head in the bath he will find it difficult to hear the gong. According to his own argument it should "be heard all the more plainly, because fluid [that is, liquid] is such an excellent conductor of sounds"—I am, etc.,

London W 1 Nov 17th

MAURICE E SHAW

THE SO CALLED TITANIUM RAYS

SIR,—During the last few weeks I have had a number of insistent inquiries from doctors and patients as to the meaning, nature, and value of "titanium rays" in treatment. One of these doctors brought me a pamphlet (which I enclose) entitled "Notes on titanium rays."

The impression of anyone, without some technical electrical knowledge, on reading this pamphlet must be that here is a new form of treatment entirely different from any of the well-known forms of ultra-violet light treatment. The writer's opening paragraph states:

Titanium rays are obtained from electrodes containing from 1 per cent to 5 per cent of the rare metal titanium and 95 per cent or more of wolfram.

And in another paragraph he goes on to say:

"For many years I made a special study of tungsten rays and used them exclusively. In the latter part of 1924 I began to observe the effect of titanium rays and the results led me to adopt them."

May I rewrite these paragraphs as they should be written in order to be physically accurate and to impart information on the subject to those with little or no technical knowledge?

Titanium can be incorporated in quantities of 1 to 5 per cent with wolfram which is a tungstate of iron and manganese to make electrodes for the generation of ultra violet light. For many years I made a special study of tungsten electrodes and used them exclusively for generating my supply of ultra violet light. In the latter part of 1924 I began to observe the clinical effect of incorporating small quantities of titanium in electrodes of wolfram and the results led me to adopt them.

These electrodes will, therefore, give a combined spectrum of the metals titanium, iron, manganese, and tungsten.

So written it would be clear: (a) That treatment with these electrodes was essentially an ultra-violet light treatment. (b) That the arc from these electrodes only differed from the tungsten or mercury vapour or carbon arc in the position and intensity of its absorption bands. (c) That clinical experiences with such an arc showed improvements in results in comparison with the results obtained from using tungsten only. It would then be open for any critic to point out, as Dr B D H Wotters did in the *Lancet* of August 11th, 1928, that the spectrum of titanium and tungsten are extraordinarily similar, and that improved clinical results from the mixture of the titanium and tungsten were difficult to credit.

It would be equally open to the writer to reply that wolfram is not pure tungsten, though it is the chief source of supply of tungsten, and, from the controversy, interesting clinical facts might emerge and stimulate the Medical Research Council to investigate the claims and issue an authoritative statement. As set out, however, the statements must necessarily cause confusion, and thus, at a time when the British Medical Association is endeavouring to counteract extravagant and unjustifiable claims in relation to ultra-violet light, is, to say the least of it, unfortunate.

May I conclude by urging those who are utilizing electro-physical methods of treatment in their practices to employ correctly the generally accepted terms of physics when they put their views into print?—I am, etc.,

C B HEALD, CBE, MD, MRCP,
Consultant in Electro-therapeutics to the R.A.F.M.S.
Physician in Charge of Electrical Department
Royal Free Hospital.

November 16th.

EARLY RECOGNITION OF CANCER OF THE STOMACH

SIR,—In the very helpful article on the early recognition and treatment of cancer of the stomach, published on November 10th (p. 838), the author writes: "A disadvantage of the usual benzidine test is that it is over sensitive for clinical use, giving a positive reaction with traces of blood which are too small to be significant."

This criticism of the test was shown to be fallacious by J G Spence in the *Newcastle Medical Journal* of January, 1927.

Since reading this article I have found it possible to get negative results repeatedly without dieting the patients. Having in my own case obtained a negative result, I deliberately consumed a large quantity of underdone meat, but the test still remained negative. The only precaution I have found necessary is a most rigid cleansing of the tube or porcelain dish used in emulsifying the faeces. Obviously any lack of this precaution in the other tube containing the benzidine-gliocil acetic acid-hydrogen peroxide mixture will declare itself. If the result is negative I always confirm the activity of my reagents by adding a few drops of a solution composed of one drop of blood from my finger in a three-ounce dispensing measure of water. The reagents are cheap and keep well if the hydrogen peroxide be kept in the earthenware stoppered bottles it is now usually supplied in.

I quote the above article and my own experience in the hope that they may be of service in commending this simple and helpful test to others.—I am, etc.,

London S W 11, Nov 14th.

W BAL PEACOCK, MD

THE DIAGNOSIS OF GASTRITIS

SIR.—Certain of Dr Hurst's statements on November 3rd (p. 779) require, I think, some comment. He says the fractional test meal affords the only means of recognizing gastritis, surely he does not mean to suggest that gastroscopy in the hands of a competent and experienced man is not also a means of diagnosing this condition. Among the newer methods of diagnosing gastritis is one which is employed in the Charité in Berlin—a radiological method. The patient receives a rather small quantity of barium, is placed before the screen, and by means of pressure applied to the abdomen in the stomach region by the radiologist the barium can be made to occupy the spaces

between the mucous membrane folds. An impression may thus be gained as to the presence of abnormal thickening or conformation of the folds, by the experienced eye slight variations from the normal may be detected. If desired a picture may be taken after the screening (with this small quantity of barium in the stomach), and it is often very impressive to see abnormalities of the mucous membrane shown up in this way. This change in the mucous membrane is surely sufficient ground on which to base a diagnosis of gastritis.

Is excess of mucus in the test meal fractions necessarily a sign of gastritis? That gastritis is the commonest cause of excess of mucus no one will question, but many physicians recognize another condition—the so-called gastro-myositis—in which there is an increased secretion of mucus without any pathological condition of the stomach wall being present. They regard it as to an extent analogous with true mucous colitis and of nervous origin in the purest meaning of the term.

Then Dr Hurst asserts "the essential exciting cause of gastric and duodenal ulcer is infection." Surely this is too dogmatic a statement. As regards causation, there exist at present numerous theories, but they are as yet only theories. Those people who deny the infection factor have much on their side, and, after all, they may be right. Two workers who do not subscribe to the infection theory are Aschoff and v. Bergmann, I may add, incidentally, that these two are by no means in agreement as to the causation, but they unite in regarding infection as being a rare cause of ulceration, surely the opinions of two such men are worthy of consideration. The causal factor is still unknown, and so long as we have only theories and no definite proofs as to the leading part played by any one factor, no one is justified in saying "that or that is the essential exciting cause."

It might interest Dr Hurst to know that Kalk of Berlin has shown that, after giving test meals of milk alone, he has found acid values exceeding those found after the usual test meals (for example, 5 per cent alcohol, etc.), he prefers to give as little milk as is necessary to ulcer patients because of its exciting action as regards acid production. His finding clashes with those of Freezer, Gibson, and Matthews, who believe milk has a neutralizing effect on the hydrochloric acid produced in the stomach. Both opinions cannot be correct, and it would be very interesting to find out absolutely definitely the action of milk, considering that it is the basis on which most of the existing ulcer treatment schemes are built.—I am, etc.,

Berlin Nov 6th

P J MOLLOY, MB

DEFINITION OF DRUNKENNESS

SIR.—Once more I have just returned (10.45 p.m.) from the local police station, after seeing a man suspected of being drunk in charge of a motor car. Primed with the letters of advice in the *British Medical Journal* on my recent case of a similar kind, I went prepared to say "Drunk" without any qualifications.

The man had been drinking, but he passed every test that I could put to him, yet I knew he was not fit to drive a motor car.

Acting on the advice given me in one at least of the letters, was I to perjure myself and say "Drunk" without comment, was I (taking the advice that my duty was "to be guided by the law") to say the man was "Not drunk as at present defined," or should I say once more "Not drunk in the ordinary sense of the words [however loose the description may be] but unfit to be in charge of a car"?

My experiences of the recent sessions, my curtain lecture by the chairman, my cross-examination by the grand jury, have left their mark.

The accused stepped out a free man. Fortified by coffee kindly supplied by a good-hearted sergeant, delayed by the mending of a puncture which (not unintentionally) was not unduly hurried by the mechanic with no intoxicant in his pocket and public-houses closed for the night, I have every hope he arrived home safely without damage to himself or, what is perhaps more important, damage to others.

Still, my conscience asks me: Have I done right?—I am, etc.,

Crawley Nov 13th.

SIDNEY MATTHEWS, JP

SIR,—Most of the definitions of drunkenness hitherto suggested, including that of the British Medical Association's Committee and those of the two judges referred to by Dr H J Fardou in his letter on November 17th (p 916), appear to have been specially drafted to apply to the offence of "being drunk in charge of a motor vehicle." In many of those circumstances in which drunkenness is a statutory offence no element of danger, no failure to attain safety, is involved. Any satisfactory definition of drunkenness must be valid in *all* the circumstances detailed in the statutes in which the word "drunkenness" or equivalent expressions are used.

In decisions given by benches of magistrates or by juries it must be remembered that no standard of intelligence beyond ordinary sanity, and no knowledge beyond that gained by ordinary experience, are presupposed. It must also be remembered that the law evidently deems drunkenness to be within the ordinary objective experience of any man and therefore not requiring definition.

Observation and induction from a study of the statutes concerned, I think, justify the statement that to the ordinary individual drunkenness in law is a demeanour directly due to the voluntary consumption of alcohol, which is calculated to interfere with the comfort, convenience, and safety of the public. But it is for the court to decide whether this condition obtained at the time of the alleged offence. It is the duty of the medical witness to declare whether the individual he examined was drunk or not, and in my opinion he should not ask anyone in court what is meant by drunkenness, if he feels unable to define drunkenness he should say so, and content himself with the detailed statement of his examination. But the chief value of medical evidence of drunkenness is the elimination of the possibility that some pathological condition simulating drunkenness existed.

I will not occupy your space with the reasoning upon which my definition of drunkenness from a medical view is based, but merely state it. Drunkenness is any alteration for the worse in an individual's normal behaviour, judgement, and skill, or any one of them, due to the consumption of alcohol. If the medical witness has had no previous acquaintance with the individual or has had no opportunity of a subsequent examination when no alcohol has been consumed, he should make it clear that his standard of "normal" is one based upon the reactions of an average healthy person to ordinary environments.

It will be found in practice that if the opinion and evidence of the medical and other witnesses coincide with the conception of drunkenness held by the court—namely, that it is a demeanour calculated to interfere with the comfort, convenience, or safety, one or more of them, of the public—a conviction will follow.—I am, etc.,

Thurstone St Sheffield Nov 18th

GORDON WILSON

"HYPERVITAMINOSIS"

SIR—Your issue of November 10th contains an interesting leading article (p 856) in which reference is made to this subject. I am certainly in agreement with the general conclusion which you draw from the results obtained by Dr Moore and myself, and by other investigators, that there need be little danger in clinical practice of poisoning from excessive dosage with irradiated ergosterol. At the same time it would be an exaggeration to exclude its possibility. In quoting our reference to the work of Hess and Lewis you state that these authors had observed *no toxic effects* in infants. May I point out that what we actually said¹ was that Hess and Lewis had observed *only two instances of clinical disturbance*, due to hypercalcaemia.

The following conclusions can, I think, be fairly drawn from the data available:

1 Clinical experience proves irradiated ergosterol to be an absolute specific for rickets and preferable to cod liver oil for this purpose.

2 The dosage of 2.5 to 5.0 mg. of irradiated ergosterol which has been widely advocated for the treatment of rickets in infants is however unnecessarily large being roughly equivalent to some seventy teaspoonfuls of good cod liver oil.

3 In Hess and Lewis's extended experience of dosage at this high level there did occur several instances of hyper-

vitaminosis—namely, three cases of high blood phosphorus (without apparent ill effects) and several cases of "ebullation" (excessive calcification of bone) and of hypercalcaemia, only two of the latter manifesting untoward chemical disturbances, which cleared up when the excessive irradiated ergosterol was withdrawn.

4 An adequate dose appears to be 1 mg. for an average case of rickets, and 0.5 mg. prophylactically for an infant (Hess and Lewis).

5 Further tests are needed in order that the dosage may be more precisely standardized.

6 Since various specimens of irradiated ergosterol may vary in antirachitic activity, it is desirable that they should be subjected to physiological assay before being issued.

7 It is conceivable that different specimens, irradiated by different methods, may contain varying amounts of any toxic by-product; the optimum manufacturing procedure needs to be worked out.

—I am, etc.,

LESLIE J. HARRIS, D.Sc., Ph.D.

Nutritional Laboratory (Medical Research Council)
Cambridge Nov 12th

RICKETS AND OSTEOMALACIA

SIR,—I am anxious to obtain information—probably from India or China—as to any difference between rickets and osteomalacia.

We know that in both these conditions Ca and P leave the body in the faeces and urine, and in both softening, and later deformity, of the bones occur, in rickets this is specially marked at the epiphyses, in osteomalacia tenderness and softening develop in the shafts or centres of the bones (ribs, pelvis).

The difference seems as if it were due to the fact that in one case there is insufficient deposition of Ca and P (as shown by delayed eruption of teeth and softening at the costochondral junctions), in the other there is loss of Ca and P already deposited in the adult skeleton, showing itself in bending of shafts of long bones, deformity of ribs, pelvis, and decay of teeth. Perhaps in rickets sufficient Ca and P do not get to the growing bone, and in osteomalacia the same defect in metabolism removes Ca and P already deposited.—I am, etc.,

London W 2, Nov 12th.

KATHLEEN VAUGHAN

TRAUMATIC RUPTURE OF SPLEEN

SIR,—In connexion with the recent correspondence in the *Journal* concerning traumatic rupture of the spleen, a further case of delayed haemorrhage, which has just been discharged from this hospital, may be of interest.

A girl aged 22 was thrown violently from the pillow of a motor cycle on October 4th her mother who was in the vehicle being killed outright. The girl had abrasions of the face and knee but no signs or symptoms of abdominal injury. A week afterwards she was allowed to get up for an hour in the evening and made no complaint of pain or faintness. A few hours later, however, she had violent abdominal pain and collapsed; the abdomen was rigid and slightly distended, and her pulse was imperceptible. A diagnosis of intra-abdominal haemorrhage was made, and as her pulse improved slightly in quality but remained very rapid she was taken to the theatre.

A left paramedian incision was made about the level of the umbilicus; the peritoneal cavity was found to be full of blood. Both tubes were normal but there was a tear in the anterior border of the spleen about two inches long. The spleen itself was surrounded by soft adhesions and blood clot. Although the incision was extended by means of a transverse division of the rectus muscle it was impossible to free the injured organ. As the patient was almost pulseless the tear was firmly packed with gauze and the incision was sewn up rapidly after leaving two pints of saline solution in the peritoneal cavity.

The pack was gradually withdrawn during the following fortnight and she was discharged without further symptoms or recurrence of the bleeding.

—I am, etc.,

JOHN F. HACKWOOD, F.R.C.S. Eng. and L.D.

November 11th Resident Medical Officer Farnborough Hospital

VALERIAN

SIR,—Dr Manson's paper on valerian (November 10th, p 842) should revive an interest in this much maligned remedy. I find it difficult, however, to follow his theory of the psychical action of this drug. Surely the experiments of Mr Kenneth dealt with conditioned reflexes; the olfactory stimulus was the key that unlocked the first of

¹ See *Lancet* October 27th p 893 and November 3rd p 856.

the many doors to the particular complex. But unless one assigns to valerian the virtues of a master key, how can it be expected to open locks of many different patterns?

Dr Manson's indications for the use of this drug are valuable, it is interesting to note that they confirm the schema worked out by Kent in his lectures on materia medica. Valerian seems to act on every level of the human nervous system. Gordon has reported a case in the *New York Journal* (1924) of an addict who developed a cerebellar syndrome. Langdon Brown has called attention to the value of this remedy in diabetes insipidus. Its value in flatulency and meteorism is well recognized, both these conditions are relieved by the injection of posterior pituitary substance. The relation seems of some significance, but, as Dr Manson notes, further research is necessary.—I am, etc.,

Clifton Nov 13th

FRANK BODMAN, M B, M R C S

Obituary

C P THOMSON, D S O, M D,

Major R A M C (ret),

President of the Sanitary, Maritime and Quarantine Board of Egypt

WE regret to announce the death, on November 14th, at Alexandria, of Major Charles Pinkerton Thomson, D S O, R A M C (ret), who had been president of the Egyptian Quarantine Board since 1925. He studied medicine at the University of Glasgow, graduating M B, Ch B in 1900, and proceeding M D in 1904. Before entering the Royal Army Medical Corps he had been house physician to the Western Infirmary, Glasgow, and resident medical officer to the Guest Hospital, Dudley. For the appreciation that follows of his work in Egypt we are indebted to Sir George Buchanan.

The sudden death of Major C P Thomson, reported from Alexandria at the end of last week, must have come as a shock to many of his former colleagues in the Egyptian public health service, who remember the sterling value of the work he carried out in the branch of that service which was concerned with the control of epidemics, and directed during the war and in the years immediately following it. Owing to ill health, as well as to administrative changes in Egypt, Major Thomson retired from his medical service and from the army in 1923, but three years later he responded to the demand that he should accept an important executive office for which, in the eyes alike of the Egyptian and British Governments, he was particularly fitted. This was the presidency of the Sanitary, Maritime, and Quarantine Board of Egypt, an Egyptian institution of international composition, whose duties and position had been established by the successive International Sanitary Conventions, and which had the double duty of protecting Europe and the Levant from the importation of cholera and other epidemic diseases from the East, and of providing a sanitary service for the ports of Egypt itself. Major Thomson had two distinguished predecessors in this office, first the late Sir Maro Armand Ruffet, under whom the main lines of the sanitary defences on the Suez Canal had been laid down, and the great quarantine establishment at El Tor, for the north-bound pilgrims returning from Mecca, had been established, and next Dr Alexander Granville, C M G, who with infinite tact and diplomacy had enabled the Board to maintain itself during the war and to re-establish itself effectively during the uncertain political years which followed. Major Thomson's appointment was made at a time when it was evident that the Board needed new life and required for its justification to come into the front rank with the other international bodies which are concerned with the prevention of epidemic disease, and to be modernized so as to secure the confidence of shipping interests as well as of sanitarians. In the three years which have now so unfortunately and abruptly terminated Major Thomson fully justified the trust reposed in him. He took up actively, even aggressively, each section of the work of the Board, gained the confidence and support of its members and of the authorities in Egypt, and effected an invaluable reorganization of the numerous different services and

institutions concerned, securing in the process a reduction of expenditure and a diminution of the charges on shipping. The position of the Board was already strong enough, in 1926, to enable the International Sanitary Conference at Paris not only to confirm its duties under the previous conventions, but to place on it several important new duties, such as the sanitary regulation of coasting traffic in the Red Sea, and the collection and dissemination of information on all matters affecting the sanitary control of the Mecca pilgrimage. An article of the International Sanitary Convention, 1926, also enabled the International Health Office in Paris, after consultation with Major Thomson, to arrange with the Sanitary, Maritime, and Quarantine Board of Egypt to set up in Alexandria a "regional bureau" for intelligence regarding infectious disease which would act for the Levant and Near East in the same way as the League of Nations' regional bureau at Singapore acts for the Far East, and the Pan-American Sanitary Bureau at Washington for the Americas. This new intelligence service of the Board at Alexandria, under the direction of Major J Gilmonr, M D, has proved a notable success, and has already done much to simplify the complicated problem of avoiding unnecessary and vexatious methods of quarantine, and to improve the medical control over the annual pilgrimage to the holy places of Arabia. All of those who were privileged, only last month at Paris, to hear Major Thomson's exposition of the administrative system which is in operation or in course of development for these purposes, must have recognized in him that stamp of knowledgeable, honest, and forceful personal endeavour which means so much, and will the more appreciate the loss to international public health progress which his sudden death has created.

Medical-Legal

DOCTORS AND AGENCY LAW

THE decision of His Honour Judge Cunn at Eastbourne County Court on November 13th, that a medical man was liable for the hire of a motor car to convey a patient from Eastbourne to Bournemouth because he did not disclose to the car owners that he was acting as the agent of the patient in ordering the car, serves to illustrate the passage relating to the undisclosed principal in *Anson on Contract*, fourteenth edition, at page 418.

If the agent acts on behalf of a principal whose existence he does not at the time disclose the other contracting party is entitled to elect whether he will treat principal or agent as the party with whom he dealt.

The facts of the case were that the plaintiffs, Messrs Maley Bros motor engineers, on August 11th, 1923, received a telephone message. Dr Churcher speaking. Send me a car at once to 8, Mead Street, to take a patient to Bournemouth, and later a further telephone message. "Is that car coming that Dr Churcher ordered or not?" The order was duly executed. It appeared from Dr Churcher's evidence that he had never seen the patient before that date, and therefore, did not know he was impecunious, and, further, that although he in fact obtained the patient's consent to the ordering of the car to convey him to his parents' home he (Dr Churcher) did not inform the plaintiffs that he was merely acting as agent for the patient.

Mr H C Dickens, counsel for the defendant, urged that a doctor's character as agent for a patient was so notorious as to amount to a custom which excluded any personal liability.

Judge Cunn, dealing with this point in his reserved judgment, said it might be that in some matters of ordinary routine a doctor was notoriously the agent of his patient, but the contract under consideration was for a journey of over 120 miles, including the return journey. He could not hold that there was any usage or custom entitling a doctor to enter into a contract on behalf of a patient such as that upon which the plaintiffs sued. Such a usage or custom—if it existed—might have disastrous results, as it would tend to discourage or, at any rate, pending inquiries delay, the supply of articles or the rendering of services ordered by a doctor in an emergency where the saving of life might depend on prompt measures being taken. The plaintiffs throughout looked to Dr Churcher for payment, and were entitled to judgment with costs.

Mr Dickens having intimated that it was desired to make this a test case, the judge gave leave to appeal, conditionally upon the defence undertaking to pay the plaintiffs' costs of the appeal.

The defence was undertaken by the Medical Defence Union, the solicitors being Messrs Hempsons.

Universities and Colleges

ROYAL COLLEGE OF SURGEONS OF ENGLAND

ANNUAL MEETING OF FELLOWS AND MEMBERS

THE annual meeting of Fellows and Members of the Royal College of Surgeons of England was held at the College on November 15th. About forty were present.

The **PRESIDENT** (Sir Berkeley Moynihan) placed before the meeting the annual report of the Council. He said that the report included the result of the poll of Fellows taken last year on the question whether it is desirable that Members of the College should have direct representation on the Council. The number of Fellows who voted No was 846 and the number who voted Yes 234. He had compared the figures with those of a similar referendum taken in 1897. The proportion of Fellows replying was almost exactly the same on both occasions but the proportion of opponents to the proposal had decidedly increased. Proceeding to other matters in the report, he referred to the scheme for holding in Canada a primary examination in anatomy and physiology for the Fellowship. This had been arranged with the Canadian Medical Association, the examination to be held in Toronto in July or August of next year. Two examiners in anatomy and two in physiology were to be sent by the College from England and professors of anatomy and of physiology, or such other persons as might be nominated by the Canadian Medical Association would be appointed by the College to act as assessors to the examiners. He added that arrangements of a similar kind were in the making with the recently formed College of Surgeons of Australasia, were it not for the length of time the Australasian post required this matter would have been brought to completion before now. In connexion with the recent International Conference on Cancer Dr Regaud of Paris and Sir George Newman had been admitted Honorary Fellows of the College. Mr C Thurstan Holland of Liverpool and Sir Matthew Pell Director General of the Army Medical Service, had been elected Fellows under the rule relating to admission to the Fellowship without examination of Members of twenty years standing. The President also referred to the various awards and prizes including the institution of the Hallett prize, and to bequests to the College a sum of £5,000 by the will of Mr W Thelwall Thomas whose death was greatly regretted and a sum of nearly £30,000 left by Sir George S Mackenzie in 1910 to come to the College on the death of a survivor which had recently taken place.

Dr **REMOND ROCHE** suggested that the demonstrations given in the College should have a wider clinical interest for Members. He also pointed out with reference to the poll of Fellows that a larger number had refrained from voting (770) than the majority registered against the claims of the Members (512).

Dr **M FINCHAM** carried this last point further when he claimed that the number of non-voting Fellows should be added to those voting in favour of the Members. Their abstinence from voting could be construed as a recognition of the justice of the Members' claims. He criticized the scheme for holding the primary examination for the Fellowship in the Dominions, urging that if the Fellowship was worth having it was worth coming over to this country to take.

Dr **DAVID ROXBURGH** urged that there was no guarantee that the candidates examined in Canada or Australia would be of the same standard as the men who now passed through the College. He thought the standard of examination was set not by the examiners but by the candidates. If any Members in this country wanted to get the Fellowship on easy terms their best procedure would be to go over to Canada and take the examination there.

Dr **BROWN CASTREW** as a Member of the College said that the Society of Members was making altogether too large assumptions. One of their spokesmen had just assumed that all the non-voting Fellows were on the side of the Members and in a circular which he had received from the Society of Members it was stated. Since we are assured that you are in favour of this necessary reform. He himself was very far from being in favour of it and he was going to vote in the opposite direction.

The **PRESIDENT** replying said that he would call Sir Arthur Keith's attention to the suggestion by Dr Redmond Roche regarding demonstrations at the College. With regard to the poll of Fellows in 1897 the numbers who voted No and Yes respectively were 485 and 201. The corresponding numbers on the recent occasion were 846 and 234. If Fellows did not vote at all their sympathies could not be claimed by either side. With regard to the primary Fellowship examination in Canada the Council had taken over a year to consider this question. Meetings took place with persons from Canada, and there had been a full correspondence with the authorities. The Council felt that it was an injustice to a man who happened to live in Canada and desired to become a Fellow of the College that he should be compelled to undergo unnecessary hardships in the matter of doubt-travelling. Sir Berkeley Moynihan said that he like many others who joined the profession had been poor as a boy had no

lived in Canada he could never have taken the examination, because he could not have afforded to come over, even once. There was not the slightest intention by the Council to weaken the primary Fellowship examination. The standard would be fully maintained by having visiting examiners who had acted in the same capacity in this country. They would go out to Canada and conduct an examination there exactly as it was conducted here. The College intended to have its own examiners and none would be more inflexible about the maintenance of the standard than the College Council. Nor was there the smallest intention on the part of the Council to have the final Fellowship examination taken outside this country. A question had been raised with regard to the removal of a Member whose name had been erased from the *Medical Register* for adultery with a patient. He said that in such cases the Member concerned was before removal given an opportunity if he so desired of being seen and heard in his own behalf by the College authorities. In conclusion he said that he was glad to hear some expressions from Members of their deep affection for the College. The affection was reciprocated by the Council with whom some Members were in conflict on a very minor point. (Oh!)

Dr **ERNEST E WARE** President of the Society of Members then moved the usual resolution affirming the desirability of admitting Members to direct representation upon the Council and urging that in consideration of the importance of the health of the nation and of the fact that some 18,000 Members were in daily contact with the sick it was most desirable for the benefit of the public as well as of the College that Members fulfilling such an important function should have some share in the deliberations of the College to which they belonged. He said that the first part of this resolution had been carried on thirty-nine previous occasions. This was a long time for pressure to be exercised and the result had been to produce atrophy of the centres of logic and justice in the brains of the majority of the Council. With regard to the poll of Fellows he maintained that the circular sent out from the College was a biased document suggesting as it did with great subtlety that if Members got representation on the Council of the College the privileges of the Fellows would be curtailed. It was constantly said that the small attendances at the annual meeting—not much above the number necessary for a quorum—was an evidence that there was no genuine interest in this claim. But London unlike the provinces was notorious for smallness of attendance at medical meetings of all sorts. He added that the Strangeways collection which had been offered to the College by the trustees was the work of a Member not a Fellow and that many of those whose names were given in the report as having made additions to the museum during the year were Members and not Fellows. If the College as the President had said on the last occasion existed for the benefit of the public who was so well aware of the needs of the public as the general practitioner? In the inquiries which the Ministry of Health was now conducting especially into the onset of various diseases it would naturally turn to the College Council but only if that Council included general practitioners could the most valuable help be given from this point of view.

The resolution was seconded by Lieut Colonel L E LAYTON OWEN and supported by Dr F W COLLINGWOOD, Dr R GILBURN, Dr F G LLOYD and Dr HOWARD STRATFORD. The last named touched on the importance of forthcoming legislation concerning Poor Law hospitals and other health services. What would be the position of the College on whose executive the general practitioner had no place when the Government of the day asked advice and assistance on measures which threatened to extinguish general practice altogether?

The **PRESIDENT** replied that general practitioners were fully represented by the Fellows of the College. At least two-thirds of the Fellows—he put it at the minimum—were general practitioners. (Not on the Council Sir.) They voted for the Council. The members of the Council held themselves—he certainly held himself—to be the representatives of the general practitioners among the Fellows. It was quite true that this was the fortieth successive year in which this resolution had been moved and carried. Either the proposition was undesirable in itself or it was presented inadequately or unacceptably. He would like to take up the pathological metaphor used by Dr Ware. The only pressure which these who brought forward the resolution exercised upon the Council was a momentary spasm of pressure for something over an hour once a year. For the rest of the year they were slumbering in the matter. The proposition had its own strong supporters within the Council and the Council had heard all the arguments that the Members put forward at the annual meetings and others that they had not yet thought of. The decision of the Council had been so far against it. If the resolution was carried on this occasion he would see that it was again presented. He took strong exception to the statement that the circular sent out to the Fellows on the occasion of the poll was biased. It was prepared most carefully and contained not one word of partisanship. It was a straightforward statement and the facts it set out could not be denied. The case of the Members would not be advanced by wilful and repeated misstatements.

The resolution was carried by 20 votes against 2.

UNIVERSITY OF LONDON

PROFESSOR G. E. GASK, D.S.O., F.R.C.S., of St. Bartholomew's Hospital Medical College, has been elected Dean of the Faculty of Medicine.

A course of five lectures on the role of bacteria in *Natura* will be given by Dr. I. W. Twort, superintendent of the Brown Institution in the theatre of the Royal College of Surgeons of England, Lincoln's Inn Fields, W.C. on December 3rd, 5th, 7th, 10th, and 12th at 4 p.m. Admission is free, without ticket.

UNIVERSITY OF OXFORD

Rudcliffe Travelling Fellowship

AN examination for a Fellowship of the annual value of £300, and tenable for two years will be held at the University Museum commencing on February 12th 1929, at 10 a.m. Candidates must have passed all the examinations required by the University for the B.A. and B.M. degrees, and must not have exceeded four years from the time of passing the last examination required for the degree of B.M. The successful candidate must, before election, declare that he intends to devote himself during the period of his tenure of the Fellowship to the study of medical science and to travel abroad with a view to that study. The Fellowship will be vacated *ipso facto* if more than nine months is spent within the United Kingdom. The Regius Professor of Medicine and the Examiners present a yearly report on the work done by each Fellow to the electors who may, if they think the report unsatisfactory, declare the Fellowship forfeited. The examination will occupy four days. Papers will be set in physiology, pathology, and preventive medicine and a subject will be proposed for an essay; there will also be a practical examination in pathology. Any candidate desiring to offer, in addition a special branch of either medicine or surgery must notify the Regius Professor by January 30th. Intending candidates should send their names, addresses, qualifications etc. to the Regius Professor of Medicine, University Museum, Oxford by January 30th.

UNIVERSITY OF SHEFFIELD

THE Council has appointed Dr. Alan Ljun to the post of assistant bacteriologist.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons next week will take the second reading of the Local Government Bill. This week it read the Unemployment Insurance Bill a third time and the Imperial Telegraphs Bill a second time, besides considering estimates for the Colonial Office and for other services.

The Parliamentary Medical Committee met at the House of Commons on November 14th. Dr. Fremantle was re-elected chairman and Dr. Drummond Shiels secretary of the Committee. The Committee agreed to meet during the second reading debate on the Local Government Bill to decide its attitude towards the bill and to discuss possible amendments to it.

Mr. Neville Chamberlain promised to speak on the Local Government Bill at a special meeting of the Health and Housing Committee of Conservative members of Parliament on November 21st, Dr. Fremantle presiding.

National Health Insurance.

Expenditure on Sickness Benefit.—Replying on November 15th to Mr. Rhys Davies Mr. CHAMBERLAIN announced that an examination of the expenditure of certain large approved societies in the first half of 1928 indicated broadly, after allowing approximately for the cessation of benefit to persons over 65, that the expenditure on sickness benefit in this period was rather less than in the corresponding period of the preceding year in the case of both men and women. A severe influenza epidemic materially affected the claims in the early months of 1927. The cost of disablement benefit was, however, somewhat heavier in 1928 in respect of each sex. In 1927 the expenditure on sickness benefit under the National Health Insurance Act was, for men 115 per cent of the expenditure in 1925, and for women 112 per cent. For disablement benefit the ratios were, men 124 per cent and women 128 per cent, for maternity benefit the ratios were, men 90 per cent and women 103 per cent.

Prescription of Liver Extract.—Mr. CHAMBERLAIN answering Mr. Ammon on November 15th, said that the decision whether liver extract or other preparations could be regarded as drugs or medicines within the meaning of the National Health Insurance Acts rested primarily with Insurance Committees. In answer to inquiries made by such committees he had indicated that he had no objection to suggest that liver extract could properly be regarded as excluded from the scope of medical benefit in any cases in which it was requisite for the patient's treatment. He did not think that he had any power to issue a regulation on the subject.

Bills

Sunday Closing of Barber's Shops.—On November 20th Mr. JAMES STEWART asked leave to introduce a bill to provide for the compulsory closing of hairdressers' and barbers' shops on Sundays. He explained that the bill which he has introduced on several previous occasions, dealt with what was a dangerous trade. The conditions under which the people in the barbers' shops worked were injurious to their health. Many of the shops were unhealthy and if there was a proper standard of inspection would not be allowed to carry on. The workers in this trade worked longer hours than did the average shopkeeper, the average being from 60 to 70 hours a week. In 1914 one out of every five of the persons engaged in the trade died of consumption, and to-day if members of Parliament went to a barber's shop they must remember that one out of five of the men who looked after them was a source of infection. Leave was granted to bring in the bill, which was read the first time.

Sir ROBERT GOWER presented on November 14th, a Protection of Dogs Bill, to prohibit the vivisection of dogs. The bill was supported by Colonel Moore, Mr. Bromley, Mr. Thurtle, Captain A. Evans, Mr. Sexton, Mr. Radford and Commander Kenworthy.

On the same day Sir ROBERT GOWER presented a Housing Bill "to amend provisions in Part II of the Housing Act 1925, relating to improvement and reconstruction schemes. This bill is concerned with the question of compensation for property demolished under slum clearance schemes.

Encephalitis Lethargica and Vaccination.—Mr. CHAMBERLAIN in a reply to Mr. Bryant on November 15th said that 1,394 civilian cases of encephalitis lethargica were notified in England and Wales in the fifty-two weeks ended November 3rd 1928. He could not state what was the number of cases in which vaccination had been performed within two months of the appearance of the disease, as medical practitioners were not required to state the vaccinal condition of persons notified as suffering from this disease. Dr. DAVIES asked whether other zymotic diseases had not been followed by encephalitis lethargica in which the question of vaccination did not arise at all. Mr. CHAMBERLAIN confirmed this. In answer to a question on November 20th the Minister of Health said the recent report of the Committee on Vaccination stated that almost all vaccine establishments used rabbits for the purpose of improving and maintaining the quality of the seed lymph. His department had no information as to any countries in which this practice was not followed, and he could not say, therefore whether those countries had displayed any special freedom from post-vaccinal encephalitis.

Maternity and Child Welfare.—Provision has been made in every sanitary district of the country either by the county council or the local sanitary authority for maternity and child welfare. Such provision is now made by 60 county councils, 83 county borough councils, 135 urban district councils and 18 rural district councils. After announcing these figures to the House of Commons on November 15th Mr. CHAMBERLAIN added that he knew the Association of Infant Welfare and Maternity Centres had passed a resolution against the proposed substitution of block grants in support of maternity and child welfare centres. Mr. Chamberlain hoped that the proposals now before the House would dispel any fear that these services would suffer by the changes fore-shadowed. Answering Mr. Montague on the same day Mr. Chamberlain denied that a circular had been issued to local authorities intimating a maximum expenditure which would be recognized for grant in aid of the supply of milk for expectant and nursing mothers and children. In the letters which were sent to some local authorities last March informing them of the maximum expenditure for maternity and child welfare work during the current financial year which could be recognized for grant, suggestions on procedure were made with a view to enabling the authorities to keep their expenditure on milk within the amounts approved for grant. This letter was sent only to the authorities whose estimated expenditure on milk exceeded £100 and, moreover, was not addressed to those whose districts are situated in distressed mining areas in Durham, Lancashire, Northumberland, and South Wales. The total estimated saving in grant was about £12,000.

Pulmonary Tuberculosis and War Service Conditions.—In reply to Dr. Vernon Davies on November 15th Mr. A. M. SAMUEL said the Joint Medical Committee consisting of the directors of medical services of the three service departments and the Ministry of Pensions, were investigating the attributability of pulmonary tuberculosis in the defence forces to the conditions of service. A report on the relationship between these conditions and pulmonary tuberculosis had been prepared for this committee by a subcommittee and was being considered. He could not anticipate the conclusions of the committee. Answering Sir Arthur Shirley Benn on the same day, Colonel HEADLAM said the Board of Admiralty had made careful and exhaustive inquiry into the incidence of tuberculosis in the navy with particular reference to the question whether in pension awards following invaliding for this disease, there was adequate recognition of causes peculiar to the conditions of naval service afloat to which tuberculosis might be regarded as attributable. As a result of this investigation they had come to the conclusion that although the rules and principles governing the assessment of attributability in tuberculosis cases had in the past been correctly formulated there were grounds justifying more generous treatment in many of these distressing cases and they had decided that in respect of invalidings as from October 1st 1928 there should be such a modification of these rules and principles as would considerably reduce the percentage of cases in which non-attributability

awards only could be regarded as appropriate. These arrangements were without prejudice to the consideration of any recommendations which might be embodied in the report on this question which was expected shortly from the Joint Medical Services Committee.

Treatment of Tuberculosis under the Public Health Act—Mr CHAMBERLAIN told Mr BELLAMY, on November 15th, that he did not know any local authority which had not made adequate arrangements for treatment of tuberculosis under Section 1 of the Public Health (Tuberculosis) Act, 1921. Provision of sanatorium accommodation was still in progress. He anticipated that this would be helped by the passing of Poor Law accommodation into the hands of counties and county boroughs. As regards village settlements for the after-care of persons who had received sanatorium treatment further experience was needed before any extensive development could be expected.

Lighting of Schools—Sir CHARLES TREVELYAN asked Lord EUSTACE PERCY on November 14th why the Board of Education recently insisted on certain local education authorities putting into their schools windows admitting direct sunlight. Lord EUSTACE PERCY said these authorities had proposed to erect premises into which direct sunlight could never penetrate. There had been no unreasonable interference with the authorities' discretion and the rigidity of the Board's building regulations had been greatly relaxed during the last three years. In the schools in question it would still be possible by use of blinds to exclude direct sunlight when desired.

Artificial Light Treatment of School Children—Dr VERNON DAVIES on November 15th asked what steps the President of the Board of Education took to provide that artificial light treatment for the school child was only given by properly qualified persons. Lord EUSTACE PERCY said that in many cases artificial light treatment for children attending public elementary schools was provided at the light department of a general hospital under an arrangement between the local education authority and the hospital authorities. Treatment at a school clinic was allowed only on condition that the medical officer with special experience of artificial light therapy was in charge, assisted by a nurse who also had special experience of this work.

Radio-therapeutic Treatment of Disease—On November 19th Sir KINGSLEY WOOD told Dr VERNON DAVIES that the Ministry of Health was responsible by means of grants or otherwise for the use of electrotherapy in the treatment of disease. Electrotherapy was practised in public institutions dealing with tuberculosis with maternity and child welfare and with the care of the pauper sick. It was a condition of any grant that the medical officer using such means of treatment should be especially qualified or experienced and the treatment provided in a Poor Law institution was always under the direction of a qualified practitioner. In reply to a question regarding the supply of radium Sir KINGSLEY WOOD stated that the radium requirement of this country in relation to present sources of supply was under consideration by a subcommittee of the Committee on Civil Research. He hoped the report of the subcommittee would be presented shortly. Colonel WOODCOCK asked if in the meantime the Ministry would allow institutions to purchase radium on the same terms as they had already permission to purchase. Sir KINGSLEY WOOD replied that he did not think that arose out of the question.

Ultra violet Light Statistics—Mr CHAMBERLAIN has promised to consider a suggestion that he should recommend all local authorities to publish daily statistics of ultra violet light similar to those now issued by the National Institute of Medical Research, Hampstead and at four other places.

Factory Inspectorate—In an answer to Mr BUCHANAN on November 15th Sir WILLIAM JOYNSON HICKS said the Committee appointed to inquire into the question of the factory inspectorate had only recently commenced its work. He did not think it necessary to ask for an interim report.

Shortage of Hospital Beds at Newington Poor Law Institution—Mr NEVILLE CHAMBERLAIN in answer to a question said he was aware that additional accommodation was required at the Newington Poor Law Institution where a shortage of hospital beds was alleged. He was unable to approve a scheme submitted by the Southwark board of guardians involving an expenditure of £100,000. Officials of the Ministry had made suggestions to meet the immediate needs of the institution.

Hop-pickers Accommodation—Mr CHAMBERLAIN in an answer to Mr BRIANT on November 15th said he had received reports on the condition of hop-pickers in the recent season. On the whole these showed that satisfactory progress was being made by the district councils in securing a proper standard of accommodation. He did not contemplate transferring this responsibility to a central authority.

Foot and Mouth Disease—From August 1st to November 15th twenty-five outbreaks of foot and mouth disease were confirmed in Great Britain. Mr GUNNESS stated that the work of the Foot and Mouth Disease Research Committee was being continued in five different laboratories and that the Pirbright Experimental Station had been refitted for work on an extended scale on the larger animals. On November 19th he informed General WRIGHT that in connexion with the outbreak of foot and mouth disease in Devonshire no report had been made to him of the danger that the Ministry's inspectors might spread infection by not changing or disinfecting their clothing as well as their boots when moving from an infected into a non-infected area. Every inspector of the Ministry was required to wear special waterproof overall clothing when engaged on foot and mouth disease duties and to disinfect the whole of his clothing and his hands at the time of entering and leaving premises. Experience proved that the precautions were

adequate, and he was satisfied that the inspectors did not spread the disease. The Ministry considered that the policy of slaughtering animals affected with foot and mouth disease and exposed to infection was the only policy which with the existing knowledge of the disease would be successful in preventing it from becoming endemic in this country. The first animals affected in the serious outbreaks which had recently occurred in the neighbourhood of Plymouth were pigs which had been fed on swill containing scraps of meat of foreign origin. The swill had not been boiled in accordance with the Foot and Mouth Disease (Boiling of Animal Foodstuffs) Order 1923.

Award of Pensions to Ex-Servicemen—Mr BALDWIN in a reply on November 15th to Sir ARTHUR HOLLBROOK said he had received a memorandum from the Annual Conference of the British Legion advocating the co-ordination of the award of pensions to ex-members of the fighting services, and the placing of the responsibility for dealing with pensions for all the forces of the Crown under the Ministry of Pensions. Mr BALDWIN said he was satisfied, after consulting his colleagues that there would be no real advantage, but serious disadvantages in such a step.

Smoke Abatement—Mr CHAMBERLAIN told Commander BELLAMY on November 20th that under the Public Health (Smoke Abatement) Act 1925 there were now five regional advisory committees including one for Greater London and one executive committee with administrative powers. An order had been made bringing new processes under the operation of the Alkali Act. By laws as to the emission of black smoke had been approved for a number of local authorities and generally there was a marked quickening of interest and activity in the work of smoke abatement.

Proposed School for Mentally Defective Children—On November 19th Lord EUSTACE PERCY in reply to Mr CRAWFORD denied that a proposal of the education authorities of Middlesex, Ealing, Brentford and Chiswick, Heston and Isleworth and later Twickenham, to open a day school for mentally defective children had been refused. The Board of Education had, however, suggested that the proposal should be deferred pending the report of the Special Committee on Mental Deficiency which he hoped to receive soon.

Notes in Brief

Since October 1st 1924 sixty sluice clearance schemes involving rehousing of 35,000 persons have been confirmed. Eight of these schemes have been completed and the population rehoused.

No cases of adverse effect on health from the prohibition of the use of food preservatives have been brought to the notice of the Minister of Health who sees no reason to modify the new Preservative Regulations.

The Ministry of Health hopes soon to issue a report on refuse dumps.

Asked as to what progress had been made by the Joint Medical Services Committee of the Navy, Army, and Air Force in establishing a common system of costing for hospitals Mr A. M. SAMUEL said the matter was still under consideration.

Medical News.

The annual dinner of the Medico-Legal Society will be held at the Holborn Restaurant, London, on Friday, December 14th, at 7.15 p.m., with the president, Sir WILLIAM WILCOX, in the chair.

The tenth annual reunion dinner of the 29th General Hospital will be held at the Trocadero Restaurant, London, on Saturday, December 8th, at 7.30 p.m. Applications should be addressed to the Secretary, Heatonfield, Meadowcourt Road, Leicester.

The sixteenth annual meeting of the British Dental Hospital will be held at 23 Russell Square, W.C., on Thursday, November 29th, at 8 p.m. with the president Sir Harry Baldwin, in the chair. Dr Leonard Williams will give an address on the arch of the buccal building.

The Fellowship of Medicine and Post-Graduate Medical Association announces that on Monday, November 26th, Dr Donald Paterson will give a lecture on "Some problems in infant feeding," at the Medical Society of London, 11 Chandos Street, Cavendish Square, at 5 p.m., and on the following Wednesday Mr Victor Bonney will give a "Gynaecological talk," at the Medical Society, at 11 a.m. Demonstrations will be given on Thursday, November 29th, at 4 p.m., by Mr Cunningham, at the Central London Ophthalmic Hospital, and on Monday, November 26th, at 2.30 p.m. by Dr A. J. Whiting, at the Prince of Wales's General Hospital, Tottenham. There is no fee for the above lectures and demonstrations. Special courses are in progress in urology at St Peter's Hospital, in ophthalmology at the Royal Westminster Ophthalmic Hospital, in neurology at the West End Hospital for Nervous Diseases, and in venereal diseases at the London Lock Hospital. During December there will be two courses only, from December 3rd to 15th, in infants' diseases at the Infants Hospital and in dermatology at the Blackfriars Skin Hospital. Copies of all syllabuses and information regarding the general course arranged by the

Followship of Medicine will be sent on application to the Secretary, 1, Whitpole Street, W 1. The complete list of medical courses for 1929 is now ready.

The Society of Apothecaries of London held its Anniversary Dinner on November 20th in the Hall at Blackfriars. The guests were received by the Master, Lieut Colonel C. T. Samman, R. A. M. C. (ret.), and the Wardens, Dr H. J. Hott and Sir George Buchanan. The toast of the Royal Colleges was proposed by the Immediate Past Master, Dr R. Whitosido Slatham, who took this opportunity to compliment the President of the Royal College of Physicians on the brilliant success of the Harvy torrentary celebrations carried out under his leadership. Sir John Rose Bradford, P. R. C. P., in reply, expressed his pleasure in enjoying once more the hospitality of the Society, between whom and his College there were many links besides their common aim in regard to medicine. Sir John Lynn Thomas, as an old friend of the Master, was warmly welcomed when rising to reply on behalf of the Royal College of Surgeons, in the course of a brief speech he congratulated the Society on instituting its new Diploma in Midwifery and Child Welfare. The toast of "The Anniversary" was proposed by the Master, who said that for more than 300 years the Society had held to the old traditions of the medical City Guilds, promoting the well being of its members and encouraging good workmanship among them. He added that the woodwork of the Society's Hall—as many of those present know too well—had been ravaged by the death watch beetle, as investigation proceeded worse and worse damage came to light, so that a large part of the old building would have to be rebuilt, brick by brick and beam by beam. The Master ended by presenting a beautiful silver salver, bearing the names of many subscribers, to the Bedell, Mr William T. Withers, who has been the trusted servant of the Society for a great number of years. Mr John F. Eastwood replied on behalf of his fellow Leomen, and Mr Withers acknowledged the gift. The concluding toast was that of "The Guests," proposed by the Junior Warden, Sir George Buchanan, and replied to by Sir St. Clair Thomson and Mr Charles Branch, Master of the Vintners Company.

INFORMATION regarding the International medical tour of the Côte d'Azur, arranged by the Société Médicale du Littoral Méditerranéen to take place after Christmas, may be obtained from Mme Juppe Blaise, Federation of the Health Resorts of France, 1, Gordon Square, W. C. 1, or from Dr M. Faure, 24 rue Vordil Née. Particulars of the programme were given in the *Journal* of October 13th (p. 682), the party assembles at Marseilles on the evening of December 26th, proceeding thence to London, Cannes, Monte Carlo, Mentone and other centres, where scientific demonstrations, therapeutic discussions, visits to places of interest, and entertainments will be arranged. The tour ends on January 7th at Nice, after an excursion to the Alps but members who so desire may extend their journey to include a visit to Corsica.

LIEUT. COLONEL A. E. HAMERTON, D. S. O., late R. A. M. C., has been appointed pathologist to the Zoological Society of London, in succession to Dr H. H. Scott, who has taken up an appointment under the Colonial Office.

The following members of the medical profession were called to the Bar on November 19th: Dr Eric W. C. Thomas (Middle Temple), Dr W. H. Bntcher and Dr V. P. Gonsalves (Inner Temple).

THE Professional Classes Aid Council in its seventh annual report covering the year ended April 30th 1928, takes occasion to explain the reasons for its existence side by side with the many benevolent funds maintained by the various professions. It is pointed out that experience has shown many persons do not know of such special funds, and that these funds are still less known to widows and other dependants. The regulations which govern their administration, moreover, often restrict severely their scope and functions, while there are, further, educated people of the class termed the "new poor" who have no claim on any other funds. No defence of the council's position, however, could be so convincing as proof of the necessity for its existence as its record. Last year 780 applicants were dealt with and financial help was given to 154 families. A very considerable number (334) were advised to apply for help to other agencies, and directed how to proceed in this way the council acted as a clearing house for information and provided a link between applicants and the societies concerned. It has also been able to co-operate with certain other organizations in supplementing the funds at their disposal in special cases. In giving relief the Council seeks to adopt the form best calculated to rescue the applicant from future difficulties. The largest item in its relief expenditure was education: the school expenses of 58 children have been wholly or partially met. Other persons have been assisted to obtain professional training, and a number have

been given relief in emergencies caused by illness, etc. During the past year, through the kindness of an anonymous donor, who has undertaken to place a sum of £500 annually at the disposal of the Council, it has been possible to provide annual allowances for aged and infirm persons. The Council is composed largely of representatives of the leading professional bodies and benevolent organizations: the British Medical Association being represented by its Treasurer, Mr N. Bishop Harman.

VARIOUS sections of the ninth annual report of the Scottish Board of Health, 1927, of which a summary appeared in our issue of June 23rd, 1928 (p. 1081), have now been issued separately in pamphlet form, and are obtainable at His Majesty's Stationery Office or through any bookseller. We have received copies of the following: *The Problem of Puerperal Sepsis* (3d net); *The Work of the Medical and Dental Referees under the National Health Insurance Act* (4d net); *The Pollution and Purification of Rivers* (6d net); and *The Poor Law Medical Service* (4d net).

THE fourteenth annual report of the British Gynaecological and Maternity League states that abnormal weather conditions in 1927 favoured an increase in malarial disease, causing higher infant and child mortality. By means of propaganda and of the supply of food, clothing, and mosquito nets the league is endeavouring to prevent this wastage of young life, and the settlers, aboriginal Indians, and others are, it appears, learning to appreciate the value of its work. During 1927 the league nurses attended 2,661 confinements, as compared with 563 in 1918. The development of ante-natal work has proved difficult, and in some districts expectant mothers have been found very reluctant to attend clinics, although the prevalence of malaria, nephritis, and pyelitis, and other complications makes it important for them to have medical inspection. It is suggested that there is an urgent need for propaganda in connexion with pre-natal care among the parents and the midwives in the villages.

DURING 1926-27 the number of grants made by the Queen Alexandra Sanatorium Fund, which exists to help tuberculous patients of limited means to obtain treatment at Davos, was again greater than in any previous year. Payments at the rate of £2 (50 Swiss francs) a week are made to selected patients in an early stage of the disease grants being given for a period covering the late autumn, winter and early spring conditional on the patients staying at approved sanatoriums or pensions at Davos. This grant system, which was adopted quite recently, has proved generally satisfactory. Many patients, however, have not derived the maximum benefit from the treatment owing to the shortness of their stay. The honorary secretary of the fund is Mr D. Vesey, 97, Warwick Road, S. W. 5.

THE Marengo prize for 1928 has been awarded by the College of Physicians of Philadelphia to Drs J. R. Paul and W. N. McClellan of Philadelphia, for their essay entitled "A pathological study of the pleural and pulmonary lesions in rheumatic fever." The next award of the prize, which amounts to about 300 dollars, will be made on July 14th 1929. Essays submitted may be on any subject in medicine, and must represent an addition to knowledge based upon original or literary research: they must be received by the Secretary of the College of Physicians, 19, South 22nd Street, Philadelphia, Pa., U. S. A., on or before May 1st, 1929.

ON attaining his eightieth birthday and in recognition of his public services, Dr William Smith Paget Tomlinson was, on November 19th, the recipient of presentations from the inhabitants of Kirby Lonsdale and from his farm tenants there. Receiving his medical education at Liverpool and University College London, Dr Paget Tomlinson graduated M. B. Lond. in 1871 and proceeded M. D. in 1879, he was elected a Fellow of the Royal College of Physicians in 1927. He has served as chairman of the Westmorland School Medical Inspection Committee and of the Public Health Committee, and is president of the Westmorland Sanatorium for the Consumptive Poor, for the establishment of which he was mainly responsible. In 1897 he was High Sheriff of the county.

SIR ROBERT ARMISTEAD JONES of Plas Dinas and Dr J. H. Morris Jones of Colwyn Bay have been nominated as sheriffs for Carnarvonshire and Denbighshire respectively.

THE forty-fourth German Balneological Congress will be held in Berlin under the presidency of Professor Dietrich, from January 25th to 27th 1929 when the principal subject for discussion will be science and research in balneology.

In memory of her brother Mr Nathaniel M. Barnes who was for many years a member of the committee of Bolton Infirmary, Mr A. Barnes has given £10,000 to that institution. The money will be used to build the first of four new hospital blocks.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W C 1**

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QUERIES AND ANSWERS

DELAYED MENSTRUATION

Dr U. BAYLIS ASH (Birmingham) writes with regard to the inquiry by A. E. (November 3rd p 823). I saw a similar case successfully treated by Dr Urbach of the Wilhelmsplatz, Vienna. He used diathermy the electrodes being placed on either side of the head, and the skull and its contents were warmed. This girl after a number of treatments, lost weight and began to menstruate. Before this treatment commenced it would be advisable to have a skiagram of the skull to show any possible abnormality of the pituitary fossa.

INCOME TAX

Married Couple Living Together

"H. M. H." explains that the wife runs a house in which both live, the husband pays her £10 a month, and also pays two-thirds of the household expenses the King's taxes (Income Tax both A) on the house and shares the payment of local rates with the wife. Is the wife liable to account for tax on the £10 a month?

*. No. The incomes of husband and wife are aggregated for the purpose of calculating tax so that a payment by one to the other should be ignored—unless, of course, the two are living apart. On the other hand, it follows that in calculating the amount of his professional income "H. M. H." cannot treat the rent as an actual payment but must calculate the amount of the deduction as a proportion of the annual value of the house as assessed to income tax.

LETTERS, NOTES, ETC.

THE QUAKERS AND MEDICINE

In a contribution to the *Bulletin of the Society of Medical History of Chicago* Dr David J. Davis of the University of Illinois College of Medicine Chicago has given a sympathetic account of the origin of the Quakers, in which he points out that of the four chief professions in the seventeenth century—the Church, Law, the Army and Medicine—the last was the only one which was at all consistent with their views of life. Both in England and in the United States there appeared a number of medical men who were either ardent Quakers or the descendants of such and to whom medicine and the world at large will be eternally indebted. Dr Davis considers them under two groups—namely a number of great English Quaker physicians and a line of physicians—largely of Welsh origin—who went to America early some with Penn himself. The first great English Quaker physician was Dr John Fothergill (1712-80) whose most important scientific contribution was his "Account of the sore throat attended by ulcers" describing the epidemic of scarlet fever which visited London in 1747. He was a close friend and admirer of Benjamin Franklin, and became interested in the American Quaker colonies in their early days. The first of the native Welsh physicians who accompanied Penn was Thomas Wynne (1631-92) who was afterwards not only the chief physician in the young colony of Philadelphia, but also a

prominent person in public affairs. His daughter married Dr Edward Jones, another notable Welsh physician and from them were descended two men whose names are of importance in American medicine—Thomas Cadwalader the first teacher of medical anatomy in America and author of an essay on "West Indian dry gripes" (laid colic), and John Jones, whose *Plain Remarks upon Wounds and Fractures* which appeared in 1775 was the first book on surgery published in the United States and probably the first medical book of any kind written by an American. John Jones was also an intimate friend and physician of both Benjamin Franklin and George Washington. The last of the prominent medical men of Quaker birth in America was Dr John Evans commonly known as Governor Evans (1814-97) who was editor of the *North Western Medical and Surgical Journal* (the first medical journal in Chicago), co-founder of the American Aged Association and professor of obstetrics in Rush Medical College. In conclusion, Dr Davis summarizes the influence of Quakers in medicine under two heads. In the first place they furnished great practitioners of medicine in such men as Fothergill, Lottson, Wynne Jones and Lister, and secondly they showed a genius for organization, which was exemplified by John Morgan (the founder of the medical school in connexion with the College of Philadelphia), Evans, and John Hopkins.

IMPOUNDABLE PHOSPHORUS THERAPY

Dr M. J. T. WALLIS (Maldon, Essex) writes. All scientific persons whether medical men or otherwise, will be astonished and incidentally vastly amused, at the coroner's summing up at a recent inquest. It was the case of a man, aged 75 who died of cancer of the stomach shortly after taking some powders which had been given him by an unqualified practitioner. This gentleman had seen him once and charged him fifteen guineas. The powders on analysis were found to be quite harmless, only cane sugar being detected. The unqualified practitioner stated that they contained "phosphorus in unobtainable doses." This towering genius expert analytical chemists will be pleased to hear, has made over a thousand drugs of which no trace can be detected by either chemical or spectroscopic means.

Now this I submit is a very nasty snipe at the chemists. We wretched mediocrities of doctors, with our admittedly inexact science, who have been foolish enough to spend from five to seven years studying the elements of our subject, who on making any advance in medicine or surgery are foolish enough to disseminate that knowledge among our colleagues and who generally charge the patient about half the number of shillings that the saccharine and non-tangible phosphoric gentleman charged guineas, and who quite humbly realize that we are only on the very fringe of knowledge on these matters—we medical men, I say, are getting quite tired of having pointed out to us in the press how very narrow bigoted and stereotyped we are how saturated with professional jealousies and how unwilling we are to admit that wisdom will not die with us. But what have our chemists been doing all these years not to have made any of these elusive, non-tangible and apparently very expensive substances that cannot be detected by any of their childish tests? Surely they must share in our ignorance on this occasion.

The effects of the coroner's summing up on the public mind (I am not for a moment overlooking the verdict, which was the obvious one) were these: to give a colossal advertisement for all forms of unqualified medical practice, to stimulate Mr. Bernard Shaw to a further outbreak of juvenescence, but unfortunately, to have a very harmful effect on the minds of sufferers from this terrible disease. In legislation regarding matters of this kind we are of course, fifty years behind America and all civilized European countries. Should not a technical expert sit by the coronor or judicial authority in an advisory capacity in such cases to save him from emitting egregious folly on a subject of which he is profoundly ignorant? To my mind the long continued reticence of the medical profession on these and similar matters is most emphatically not in the public interest.

TUBERCULOSIS SERVICE.

Dr F. J. ALLAN (Chairman of the Medical Sickness Annuity and Life Assurance Society Ltd.) writes. Dr A. J. McMillan suggests in his letter in your issue of October 20th (p. 727) on the subject of the tuberculosis service, that the county or other administrative body should take out a sickness insurance policy on the life of each person appointed to such service. It may be of interest to your readers to know that this society has worked on a scheme which has been adopted by a tuberculosis hospital to meet the point raised. Under this it is compulsory for each resident medical officer on taking up his appointment to effect the policy with this society the premium for which is paid by the administrative body. Special rates are charged and various options provided so that the policy may be retained by each individual on leaving the service.

VACANCIES

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 45, 46, 47, 50, 51 and 52 of our advertisement columns and advertisements as to partnerships, assistantships, and locum tenencies at pages 48 and 49.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 235.

Remarks

OF

DRAINAGE OF BRAIN ABSCESS *

BY

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THE general principles of treatment of abscess of the brain differ in no essential feature from those which obtain in abscesses elsewhere in the body, but the peculiar characters of the cerebral tissue, the existence of the cerebro-spinal fluid circulation, and the physical conditions of pressure within the cranial cavity create special difficulties and problems. While the primary object in dealing with these cases is the effective drainage of the abscess, yet the possibility of fatal complications following precocious or misdirected surgical measures, together with the dangers of serious damage to brain function, must be given due consideration in planning the operation.

The great variations of type which occur among cerebral abscesses, from a diffuse septic softening right down to an encapsulated mass of almost solid fibrous tissue, are apt to create confusion when treatment is being discussed, for measures clearly right for one variety may be obviously wrong for another. The frequent coexistence, especially in otitic cases, of other infective complications, meningitis, ventricular ependymitis, and sinus phlebitis, tends still further to confuse the issue.

In discussing the treatment of abscess of the brain, and especially perhaps in speaking of results, it is necessary to be quite clear as to the type of case with which we are concerned. Although the various kinds of abscess merge into one another, certain types can be recognized: (1) diffuse septic softening, (2) a pus-containing cavity with ragged wall consisting of softened brain tissue, (3) a cavity with a thin capsule consisting of young fibrous granulation tissue, (4) a cavity, perhaps small in relation to the size of the abscess, consisting of dense fibrous tissue, which may be the greater part of an inch in thickness.

In the first variety, which is not really an abscess at all but a diffuse infective encephalitis, comparable with a cellulitis of the connective tissues, no surgical treatment is likely to be of any use, except perhaps a simple decompression.

When, however, as in the second class, this encephalitis is of a somewhat less virulent type, and necrosis with pus formation has occurred in its central part, drainage may be undertaken with some hope of success. This is a type of abscess which during the war was not infrequently encountered in the track of a shell fragment. The most intense septic reaction was apt to be found near the point of entrance, as if the most heavy microbial infection as well as the maximum devitalization of tissue existed just beneath the aperture in the skull, as indeed one would expect to be the case in abscesses developing months or years after such wounds the same rule holds.

The third and fourth types differ chiefly in the thickness of the capsule, and naturally they merge perceptibly into one another. At one end of the scale there is a thin capsule varying, however, in thickness at different places, while at the other end is an almost solid mass of fibrous tissue containing perhaps but a few drops of pus. Around the thinnest-walled abscesses there is an area of oedematous brain, in which, naturally, extension may take place. By this route the ventricle may become involved.

With the very chronic thick-walled abscesses the changes in the surrounding brain may be inconspicuous and insignificant. In such cases the question of drainage scarcely arises, the proper treatment is complete enucleation, with closure of the wound. I have had five such patients, all of whom recovered. In one other similar case drainage was necessitated by the fact that, just as the mass was being delivered, a thin part of its wall gave way,

causing soiling of the wound. This patient also recovered completely.

This discussion, however, is chiefly concerned with what is perhaps the commonest type of abscess—a cavity containing some drachms, or even ounces, of pus bounded by a relatively thin capsule, which in its turn is surrounded by an area of soft oedematous brain. Most of these are of otitic origin, and are situated either in the temporal lobe or in the cerebellum. The cerebellar cases are apt to present earlier indication of their presence because of the ventricular distension to which they tend to give rise. They are therefore likely to be operated upon at an earlier stage.

It is instructive, I think, at this point to recall the very remarkable series of cases upon which Macewen bases his classical monograph (1893). In Table III the astonishing figures are given that of 19 patients operated upon 18 recovered. No wonder Macewen was able to write, cautions Scot though he was, "One might almost conclude that in uncomplicated abscess of the brain, operated upon at a fairly early period, recovery ought to be the rule." His recovery rate is, as Mr. Miles Atkinson pointed out recently (*Lancet*, March 24th, 1928), much the same as the mortality rate of many other surgeons. Not only, as he says, has no one been able to improve upon Macewen's successes, but no one has ever been able even to approach them.

A perusal of Macewen's detailed yet lucid account of his cases brings out the fact that he was dealing with one particular group—namely, the definitely encapsulated abscesses with a long history, and usually containing a large amount of pus. The average duration of the illness before operation was, in the twelve cases in which it is stated, no less than seventy days. Macewen's cases at least lend no support to any plea for precocious operation. Early operation, however, as soon as the presence of an abscess is definitely diagnosed, must be undertaken, for the risks of delay are great. The chief dangers are rupture into the ventricle, rapid onset of cerebral compression from oedema, and, in cerebellar cases especially, sudden respiratory failure.

A spreading abscess tends to make its way towards the ventricle, or rather, perhaps, the ventricle filled with fluid under pressure tends to herniate into the softened brain.

This is also true after an abscess has been imperfectly drained, and in such cases the accident not necessarily fatal, of a communication being established between abscess and ventricle is marked by the escape of cerebro-spinal fluid from the wound.

When an abscess has been properly evacuated and drainage established the intracranial pressure falls, provided that no complication exists such as meningitis, encephalitis, or a second abscess. The appearance of a fungus cerebri means that the intracranial pressure has not been relieved. A "fungus" must be clearly distinguished from a "hernia" cerebri. The latter means a protrusion of healthy brain, still covered by pia arachnoid and skin, with its circulation and functions unimpaired; a fungus is a protruding mass of strangulated necrotic and functionless tissue indicative of unrelieved intracranial pressure.

In operating for cerebral abscess the two most important technical considerations are the route to approach and the method of drainage. Ballance has frequently called attention to the fact that with abscesses originating in bone disease, as most of them do, there is a stalk, representing the inward track of the infection, connecting bone and abscess; this should furnish the ideal route of approach. The membranes are presumably adherent at this spot, so as to seal off the subarachnoid space. In otitic cases the surgeon, during the mastoid operation, may be fortunate enough to find the stalk, and it is possible that the drainage so established may be adequate. Several of Macewen's cases at any rate were successfully treated in this manner.

Failing this, the transarachnoid route must be adopted. The bony opening need not be a large one as the evacuation of the pus will be followed by a fall in intracranial pressure. This diminution of pressure, it must be remembered, is followed immediately by a falling away of the brain from the surface, with the consequent opening up of

* Made in opening a discussion in the Section of Laryngology and Otology at the Annual Meeting of the British Medical Association, Cardiff, 1923.

the subarachnoid space. It is therefore necessary, before evacuating the pus, to shut off the subarachnoid space by strips of gauze tucked in beneath the dura, these guarding plugs may be left *in situ* for two or three days, just as is sometimes done in the transplasmal drainage of a hepatic abscess, or the transperitoneal drainage of an abdominal abscess.

The presence of a subcutaneous abscess is usually indicated by bulging of the brain, with pallor, broadening and softness of the exposed convolutions. If the abscess has deeply these characteristic appearances may be lacking. Exploration with trocar and cannula is, in my opinion, to be deprecated. The instrument may pass by the capsule, or, failing to penetrate it may push it towards, and cause it to burst into, the ventricle. My own practice is to use a small flat seeker, which passes with the least possible force through the softened brain tissue, and with which the resistance of an abscess wall can easily be felt. If by chance the instrument penetrates into a thin-walled abscess, pus at once flows out along it. The abscess having been thus located, I tie off such cortical vessels as may be necessary, and make a clean incision into the abscess with a sharp knife. The material of which the tube is made is of little importance provided it has sufficient rigidity, a rubber tube is rather too bulky for the size of its channel, but usually serves the purpose well enough. I have from time to time used tubes made of aluminium or of celluloid. MacEwen employed decalcified bone tubes. Matters of greater importance concern the after-treatment. The tube, which should have been sutured to the edge of the dura or skin, must be kept clear by frequent gentle syringing, and should be retained in place for a long while, at least until all tendency for the brain to protrude has disappeared. It should be shortened only very gradually. If the brain protrudes persistently or increasingly either the abscess is insufficiently drained or some complication such as a second abscess or meningitis may be present. It is unwise, however, to interfere locally too soon, as there is always some oedema which tends to push the tube out. This period can be tided over by withdrawing fluid from time to time by lumbar puncture.

A British Medical Association Lecture

ON

SOME DISORDERS OF THE LYMPH GLANDS

BY

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THE lymphatic system consists of a widespread set of vessels, most abundant in the skin, the intestine, and the connective tissues, in the course of which are aggregations of lymphoid tissue, termed lymph glands or nodes. The lymphatics take origin in the tissue spaces as capillaries. They are provided with valves, and drain into nodes arranged for the most part in groups, from which arise larger efferent vessels, these pass to one or more groups of nodes situated more deeply, and discharge ultimately into the main lymphatic channels—namely, the thoracic duct and the right lymphatic duct, which open into the origin of the innominate vein on the left and right side respectively.

In addition to the lymph nodes, lymphoid tissue is widely distributed throughout the body. The tonsils, including the pharyngeal tonsil, the thymus, and the spleen are composed almost entirely of this tissue, the alimentary tract is richly supplied with lymphoid elements, both as solitary follicles and as agglomerations in the lower part of the ileum (Peyer's patches), the appendix, and the colon.

The lymph nodes are collected into groups, of which the cervical axillary, and inguinal are the principal ones near the surface of the body. More deeply, there are important collections about the trachea in the root of the lung, in

the posterior mediastinum, in the transverse fissure of the liver, along both sides of the spine in relation to the aorta and its main branches, and in the mesentery. Over and above these are sundry collections and single nodes the existence of which is scarcely appreciated until they are enlarged as the result of disease, examples are the epitrochlear, infraclavicular, and preauricular nodes.

It is by the lymphatics that certain substances are drained away from the tissue spaces with the help of phagocytic cells. Fat is absorbed from the intestinal villi into the lacteals. The chief functions of the lymph nodes are to produce lymphocytes, and to form a barrier against infection of the more important tissues of the body. Not only microbes, but particles of soot, dust, and even neoplastic cells, are caught by this means and held back from the general circulation, no doubt many diseases of an infective nature abort at this line of defence. Lymphatic glands, then, are open to attack either by way of the lymphatics or of the blood stream.

Lymph nodes enlarge as the result of inflammation, of hyperplasia, or of infiltration by blood cells or new growth. An important series of changes, again generally associated with enlargement, is that which signifies retrogressive processes in the nodes, examples are fibrosis, caseation, the deposit of foreign substances, and abscess formation.

Lymph nodes in health are usually impalpable, and, unless the patient is unusually thin, nodes which can be definitely felt must be assumed to be pathological.

When investigating the lymphatic system of a patient in whom any enlarged nodes are found, the first inquiry is upon an anatomical basis in what group or groups is the enlargement present? The superficial nodes are examined systematically by careful inspection and palpation. Moderate enlargement of the cervical nodes may cause some fullness of the neck, the recognition of this feature may call attention to the presence of soft glands—as, for example, in acute leukaemia—which otherwise might escape detection. Stiffness of the neck, and perhaps torticollis, may be associated with enlarged cervical nodes, so also may a neuralgia accompanied by tenderness and hyperaesthesia of some part of the scalp or a headache which arises in the neck and spreads upwards over the vertex. In the axilla, care must be taken not to mistake fat for enlarged nodes. Sometimes superficial nodes in unusual places are to be seen or felt—for instance under the scalp, near the zygoma, and in the intercostal spaces. Of the deep groups, those within the abdomen when sufficiently enlarged may be recognized by palpation, or by signs of pressure upon neighbouring structures to which they give rise—as, for example, to jaundice with ascites when those in the transverse fissure of the liver are affected, and, be it remembered, multiple tumour formation within the abdomen is most often associated with lymphatic glands. It should also be borne in mind that an "odd" tumour within the abdomen—odd perhaps in regard to its characters or to the symptoms or lack of them, to which it gives rise—is not seldom of lymphatic origin. An examination of the blood in such cases must always be made, lest a laparotomy be performed unwittingly in a case of, say, chronic leukaemia.

When disease of the lymph nodes has led, as in the case of tuberculosis, to caseation or to calcification, such nodes may frequently be demonstrated by x rays, and so the cause of indefinite abdominal pains, perhaps associated with more or less pyrexia may be cleared up. Should caseous glands, as revealed by palpation and/or radiography, be situated mainly in the right iliac fossa, the portal of entry is most likely the appendix. Less often it is the Fallopian tube. In either case, when associated with symptoms, laparotomy is indicated for removal of the offending structure.

Lymph glands within the thorax cannot be detected by ordinary physical examination, save when they are very considerably enlarged and coalescent. When this is so, however, they may give rise to certain physical signs. Greatly enlarged lymph nodes in the anterior mediastinum may cause a visible tumour in the sternum, with percussion dullness upon veins. A similar state of things in the posterior mediastinum may yield impaired percussion resonance in

the spaces between the vertebral border of the scapula and the spine. Weak breath sounds, with or without bronchial breathing, may also occasionally be present. These signs, however, are uncommon, and are only to be expected when the glandular enlargement is considerable. When present, they are probably caused as much by collapse of lung, or by actual infiltration of the organ by the same tissue as is concerned in the glandular enlargement, as by the nodal swelling itself. In the earlier stages of glandular enlargement within the thorax recourse must be had to a ray examination, performed both in the antero-posterior and in the oblique positions, this investigation should always be undertaken in cases in which lymph nodes elsewhere are enlarged by a disease which is known to cause general lymphatic enlargement.

I.—Local enlargement results most often from local infection, the materials morbi being conveyed by the lymphatics. The area drained by the particular group enlarged must therefore be searched for the portal of entry. Local enlargement of nodes in the neck is very common especially in children, the reason no doubt being that foci of infection are so frequent in the tonsils, teeth, nasopharynx, and scalp. This is so whether the infection is pyogenic or tuberculous. In an adult, in the absence of an obvious inflammatory focus, the possibility of metastatic deposits must be considered, seeing that carcinoma of the tongue and of the oesophagus are frequent diseases. If a gland is felt in the left supraclavicular fossa and none higher in the neck, a metastatic deposit from a carcinoma of the stomach or a retroperitoneal sarcoma must be thought of. Glands in the cervical group of one side, again in the absence of gross local infection, are generally the first to be enlarged in Hodgkin's disease.

In a case of acute axillary gland enlargement it is likely that this results from infection of the hand, in which case there may be red streaks extending up the arm, due to lymphangitis. The local wound on the finger may be a seemingly trivial affair—a prick by a rose thorn or by a needle. The infection, which develops with great rapidity, is mostly due to *Streptococcus pyogenes*, and it is in this class of case that sensitized *S. pyogenes* vaccine, combined with concentrated scarlet fever antitoxin, is proving so useful. Infection with *Spirillum minus*, the causal organism of rat bite fever, may also result in an acute local enlargement and tenderness of lymph nodes—in such case there is a history of the patient having been bitten by a rat, a ferret, or a kitten, usually on the hand, three to four weeks previously. The bite heals probably without incident, but with the onset of symptoms the site of the wound becomes red and painful, and pyrexia of a relapsing character develops. In a pyrexial period the whole limb may be swollen, and though the lymph nodes draining the area are those mainly affected there may be some generalized lymphadenitis; the specific rash may be found in the skin. This infection usually yields quite quickly to full doses of neobicharsivan given intravenously, so much so that if a suspected case does not respond to two doses of 0.6 gram, given at an interval of five days, it is improbable that the illness is due to this cause.

II.—In generalized enlargement when the nodes are found to be enlarged in two or more groups, the materials morbi may be conveyed by the blood stream, in some infections this general enlargement has a definite diagnostic value—e.g., for example, in glandular fever, in rubella in the septicaemia at secondary stage of syphilis, and in bubonic plague. Another disease suggested by the discovery of general lymphatic enlargement in childhood and adolescence is acute lymphatic leukaemia, but here the nodal swellings are by no means the major part of the process and may be relatively inconspicuous in comparison with the severity of the general state. If the glandular enlargement has arisen insidiously, and if the patient's general state is not acute, the probable explanation lies in the direction of such diseases as lymphadenoma, tuberculous, leukaemia and sarcomatosis. The differentiation of these conditions depends upon the specific features of the glands and certain general signs presented by the patient, including a consideration of the blood picture.

The specific features of enlarged glands calling for special note are the number and distribution within the group

the size, whether the glands are discrete or confluent, their mobility, involvement of the skin and surrounding structures, consistency, and sensitiveness. It is important to remember that nodes which are adherent to one another, or to surrounding structures, are the seat of a disease process which has spread through the gland capsule—as in tuberculosis frequently, acute pyogenic infection occasionally, and malignant disease—or that the affected nodes have been treated by irradiation. In chronic cases more or less enlargement of glands in several groups suggests lymphadenoma, chronic leukaemia, or lymphosarcoma. Of these three diseases chronic leukaemia gives rise to the least difficulty in diagnosis because of its distinctive blood picture, whereas lymphadenoma is the most difficult, seeing that there are no enduring criteria on which to rely.

Of chronic leukaemia there are two main varieties—chronic myelocytic and chronic lymphatic leukaemia. It is the patient suffering from the latter condition who is likely to consult his doctor because of swelling in the neck or axilla due to glandular enlargement. It is a disease of adult life and has, as a rule, an insidious onset. It may occur in elderly persons, in whom it is prone to be quite latent over a long period. All the superficial groups are apt to be affected but often unequally, the mass in the neck, axilla, or groin perhaps causing considerable deformity. The individual nodes in a group are of much the same size, soft rather than hard, discrete yet bunched up together, showing no tendency to break down or to involve the skin, insensitive to palpation, and quite painless apart from any discomfort which may be caused by the size of the mass. Deep glands may also be involved, and the spleen is always enlarged; sometimes it is as large as in chronic myelocytic leukaemia. The disease is compatible with good general health for a number of years but sooner or later more acute symptoms are wont to arise, with pyrexia, loss of flesh, marked anaemia, stomatitis, tonsillitis, diarrhoea and haemorrhages, though the last-named symptom is less common here than in myelocytic or in acute lymphatic leukaemia. The diagnosis is established, or rejected, by examination of the blood. A typical count in a patient first presenting himself for examination is: Red-cells 3.5×10^6 per cmm, haemoglobin 65 per cent, colour index 0.9, white cells 200,000 per cmm, of which 96 per cent or 192,000, are lymphocytes. The Jechman stained blood film shows a monotonous blue expanse of lymphocytes mostly of the small variety like those of normal blood in marked contrast to the variegated beauty of the well stained myelocytic film. Glandular enlargement is not a marked feature of myelocytic leukaemia; the nodes in the superficial zones may be just palpable but are not greatly swollen.

In lymphosarcoma the tendency is for the glandular groups to be unequally transformed into large masses; the individual nodes varying in size, insensitive, soft rather than hard, of limited mobility, and for the whole mass to be fixed to the deeper structures. The liability to deep gland involvement is great especially of the mediastinum, so much so that the first signs are usually either those of pleural effusion which may be bilateral and recurrent, or of intrathoracic pressure—for example dysphagia, cough, fullness of veins, recurrent laryngeal palsy or sympathetic paralysis. The patient is usually a young adult, and more ill in the early stages than in the corresponding phase of chronic leukaemia or lymphadenoma. The disease is often pyrexial; the diagnosis is confirmed by biopsy. A case of this sort which I saw with Dr. Gilbertson at Hitchin in 1923 is apparently unique in that the patient a young woman aged 20, has seemingly made a complete recovery.

Her story was that for five months she had had pyrexia which was irregular but seldom rose above 100°F . The right pleural cavity had already been aspirated on four or five occasions; the quantity of fluid removed varying from half to three and a half pints; the fluid was not blood stained and did not clot. Recently the left upper extremity had become swollen and the face was a little puffy; signs of effusion in the left pleural sac appeared and the subcutaneous veins on the left side of the abdomen became prominent. Enlarged glands which were painless sensitive firm and fixed were found in the left supraclavicular fossa. The patient was transferred to hospital where a biopsy proved the disease to be endothelial sarcoma and radiography showed

a large mass in the mediastinum. During the four months she spent in hospital fluid was withdrawn from the right side of the chest eleven times, and from the left seven times. Dr Finzi treated her with x rays, the mediastinal mass and cervical glands disappeared and she remains in good health five years afterwards.

Concerning lymphadenoma much has been recently written, and I would call special attention to articles by Rolleston, MacNalty, Fraenkel, Bennet and Ewing. The term "lymphadenoma," as at present ordinarily employed, probably does not indicate a single specific disease, but a variety of diseases more or less resembling one another in important clinical and pathological features, just as we now speak of the enteric group, which includes a number of fevers closely resembling one another in important features, but each one due to a specific bacillus, though formerly all were included in the term "typhoid fever."

The differential diagnosis of "lymphadenoma" on clinical grounds is often quite impossible, especially from tuberculosis (including endothelial tubercle) and from lymphosarcoma. But if the initial site of glandular enlargement is on one side of the neck, or, rarely, in the groin, if the whole group is affected, but not equally, the largest glands being towards the centre of the mass, if the area involved seems as though stuffed with glands, which are generally of equally firm consistency, discrete, and tending to remain so for a long time, relatively painless and insensitive, and with no indication of involvement of the skin or of abscess formation, the diagnosis is probably lymphadenoma. In lymphadenoma the liability to inclusion of all the superficial groups is relatively great, although there is much diversity in the rate at which this happens, there is a marked tendency for orderly spread of the enlargement from neck to axilla, and from axilla to groin, or vice versa. In the early stages the general condition of the patient is good, but, coincident with the spread of the glandular enlargement, a secondary anaemia is prone to develop, the patient becomes easily tired, is liable to sweats, pruritus, pigmentation of the skin (apart from that which may result from treatment by arsenic or by irradiation), loss of flesh, and pyrexia, which is sometimes of a relapsing character. Evidence of involvement of the intrathoracic glands, and, less often, of the abdominal groups, may be forthcoming, sometimes it is these nodes which are enlarged in the first instance. Lymphadenomatous tissue is prone to infiltrate other organs and tissues of the body, more especially the spleen and the liver, and the presence of palpable enlargement of the spleen is a valuable additional point in favour of the diagnosis. Lymphadenomatous deposits in the spleen arise both in the Malpighian corpuscles and in the pulp, the presence of these white deposits has caused the spleen to be called "hard bake" or "German sausage" spleen, and the recognition of these changes is of the utmost importance in confirming the diagnosis at the necropsy. Similar foci of infiltration are sometimes to be found elsewhere—in the pleura, in the lung, in the marrow, in the skin, and, most important of all from the clinical point of view, in the vertebrae, here they may cause pressure either upon the spinal cord with the production of paraplegia, or, by constriction of the intervertebral foramina, lead to severe "root pains" referred to the area of distribution of the corresponding spinal nerve.

The foregoing is an outline of a disease first described by Hodgkin in 1832, there are certain other features which are sufficiently common in the group to merit attention. The frequency with which some infection has occurred recently in the territory drained by those glands which are first affected is often a striking point in the history. A story of sore throat is by no means uncommon, and Sir Thomas Horder has told me of a case in which the axillary glands became the seat of lymphadenoma shortly after a septic infection of the finger. The tonsil is frequently the site of focal sepsis, and is regarded by many authorities as one of the portals of entry of the rheumatic virus and of the tubercle bacillus. It may possibly be the portal of entry also in those cases of Hodgkin's disease in which the cervical nodes are the first to be enlarged, yet it is very rarely that the lymphoid tissue of the tonsil, the thymus, or the Peyer's patches is involved in the disease. Though the enlargement of the nodes is usually slow and painless,

it may, on occasion, be rapid and painful, I have seen a case in which a mammary abscess was mimicked, and, at another time, sudden painful enlargement of glands in the right lower quadrant of the abdomen might easily have cost the patient her appendix. Exceptionally, one group of nodes only may be affected, and it is my firm belief that visceral infiltration may occur in the absence of demonstrable enlargement of lymphatic glands.

Of great interest is the relapsing pyrexia sometimes seen in this disease. In a monograph on the subject recently published by the Ministry of Health (see *Journal*, May 12th, p. 819) A. S. MacNalty states that

Lymphadenoma with relapsing pyrexia may be classified into two main types

1 A form in which the external lymphatic glands exhibit enlargement with or without enlargement of internal lymphatic glands

2 A form in which the internal lymphatic glands are alone affected

During the pyrexial periods the affected glands may become more swollen, the liver and spleen also, if involved, may increase in size, subsiding somewhat during the apyrexial interval. To quote MacNalty again

'In a typical case following on a period of low pyrexia or of normal or of subnormal temperature there is a steady rise occupying two to four days to a maximum of 102° 103° 104°, or even 105° F. For about three days the temperature remains at a high level, and then there is a gradual fall by lysis which usually occupies about three days also. The temperature then becomes subnormal, at any rate for a few hours. During the pyrexial period as a rule, the patient feels exceedingly ill, he has aching pains in the back and limbs together with chills, profuse sweats and loss of appetite. His expression is one of distress and anxiety.

The duration of either the pyrexial or the apyrexial periods is not constant, and they do not seem to bear any relation to one another.

Help in diagnosis is sometimes obtainable from the pathologist. Unfortunately, there is no blood picture characteristic of the disease—all that can be said is that a blood count showing an anaemia of the secondary sort, with no gross alteration in the absolute and differential leucocyte count, is not incompatible with lymphadenoma. The intradermal tuberculin test is negative save in those cases, by no means rare, in which tuberculosis and lymphadenoma coexist. There is as yet no serological test to help us. Even after the histological examination of a suitable gland—that is, one in which the disease process is still active—removed during life the diagnosis may be largely a matter of individual opinion, there is the typical variety which shows the characteristic histological features described by Sir Frederick Andrewes, and which all will admit as Hodgkin's disease, but in other varieties, which do not conform to this, the histologist who makes the diagnosis may make a lucky shot or be merely bluffing.

So also with regard to etiology there are many guesses, many suspicions, much perplexity. Lymphadenoma is probably an infection, and a stronger case has been made out against the tubercle bacillus than against any other known microbe, the indictment being that under unknown conditions the tubercle bacillus is able to produce these changes in some tissues and organs especially in lymphoid tissue, which differ from those of true tuberculosis.

So the disease, at present, is a mystery. Even the nomenclature is not settled, it answers in various quarters to Hodgkin's disease, to lymphadenoma, to lymphogranuloma, or to lymphomatosis granulosa.

Clearly, then, lymphadenoma is a condition calling urgently for research. At St. Bartholomew's a special fund, the Rose Research Fund, has been received for the investigation of lymphadenoma, clinical and pathological workers are co-operating in a special endeavour to elucidate it further. A team is in being, and a certain amount of progress has been made. Material is as yet scanty, and the fund will not be available for an indefinite period. We therefore invite practitioners to help us to "plug out the heart of my mystery" by sending any patients with enlarged glands of doubtful or uncertain nature for investigation. Sir Thomas Horder and I will readily take them into the hospital, and, if required, we have the surgical collaboration of Professor Gask.

THE THERAPEUTIC VALUE OF NEPHROPEXY*

BY

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TWENTY years ago this session I read a paper before this society entitled "The indications for nephropexy," a paper which was subsequently published in the *British Medical Journal*. At that time the subject was a very live one in Birmingham, the meeting was largely attended, and very strong views were expressed both for and against the operation. The question cannot even now be regarded as settled, and the object of this paper is to present as fairly as possible the results of my personal experience of nephropexy and its surgical treatment, in the hope that it may assist in arriving at a true solution.

Time does not allow of my dealing with many points of great interest and importance in connexion with the causes, pathology, and symptoms of nephropexy, nor can I enter into the methods I have employed in the selection of cases likely to benefit by operation. I intend to consider results only, and from them endeavour to show what therapeutic value has attached to nephropexy.

The results of nephropexy have to be considered from two aspects: (1) the surgical success of the operation in permanently replacing the kidneys in their normal position without unsatisfactory sequelae, such as pain in the loin or back, hernia of the wound, and persistent sinus, and (2) its therapeutic value in curing or ameliorating the symptoms for which it is performed.

SURGICAL RESULTS

At first these were very unsatisfactory. In a large percentage of cases the operation failed to cure the abnormal mobility of the kidneys, and they were found loose again almost as soon as active life was resumed. Many operations fixed the kidney to the muscles of the back and at too low a level, with the result that pain in the back was common and sometimes hydronephrosis developed. The use of silk and other non-absorbable suture materials was followed by persistent sinuses, and extensive damage to the muscles of the loin led to a feeling of weakness and hernia.

A further and very common cause of failure is the incomplete character of the operation. One kidney only is replaced, while the other kidney, which may also be mobile, and a possibly diseased appendix are left untreated. Satisfactory therapeutic results cannot be expected unless the operation, as such, is successful. Only when the surgeon is satisfied that both kidneys are in a normal position, and that possible associated or secondary abdominal lesions have been excluded or treated, can success be claimed.

The operation which I have performed upon upwards of 1,500 patients has been carried out in this spirit. My object has been to replace both kidneys, if both are loose, and to make sure that no intra-abdominal lesion is left undetected and untreated.

The surgical results have been very satisfactory. In no single instance have I found a kidney loose again, although on a number of occasions I have reopened the loin, thinking that it had become so. The usual cause of error is a Reid's lobe of the liver, and on the left side a prolapsed spleen, conditions which may simulate a movable kidney very closely. In my earlier cases before I opened the peritoneum as a routine, an enlarged gall-bladder on several occasions was mistaken for a kidney which was thought to have broken loose after replacement. In no case has there been a persistent sinus, and no second operation on this account has been needed. In some twenty cases I have had to excise a length of the last dorsal nerve subsequently on account of pain caused by its implication in scar tissue and a few cases have been operated upon for hernia of the scar. Very occasionally, where at the time of operation a moderate hydronephrosis existed this has increased and necessitated excision of the kidney. My experience has been that where the pelvis of

the kidney is sufficiently dilated to hold more than about two ounces of urine replacement fails to prevent its destruction by hydronephrosis, while if the pelvis is dilated to a less extent the operation succeeds in doing so.

The results in my large series of cases extending over twenty-five years have been such as to justify the claim that movable kidneys can be treated successfully by operation, and that the operation is safe and comparatively easy. It is essentially a plastic operation, and if therapeutic results justify it there are no surgical reasons why it should not be done.

THERAPEUTIC RESULTS

Very widely differing views are held as to the importance of movable kidney as a cause of chronic ill health, and of the value of nephropexy as a therapeutic measure. In the early years of the present century extravagant claims were made that nephropexy was responsible for a vast amount of functional disturbance of mind and body, and it was asserted that the kidneys should be fixed in such cases whenever any undue mobility was detected. The results of this were unfortunate, as they always are whenever the usual care in selection of cases is abandoned and a new treatment is applied indiscriminately. The claims that Koch's tuberculin is a cure for phthisis, that hunger pain in association with hyperchlorhydria indicates duodenal ulcer and calls for gastro-enterostomy, that the teeth are responsible for most cases of rheumatism and should be sacrificed wholesale, and that movable kidneys are the cause of much functional nerve disturbance and should be treated whenever found in association with it, have all led to disappointment when extensively acted upon. Medicine is much less simple than this, and a claim that a panacea has been discovered for any common disease or clinical syndrome generally brings disappointment when blindly accepted.

The wide and indiscriminate operating for movable kidney was attended by unsatisfactory results and caused the pendulum to swing in the opposite direction, with the result that it is often asserted that nephropexy is rarely of importance and still more rarely calls for treatment. The truth lies somewhere between these two extremes. Unquestionably, anyone who has carefully studied the problem, and has brought to bear upon it the same care and judgement in the selection of cases suitable for operation, has paid the same attention to technique, and has followed up the operation by necessary after-treatment as for other surgical conditions, cannot fail to be convinced that nephropexy may be a cause of lowered efficiency and chronic ill health, and that treatment of it by nephropexy may be called for.

Great care must be exercised in deciding the suitability or not of a particular case for nephropexy. The necessity for a satisfactory technique and a complete operation has been emphasized. It is, also, all-important to remember that time and suitable after-treatment are needed to complete the cure. So many operations are followed by immediate and dramatic benefit that disappointment is often caused to surgeon and patient when an interval of six months or a year must elapse between the operation and its beneficial result. No patient can emerge from a state of severe and long-standing neurasthenia in a short time, even though the cause has been removed. This is the reason why so many patients operated on for movable kidney recover slowly from the symptoms from which they were suffering at the time of operation. I never assess results until a full year has elapsed from the operation, and even this length of time is often insufficient, and only after two or three years is full health obtained. Two facts stand out in connexion with my results: (1) that the failures have never improved to any extent after operation, and (2) whatever benefit is obtained is retained, relapse is almost unknown. Also the investigation into results is carried the better they are. If only it became sufficiently realized that in a large proportion of cases the effect of nephropexy is to convert an incurable condition into a curable one, and not of itself to establish a cure, the percentage of failures would diminish and the true value of the operation be better understood.

I would most emphatically state that no moral value whatever attaches to the operation. In my opinion the

*Valedictory presidential address to the Midland Medical Society.

moral effect on the patient is wholly bad, and there is not one redeeming feature. From the moment operation is mentioned until it has been completely recovered from and forgotten the effect is to put a further strain upon a mind and body already over-stimulated and exhausted. The whole question of operation is fraught with greater responsibility than usual, and unless it is felt that the benefit likely to result justifies it, nephropexy should not be done. It is advisable to draw particular attention to this point because I have often heard it asserted that the benefit that follows nephropexy is due to the moral effect of the operation upon the patient, and I have frequently been requested to perform it for that purpose. On one occasion I saw a man who had had an incision made into the loin to impress him that his kidney, which he had been told was loose, had been put right. Such procedures are entirely wrong. It is questionable whether the mental and physical injury caused by an operation ever confers any benefit except in so far as it remedies a physical trouble, and the harmful effects of operations, as such, are considerably greater in neurasthenic patients. It is therefore reasonable to assume that any benefit following nephropexy is due, not to the fact that an operation was done, but to the replacement of the kidneys that it effected.

RESULTS OF NEPHROPEXY IN MY OWN SERIES OF CASES

My personal experience of nephropexy extends, as I have said, over twenty-five years, and during that time I have operated upon more than 1,500 patients and replaced more than 2,000 kidneys, the double operation having been performed in the majority of cases. All my patients have been referred to me by practitioners, and it is their encouragement and support which has made me feel that the operation has justified itself. After all, in my opinion, it is the patient's own doctor rather than the surgeon who ultimately determines the value of any form of treatment. He has an intimate knowledge of his patient that no specialist can acquire, it is a knowledge based upon prolonged observation of the patient himself and his reactions to and upon those who come in contact with him. Where nervous and functional disturbance are predominant features improvement is often more evident to the family doctor and the patient's relatives and friends than to the patient himself, and the doctor's verdict is perhaps the best test of value that can be obtained. On this verdict, rather than upon such tests as I have been able personally to apply, I have been content to rely. No more graphic description of the effect of the operation could be given than that volunteered by the husband of one of my patients—that "before the operation my home was a hell, and now it is a heaven."

It is very difficult to obtain accurate statistical evidence of the therapeutic benefit conferred by nephropexy. Some years ago I made two different investigations. For the purpose of the first I wrote to 100 consecutive patients in my series, one full year having elapsed in every case between the operation and the inquiry. I was successful in obtaining information about 87 of these patients, and from that I ascertained that about 60 per cent were well in the sense that they were leading ordinary lives and did not need medical attendance, 20 per cent were considerably better, 10 per cent were better, and 10 per cent were no better.

The second inquiry took the form of a questionnaire addressed to eleven practitioners, 70 of whose patients I had operated upon. The questions submitted to them were: In the case of (1) Has the operation been a surgical success—that is, has it efficiently and permanently anchored the kidneys, and has it been free from unpleasant sequelae? (2) Has the general resulting benefit justified the operation?

Great care was exercised by the doctors to make the answers reliable, and each patient was either written to or personally interviewed. The actual replies were printed and circulated among the members at a meeting of the Surgical Section of the Royal Society of Medicine on January 13th, 1914. They indicated in all the 70 cases that the operation was a surgical success in one case only, that of a lady who complained of pain in her right side—was there any mention of after-trouble. Of the general

benefit that resulted, only 5 were reported as failures, while many were described as having been changed from chronic invalids into absolutely normal people.

These satisfactory results do not appear to have been obtained by the majority of other surgeons, and the tendency is for fewer and fewer cases of nephropexy to be operated upon. This led me to make a still further and more drastic investigation into my results. All the patients upon whom I had operated during the five years 1922-26 were written to and invited to answer the following questions:

1. Have the operation wounds troubled you? If so, in what way?
2. Have the symptoms for which the operation was performed been cured?
3. What is your present state of health?

Of the 213 patients written to replies were received from 163. It soon became evident from the replies that the answers to the first two questions were of little value, and that the answers to the third supplied the true test.

All these patients suffered from symptoms sufficiently severe to call for medical attendance, and had proved incurable by ordinary methods of treatment. The symptoms complained of were very variable, but in every case the renal mobility was held to be the principal cause. In every case the operation was a complete one—that is, both kidneys were fixed when both were loose, and an abdominal exploration from the loin was carried out. In nearly all the appendix was removed.

In order to obtain an independent and absolutely unbiased report the replies were submitted without comment to Professor Kauffmann, whose wide experience of both private and hospital patients peculiarly fits him to estimate their meaning. I am very much indebted to Professor Kauffmann for the great interest he has taken in this investigation, and I am convinced that his report will receive the consideration it deserves. It estimates, as impartially as is possible, the true results of the operative treatment of nephropexy.

Professor Kauffmann's Report

"The replies from 163 patients have been carefully considered with a view to my forming a conclusion as to the results of the operation for nephropexy. I have, of course, only the patients' replies from which to judge, and a certain difficulty is introduced by the second question, inasmuch as many of them scarcely know or remember the groups of symptoms for which they sought advice. Guided by the kind of reply, and to some extent by the tone of the reply, I have divided these 163 cases into five groups—namely:

- | | |
|---|----|
| 1. Complete success, where the statement warrants the name | 23 |
| 2. Success | 42 |
| 3. Partial success, where the benefit outweighs any remaining troubles | 41 |
| 4. Partial failure, where the remaining troubles outweigh such benefit as the patient has derived | 22 |
| 5. Failure | 25 |

"I have not felt able to make allowances for such things as gravidity or possibly some new trouble coming on, as it must do in some proportion of the cases in an interval of several years. It is more than likely that some cases which would have been in one of the successful groups have been spoilt by new disease thus intervening.

It seems, therefore, that, taking complete success and success together, these groups account for 43.6 per cent partial success—accounts for 25 per cent, failure for 17.7 per cent, and partial failure for 13.5 per cent. These figures are, I conclude, very satisfactory.

By far the greater number which constitute groups 1 and 2 together have had appendicectomy as well as kidney fixation, generally double. But success is also found in those who only had a kidney fixation, single or double, done.

I have considered the question whether the addition of appendicectomy, or other operation, has affected the results, but can get no satisfactory answer, since, in the successful group, nephropexies without other operation only formed 12.6 per cent, and in the partial failure and failure groups 13.7 per cent."

Commenting upon Professor Kauffmann's report, I would draw attention to the severity of the test applied. Results are mainly determined by the answer to the question "What is your present state of health?" Only those cases in which the answer indicates that the general health is satisfactory in every way have been placed in the

successful group. Patients who state that although relieved of the symptoms for which the operation was done they do not enjoy normal health owing to other troubles are labelled partial successes or failures according to whether their general health and working efficiency appear to have been improved or not. The disappearance of one set of symptoms and the substitution of another set in their place with the result that comfort and working efficiency have not been materially improved is regarded as evidence of failure. Further, as Dr Kauffmann points out, no allowance has been made for the entirely new troubles which may reasonably be expected to develop in a certain number of cases over an interval of several years. The report therefore, may be taken as indicating in a conservative way the proportionate effect of the operation in raising to a normal standard of health patients who were in a state of chronic invalidism.

The following may be said to summarize the results of Professor Kauffmann's investigation of 163 cases, operated upon at intervals of from six and a half to one and a half years prior to the inquiry (13 of these patients were men and 150 were women)

Successful	71=43.6 per cent
Partially successful	41=25.0
Failures	51=31.4

A BEDSTEAD FOR USE IN TREATING CARDIAC PATIENTS SUFFERING FROM CONGESTIVE FAILURE

BY

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For many years the need of a bedstead specially constructed to suit cardiac patients suffering from congestive failure has been felt. Such patients are usually orthopaedic and require propping up with bed-rests or a pile of pillows,

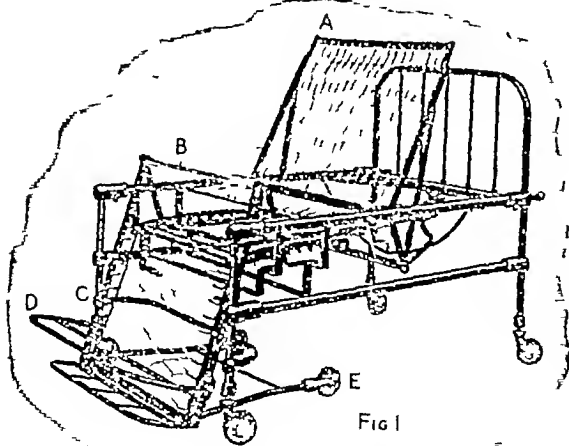


FIG 1

from these they are apt to slip down at night, an accident usually occasioning distress and loss of sleep and sometimes avoided by the rather clumsy device of tying a bolster across the bed below the buttocks. Some of the patients are oedematous, and drainage into the legs from the trunk, or from the legs by tubes or incisions, is required sooner or later. Drainage necessitates the sitting posture, and the patient must be moved into and nursed in a chair. Many of the patients are restless unless frequent changes of posture are allowed them, many prefer to sleep in a chair rather than in a bed at night.

To nurse patients suffering from congestive failure often means very heavy work, and unless special devices are used, these patients are apt to exert themselves much more than is good for them. It is sound to insist that patients of the class considered should make no muscular effort that

Working on behalf of the Medical Research Council

These results, taking into consideration the kind of patients operated upon, though by no means justifying a claim that nephropexy is a panacea for neurasthenia and functional disturbance when complicated by renal mobility, are satisfactory. The patients had all undergone prolonged treatment, and were referred to me because of their failure to benefit by it. They were the neurotic sloth and jetsam who are the despair of their friends and medical attendants. Nearly all were in early adult life with many years of activity in front of them. Most of them were under the necessity of earning a livelihood or managing a household, and the change from chronic invalidism and inefficiency to normal health and efficiency that has been effected in nearly half of them would seem to justify the performance of an operation which is almost free from risk and which is essentially plastic in character.

Looking back over the long series of cases of nephropexy that have come under my observation, in only about one-third of which I have operated I cannot help feeling that the results would have been better had the condition been effectively treated at an earlier stage. In no branch of surgery can the best results be expected in the later stages of disease and in the medical failures, and nephropexy is no exception to the general rule.

can reasonably be avoided, they should be supported constantly, and should never support themselves. They should never move themselves, or put forward effort in assisting a nurse to move them. Experience shows that under such a regime improvement is more likely or is more rapid than under a less rigid system of treatment.

Very many of the difficulties of nursing otherwise encountered are overcome by using a bedstead that has been built for me by Messrs Whitfield's Bedsteads, Ltd., of 10, Dane Street, High Holborn W.C.1. This bedstead can be used completely flat or can be converted within a minute or two into a chair, as shown in the illustration. The back-rest *a* is raised into the position shown, or to any other desired angle, by a detachable crank handle moving a quick-thread screw at the head of the bed. A second

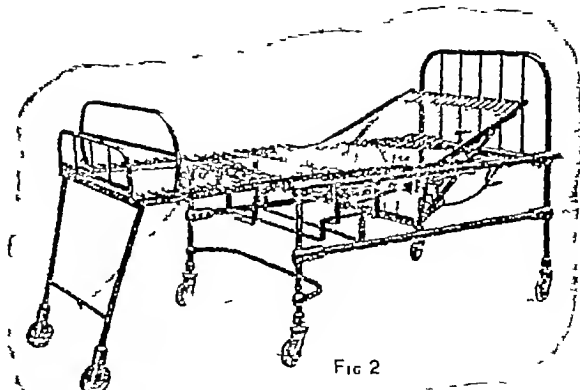


FIG 2

and independent screw, also at the head of the bed, raises the thigh rest *b* to any desired position, this second rest prevents the patient from slipping downwards. Both these movements are executed quite smoothly, and the corresponding rests are at once stable at any angle to which they have been raised. The third movement, the lowering of the leg-rest *c* is accomplished by hand, the leg-rest being adjusted at any desired angle on two strongly toothed rials, which drop upon a stiff steel bar. The foot-rest *d* is adjustable on the leg rest to suit legs of different lengths.

The bed has four legs on the main rigid frame, and two additional legs *c*, carried on the end of the leg rest and falling under the bed when the leg-rest is dropped. The additional legs were not included in the original design, but have since been added to support, not the patient, but the occasional visitor or student who throws his weight on to the end of the bed. The mattress is made in three

pieces to fit the three parts of the bed the three pieces being hinged together. The bed has been in use in my wards for two years, and is much favoured by both patients and nurses. Patients can be moved frequently and without effort, they are more comfortable and are more completely rested than formerly.

The original model of this bedstead was built with funds generously given for the purpose by Frederick Faust, Esq.

THE ACUTE PELVIS *

BY

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THE object of the present short communication is to bring forward some points of interest in the diagnosis and treatment of cases presenting symptoms suggesting acute pelvic conditions. The observations are based on cases in my own experience. They may be conveniently grouped into those presenting symptoms accompanied by fever and those which present symptoms accompanied by shock. The symptoms may be associated with bilateral signs in the pelvis or by signs localized to one or other side.

Symptoms suggesting Acute Pelvic Lesions accompanied by Fever

When a bilateral tumour or marked tenderness, situated at both sides of the uterus, is discovered in a woman of the child-bearing age the diagnosis of a pyosalpinx or acute salpingitis is suggested. The interest of the condition lies more in the matter of treatment than diagnosis, and centres round the time of election for operation. Comparison between the pathology of acute salpingitis and that of puerperal peritonitis illustrates the value of delaying operation until the inflammatory process has become well established.

In the very fatal peritonitis following labour or miscarriage the abdomen is found at laparotomy more or less filled with purulent discharge, and pus is seen issuing freely from the open mouths of the abdominal funiculi. This suggests that salpingitis and pyosalpinx formation is a protective mechanism, and that it is in part the reaction in the Fallopian tube which prevents every ascending infection from becoming generalized. If this is granted it affords the indication for surgical intervention during the acute stage of salpingitis—that is, when there is evidence that the limiting process has failed and the disease is spreading, or when there is uncertainty as to the diagnosis. It may be true that surgery in the early stages will accelerate the convalescence, but the recuperative powers of the Fallopian tube are too well known further to remark upon, and the value of conservatism is nowhere better seen in gynaecology than in the treatment of disease of this structure.

Bilateral tenderness in the pelvis, apart from definite tumour formation, is included because of the occurrence of acute pneumococcal peritonitis, which may be found in adults in the primary form and may simulate an attack of salpingitis. It is mentioned because the symptoms in the earliest stages may be referred to the pelvis rather than to the general abdominal cavity. When the signs are unilateral the difficulties of diagnosis are greater. If the symptoms are accompanied by signs on the right side of the pelvis, the main point in the differential diagnosis will be to distinguish between appendicitis and salpingitis, in view of the divergence in the treatment of the two conditions. Either of them may present such a variable picture that a diagnosis based upon the inflammatory phenomena as they affect these two neighbouring viscera is bound to fail quite frequently.

In contradistinction to appendicitis, salpingitis is the last stage in a morbid process, and if attention is focused on the whole of the genital tract, the evidence of this will generally be found by the presence of signs of inflammation in the lower part of the tract.

Although less common more interest attaches to cases with left-sided physical signs, owing to the fact that diverticulitis, with peridiverticulitis, frequently gives rise to signs and symptoms suggesting a lesion of the left tube or ovary. While the condition may occur during the child-bearing period, it is more usually a post-climacteric disease.

Inflammation is the commonest pathological change around the sac, and the accompanying inflammatory oedema and hyperplastic inflammation in the bowel wall lead to the formation of a definite tumour, while the formation of adhesions to the pelvic viscera adds to the difficulty in differential diagnosis. The development of a pyosalpinx after the climacteric, on the other hand, is very unusual, as the records of the gynaecological department of Charing Cross Hospital show.

The x-ray appearances after a barium enema are of considerable diagnostic aid, and further serve to distinguish the condition from malignant disease of the bowel, with acute symptoms superadded.

The treatment of these cases of diverticulitis is of very considerable interest, but space does not allow of its inclusion.

Symptoms suggesting Acute Pelvic Lesions accompanied by Shock

In women of the child-bearing age the complications of ectopic pregnancy come first to mind, and seldom present difficulties in diagnosis or management. Some new diagnostic tests have been described within the last few years, but they do not materially aid in diagnosis.

One of these is called the phloridzin test. A positive reaction depends upon the production of glycosuria following the injection of phloridzin, and indicates only the condition of pregnancy. I have no personal experience of it, and two factors materially reduce its value in acute conditions. First, considerable time and the facilities of a laboratory are necessary for its performance. Secondly, after rupture and the formation of a haematocolo the test becomes negative, according to some observers, even if previously positive.

Another is the "shoulder pain" test. Rubin has called attention to the occurrence of the same sign when gas enters the peritoneal cavity in the course of a tubal insufflation. It depends presumably on the presence of some irritating foreign substance, such as blood, in the upper part of the peritoneal cavity. It is an unreliable sign. While it may be found with ruptured ectopic pregnancy, yet the abdominal cavity may contain much blood and the sign be absent.

Cullen has described a sign which is known by his name, and, if found, is considered to be pathognomonic of a ruptured ectopic pregnancy. It consists of a bluish discoloration of the skin around the umbilicus, and has been noted from time to time by different observers. It is a sign which is only occasionally present, and I have not myself ever observed it.

The subject of the treatment of the gravid tube, whether by salpingectomy or by the more conservative salpingostomy, must still be considered an open question. It will presumably remain so until the etiology of ectopic gestation is known. In this connexion the increasing number of cases of repeated ectopic pregnancy reported in the literature is interesting.

The rare condition of haemorrhage into the ovarian tissue and the formation of a pelvic haematocoele, which may accompany delay in ovulation, is only of academic interest. The etiology is unknown, and the differential diagnosis from ectopic pregnancy cannot be made prior to operation so far as I am aware.

A difficult differential diagnosis is presented when symptoms occur suggesting torsion of the pedicle of an ovarian cyst. It is well known that patients with an ovarian cyst may develop acute symptoms due to some other intra-abdominal or pelvic condition, and I recall three cases which well illustrate the point. In one of these the acute symptoms were due to acute haemorrhagic pancreatitis, in another they were due to volvulus of a portion of small intestine during early pregnancy, and in the third to acute appendicitis.

My experience leads me to believe that the importance of the urgent symptoms attending torsion of the pedicle

of a cyst is exaggerated. These symptoms are usually described as the onset of sudden abdominal pain, together with vomiting or other alimentary disturbances. On examination some degree of shock is found and muscular rigidity of the abdominal wall.

Analysis of the cases of actual or supposed torsion of the pedicle of a cyst which I have seen leads to the conclusion that the more urgent the symptoms of internal strangulation the less probably is the case one of a strangulated cyst but more probably of some other intra-abdominal catastrophe, accompanied by the presence of an ovarian cyst.

The explanation offered that when at laparotomy a cyst is found which had undergone torsion the occurrence of the twist was gradual rather than sudden in onset is, in the absence of any clinical signs suggesting it, equally difficult of proof or disproof. It must remain an open

question until more is known concerning the mechanism of the torsion, which is certainly very obscure.

In conclusion, I wish to draw attention to two points only, which have impressed themselves upon me, and they are these: (1) the need for a thorough examination of the whole abdomen and pelvis in the matter of diagnosis, and (2) in treatment such an operative exposure as will allow of a thorough exploration of all the organs that may be diseased. In hospital out-patients we quite frequently see women with a small incision in the right iliac fossa through which an appendicectomy has been performed, still presenting a pelvic syndrome, and requiring a further operation on their pelvic organs. These "button-hole" incisions do not offer suitable exposure for the surgery of the female pelvic organs, and their use may be discontinued with advantage.

A CASE OF COMPLETE GASTRECTOMY FOR CARCINOMA OF THE STOMACH

BY

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(With Special Plate)

The patient whose case is here recorded is a labourer, aged 44, who was under the care of Dr. Broughton of Batley, he was admitted to the Batley Hospital on May 24th, 1927. His complaint was painful indigestion, with loss of weight and appetite. He had been in good health up to two and a half years before, when the indigestion started. The pain came on within half an hour of taking ordinary food, was felt in the epigastrium, and gradually passed off before the next meal. At first the pain was relieved by lying down, and sometimes by pressure over the pit of the stomach. The attacks lasted some three or four weeks, and were followed by periods of several weeks of almost complete freedom from symptoms. During the attacks flatulence was a very troublesome feature, and in attempts to relieve himself of this by belching small risings of food occurred into his mouth, apart from this there was never any vomiting of food or blood, and no melaena had been noticed. The bowels were rather constipated. The last attack began in December, 1926, and was continuous up to the time of operation, it was during this period that his appetite failed and the main loss of weight occurred. He had lost about 1½ st during this time.

On admission to hospital the patient was in fairly good condition but anemic and rather flabby. His weight was 8 st. Abdominal examination showed the abdomen to be thin and rather hollowed, and though there was nothing definitely abnormal on palpation, there was a suspicion of an ill-defined lump in the epigastrium. A diagnosis of carcinoma of the stomach was made, and it was thought it might have become implanted on a chronic gastric ulcer. Operation was advised and was performed on May 26th, 1927. The usual right paramedian incision was made, and a growth was found occupying the greater part of the stomach, which was small, thick, and nodular. There were thin adhesions to the pancreas, and several glands were noted along the lesser curvature, especially close to the oesophagus at the origin of the gastric artery. No secondary deposits could be felt in the liver or pelvis. It was quite obvious that nothing could be done to rid this man of his disease other than a complete gastrectomy, and I decided that it was worth while giving him his chance.

The pyloric artery was ligatured and two Parr's clamps applied to the first part of the duodenum. The duodenum was divided between the clamps and the two cut ends cauterized by heat, and the distal one infolded over the clamp, thus was slipped out, the suture tightened, and then infolded by a second line of stitching. The gastro-colic omentum was divided along the whole length of the

stomach about 2 in. from it, and the lesser curvature was similarly treated, the gastric artery being ligatured at its origin from the coeliac axis, thus enabled me to remove the last palpable gland. Fortunately there were very few of the pancreatic glands involved. The whole stomach could now be lifted up, giving a very clear view of the lower end of the oesophagus. A clamp was applied across the cardiac orifice of the stomach, and by using this as a retractor enough oesophagus could be drawn down to enable me to suture it with reasonable ease to the jejunum. The jejunum was drawn up in front of the transverse colon so that there was no loop left between the part selected for suture and the duodeno-jejunal flexure. The stitching was carried out in the same way as for gastro-enterostomy without clamps, the stomach being cut away little by little as the sutures were inserted. By using the stomach as a retractor until the suturing was practically finished no great difficulty was encountered in uniting the jejunum to the oesophagus.

The patient bore the operation well, and on returning to bed was put on to continuous rectal saline at once. He began sipping small quantities of water at the end of twenty-four hours, and the quantities were gradually increased with the addition of milk and tea, until at the end of ten days he was taking as much as he asked for. Solid food was begun in a fortnight, and steadily increased. He was up within a month, and eating ordinary food in small quantities and often. Although he had lost all desire for food before operation he was now thoroughly enjoying his meals, but had to take them slowly, otherwise he felt a sensation of distension, and almost as soon as he had finished one meal he was feeling hungry again. This is rather a curious occurrence, for we are led to believe that the sensation of hunger is due to gastric contractions.

I had this man treated subsequently with deep x rays, but I am unable to say whether it did him any good or not. He had a kind of hemicolon diarrhoea for some months after operation, which gradually disappeared. The man is now (October, 1928) back at work, eating well, enjoying his food, feeling well, and apart from a little anaemia has a normal healthy appearance.

The pathological report on the excised stomach was kindly made for me by Dr. M. J. Stewart, and is as follows:

"The specimen received consists of the entire stomach with about 1 in. of the duodenum. The pyloric three-fifths of the organ is largely occupied by a deeply cratered, ulcerated carcinoma, measuring 4½ by 4 in. in its two chief diameters. The centre of the lesion is on the posterior wall 2½ in. from the pylorus and exactly midway between the lesser and greater curvatures. The growth has extended across both curvatures so as to encircle the organ only an inch or so on the middle of the anterior wall escaping. The lower margin of the tumour extends to within 3/4 in. of the pylorus. The appearances suggest a primary carcinoma with secondary ulceration. The margins are much thickened, undermined and overhanging, and the contour while generally circular is very irregular. The floor everywhere obviously composed of growth, is irregularly nodular and ulcerated. Externally there are extensive dense adhesions in the lesser sac between the stomach in the region of the growth and the pancreas and retroperitoneal adipose tissue. Pale masses of growth can be seen beneath the serosa but there is no

evidence of actual peritoneal invasion. Several glands along the lesser curvature are slightly enlarged.

Histologically the tumour is a carcinoma of great cellularity. In general the structure is epithelioid-celled ('encephaloid cancer'), but there is occasional acinar formation, and in places there is an abundant fibrous stroma. The tumour tissue has completely penetrated the muscular coat over large areas but nowhere is there a cancer-cell free sclerotic mass indicative of pre-existing simple ulceration. Many nerve fibres are embedded in the surface layers of the growth subserosally, where there are also some touch-corpuscles in close relation to it. Three lymph glands examined microscopically show extensive invasion.

On November 1st, 1927, I admitted this man to the Leeds General Infirmary for investigation, as I was curious to find out, if I could, how he had compensated for the complete absence of his stomach. At this time he had gained about 1 st in weight, was feeling fit, and eating ordinary food, though slowly and in small quantities. If he ate hurriedly or large amounts he felt distended and uncomfortable, however, he soon became hungry again. He had a craving for sugar and salt.



FIG. 1.—Showing the extent of the growth after laying open the stomach.

The following results were obtained from various investigations, and I wish to express my thanks to Dr. Scorgill, radiologist at the Leeds General Infirmary, and to Dr. Fownes and Dr. Hartnell, pathologists at the same institution, for their valuable help in this respect.

X-ray Report November 3rd, 1927

- 1 A solid cachet was given. This passed straight into the jejunum, no delay at the anastomosis.
- 2 Fluid meal. This floods the upper small intestine at once, none is seen to pass backwards into the duodenum.
- 3 Four hours after giving the barium meal all the barium is in the lower ileum.
- 4 Six hours after giving the barium meal caecum filled some still in the lower ileum (normal findings).

Blood Examination November 2nd 1927

The blood count showed red cells 4,500,000 per c.mm., leucocytes 2,900 per c.mm., haemoglobin 76 per cent., colour index 0.84. Film. The red cells show slight variation in size and shape but they stain well and evenly. The leucocytes show nothing for special comment beyond leucopenia. Differential count. Eosinophil polymorphs 1 per cent., neutrophils 59.5 per cent., large mononuclears 5 per cent., lymphocytes 34.5 per cent. Blood sugar 0.11 per cent. (normal 0.08 to 0.12 per cent.) Blood cholesterol 15 per cent. Urea nitrogen 19.6 mg. per 100 c.cm. blood (normal 10 to 20 mg.) CO₂ combining power 57.5 c.cm. of CO₂ bound as bicarbonate by 100 c.cm. of plasma (normal 60 to 70 c.cm.)

The saliva on November 2nd 1927, showed alkalinity equivalent to 0.03 per cent. sodium carbonate (normal 0.08 to 0.1 per cent.).

On November 8th an eighteen hour culture of faeces showed growth of *B. coli*, no pathogenic organisms were isolated bile salts present. Total solid matter 40.7 per cent. of dried faeces, containing fatty acids as soaps 17.3 per cent., free fatty acids 16.5 per cent., neutral fats 7.1 per cent. of dry faeces. The faeces contained 17.07 per cent. of dry matter. Fat-splitting appears normal but there is some deficiency in absorption of the split fat. Microscopic examination showed some undigested muscle fibres present, apparently in greater number than usual. Undigested vegetable material was also present. The urine on the same date was normal.

An attempt was made to recover some of the contents of the jejunum after giving a test meal on the lines of the usual gastric test meal, it was found impossible to get sufficient for examination, I assume because of the rapid passage onward of the food.

I think this case is worthy of publication as the number of cases of successful complete gastrectomy for carcinoma of the stomach is very small. It is remarkable how efficient has been the compensation for total absence of the stomach. Six months after operation, apart from slight anaemia and leucopenia and a little deficiency in fat-splitting, there seems to be no noticeable alteration in the functions of his various systems so far as these can be determined. Possibly the fact that he consumed large quantities of dilute hydrochloric acid at and between meals is partly responsible. It was found impossible to get him to continue this after he had returned to work.

It is now about eighteen months since the operation, and he is apparently quite fit and able to do reasonably hard work, and enjoys his food. He is free from anything which would suggest recurrence, and shows no sign of anaemia, though a blood examination has not been made since last November.

CYSTICERCOSIS OF THE BRAIN:

WITH REPORT OF A CASE

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(With Special Plate)

Cysticercus cellulosae is rarely met with in this country, and, so far as we can ascertain, the following case is the only one for many years that has come to necropsy in England.

Description of Case

History.—The patient enlisted in the army in June 1918 at the age of 18 and proceeded to India in 1919. In July 1921, he developed enteric fever, which was complicated by thrombosis of the right leg. In June 1922, the vision of his left eye became rapidly impaired (vision 6/60) and a report states "atrophy of the retina due to retinitis", but it is admitted in a note made in the following month (July) that the diagnosis at present is not definite. Later the eye condition appears to have been attributed to an embolus of the retinal artery, but a further report in October, 1923 states "left vitreous occupied by mass of vascularized fibrous tissue". Eventually the eye was enucleated at the Royal London Ophthalmic Hospital on July 26th, 1924. Dr. H. Coverdale from the records of this hospital, kindly informs us that the left eye showed chorioretinitis, old keratitis punctata posterior synechiae and cataract with no perception of light. The right eye was normal. Unfortunately the pathological notes are missing. In view of his subsequent history however, it is practically certain that the eye was affected by cysticercosis. In April 1923 his first epileptic fit occurred on the ship returning from India. The fits recurred from time to time at variable intervals, he would have as many as seven in twenty-four hours, but might be free for as long as six weeks, they were both diurnal and nocturnal.

Description of Fit.—A warning usually occurred with loss of power in either hand or in the right leg, unconsciousness followed and during the attack he frequently bit his tongue and passed urine. The fit was invariably followed by severe headache and occasionally by purpura of the right arm lasting up to half an hour. After a series of seven fits he once had complete loss of power in

E R FLINT COMPLETE GASTRECTOMY FOR CARCINOMA OF THE STOMACH

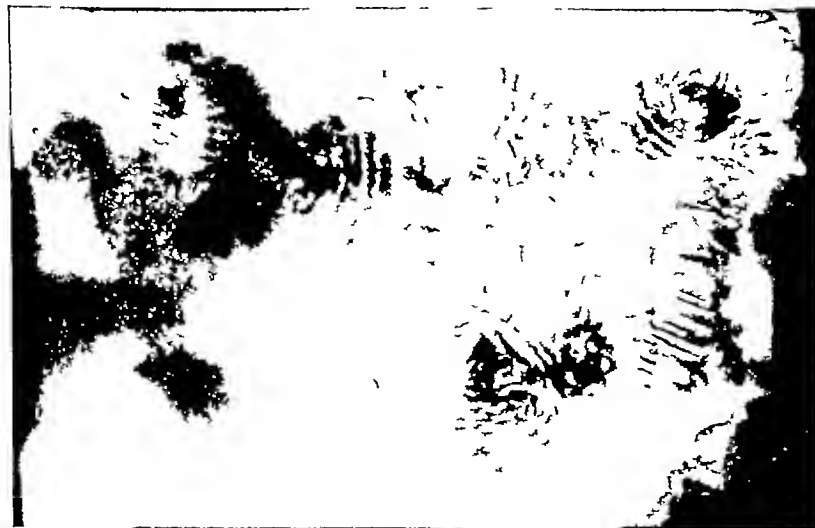


FIG. 1.—Showing the state of affairs one hour after taking a barium meal. This suggests that the upper intestine holds back the meal to compensate for the loss of the stomach.

H E SEILER PNEUMOCONIOSIS
(See page 989)



Radiogram of a case of pneumoconiosis, the result of the inhalation of asbestos dust, showing the mottling of a silicotic type in both lungs and some evidence of definite fibrosis especially on the right side.

(Illustrating the article by W Broughton Alcock, W E Stevenson, and C Worster Drought, printed at page 980)



FIG 1—Longitudinal section through right cerebral hemisphere showing cysticercus



FIG 2.—Section of pons through oyst showing adventitious membrane and invaginated scolex. ($\times 12$ diameters.)



FIG 3—Scolex of cysticercus showing suckers and hooks ($\times 55$ diameters.)



A Upper border of the hernia



B Upper edge of barium meal

the left arm and hand lasting three days with gradual recovery. Occasionally he would vomit within twenty-four hours of the fit. In November 1925 two definite attacks were witnessed by a resident physician in hospital. They were both Jacksonian in type affecting the right side of the face followed by a period of unconsciousness but no generalized convulsion. During the latter part of 1927 the fits became more frequent and his speech became affected.

Physical Signs (March 27th, 1928).—Cranial nerves. Right pupil sluggish to light, left eye absent. No nystagmus. Slight right-sided facial weakness. Speech of 'bubbar' type. No muscular weakness of limbs. Deep reflexes brisk but equal. Right plantar flexor left doubtful. No definite inco-ordination. Mentally he was very dull and able to give but little account of himself. During the next two weeks he complained continuously of headache vomited on one occasion became very lethargic and died suddenly on April 11th aged 28.

Pathological Description

The right half of the brain and a cyst attached to the dura mater were received for detailed examination.

On inspection of the cortex forty rounded white nodules in size from that of a lentil to that of a pea and lying both in sulci and in the middle of gyri are seen irregularly embedded in the cortex and in the greater number over the vertex of the hemisphere. On the mesial surface similar cysts are irregularly scattered but are less numerous than on the outer surface. There is no macroscopic evidence of pus or inflammatory reaction nor of softening in the brain substance surrounding the cysts and none of the cysts seen shows calcification. They are firm to the touch giving one an impression rather than a thought of tuberculo-sclerosis.

It may here be added that at necropsy cysts were visible on the dura of the vertex as soon as the skull cap was removed. The one sent with the brain is from among those found in the basal membranes. The left hemisphere was cut up examined and then thrown away. It is reported to have been similarly infected.

On section of the right cerebral hemisphere a few cysts are seen scattered about the cerebral substance and appear almost exclusively confined to the grey matter when present in white matter they are at the border of grey matter (Fig. 1). A few cysts occur in the mesial portion of the occipital and frontal lobes and in the basal ganglia there are relatively as many as in the cortex, they are present in both the lenticular nucleus and optic thalamus. In the pons on section a single cyst the size of a small pea is found lying nearer the ventral than the dorsal surface about two-thirds the distance from the superior limit of the pons to the medulla. None are seen in the medulla. As far as we can estimate the number of cysts in the half brain is about 100.

On the cortex of the cerebellum are three cysts each the size of a lentil while on section one cyst is seen deep in the substance of the organ.

No cyst in the cutaneous and muscular structures or other organs was detected at necropsy the spinal cord was not examined. In the old clinical note no mention is made of *Taenia solium* occurring in the intestines.

On section the cysts in the brain substance show the interior of the cystic envelope or adventitious membrane to be smooth and glistening, and to contain little if any clear fluid. Attached within this envelope at one site are much smaller clear brownish circular cysts varying in size and rounded or ovoid in shape, some appear as swollen grains of rice covered with a brownish membrane others that are larger are more balloon-like and contain more fluid, the invaginated scolex lying like a grain of rice within or partly within and partly without the balloon-like membrane or cysticercus outer wall (Fig. 2).

By direct examination typical characters of the scolex with its hooklets and four suckers are seen (Fig. 3). An interesting feature in two of the cysticerci examined microscopically is the presence of numerous ovoid and round bodies some of the larger with modified centres of all shade of colour from clear to quite black. These bodies are not ova but we understand are of a calcium substance which forms gas on the addition of acid. They lie especially in and towards the invaginated head of the scolex. In other details the cysticerci resemble descriptions given in many textbooks. The cystic envelope or adventitious membrane is adherent to and formed from the surrounding brain tissue. As our microscopical findings do not conform to that which we understand is the more typical histological structure of this envelope we may report that sections of these complete cysts were made and each shows a very heavy cell infiltration around the connective tissue stroma and extending for a short distance into brain substance and when a free vessel is present a little beyond this perivascular infiltration is apparent. The majority of infiltration cells are plasma cells with fewer small round cells and a fair number of endothelial cells are also present while in one section two giant cells with massed nuclei are seen. The characteristic eosinophilia is present in one envelope only and red blood cells are extremely rare. In one section a small vessel on the external border of the envelope shows a moderate degree of endarteritis. In one envelope the sclerotic tissue is much developed and has a pronounced cell infiltration external to this. In this cyst only an occasional chalk body is seen in the cysticercus but a line of cuboid haematoxylin staining bodies are present.

(Our acknowledgements are due to Dr. C. Lovell and Mr. Crowe of Bethlem Royal Hospital Pathological Laboratory for their kind assistance in preparing the photomicrographs appearing as Fig. 2 and Fig. 3.)

COMMENTARY

Cysticercus cellulosae is excessively rare in this country. It occurs chiefly in eastern Europe, India, and South America. Its occurrence in man has apparently been known since 1558,¹ and there is scarcely an organ in which the parasite has not been observed. The brain is one of the situations most commonly affected. Thus in 155 cases of cysticercosis compiled by Stiles,² the brain was involved in 117, the muscles in 32, the heart in 9, the subcutaneous tissues in 5, and the liver in 2. In Diessel's series³ of 87 cases the brain was affected in 72 and the muscles in 13 while K. Müller, in 36 cases, found the parasite 21 times in the brain, 12 times in the muscles and three in the heart. In Vosgien's series⁴ the following was the incidence of the organs involved: eyes and adjoining structures 46 per cent, nervous system 40.9 per cent, skin and cellular tissues 6.32 per cent, muscles 3.7 per cent, and other organs 3.2 per cent. Titu Vasilu⁵ (1921), in an analysis of 330 cases of cysticercosis of the nervous system, described the brain and meninges as affected in 279, cerebral ventricles in 41, pons and medulla in 5, and the spinal cord in 5 cases.

In a prolonged experience of men disabled following temporary military service we have only once met with a case of cysticercosis, and in this case the cysts were in the subcutaneous tissues. Lieut. Colonel MacArthur, R.A.M.C., however, informs us that he has diagnosed clinically 5 cases of cysticercus infection with definite signs of central nervous system involvement amongst soldiers whose service in India and other places abroad has been more prolonged.

E. J. H. Roth⁷ records a remarkable case in a man, aged 44, who had suffered from epileptiform fits for ten years. The patient had served with the army in India from 1908 to 1911 and came under observation in 1926 on account of pain in the left knee-joint of about five years' duration, with a discharging sinus which had appeared two months previously. Cysticercus infection was diagnosed from the radiogram of the knee-joint, scattered throughout the muscles around the joint were numerous opaque and ovoid bodies which were undoubtedly of the nature of calcifications. Further radiograms showed a similar condition in nearly every part, but with the main grouping of the calcified nodules on the extremities as far down as the ankles and wrists. The diagnosis of cysticercosis was confirmed by excision and microscopical examination of one of the cysts from the right forearm.

C. J. Hill Aitken⁸ has recently recorded the case of a young man who had served in the army and complained of severe headache, diplopia, and "fits." Some small subcutaneous nodules were discovered, which on examination and pathological examination proved to be cysticerci.

Since von Graefe first demonstrated the presence of cysticercus in the vitreous of the eye, several similar cases have been recorded, and there can be no doubt that in the present case the enucleated eye showed the first symptoms of cysticercus infection.

When the brain is affected the symptoms are usually vague and general, and cases have been said to simulate hysteria, epilepsy, cerebral tumour, basal meningitis, and general paralysis. Transient tonic spasms and automatic movements have been described by Wollenberg. In Roth's case radiograms showed at least three calcified cysts lying in the pia mater, one was localized in the middle of the motor area on the left side. In the present case the main symptoms appear to have been those of focal epilepsy but with no constancy in the particular site affected.

Mental impairment is also a common symptom in cerebral cysticercosis, and usually consists of a simple weakness of intellect, conditions of excitement, confusion, and hallucination, however, have all been described. F. Hartmann⁹ has recorded severe disturbance of orientation, impairment of stereoscopic vision, and a form of mind blindness. Involvement of the fourth ventricle by cysticercus appears to be frequent, and in this situation may lead to sudden death. Cases have been recorded by Hammer, Meyer, Rothmann, and others, while Burns, Oppenheim, Gerhardt, and Henneberg¹⁰ have described combinations of symptoms arising from involvement of the cerebellum and medulla.

In the present case no involvement of the medulla was found. Extensive fibrous meningitis resembling gummatous basilar meningitis has also been described by Askunazy¹¹ Rosenblath,¹² Heuneberg,¹⁰ and others. As far as is known, the cysts are very little toxic, although it appears that pyrexia occurred at the onset of infection or early in the course of a case of disseminated cysticercosis described by Major R. Priest¹³ in 1926.

The case we record proved fatal after nearly six years of symptoms, but the parasites, especially when localized in the eye or brain, may live for long periods, very rare cases being noted up to twenty years (Kuchenmeister, Roth Ivanoff, Pfeifer, and others).

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A CASE OF PNEUMOCONIOSIS RESULT OF THE INHALATION OF ASBESTOS DUST

BY

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(With Special Plate)

THE asbestos industry has been in existence for over two thousand years, and it is remarkable that the possibility of damage to the lungs, arising from the inhalation of dust during its manufacturing process, has not been investigated until within comparatively recent years. Very few cases of pneumoconiosis due to asbestos dust have been recorded in medical literature, and for this reason the notes on the following case may be of some interest.

The first recorded case was that reported by the late Dr. Montague Murray of Charing Cross Hospital in 1900. No other case was reported, and the inference that asbestos dust might be the cause of an extensive pulmonary fibrosis was lost sight of for some time. In 1924¹ and 1927² Dr. W. E. Cooke published his exhaustive reports on another case, and described in detail the pathological changes and his "curious bodies," which are apparently a unique feature of the microscopical picture. This stimulated other investigations, and Simson³ has reported similar findings in workers employed in the crushing of asbestos rock, as apart from the manufacturing processes. In most of the cases hitherto reported the extensive fibrosis has been associated either with pulmonary tuberculosis or an unresolved pneumonia, and there has always been the slight doubt as to whether the inhalation of asbestos dust was the primary cause of the fibrosis.

The patient, a man aged 40 years, was sent for an opinion of his chest condition to the tuberculosis dispensary. The question of tuberculosis was raised as a consequence of his complaint of cough and breathlessness combined with loss of weight and lassitude extending over a period of several months.

Previous History.—There was no history of tuberculosis in the family. No history could be elicited of any illness in early life which might have led to a pulmonary fibrosis, and apart from the symptoms which he considered to be associated with his occupation as an asbestos worker he has had no other illnesses.

Occupation.—When a boy he had worked for a very short period in a glass works. Thereafter, for a period of twenty-two years he has been associated with the asbestos industry. During this period he has been employed in the various processes of

asbestos work. For four and a half years he worked at a carding machine, which is considered the dustiest part of the work for seven and a half years at the weaving of asbestos cloth, and for the remainder of the period at the manufacture of the millboard. The various processes differ considerably in their degree of dustiness, and therefore in the amount of asbestos dust inhaled by the various types of workers. As however a number of different processes, involving a varying amount of dust may be carried out in the same room, the dust produced at any one process may affect workers at another process. It will be noted that this man must have worked in the asbestos industry for a period during which less importance was paid to the prevention of dust than at the present time.

History of Present Illness.—The patient has had a cough from within a few months of starting work at asbestos, but he states that this was from the throat, and appeared to have been purely the result of dust irritation. Within recent years the cough has increased in severity, and there has been a little sputum first thing in the morning. The first symptom to cause anxiety was breathlessness, which developed five years ago and this has become accentuated since then. His general condition has remained satisfactory, and his particular symptoms were not sufficiently severe to interfere with his employment until a few months ago. At this time he complained of a steady loss of weight, frequent night sweats, and an occasional slight aching of the left shoulder. On no occasion has there been haemoptysis.

Notes on Examination.—He is a spare-built man, weight 7 st 11 lb, temperature pulse, and respirations within normal limits. No obvious dyspnoea noted on examination. Cyanosis of lips and cheeks, but not a marked feature. Well marked finger clubbing noticed by the patient for at least two years. Sputum scanty, and of a mucoid nature. Tubercle bacillus absent on frequent examination.

Examination of Chest.—Inspection showed expansion to be poor generally (one inch by measurement). There was hypertrophy of the extraordinary muscles of respiration, the supraclavicular fossae were markedly hollowed, the heart apex beat was in the fifth intercostal space within the nipple line. The percussion note was flattened throughout, there was relative dullness over the right upper lobe, both in front and behind. On auscultation the respiratory murmur was diminished generally, and of a harsh quality over the right upper lobe anteriorly and posteriorly. Expiration was prolonged all over the chest, rhonchi were general with fine pleural friction at both bases.

Other Systems.—Examination of other systems was negative.

X-ray Examination.—The radiogram of the chest shows a fine mottling of a silicotic type throughout both lungs, more marked on the right side and at both bases with indication of a definite fibrosis, especially on the right side. (See special plate.)

Progress.—The patient was admitted to hospital for observation, and has now been in-patient for six months. During this period his general condition has improved considerably, and he has gained over 1 st in weight. The cyanosis which had been noted on first examination has to a great extent disappeared, but there is still some evidence on the cheeks and lips. The cough which is now manifestly less troublesome, is still present, and there is a scanty mucoid sputum. Physical examination of the chest reveals no new feature apart from the absence of bronchitic sounds. The temperature and pulse remained within normal limits during the period of observation and treatment in hospital.

CONCLUSION

There seems little doubt that this is a definite case of pulmonary fibrosis, the result of the inhalation of asbestos dust. The recent development of symptoms of toxæmia, associated with long standing pulmonary symptoms, was at first suggestive of a chronic pulmonary tuberculosis with an acute exacerbation. However, the physical signs, the persistent absence of the tubercle bacillus in the sputum, and the maintenance of temperature and pulse within normal limits demanded further investigation. The typical radiographic features (signs more marked in the basal portions of the lungs) and his long period of employment with asbestos point definitely in the direction of a fibrosis of occupational origin, especially as there is neither a history of other illnesses in childhood or adolescence to support a more common cause of pulmonary fibrosis, nor does this correlation of history, symptoms, and physical signs occur in these latter cases. Toxæmic symptoms in the absence of a tuberculous affection are of special interest, whether they are the result of the absorption of some constituent of the asbestos rock or not is a point which requires further investigation.

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AN ACHONDROPLASIC TWIN

BY

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IN an interesting communication on the etiology of Mongolism, which appeared in the *British Medical Journal* of June 30th, 1928 (p. 1106), Dr. Herbert Armstrong mentioned mentions that this form of mental deficiency is becoming increasingly common. After twenty-three years' experience of Leicester school children I had independently come to the same conclusion, so that any inquiry that would throw light on the cause and possibly lead to the prevention of this distressing condition would, I am sure, be very welcome.

In his article Dr. Armstrong records the case of a Mongol twin which he had recently seen, and, on reviewing the facts relating to it and similar cases, he comes to the conclusion that Mongolism is due to some maternal influence exercised upon the ovum during its maturation. In connexion with this case of Mongol twin it appeared to me that it might be useful to consider the causation of another form of imperfect growth—namely, achondroplasia—especially having regard to an achondroplasic twin that I saw at my clinic recently. The notes of this case are as follows:

Family History.—The father is healthy and his height is 66 inches. There is no history of dwarfism in his family. The mother is healthy and is 51 inches in height (her father was 74 inches in height). The great-aunt on the maternal side is said to have had a son who grew to adult life but always remained a dwarf and in many respects resembled the patient. The mother's first child, a girl, was born in 1903; she is healthy and is 65 inches in height. The second child, a boy, was stillborn in June 1916. The third and fourth children, two boys, were born in December 1917—the twins referred to above. The fifth child, a boy, was born in August 1919. He is healthy and is 52 inches in height, being about two inches above the average for his age. The sixth child was stillborn two years later.

Personal History.—Photograph No. 1 shows the twins aged 10½ years. The boy on the left was the first born and weighed 7½ lb. He is healthy and exceptionally tall for his age, being 60½ inches in height—that is nearly the height of an average boy of 14 years. Apart from his stature the only thing noticeable about him is that whilst his hair is a whole is brown he has a white patch about the size of a tennis ball and his father has the same defect. The boy on the right weighed 7½ lb at birth. He was very different from his brother in appearance with his peculiar head and flat nose. For the first three months he was less vigorous than his brother. He is quite intelligent and healthy apart from his achondroplasic condition. He is now 40½ inches in height. Photographs 2 and 3 show the head to be relatively large with well-developed frontal and parietal bones, the upturned nose, high arched palate (mouth breathing), the relatively long body, the short limbs with proximal segments shortened more than the distal, the short stumpy hands, the marked lumbar lordosis, the well-developed muscles and general thickness of the bones characteristic of achondroplasia.

It will be seen from the above notes that the first twin and the boy born at the subsequent pregnancy are exceptionally tall for their age, and it is probable that they will eventually be much taller than their parents. I have often noticed that a mother who is comparatively short, but who comes from a tall stock as in this case, transmits the character of tallness to her male offspring. This fact partly accounts for the stature of the first twin.

Although the twins are of the same sex, their physical characters are so remarkably different that they cannot be described as homologous or identical twins. Consequently it may be taken for granted that they were developed from

two distinct ova. In those circumstances the placenta may remain permanently distinct, but even in such cases fusion of the placental areas eventually takes place. It is generally accepted that the anastomosis of the placental vessels may be such as to result in marked differences in the general development and vigour of the two foetuses. This disparity is often explained by saying that the stronger foetus has made a special claim on the blood supply, which has enabled it to develop at the expense of the other. In the present case there was no great disparity in weight at birth, there was no general atrophy, but the smaller child had some special defect of the cartilages and bones. Even granting that this foetus had a smaller supply of blood than the other, it appears to me improbable that this could have had such a specific and selective effect.

Various theories have been suggested to account for achondroplasia. The resemblance of achondroplasia to rickets is so close that at one time they were thought to be the same morbid process, but Gilford¹ states that the points of difference are so great that most authorities now regard the two conditions as two distinct diseases. Mario² holds that the dystrophy of cartilage is an effect and not the cause, and that the disease is a general dystrophy comparable to myxoedema. On the other hand, Castin³ has pointed out that the disease starts *in utero* before glandular activity begins, and so cannot be due to any defective internal secretion. He believes that it is toxic in origin and is akin to rickets. Pelouquin⁴ and others believe it to be due to maternal infection. Neither of these views, however, appears to me to be in harmony with a case of twins where one child is normal and the other achondroplasic. The question of possible relationship between achondroplasia and gigantism has been raised by

Lannois, who reported an instance in which an achondroplasic had brothers who were giants. Since the interval between the births of the giants and the dwarf was very short, Lannois suspected the cause to be due to some discrasia on the part of the mother owing to frequent pregnancies. But this view does not seem tenable in the case of the achondroplasic twin, for the pregnancies were not very close together, and, further, the mother gave birth to an exceptionally healthy child at the same time as the achondroplasic one.

The question naturally arises whether achondroplasia is an inherited variation, to my mind this is probably the case, for there is no doubt that the condition is sometimes transmitted from parent to offspring. In 1913 I examined and photographed three dwarfs who were being exhibited at the Leicester Fair. The family consisted of father, mother, and daughter. The father was extremely small, though fairly well proportioned. The mother and daughter were typical achondroplasics.

Many similar cases have been recorded, but one published by Dr. Porter⁵ is extremely interesting.

In this instance an octogenarian and his two sons were affected, and the father and the brother of the former were also said to be achondroplasic.

In my experience achondroplasia is uncommon; its rarity is probably due to this useless variation being naturally eliminated in many cases by the death of the foetus owing to early ossification, or to the difficulties of parturition in the case of the pregnant achondroplasic woman.

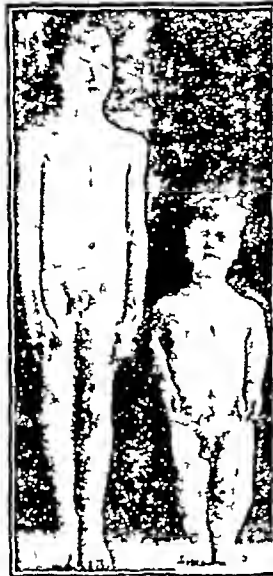


FIG 1



FIG 2



FIG 3

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THE TREATMENT OF RINGWORM OF THE SCALP
WITH THALLIUM ACETATE

BY

J. E. M. WIGLEY, M.B., M.R.C.P.

At the last meeting of this Section, held in Edinburgh in 1927, Dr G. B. Dowling read a very interesting and complete paper on the treatment of ringworm of the scalp by thallium depilation. Since that time many communications have been made from different sources, some being records of series of cases—for example, that by Dr Felden of New York in the *American Archives of Dermatology* of February of this year—others being notes of cases which have shown untoward or even alarming symptoms, such as that recorded by Dr Davies of Brighton in the *British Medical Journal* of July 9th, 1927. Dr MacLeod made a reference in a paper published in the *Journal* of April 21st, 1928 (p. 656), advising great caution in the use of thallium, and Dr McKenna, in the last edition of his textbook, is of the same opinion.

Now that a year has passed I think that the presentation to you of some of the opinions I have formed of the general utility or otherwise of this treatment will provoke useful discussion, and the conclusions arrived at should be of value in placing the treatment in its correct place in our therapeutical armamentarium. I do not propose to trouble you with lists of figures beyond saying that I have treated some 50 patients at two children's hospitals in London. Their ages have varied from 18 months to 9 years, and the sexes have been about equally divided. The dose of thallium acetate has been 8.5 mg. per kilo of body weight, given in an ounce of sweetened water. (The drug has been obtained from three different sources, but I have observed no material difference in the effects.) As all my patients have been attending hospital as outpatients the conditions may fairly be said to be exactly the same as those of the cases depilated by x rays in Dr MacLeod's clinic at Charing Cross Hospital, with which I compare them.

I have found that the average time for complete depilation with thallium is twenty-four to twenty-six days, and the depilation is entirely spontaneous in only about half the cases. In practically all the cases the infected stumps have been slower in falling than the healthy hair, whilst the recommencement of growth takes place very much sooner than with x rays. Here lies one of the chief reasons for which I regard the treatment as inferior to that of x rays.

Since Dr Roxburgh brought to notice (in March, 1927) the method of detection of hair infected with ringworm by its fluorescence when illuminated by ultra-violet light passing through Wood's glass, I have been in the habit of checking all my "cures" by this method, and frequently with a very salutary effect. The routine use of this method has brought to light two facts which I have never seen reported and which are of some considerable importance. The first of these facts is that one frequently finds full-length, apparently healthy hairs fluorescent for the whole of their length. Examination of these hairs with a hand lens reveals no abnormality, nor do they appear to break more easily or to be more difficult to remove with forceps than normal hairs. Microscopical examination of these fluorescent hairs invariably showed the presence of ringworm fungus, and culture on several occasions further confirmed this. The importance of this observation will be referred to later.

The second fact I have observed is that hairs fully infected with endothrix ringworm completely failed to fluoresce. In these hairs the cuticle of the hair was seen under the microscope to be quite intact, which fact, I take it, explains the absence of fluorescence.

The point of this apparent digression becomes evident when the rapidity of regrowth after thallium depilation is considered, together with the difficulty of removing every single stump, some of which may not have been loosened by the drug. I have more than once failed to find evidence of infection by means of the microscope in a scalp

apparently satisfactorily depilated by thallium, and yet by means of Wood's glass have seen the full-length fluorescent hairs just described. This difficulty I have not encountered in the cases treated by x rays. Here I would like to say that the point I am making is not that x-ray treatment is infallible (it is too well known that it is far from that), but that its failures are not deceptive. I have never had any difficulty in immediately seeing the unfallen stumps in an under-exposed scalp, whereas I have just been at some pains to show that the failure of thallium depilation may camouflage itself very effectively.

Great stress was laid by Dr Dowling and by several other writers on the importance of vigorous local treatment during the period of falling and recommencement of growth of the hair, and of this I am fully aware. But nearly all cases of ringworm are treated as outpatients, and as a rule are not seen more than once a week. Consequently most of the local treatment must, of necessity, be left to the mother, who, largely through force of circumstances, can seldom carry out the treatment satisfactorily. I have had the scalp painted with strong tincture of iodine, have used adhesive plaster, have ordered 12 per cent sulphur and salicylic acid ointment, Whitfield's ointment, the iodide of sulphur ointment to be rubbed in, but have not been impressed with their power to combat the uncertainty of the depilation produced by the drug.

With regard to toxic symptoms, I have been struck with the fact that the older the child the more certainty is there of toxic symptoms supervening. Pain in the legs, usually coming on about the twelfth day and lasting about a week, is the most common symptom. It quickly responds to rest in bed, and seems to be of negligible importance. Drowsiness I have noticed in several cases, and have observed that such children were always of the pale, flabby type, though nothing abnormal was discovered on clinical examination. One case is worth reporting more fully.

The patient was a boy aged 9 who was in hospital suffering from a generalized dermatitis associated with seborrhoeic dermatitis of the scalp. He was given a dose of thallium acetate with the object of attempting to clear his scalp. About twelve days afterwards he exhibited an acute erythematous eruption on his forearms, the backs of the hands, and the shins. His temperature rose to 101° F and he was definitely ill. His hair all fell towards the end of the third week, his temperature subsided and the rash disappeared. Unfortunately the condition of his skin was unchanged. The sequence of events seems to me to point to some auto-intoxication the action of the thallium being to lower his resistance at the time.

A case reported by Drs J. H. T. Davies and M. C. Andrews in the *British Medical Journal* of December 17th, 1927 (p. 1139), presented somewhat similar though much more alarming symptoms. This patient, a girl of 11 years, showed swelling, redness, and tenderness of the legs with effusion into both knee-joints. On the eighteenth day the child had an epileptiform fit and was found to be febrile, to have some ascites and evidence of acidosis, as shown by acetone bodies being present in the urine. A much older patient of Dr Davies suffered from loss of sensation in the legs and feet, associated with inability to walk, so that a diagnosis of peripheral neuritis was actually made.

It seems to be established that thallium acts through the sympathetic nervous system, and these cases show how seriously that may be affected. Whether such affection is purely temporary or not time alone will show, but until it is proven I think we should be very chary of risking the development of children in order to cure (by no means with "certainty") a purely local infection.

In conclusion, I think that thallium acetate is distinctly inferior to x rays (in the hands of a skilled operator), for the following reasons:

- 1 The relative uncertainty with which it produces the desired effect—that is, depilation.
- 2 The slower fall of the infected hairs and the short time elapsing before recommencement of growth.
- 3 The necessity for more skilled and vigorous local treatment during this time.
- 4 The greater risk of reinfection of the growing hair owing to the short time of baldness.
- 5 The toxic effects produced by the drug.
- 6 The possibility of permanent serious damage to the growing organism.

Memoranda : MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF DIAPHRAGMATIC HERNIA (EVISCERATION) (With Special Plate)

THE following details of a case of diaphragmatic hernia caused by trauma seem worthy of record, the nature of the injury is clearly indicated in the illustration

A man aged 64 was sent to one of the tuberculosis visiting stations as a case of spontaneous pneumothorax after an x-ray examination had been made at a local hospital. The clinical history and physical signs did not altogether fit in with this diagnosis, and the patient was sent to the hospital at Cefn Mably where he was screened and given a barium meal by Dr W. Davies the medical superintendent. The true nature of the case was then made plain.

There was a history of a severe crushing of the abdomen and chest by an accident in a colliery forty years previously. For more than three months the patient's life was said to have been in jeopardy but he eventually recovered sufficiently well to resume his occupation of a coal miner. Throughout the subsequent years he enjoyed good health with the exception of occasional attacks of vomiting and of dyspnoea on extreme exertion.

During the winter of 1926 an attack of influenza compelled him to visit his medical attendant who discovered the unusual condition of his chest and came to the conclusion that the case was one of spontaneous pneumothorax.

The physical signs were certainly very suggestive of this condition, but they varied in character and extent when the patient was in the recumbent position. 'Gurgling' could also be heard when he was lying down. The cardiac impulse was well over to the right side of the sternum and its position did not vary. No evidence of pulmonary tuberculosis was forthcoming.

That such an abnormal condition should have caused so little inconvenience during so many years is of very great interest.

Newport Mon

J. L. THOMAS, M.D.

THE TEAR-REFLEX TEST FOR ASTHMA OF NASAL ORIGIN

I DESIRE to submit to the medical profession a test for asthma of nasal origin to which I attach considerable importance. It is, in my opinion, a ready and reliable way of differentiating between nasal and other forms of asthma. I have used it successfully for six years.

Definition

The Tear-reflex Test—In a normal nose, if the anterior mucous surface of the nasal septum or inferior turbinate bone be gently stroked with a smooth silver probe no reflex is produced, but if the same thing be done in a patient suffering from asthma and produces lachrymation in the eye on the same side as the nasal fossa so tested, but not in the other, then the asthma is of nasal origin, and is usually curable. (This test should be applied by exposing and illuminating the nasal fossae for examination in the orthodox manner.)

Anatomy and Physiology

This reflex has no emotional significance, but appears to be confined to the first or ophthalmic division of the fifth nerve. It starts in the medial or lateral nasal nerves which supply the anterior parts of the septal and lateral nasal mucous membranes respectively, and passes to the lacrimal gland by way of the lacrimal nerve. It is possible that a few impulses from the inferior turbinate bone pass through Meckel's ganglion. Its homolateral significance will no doubt be appreciated.

This test is one for a hypersensitive condition of the nasal mucous membrane, to which I believe the "nasal reflex" type of asthma is due. Where it is positive a cure may confidently be expected by using the orthodox methods of nasal desensitization and surgery. Where it is negative the outlook is less hopeful, even though the nose may stand in urgent need of treatment, because the nasal condition may be so bad that superficial sensation is lost. On the other hand, where it is negative and the nose is approximately normal, the cause may be looked for elsewhere.

H. MORTIMER WILKINSON, F.R.C.S.

AN ATAVISTIC ANOMALY SWALLOW WINKING
Cases of "jaw winking" and its allies are sufficiently rare to warrant the reporting of the following case.

A Jewish boy aged 2 was admitted to Booth Hall Infirmary for Children as a case of pertussis. The nursing staff reported that he had exophthalmos of the right eye when he coughed or swallowed. Examination showed no obvious abnormality of the eyes or the palpebral fissures. The movements of the eyelids and of the eyes were normal. Chewing made no difference but as soon as the child swallowed the right palpebral fissure was distinctly enlarged by the retraction of the upper eyelid. In other words the child winked but the wink was upwards giving rise to a very curious appearance.

Cases of associated movements have been reported for a very long time. Dr. Rutherford of Manchester has kindly given me the following references: (1) It may be that Galen, *De Medicina* vi, 6, 36, refers to this, but the condition he mentions may quite possibly be nystagmus. (2) Martin Martin, in his *Description of the Western Isles of Scotland*, the second edition of which was published in 1716, on page 191 writes that "a weaver in Portree has the faculty of erecting and letting fall his ears at pleasure, and opens and shuts his mouth on such occasions."

Mr. Bishop Hurman, who investigated this phenomenon in 1903, has kindly referred me to his explanation in the *Transactions of the Ophthalmological Society* for October, 1905, assigning it to the origin of the nerve supply of the associated muscles to the seventh nerve.

The first case recorded, by Gunn, was one in which the upper eyelid nearly went out of sight when the child sucked, but this case of similar palpebral action only on swallowing appears to be an additional variety.

JOHN D'EWART, M.B. LOND.
Medical Superintendent, Booth Hall Infirmary
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British Medical Association

CLINICAL AND SCIENTIFIC PROCEEDINGS

OXFORD DIVISION

The Clinical Signs of Mammary Disorders

THE fifth meeting of the year of the Oxford Division was held at the Radcliffe Infirmary on October 24th. In the absence of Dr. G. N. Montgomery the chair was taken by Mr. F. C. BEYERS, and Sir G. LENTHAL CHEATLE read a paper on the clinical signs of important changes in the breast.

Sir Lenthal Cheatele pointed out that some pathological changes in the breast bore a definite relation to simultaneous physiological occurrences. The normal structure of the breast included (1) the pericanalicular and periacinous connective tissues round all ducts and acini, (2) the elastica which surrounded all ducts, occasionally some acini, and less frequently the lobule, being continuous with the elastica of the skin, (3) inside the elastica was the intra-elastica connective tissue continuous around all ducts and acini, and (4) superficial to this last, and lining all ducts and acini, was the epithelial layer resting on a single layer of unstriated muscle fibres. These structures formed the true breast tissue and were the sites of true pathological changes in the breast. They were embedded in the dense supporting connective tissue of the breast, which had little or no relation to any pathological changes, although it might be subjected to the same pathological changes which occurred in supporting connective tissue elsewhere in the body. At birth, puberty, and lactation, the pericanalicular and periacinous tissue underwent varying degrees of hyperplasia in which lymphocytes could be observed. New normal ducts and acini also formed at these times. At puberty fibro-adenomatous developed, and were composed of an excessive hyperplasia of those tissues which were undergoing normal hyperplasia in the breast. In them there was a very marked growth of pericanalicular and periacinous tissue among which new ducts and acini could often be seen, these were lined by the normal epithelium, which in some instances was undergoing a desquamative epithelial hyperplasia. These tumours were

lobulated because fresh areas of the breast in juxtaposition to, or a little distance away from, the original tumour became affected in the same way, so that lobulation was not due to an outgrowth of tumour formation from the periphery of the original tumour. The comparison between these tumours and the physiological changes occurring in the breast elsewhere was complete, and an etiological connexion was too true to be neglected. Breasts at birth had not completed their development. The solid columns of epithelium which dipped down into the gland and formed the secreting parts of the gland sometimes appeared morphologically as malignant because they were not confined within the barriers of normal tissue. More often in the breasts of married women who had borne children than in single women there appeared, between the ages of 35 and 45, a state that was generally described as "chronic mastitis." The condition was not inflammatory, and to distinguish it Sir Lenthal Cheate stated that at the suggestion of Sir Humphry Rolleston he had termed the state "mazoplasia." The microscopic appearances of mazoplasia were distributed over the whole gland, in some parts they might be more marked than in others. They consisted of a hyperplasia of the poracanalicular and periacinous tissue among which lymphocytes were seen. New acini might be formed, and in the ducts and acini a marked desquamative epithelial hyperplasia might develop, giving rise to distension of these structures and causing pain. The desquamative epithelium consisted of small, irregular, badly staining epithelial cells. These changes were precisely similar to those at puberty and lactation and in some respects also at birth. They were pathological only in respect of their irregularity and their appearance at a time when the breast should be at rest. Moreover, the breasts in mazoplasia resembled the changes at puberty in developing fibroadenomata, which consisted of the same tissues as the fibroadenomata of puberty. The multi-nodularity of these breasts was not due to changes in the gland itself, but to their becoming more pendulous, especially after lactation, the ligamenta suspensoria became thicker, and as their branches reached the true skin they isolated the fat between them into lobules. Recognition of the precise cause of all multi-nodularity therefore required discrimination. As a general rule it was not an important sign, but it might be due to a rare state of diffuse mammary carcinoma and multi-cystic formation of the breast. Mr. Cutler of New York had introduced transillumination as a valuable means of diagnosis in breast diseases. In mazoplasia and multi-cystic disease the breast was completely translucent, in carcinoma whether localized or diffuse, there was a distinct shadow. In multi-cystic disease the swellings varied in size and the largest ones gave a distinct sensation of fluctuation. Cystic formation in breasts and mazoplasia were quite distinct and separate conditions. The epithelial changes in the two conditions were morphologically different, and very frequently the desquamative epithelial hyperplasia which was so remarkable in the formation of cysts could be seen passing into that much more important form of hyperplasia which was not desquamative, and which Sir Lenthal Cheate had named "dysgenetic." Such dysgenetic epithelial hyperplasia occurred in three different states: (1) the formation of papilloma, (2) the formation of epithelial growth in terminal ducts and acini, confined within normal boundaries and (3) in the state of carcinoma where some cells had invaded structures outside normal boundaries. Therefore the formation of cysts was not only a different process to mazoplasia, it was also a more dangerous condition. In thin breasts multi-nodularity was also caused by ducts which had become convoluted after lactation and diffuse hyperplasia of the elastic element in their walls. Multi-nodularity was therefore not a very important sign. Where localized nodularity or a lump in the breast was discovered its nature should be established at once by an exploratory operation, undertaken with very great care in order to prevent transplantation of epithelial cells should the condition be malignant. A retracting nipple never occurred in mazoplasia, it might be due to a carcinoma immediately under the nipple or on advanced carcinoma some way from

it, and it might also be caused by an inflamed cyst or tuberculosis. The diagnosis between these states in the case of a cyst was settled by transillumination, which in carcinoma and in tuberculosis would show a shadow. The diagnosis of tuberculosis of a breast was not always easy, before it reached the skin this might be puckered. The nature of the disease was made clear when it reached the skin and appeared as a soft, blue prominence. Moreover, lymphatic glands secondarily affected by tuberculosis differed from the glands secondarily affected in malignant disease by immediately becoming confluent in tuberculosis and remaining for a long time as hard, discrete lumps in malignant disease. Puckering of skin by an underlying swelling was also a symptom of fat necrosis, and it was difficult to distinguish clinically between it and early carcinoma. Puckering of the skin over a swelling was so serious a sign that it indicated an exploratory operation. The lecturer drew attention to the importance of an intermittent, spontaneous discharge of blood or serum from the nipple, both of which, in the absence of any traumatic cause, were indications for removal of the breast. Another important sign was localized pain, especially of a stabbing nature.

Clinical Cases

Mr. W. W. WAGSTAFFE showed a boy, aged 10, who had had a tumour removed from the dorsum of the tongue four years previously. During the last year a swelling had been noticed on the dorsum of the tongue on the site of the old incision, and in the course of the last few months it had been growing very rapidly. He had no pain, but the size of the swelling caused some discomfort. On examination a swelling was found on the posterior aspect of the dorsum of the tongue, extending about two inches forward from the foramen caecum, and with a breadth of about one and a quarter inches. It stood out from the surface of the tongue about three-quarters of an inch at the greatest part, but at the posterior end the swelling projected considerably backwards. There was no interference with the mobility of the tongue, and no enlarged glands could be felt. In the absence of the original section it was impossible to say what was the nature of this growth. It felt firm and rather fibromatous, and the epithelium was somewhat thickened over it, but it had no papillomatous appearance. It did not appear to show an excess of blood vessels. A provisional diagnosis of either a fibroma or an endothelioma was made. As regarded treatment, excision once had been unsuccessful, and would be extremely difficult now. It was suggested that the growth should be destroyed by means of diathermy.

Dr. SHIELA HUNTER showed a female patient, aged 43, who had developed pulmonary tuberculosis subsequent to old rheumatic valvular disease of the heart ("mitral stenosis"). She also read notes about a man, aged 32, who had been treated in the Osler Pavilion during the past year. This patient was refused for army service in the war because of his heart, but it was only comparatively recently that signs of pulmonary tuberculosis had developed. In both cases there was gross valvular disease of the heart and tubercle bacilli were found in the sputum.

Dr. W. STOBIE read notes about a girl, aged 12, who had suffered from pneumonia and empyema at the age of 4. There were signs of interstitial fibrosis and probable excavation at the base of the left lung, but owing to the density caused by the heart shadow an ordinary x-ray film revealed nothing definite. A film taken after the use of lipiodol, however, showed two definite dilated sacs behind the cardiac shadow.

Mr. E. C. BEVERS showed a man, aged 56, suffering from an abdominal tumour. For three months he had noticed a swelling in his right iliac fossa, there being no pain and no bowel symptoms of any kind. On examination a hard, fixed swelling was found in the right iliac fossa, extending upwards in the line of the ascending colon and downwards to within one inch of the middle line. The swelling was very hard, and in one place appeared to be invading the abdominal wall. Both the barium meal and barium enema showed a filling defect in the region of the caecum and ascending colon. The diagnosis rested between a retroperitoneal sarcoma and a malignant growth of the caecum which had invaded the abdominal wall.

Dr A. G. GINSON showed a farm laborer, aged 20, suffering from a sudden pain in his left hip, which prevented him working five days after the onset. He had a sudden swelling in the tongue. Dr Bostock of Buckingham found an enormous swelling and haemorrhagic condition of the jaw and tongue on the right side, causing difficulty in mastication. There was also haemorrhage in the region of the left ilium, where there was a swelling above Poupert's ligament in the hollow of that bone. There were numerous petechial haemorrhages elsewhere. The patient was very ill, with a high temperature and an overaction of the heart that suggested a cardiac lesion. Within a few days he rapidly improved, the temperature subsided, and all traces of haemorrhages disappeared from the skin and mucous membranes. The blood culture was negative. There was no trace of haemophilus in the previous or family history, and no evidence of scurvy, leukaemia, thrombocytopenic purpura, or cardiac disease. An x-ray investigation of the swelling of the ilium showed no bony change, but there was an old slipped epiphysis of the head of the left femur.

Reports of Societies.

JUVENILE DELINQUENCY.

At a meeting of the Medical-Legal Society on November 22nd, with Sir WILLIAM WILCOX in the chair, Dr LOVELL A. WEATHERLY of Bournemouth opened a discussion on juvenile delinquency.

Dr Weatherly confined his argument to those juvenile delinquents who, by reason of some anti-social act, had been brought to police courts or the juvenile courts, saying that in trying to enquire the mental growth of the average child and must be sought from physiology, the science of the function of the organism, pathology, the science of disease, sociology, the science of human society, and psychology, the science of mental phenomena. A multiplicity of contributing factors would generally be found in any instance of juvenile delinquency, but in each case a major cause presented itself. As to physiology, any physical ill development, causing, for example, an infirmity of sight or hearing, or some deformity, led to the sufferer being dominated by his physical handicap, and unless compensated by training or education, or comforted by sympathetic treatment, he might drift into crime. The late Mr Thomas Holmes, the well-known police court missionary, declared that in his long experience the most serious cases of crime were far more physiological than psychological in their basis. Again, to take pathology, dementia praecox made its victim subject to sudden inexplicable impulse, as a rule of an aggressive and destructive kind. Many children who suffered from epilepsy showed no anti-social or immoral activities, but this disease often did lead in the young to (generally motiveless) crime. Encephalitis lethargica, again, completely altered the character of the young people it attacked, and was now considered a certifiable disease under the Mental Deficiency Act. A peculiar morbid condition sometimes occurred in the young after injuries to the viscera of the abdominal cavity, or after an abdominal operation sometimes sexual perversion developed. Under the present beneficent system of probation and with the establishment of observation centres, the early mental condition in these pathological cases should be revealed, and proper care, training and treatment carried out. The cases of delinquency which might be grouped under the heading of sociological causes included those due to defective discipline, family history of vice, incapable parents, bad companions, too much amusement or lack of it, or defective family relationships, such as bad step-parents. There remained the psychological class, in which the speaker grouped the subnormals or moral imbeciles, many of whom were not deficient enough for certification under the Mental Deficiency Act. Most of these subnormals required some method between Home Office schools and Borstal institutions on the one hand, and simple supervision under the probation officer on the other. For some years he had advocated for these cases farm colonies, where other trades

might be taught, these should be established by a combination of philanthropy, State aid, rate aid, and self-help. Occupation therapy would be the keynote of the treatment. Dr Weatherly then sketched the immense change which had come over public opinion in relation to juvenile delinquency of recent years, seen particularly in the introduction of juvenile courts, Home Office schools, and probation officers. Recently, at a meeting of the Magistrates' Association, Sir Robert Wallace stated that 85 per cent of the boys and girls put on probation did not again relapse into crime. Probation, Dr Weatherly considered, was the greatest advance ever made in penal reform, but probation should always be conditional. The great handicap to probation was the absence of a home or institution for cases which could not possibly be supervised in their own homes. The difficulty that beset the Home Office was that while Acts might be passed, and suggestions and proposals made, there were no means of enforcement. The want of uniformity and the disposition not to act upon many of the Home Office's excellent proposals might be attributed to financial causes, to bias on the part of the magistrate or perhaps his clerk, and to the inherent dislike of interference with local authority. The suggestions of the Home Office should be made in some way imperative. Dr Weatherly, after a tribute to the Salvation Army, the St Giles's Mission, and other voluntary organizations, concluded with the remark that the objective was to get hold of "difficult" children when young and take them out of the danger zone in which anti-social acts were conceived, to recognize the inutility of sending young offenders to prison, where they were contaminated by adult offenders, and to insist upon kindly and careful supervision whereby they might have a proper start in life.

Lord RUSSELL said that he was sure many cases of delinquency could be explained not as conscious and intentional or criminal tendencies but as the result of some psychological or physiological, or it might be sociological, defect in the upbringing. The one thing that should not be done was to send these offenders to prison. He believed the Home Office circulars and admonitions were now having effect among the country magistracy. Dr T. B. HYSLOP raised the question whether it was a greater handicap to be sent to a prison or to be sent to an asylum. The prison might represent the frying-pan, and the asylum the fire. An asylum history extended its taint—for which, of course, there was no scientific basis—even to the third and fourth generation. He was glad to see rather more enlightenment in the courts, which had previously been difficult to persuade that some crimes might be committed in the subconscious state. Lieut.-Colonel C. T. SAMPSON thought that some juries were very much too lenient towards young offenders. Previous to committing his offence a boy knew perfectly well that if he could tell his counsel that he had never before been convicted he would probably only be bound over.

Dr W. A. POTTS (Birmingham) said that many cases of juvenile theft were simply the result of an imperfect and misleading education. A child brought up in an extremely poor home, where everything was possessed in common, was likely to have little understanding of individual possession when he went to school. Sometimes the fault was over-emphasis of one particular warning to the disregard of other phases of conduct. A boy at a preparatory school had been discovered in apparently motiveless stealing. In conversation with the lad's father the speaker asked him if he emphasized any particular principle of ethics in dealing with his son, and the father on reflection said that he had instilled into him continually the necessity of having nothing to do with the hire-purchase system! Encephalitis lethargica was a very important cause of many cases of delinquency. The initial attack was sometimes so slight that a doctor was not called, or, if he was called, did not realize what the nature of the illness was. Juvenile courts were valuable, but sometimes there was a danger that the mere establishment of such a court would be taken to have settled the problem. The mind of the child could not be reached in the public court with various officials about. Probation was also an important reform, but it should be continued until the offender was found satisfactory. It was ridiculous to think that six months' probation would

be sufficient. Mr W. A. CHADWICK pointed out the importance of checking early delinquency in the home among very young children. The important thing was to instruct parents in dealing with difficult psychological cases.

Dr R. G. GORDON (Bath) said that very often in the home the young thief of 6 or 7 was regarded either as having performed an amusing trick or as having done something too shocking to talk about. Such abnormal conduct required advice, not putting under a blanket. There was need for advisory clinics to which children with social tendencies could be brought. The difficulty in almost all cases was failure of adjustment between the child and society. Some institution was wanted in which there was a system similar to that of the industrial school, but to which children might be sent, not only from the police court, but through any responsible body interested in this work. There was a tendency to regard subnormality—a certain degree of feeble-mindedness—as the chief cause of delinquency. It was an important contributory cause, but not by any means the only cause. The real factor seemed to be a lack in the normal development of the personality of the child.

Dr F. C. SHRUBSALL said that the British juvenile population was probably the most law-abiding in the world, but there was more delinquency now in this country than formerly, when the personal influence of the schoolmaster counted for more. Classes were now so huge that this personal influence was no longer possible, clinics offered a substitute. Once a child got even into a juvenile court it was too late to handle the problem as it should be handled. Dr L. FAIRFIELD, speaking with regard to industrial colonies for these children, said she hoped no one would suggest they were going to pay for themselves. They were as expensive relatively as the Ritz Hotel. They were only worth having if they were well run, the children well fed, and the supervision of the highest quality, and under the British system this could not be done cheaply. She described clinics on the American model, with careful investigation of the child as their aim, one or two of which already existed in London, while a very well equipped one was to be started in London next year under the Child Guidance Council. Lord RIDDELL thought that many of the "subnormals" might be improved if they received intelligent modern medical treatment. It was most important that the medical profession—the general practitioners in particular—should be trained in these matters, so that an abnormal child might be treated without having to be sent to a clinic. Dr ELIZABETH SLOAN CHESLER spoke of her visits to prisons in various parts of the world, she praised the Japanese system, where 80 per cent of the first offenders were so treated as not to relapse. She emphasized also two things which had not been so much as mentioned in the discussion: (1) the education of mothers, (2) decent housing.

ANTE-NATAL METHODS AND DISPROPORTION

A MEETING of the Maternity and Child Welfare Group of the Society of Medical Officers of Health was held at the Royal Free Hospital on November 23rd, with Professor A. LOUISE McILROY in the chair, to discuss ante-natal methods, with special regard to disproportion.

Mr B. LINDLEY HOLLAND commented generally on the value of ante-natal clinics, and remarked that far more women lost their lives or suffered injury in consequence of lack of care during labour than for the want of ante-natal care. There was need for the institution of more large maternity hospitals, such as Queen Charlotte's or the Rotunda, Dublin. As regards the difficulty due to disproportion he suggested that external measurements ought to be taken, if only because they gave an early idea of the kind of labour a patient was likely to have, he also believed in fairly early vaginal examination. It was stated in textbooks that in the primigravida during the last months of pregnancy the head was, or in all normal cases should be, engaged in the pelvis. The fact was that in about 20 per cent of primigravidae in the thirty-sixth to the thirty-seventh week of pregnancy the head was still unengaged, and it should not be assumed that there was dis-

proportion merely because, at any time during the last four weeks of pregnancy, the head was floating. In deciding what was the right proportion the reserve capacity of the pelvis was important. A woman with a normal pelvis could give birth to an infant up to the weight of 10 or 11 lb, the normal being 7½ lb, it would be a difficult labour, particularly if the first, but there should be no great obstacle. The pelvis accomplished the task by calling up its reserve capacity. It followed that if a normal pelvis would allow the passage of a 10½ lb baby a slightly or moderately contracted pelvis would allow the passage of a 7½ lb baby. There were two methods of treating the slighter cases of disproportion: induction of premature labour, or allowing the patient to go to spontaneous labour at term, how was known as a "test labour," and adopting Caesarean section early in labour if delivery by the natural passages was considered unlikely. The former was the time-honoured method in this country, but for some time he had been rather doubtful whether it was the best. He believed that in 80 per cent of the cases induction of premature labour was performed unnecessarily, and at the London Hospital he began to try the other method mentioned, with improved results. To induce premature labour was to play for safety. The only known factor was the disproportion, yet there were a large number of unknown factors which, if favourable, might lead to spontaneous delivery. His method in moderate or slight cases of genuine disproportion, where the pelvis was shown by measurements to be contracted—he excluded all cases of merely floating head without disproportion—was at the thirty-sixth week to attempt to decide, often with the help of an anaesthetic, whether the patient should have Caesarean section at term or whether there was a reasonable chance of spontaneous or forceps delivery. The object of the test labour was to decide, very early in labour, whether the head would come through the pelvis or not. He mentioned various conditions which pointed to the need for Caesarean section, and said that, in 1927, out of 16 test labours at the London Hospital, spontaneous delivery occurred in 11, easy forceps delivery in 3, and Caesarean section was performed early in labour in 2. All the infants, except one, were born alive, and there was no maternal mortality.

Dr ANNIE McCALL spoke of the importance of dieting the mother so as to prevent the osseous development of the child's head beyond a certain point. The mother was kept off protein diet during the last month or two months of pregnancy, not was she given milk, which tended to produce fat infants. Her digestive troubles were minimized by the sipping of hot water, and she was allowed to eat fruit to any extent she liked. Exercise was also important during the last two months, and every day the woman ought to walk not less than three or four miles, preferably uphill. Dr McCall endorsed entirely the observations of Dr Kathleen Vaughan in the letter published in the *British Medical Journal* of November 17th (p. 812). Hot baths—no hot as could be endured—should be taken every day during the last month and every other day during the preceding month. She liked to give chloral hydrate every night or every other night during the ten days before labour. This made the first stage of labour a good deal easier, and so the mother was able to reserve her strength for the second stage, in which she was assisted by the softness of the pelvic floor induced by the hot baths. By hot baths, also, the danger of eclampsia had been wiped out. The speaker recited some lines which were used in the Clapham Ante-natal Service to impress these measures upon the women:

In later months of pregnancy dispense with eggs and meat,
Then drink hot water freely, take fruit—all you can eat.
Hot baths are very useful, their value is untold,
These rules with daily exercise, are worth their weight in gold.

Professor F. J. BROWNE agreed with Mr Holland that in a large number of primigravidae the head might be floating above the pelvic brim and still no pelvic contraction be present, he thought it might be specified that in these cases the condition was not always normal. In his own experience it was in a very small proportion of cases—certainly far less than 20 per cent—that the head failed to engage without any ascertainable cause. He was satisfied that induction of labour was the method of treating

these cases. "Trial labour" was not used at University College Hospital. Mr Holland had criticized induction of labour as "playing for safety", but what else should one play for in labour? The trial labour was impossible in private practice, how was a busy general practitioner to watch such a case, listening to the foetal heart every hour? Induction of labour also caused far less anxiety, it was safe to induce labour at a date after thirty-six weeks, when the head, in the average case, was so hard that there was a fair chance of its passing without injury through the maternal passages. If there was found on examination definite overlapping of the foetal head over the pelvic brim induction of labour was contraindicated, it was his practice to allow the case to go to term and then perform Caesarean section.

Mr ALEX BOURNE remarked that disproportion could only be absolutely defined after birth. The infant with the over-moulded head was nearly always found in one type of pelvis. It was not the size of the pelvis which was so important as the shape, and it was because pelvic measurements rendered the shape ascertainable that he disagreed with those who said that they were useless. If the head overlapped just the thickness of the symphysis that head would almost certainly come through, but if it actually overhung the symphysis it would mean so much moulding that the child's life would probably be lost. As regards treatment he was a strong supporter of induction, in private practice trial labour was almost impossible. Its undertaking meant telling the patient and her relatives that at a critical time in labour it might be necessary to rush her off to hospital—a terrifying thing to her and to them. The importance of the error of inducing labour unnecessarily early—though never before thirty-six weeks—was less in his eyes than the error of letting the woman go to term too late, with difficult delivery or an unnecessary Caesarean section. Of the three errors he would prefer the first.

Mr CEDRIC LANE-ROBERTS supported Dr McCall's contention that the protein diet should be cut down during the last weeks of pregnancy. On the question of trial labour *versus* induction, if midwives co-operated with doctors in taking their patients to the ante-natal clinics the floating head would be likely to be discovered by the doctor at the clinic, and the case would be met by induction rather than a trial labour, which involved much anxiety.

In further discussion Dr MAX KIDD spoke of the need for a reliable drug to induce labour, quinine not being reliable, to which Mr ALEX BOURNE replied that experiments on now preparations were proceeding but he had examined the action of quinine on the contracting uterus by the introduction of a hydrostatic bag and found its effect no more than to make the contractions irregular, he thought quinine quite useless for the induction of labour. Dr LEWIS NASH, speaking as an administrator, protested strongly against any idea that midwives should have anything to do with inducing labour. Dr CHODIE GRECONY, referring to Dr McCall's diet for the pregnant woman, which was practically carbohydrate, asked how the child obtained the necessary iron. Dr ITHY CASKIE (Birmingham) thought that disproportion cases must be relatively few, and that it should be possible to make institutional provision for them all. Professor McILROY said that at the Royal Free Hospital induction was performed very rarely before the thirty-eighth or thirty-ninth week, the majority being at term. It was not forgotten in teaching students there that the greater number of them would be concerned with domestic, not hospital midwives. The funnel shaped pelvis seemed more common in London than in Glasgow. She described some tests on the reserve force of the pelvis which were being made at the Royal Free Hospital.

Mr CARDLEY HOLLAND, in reply, agreed that trial labours were not suitable for general practice, but only in institutions. The method was in vogue chiefly in countries such as Switzerland, most of Germany, Scandinavia, and large parts of America, where most of the midwifery was conducted in institutions, and few women were confined in their own homes. He had not the least doubt that that would eventually come to pass in this country.

Rebucius.

THE EVOLUTION OF MAN'S BRAIN

STUDENTS of man's evolution have been looking forward to the appearance of Professor TILNEY's book entitled *The Brain from Ape to Man*.¹ Rather more than a year ago Dr H. LAMBERT OSBORN, who contributes a preface to it, took them by surprise by declaring that man's relationship to anthropoid apes was of the most distant kind: man and ape, he informed them, had parted company at that remote geological period which saw the first appearance of primate animals. Dr Osborn accounted for the many and close structural resemblances between man and anthropoids not by descent from an immediate common ancestry, but by evolution working in both the anthropoid and human lines of descent in a parallel direction. An opposite view was taken by Dr W. K. GREGORY, who is Dr Osborn's chief lieutenant, and has devoted thirty years to a study of all known fossil remains of primates and of man. His studies have convinced him that the palaeontological and anatomical evidence can be explained in only one way—by accepting the Darwinian hypothesis that man and anthropoid have been evolved from the same stock in a recent geological epoch. In this Dr Gregory finds himself in agreement with Professor J. H. MCGREGORY—an authority on fossil man and a colleague of Dr Osborn. Seeing that our conception of man's near relationship to the anthropoid apes is based largely on the structural resemblance of his brain to theirs, there was lively speculation as to whether Dr Tilney would take the side of Osborn or of Gregory in this dispute. So well does Dr Tilney hide his hand that it is not until almost the last page is reached that the reader discovers which has won his favour. On page 1043 we read: "We are wise if we turn our attention not to these simians, but rather to the generalized mammalian ancestors from which both apes and man took origin to that stock which may be traced, as Huxley and others maintain, to the organization of some lowly mammal such as the tree-shrew."

To those who have plodded through the evidence which Dr Tilney has adduced in the previous thousand richly illustrated pages his final judgement comes with a shock of surprise. His verdict does not reflect the evidence. Let us summarize the nature of Dr Tilney's evidence. He has taken carefully preserved brains of eleven primate animals—namely, the lemur, tarsius, marmoset, howler, monkey, baboon, macaque, gibbon, orang, chimpanzee, gorilla, and man—in ascending series, and cut them into serial sections. The sections which he figures and describes begin at the lower end of the medulla oblongata and end where the peduncles of the brain merge in the great basal ganglia—the corpus striatum and optic thalamus. Of these great and important masses he gives no account, nor does he deal with the most prominent of all the elements which enter into the formation of the primate brain—the cerebral cortex. All the important memoirs which have appeared in the present century on cortical areas of the brains of man and ape are left out of account. Dr Tilney has stationed himself at the great gateway to the brain—its basal stem—and noted more carefully than anyone has yet done the highways which carry the chief tides of communications to and from the brain, and the relays of grey matters scattered along these highways. He figures the graded rise of the pyramidal system as one ascends from the marmoset to man—showing a growing domination of the cerebral cortex over the motor centres of the spinal axis, he traces a corresponding rise in the great afferent tracts which pour messages from

¹ *The Brain from Ape to Man*. By Frederick Tilney. Ph.D. M.D. With chapters on the Reconstruction of the Cray Matter in the Primate Brain. Stem by Henry Alsop Riley. A.M. M.D. Foreword by Henry Fairfield Osborn. Sc.D. F.L.S. London: H. K. Lewis and Co. Ltd. 1923. In two volumes. (8 x 11 in.) 3120 557 illustrations many in colour 45 5s net the two volumes.)

the body into the basal stations of the brain stem. More especially has his attention been directed to stations and tracts concerned with cerebellar functions—the lower olive, the dentate nucleus, the red nucleus, and the putative grey matter. Here again Dr Tilney finds a graded series, the condition seen in the human brain is but the culmination of an evolutionary or developmental movement which has all its beginnings fully displayed in the brain of the marmoset. And yet this fact remains, which Dr Tilney himself points out, the big steps do not occur in passing from the great anthropoid to man, but in going from the lower ape to the maulike ape. The cerebellar organization of the gorilla stands much closer to that of man than it does to that of the baboon. It will be seen thus that Dr Tilney's evidence—that is, the facts on which he bases his final verdict—is drawn from an important but very restricted field of observation. All the rest of the body, save the brain stem, is left out of account.

His long and laborious investigation of the basal parts of the brain has made a deep impression on Dr Tilney's outlook on evolutionary problems. The samples he examined represent the state of cerebral elaboration in all forms of primate animals, from the lowest to the highest, and in all of them he found processes at work which tend towards a common goal—the bringing of the lower centres under the control of the cerebral cortex—a process to which Dr Tilney gives the term "neokinesis." The difference between the marmoset and man depends on the degree to which neokinesis has succeeded. On this matter it is best, perhaps, to let Dr Tilney speak for himself.

But these facts, correlated here perhaps for the first time and standing alone without the aid of commentary or special interpretation, speak in no uncertain terms of a structural unfolding in the brain of primates whose evolutionary significance may be seen in the progressive extension of their behavioral capacities. In this aspect these factors may appear merely as a conventional summation of scientific deductions. They may fail entirely to create an impression of the actual *dynamic force* which has behind them.

The reviewer has italicized "dynamic force" because it is the power to which Dr Tilney appeals when he desires to give an explanation of what he has found. Can a biologist visualize the power which Dr Tilney postulates to explain the organization of the brain of man and ape? We know very little, so far, as to how the behaviour of developing nerve cells is regulated, the researches of Dr Happers and of others reveal the power of neuroblasts to move their position and also to alter their arrangements. If Dr Tilney means by "dynamic force" the capacity of developing nerve cells to behave in a certain way, then we can visualize his meaning. But the behaviour of any group of nerve cells depends on their inheritance. When we find the nerve cells which go to form the olivary body behaving in a similar way in all primates we account for this in a common manner of behaviour by supposing a common inheritance which has come from a simple form lying at the very base of the primate stem of evolution. But when we find these olivary neuroblasts behaving in man and the gorilla in almost an identical manner we explain their particular agreement, and at the same time their difference from all representatives of the lower primates, by a much later separation of their evolutionary lines of descent. In support of such a conclusion evidence could be cited from hundreds of other structures which the gorilla and man have in common. Man and the great anthropoids are partakers not only in the general primate inheritance but in a particular share of that inheritance.

It would be unjust to Dr Tilney and to the publishers of this truly magnificent book to permit this review to conclude on a note of criticism. The author has striven successfully to serve expert anatomists by supplying them with masses of fact of which they stood in need, he has sought to meet the needs of inexpert readers by supplying them with clearly expressed general conclusions and with faithful illustrations, often beautifully reproduced, of the structures which form the subject-matter of his text. The publishers have spared no expense in making the book attractive. Neurologists and anthropologists will be indebted to Dr Tilney's labours for many years to come.

OCCUPATIONAL SKIN DISEASES

WE welcome the third edition of Dr PROSSER WHITE's well-known work on occupational diseases of the skin. It has now become a veritable encyclopædia on all forms of skin disease in any way associated with industrial activities, whether actually caused by the industry or not, and the author has even included burns caused by heat, electricity, and x rays, and also frost-bite. Not only has Dr Prosser White given us the benefit of his own very extensive experience in this field, but he has collected and collated all the scattered observations and experiments of every other worker. The result is a most valuable compilation. It is not only valuable to our own profession, but also to all those who are interested in the welfare of the industrial community and to those members of the legal profession who are increasingly concerned with questions of compensation for injury or disease arising in the course of employment—questions open to serious debate, for it is often a matter of great difficulty to determine whether the employment is in any way responsible. One industrial complaint which has lately been much under discussion in this country is the so-called "baker's eczema." It will be remembered that quite recently the workmen's organizations have done their best to alarm the public by stories of the risks run by bakers of contracting this disease. Dr Prosser White has come to the conclusion that eruptions caused certainly not solely by the materials handled by bakers in their trade are exceptional, and Etern, a German writer, is even more definitely of the same opinion. But as long as workers can obtain compensation for industrial dermatitis it is likely to remain common.

The author's remarks on sensitization—namely, heightened hyperæsthesia towards certain irritants—are interesting. He has formed the opinion that with the industrial inorganic chemical irritants sensitization is rare. Whatever the nature of the eruption, it is always due to direct physical, chemical, or mechanical injury or irritation. He states that if the eruption persists continuously or repeats itself when the offending substance is completely withdrawn, it should be inferred that the original agent is not the cause. But no doubt he finds it difficult to persuade the courts to take this view. Insurance records could provide scores of cases of patients drawing compensation allowances for dermatitis months after all contact with the original irritant. The importance of the whole subject is shown by the figures provided by various dermatologists. In some clinics the percentage of occupational diseases amounts to as much as 20 per cent of all the cases seen. At the lowest computation there are in Great Britain between 18,000 and 19,000 new cases of skin diseases due to occupation every year. The employers' liability insurance companies can testify to the loss entailed thereby.

While we have nothing but praise for the industry and thoroughness devoted to the production of this book, we feel bound to point out that it possesses some irritating features—one of these is the excessive use of heavy type and italics in the text. The unnecessary employment of italics in places where no emphasis is called for reminds us of Topsy's communications to *Punch*. Dr Prosser White is also fond of coming new additions to dermatological terminology, and the worst of these is the terrible word used by him as the main title of his book. "Dermatogoses" merits all the strictures that have ever been passed by scholars on medical nomenclature. This word is supposed to mean skin diseases caused by work. If he feels compelled to translate "occupational diseases of the skin" into Greek, the word "ergodermatoses," although nothing to be proud of, would at least do less violence to the rules of grammar. Having registered this protest we have only to add that the photographs are excellent and excellently reproduced, and that the generous and complete index (occupying over two hundred pages) is one of the best things in the book.

214 *Dermatogoses or Occupational Affections of the Skin*. By R. Prosser White, M.D., F.R.C.S. Third edition. London: H. K. Lewis and Co. Ltd. 1928. (Demy 8vo 1p 21 x 7 3/4. 58 figures on 52 plates. 35s. net.)

PROGRESS IN OBSTETRICS AND GYNAECOLOGY

ONE of the essentials in a series of works dealing with 'recent advances' in any branch of medicine is that the books should be brought out at reasonably short intervals. We are glad to see that this is being kept in mind in the case of Dr Bourne's excellent little book *Recent Advances in Obstetrics and Gynaecology*.² Very little need be said to introduce this second edition, for we imagine that almost all those who are specially interested in the subjects are already familiar with the first edition. But if there be any such who are not in this position, then we cordially recommend it to their immediate notice. Briefly the book is a short and lucid review of the results of research, both scientific and clinical, which have marked definite progress in obstetrics and gynaecology in recent years. In the case of obstetrics, for example, pride of place is very properly given to the subject of ante-natal care and to a study of the difficult question of maternal mortality. The causation of stillbirth, the chemistry of the blood and urine in pregnancy, the haemorrhages, the treatment of eclampsia, Caesarian section, and puerperal sepsis are the headings of the other chapters and sufficiently indicate the scope of the work. In the second part, which is devoted to gynaecology, the recent methods of investigating and dealing with sterility and with prolapse are discussed. The newer work on endometrial and the use of x-rays, electrotherapeutics, and radium are all admirably discussed. In this second edition an interesting chapter has been added on the ovarian hormones, which summarizes very judiciously the present position of this most interesting branch of research, and at the same time indicates the prospects which it opens out in regard to gynaecological therapy.

We congratulate Dr Bourne on the success of his book, which ought, unquestionably, to find its way into the library of everyone who is engaged in obstetrical and gynaecological work.

FERMENT ACTION

THE first two parts of *Die Methoden der Fermente*³ (Methods of Ferment Investigation) were reviewed in our issue of March 17th (p. 454). Three more parts have now appeared, and these complete the volume, which altogether contains about 1,600 pages. The majority of contributors are German, but there are articles from other countries by such well-known authorities as Fenger, Thunberg, Hopkins, Harden, and Newton Harvey. The articles are of a high average standard, and the following are some that appear to deserve special mention.

The first division of the book, which deals with general methods, is concluded by two valuable articles. A full account of Warburg's methods of measuring tissue respiration is given by Dr Krieb, a worker in his laboratory, and Dr Blaschko, one of Meyerhof's assistants, contributes an article on microcalorimetry. These articles are of particular interest because they come from the laboratories in which have been developed these new methods that are assuming more and more importance. The second division of the book deals with special methods for the investigation of the different classes of ferments—for example, saccharase, maltase, and nuclease. Most of these articles deal with highly specialized problems, but some are of wider interest. Thunberg describes the measurement of oxygen acceptors and gives a full description of his methylene-blue method. Sir F. Gowland Hopkins contributes a short article on the important subject of glutathione. Schmidt, of Limben's laboratory at Frankfurt, writes an article of twenty-five pages on lactacogenin. A. Harden contributes a short article on yeast zymase. Lohmann, of Meyerhof's laboratory, gives an account of the chemical determination of glycolysis and the resynthesis of carbohydrate. Newton

Harvey of Princeton gives a short account of work on luciferase. The third division of the book deals first with the demonstration of ferments in biological material, such as plant cells, animal tissue, and milk, and secondly, with methods for measuring the action of ferments of clinical interest. This latter portion is condensed into seventy pages, in it are described the chief methods for studying the ferments of the stomach and pancreas, and the anti-proteolytic action of serum.

The fact that the volume under review contains 1,600 pages devoted to the description of methods used to measure ferment action is a striking proof of the magnitude of the science of biochemistry. The size of the work has, however, been enlarged to a somewhat unnecessary degree by inclusion of articles dealing with subjects that are not strictly ferment actions. For example, one article describes the biological methods for standardizing insulin. The inclusion of articles that are not strictly relevant in works of this nature is very undesirable for the following reasons. It is nowadays impossible to follow the periodical scientific literature in more than a very restricted field, and hence scientific workers are forced to rely more and more on encyclopaedic works such as the volume under review. There is a tendency for even these works to swell to unmanageable dimensions, and their value depends very largely on the care with which they are edited, for if swollen unduly by the inclusion of extraneous matter they lose much of their value. In fairness to the volume under review it must be said that it errs in this respect less than many other of the encyclopaedic works on biochemistry that have recently been produced in Germany.

HOMONYMOUS HEMIANOPIA

IN his monograph on homonymous hemianopia⁴ Dr F. Bunge working in the ophthalmological clinic of Kiel has collected a series of fifty-two cases showing this symptom, and recorded his findings. He has divided them according to the site of the lesion into two groups—that in which the optic tract or external geniculate body is involved, and that in which the lesion is supranuclear. The former group of eighteen cases is characterized by the retention of the hemianopic pupillary response in all myosis and narrowing of the contralateral palpebral aperture (Behr's phenomenon) in half of the cases. In four cases the loss was only incompletely hemianopic. Of the other fourteen cases in which it was complete, there was sparing of the macular region in six cases and a completely vertical line of division through the fixation point in eight. Among twenty-nine cases of supranuclear lesion interruption of the visual apparatus there was a lesion of the occipital cortex in twenty-five, of the central nuclei in two and of the internal capsule in two others. Of these twenty-five cases of lesions of the occipital cortex six showed the blind field to be limited by a vertical line through the fixation point, while in eighteen it was encroached upon by a circle of macular sparing extending from five to ten degrees around this point. This sparing of macular vision the author explains by a greater resistance of the more essential macular fibres, not containing the view which attributes it to the double vascular supply of the extreme occipital cortical pole.

NOTES ON BOOKS

BOOKS and articles from the pen of Professor LAZER HARRIS appear with dazzling frequency. His new book *The ABC of Verres*⁵ is true to its title: it gives in a popular form the essential facts about the nervous system, its anatomy and physiology. Of special value is the emphasis it lays throughout on the use of the experimental method in establishing our knowledge of the working of the nervous system. In view of the statement repeatedly made that Sir Charles Bell discovered the function of the nerve roots without resort to animal experiment the quotation from Bell's pamphlet 'An Idea of a New Anatomy of the Brain' printed in 1811 to the effect that

² *Recent Advances in Obstetrics and Gynaecology*. By Aleck W. Bourne. M.D. B.Ch. Camb. F.R.C.S. Eng. Second edition. London J. & A. Churchill, 1928. (5 x 8½ pp. x + 382, 67 figures, 12s. 6d. net.)

³ *Die Fermente und ihre Wirkungen*. Von Professor Carl Oppenheimer. Fünfte völlig neu bearbeitete Auflage. Band III. *Die Methodik der Fermente*. Unter Mitarbeit von Fachgenossen. Herausgegeben von Carl Oppenheimer und Ludwig Pincus. Lieferung III. 14 und 15. Leipzig G. Thieme, 1928. (72 x 10½ Lieferung III, pp. 625-944, 45 figures, 15s. 6d. net. Lieferung IV, pp. 945-1264, 59 figures, Lieferung V, pp. 1265-1578, 57 figures. Each part 12s.)

⁴ *Über Homonyme Hemianopsie*. Von E. Bunge. Berlin S. Karger, 1928. (Sup. roy. 8vo pp. 51, 1 plate, M.2.80.)

⁵ *The ABC of Verres*. By Dr F. Lazer Harris. M.D. D.Sc. London Egan Paul Trench Trubner and Co. Ltd. 1928. (Cr. 8vo pp. ix + 223, 14 figures, 4s. 6d. net.)

only after such an experiment did the meaning of the double connection of the nerves with the spinal cord become clear to him, is of particular interest. The account of Pavlov's work, though good, is brief, and might well be expanded in a later edition. The diagrams are clear and adequately explanatory of the well written text.

The question of propaganda in health matters is much before the medical profession at the present time, and a contribution by two experts is welcome. Dr CLAUDE LILLINGSTON and Miss NORAH HILL, who jointly edit *The World's Health*, have collected nearly forty articles in a volume entitled *How to Enjoy Health*, and it may be said at once that they are very good examples of their kind. Each article is by one of the authors, is indicated by initials, but in each case the work has been checked by both so that what is called 'technicalities and scientific jargon' has been censured by Miss Hill, while all facts have been verified by Dr Lillingston. The result is clarity, accuracy, freedom from fads and personal prejudices, a pleasant style, and an interest which should arrest any reader's attention and keep it fixed. 'The business girl's day' is a typical example, the daily life of Gertrude, from her 'bachelor' quarters in the suburbs of a large town to her seat in the far corner of the office and so home again to bed, is faithfully described with intelligent counsel for its betterment. On 'constipation, the common cold, or the medical aspects of tobacco,' Dr Lillingston shows how a controversial subject may be presented to the public without bias and yet with definite conclusions, while on 'whooping cough' Miss Hill shows how facts may be set out so as to state an unanswerable case for an improvement in preventive measures. It is stated that these articles have been translated into various languages, and some have already appeared in many different Red Cross journals. They are worthy of careful study by medical officers of health and others concerned with health propaganda.

The treatise on the problems of the ties* by Drs J WILDER and J SILBERMAN of the Maria Theresa Schloss Institute for Nervous Diseases at Vienna, is the first monograph on the subject since the classical work of Meigs and Feindel. It is based on the study of 370 cases of ties of various kinds observed between the years 1914 and 1926. The work is divided into three parts. In the first, which is entitled 'The modern view of the problem of the ties, with special reference to stunted hyperkineses' Dr Wilder discusses the varieties of ties, particularly ties in children and war tie of which 213 cases were observed in the period 1914-18, then pathogenesis, nosology and treatment. The second part, written by Dr Wilder in collaboration with Dr Silbermann, contains the histories of 57 cases of organic and functional ties, 17 of which have been abstracted from the literature and 40 are original. The third part contains a short description of a case of Gilles de la Tourette's disease.

The specialist, the general practitioner, and the medical student have all been liberally treated in the matter of manuals on venereal diseases. Mr TURNER WARWICK, in his *Handbook on Venereal Diseases*,² has catered entirely for nurses who up to the present have had to search for any information they may desire among textbooks whose wealth of technical details renders them inconvenient foundations to knowledge. In the numerous venereal disease clinics scattered throughout the country there are working many nurses and orderlies who will welcome the opportunity Mr Warwick has provided for their obtaining information concerning the general principles that underlie the diagnosis and treatment of venereal disease. Moreover, this book deals not only with the clinical side of the subject, but also with questions that concern public health, and should do much to enlist the aid of nurses and orderlies in the fight against venereal disease.

Dr JORDAN'S *Text Book of General Bacteriology*¹⁰ is a favourite book for students in America, and has had many readers in this country in the years that have passed since its first publication in 1908. We have now received the ninth edition and notice that it is a little larger than its predecessors, that the chapter on the parasitic protozoa has been entirely rewritten and that new material has been added on the bacteriology of scarlet fever, erysipelas, and rheumatic fever. Otherwise the book has the same appearance and arrangement as before.

How to Enjoy Health. By Claude Lillingston M.D. and Norah Hill A.R.C.N. With a preface by Sir Squire Sprigge M.D. London: Hodder and Stoughton, 1928. (4 x 7 1/2 pp. 287 2/- net.)
Handbook on Venereal Diseases. By Dr J. Wilder and Dr J. Silbermann B.M.S. 3 Kaizer (Sup. pp. 8vo pp. 100 2 figures 1/3 4d.)
Handbook on Venereal Diseases. By Dr Turner Warwick F.R.C.S. London: Faber and Gwyer Ltd. The Scientific Press, 1928. (Cr. 8vo 11 x 8 1/2 218 figures 6/- net.)
A Text Book of General Bacteriology. By Edwin O. Jordan Ph.D. Ninth edition thoroughly revised. Philadelphia and London: W. B. Saunders Company, 1928. (Med. 8vo pp. 778 10/- figures 2/- net.)

PREPARATIONS AND APPLIANCES.

A FORCEPS FOR INTRAUTERINE APPLICATIONS.

Mr H. J. McCURRICIE M.S. F.R.C.S. (Hove), writes: The application of glycine to the interior of the uterus advocated by Remington Hobbs for the treatment of infections of the endometrium, has in my experience, yielded excellent results both in the puerperal and the non-puerperal types of infection. The apparatus described by him, however, has always struck me as being rather difficult to use. Owing to the introducer being straight the surgeon's hand obstructs his view and the blades of the forceps are so arranged that in withdrawing the forceps they may catch the catheter and withdraw it also. The catch I found a nuisance as it was sometimes difficult to release without disturbing the catheter, and its presence made it more difficult to 'feed in' the catheter. The Sims speculum and the Hobbs anterior vaginal speculum require holding by an assistant, whose hands may get in the way. I therefore designed the introducing forceps illustrated here. It is so arranged that the surgeon's hand does not hide the cervix or the tip of the catheter. In ante flexion the catheter is passed under the forceps and its tip brought up between the blades so as to point anteriorly, in retro flexion the catheter is passed along the top of the forceps and its tip lowered between the blades so as to point backwards. There is no catch, and the blades are not grooved. The instrument makes an excellent swab holder. I use a Cusco's bivalve vaginal speculum which obviates the need for an assistant and thereby removes a further obstacle to the view. The external os is dried by wool held in this forceps. Clean wool is picked up and applied to the cervix and the soiled wool then dropped in a receptacle. This process is repeated until the outside of the cervix is clean, then, without changing hands the forceps is used to pick up and introduce and propel the catheter into the uterus. I usually have the patient in the lithotomy position or in the gynaecological modification of that position (that is feet lower than in the lithotomy position) but the Sims position would be nearly as good. The catheter contains air until the glycerine passes through it, and some air will be expelled into the uterus but this does not matter at all. It would of course be possible to fill the catheter with glycerine first but this seems to me to be unnecessary. I suggest that the method described here will considerably simplify the process of applying this most satisfactory form of treatment.

The instrument was made for me by Messrs. Down Bros., Ltd.

NEW GLAXO

'Prescription (humanised) Glaxo' is a new preparation of this well known infants' food in which a full content of vitamin D has been ensured by the addition of ostein.

The makers point out that in the past there was a tendency to recommend a high content of fat in infants' food because only by this means could an adequate supply of the antirachitic vitamin be ensured. This high fat feeding however defeated its own object because the excess fat hindered the absorption of calcium by forming insoluble calcium soaps. The provision of an adequate supply of vitamin D by the addition of a vitamin concentrate such as ostein avoids this difficulty and also avoids the production of digestive disturbances that frequently are caused by excess of fat.

The analysis provided by the makers is as follows:

	Dry powder	Reconstituted 1 in 8.
Fat	20.0	2.5
Proteins .. .	17.0	2.1
Lactose .. .	56.0	7.0
Ash .. .	5.0	0.6
Moisture .. .	2.0	0.7
	100.0	100.0

The reconstituted milk is therefore very similar to human milk in its percentage composition.

A SPIRIT PROOF SYRINGE CASE

We have received from the Security Druggist & Sundries Company (23 Grosvenor Gardens, South Hampstead N.W.6) their patent Masse hypodermic syringe carrier fitted with a hypodermic syringe and a serum syringe and needles. The instruments when not in use are attached to a plate which fits into a metal case containing methylated spirit. The carrier has a patent foot mount, which enables it to stand upright securely. It is easily opened, and the syringe and needle can be quickly withdrawn and replaced in the fluid. The specimen supplied to us proved to be perfectly spirit tight in all positions and the apparatus is likely to be a very popular addition to the general practitioner's bag since its contents can be kept sterile. The price of the complete outfit with syringes is 17s. 6d. the patent case with the plate but without the syringes can be supplied for 8s. 6d.

STANIFORM

Staniform is methyl stannic iodide and the manufacturers (Whiffen and Sons Ltd. Loudon S.W.6) claim that it combines the well known usefulness of the staphylococcal infection with the powerful germicidal properties of iodine and that it is indicated generally for use in local inflammations such as boils, ulcers, chafed skin etc. The drug is supplied as an ointment, and also as a dusting powder.

ON THE TREATMENT OF FRACTURES A PROBLEM OF ORGANIZATION

BY

ERNST W. HEY CROVIS, M.D., M.S., F.R.C.S.,
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On the Acquisition and Application of Knowledge

IN the forward march of human progress it is the pioneer, or discoverer of new paths and fresh territory, who holds the public eye and captures the popular imagination. But if the new discovery is to be of any lasting value the pioneer must be followed by an organized band of workers who colonize and cultivate the new territory, whether this be actual land or a mere domain of knowledge. Quite rightly we shall always regard Columbus and Cabot as amongst the greatest of the world's heroes, but the practical value of their heroism would have been wasted if successive generations of seamen, engineers, and colonists had not established an easy and safe route to the New World and developed its resources. Thus it is, too, in matters of applied science—it is only given to the fortunate few to acquire new knowledge, but it is the duty of those who come after to see that this new knowledge is applied.

There is no doubt some danger at present in medical science of the attention being so concentrated on the quest for new knowledge of hidden mysteries that the patient and systematic application of knowledge already in our possession about everyday ailments may be neglected. It is quite right that ceaseless work should be expended on trying to discover the cause and cure of cancer, but we must nevertheless remind ourselves and instruct the public that the causation and treatment of tuberculosis are known and that we ought to apply knowledge already in our possession at the same time that quests for new knowledge are being organized.

For the moment, however, I wish to discuss a problem which is even simpler than that of tuberculosis—namely, the treatment of fractures.

In this matter it may be well to begin by considering the conditions and lessons of the late war. There was no great medical problem at the beginning of the war which seemed so hopeless as that of the treatment of gunshot fractures, and there was certainly none which by the end of the war was so satisfactorily solved. And yet, when we come to ask, "To what discovery was this happy result due?" we are forced to admit that there was no new thing found but that the whole progress was due to organization, team work, and the training of workers. It was not the acquisition of new knowledge, but the application of well-established principles which turned failure into success. As far as I know, there was no new discovery made about the treatment of fractures during the war. The importance of early excision of infected wounds was established, and this seemed to be more important than any of the chemical disinfectants—hypochlorates, hypertonic salt, bipp, or flavine—each of which proved useful, but could not be claimed as essentially new. Probably the Carrel-Dakin treatment, combining mechanical with chemical cleansing, was the nearest approach to a new discovery in the realm of fracture treatment.

On the other hand, progress was definitely hindered by what at that time was a comparatively new method—namely, the plating of fractures—and many limbs were lost or ruined before this was finally set aside. Success in fracture treatment during the war was achieved by organization, team work, the training of new men and the segregation of difficult cases in special hospitals; this success was made possible by the fact that the general control of fracture treatment was entrusted to one (our own revered emeritus president) whose unrivalled know-

ledge of how to treat fractures was only equalled by his wonderful capacity for knowing how to deal with men—both men above him, in brass hats, and the men below him in hide-bound traditions.

I think that we are all convinced that the fracture problem of to-day is one like that of the war, in that it requires not new knowledge, but the organized application of the knowledge we already possess. It requires the segregation of cases, the training of team workers, and the systematic tabulation of results. We want not merely a collection of *slav* records, but an accurate knowledge of functional results.

The Arguments for Reform

Before discussing the details of reorganization of the teaching and practice of fractures it may fairly be asked: What evidence exists that such reform is necessary? Naturally the first argument which springs to the mind is the very great number of bad fracture results which are constantly met with in practice. The stiff shoulder-joints with the arm tied to the side, the fixed elbow-joint, the pronated hand, the unreduced Colles's fracture, the ununited neck of the femur, the short leg, the crooked shin, and the everted backwardly displaced foot—these are conditions which we are consulted about perhaps once or twice every week, and in nearly all we are oppressed with the thought that prevention of such deformities would have been easy, but that complete cure is almost impossible. In the great majority of these cases the original fault has been a matter of neglect or oversight. Either the patient has been in a large hospital where in the press of work he has been relegated to the care of a junior resident and hurried out at the earliest possible moment, or he may have been in a small country hospital, where he was splinted and made comfortable for the time being in the happy belief that if he did not make a good recovery he could be transferred elsewhere later on for "orthopaedic treatment", in a small minority of cases the fault has been that of attempting too much. An open or a comminuted fracture has seemed to call for operative treatment, and this has been undertaken without the experience and training which are necessary to justify such.

The mere collection and review of any series of bad fracture results must, then, lead to the question as to frequency of such disasters, and whether it is sufficiently great to justify a demand for reorganization of the fracture service. And here we are at once faced with what in itself constitutes a strong reason for reform—namely, the absence of any systematic records of after-results. We really do not know what proportion of cases of broken limbs leads to permanent or to partial incapacity. And yet from an economic or industrial point of view this is surely important information which we ought to be able to get. Does there exist in this country a single hospital or fracture service which collects and tabulates the results of its fracture cases one year after the injury? Such information would be invaluable, both for noting the type of injury which gives the worst final result, and especially as a standard of comparison with which new methods and organization could be compared.

We certainly know that in most places including the majority of the teaching and municipal hospitals and all the small hospitals, there is no attempt at organization of the immediate or the after treatment of fractures. There is no segregation, or team work, or systematic following up of cases. In fact, all those features of organization which the war taught us to value are conspicuous by their absence in modern civil practice.

There is, then, ample evidence of the need for improvement in the fracture service of this country and we shall be justified in considering how this improvement may best be brought about in relation to different types of hospital and in general practice.

The Teaching Hospitals

The university teaching hospital is usually one which contains about 300 to 500 beds, and it has long been obvious that the right policy to be adopted there is the

provision of a fracture department of a suitable size to deal with in-patient and out-patient fracture cases. The actual number of beds to be set aside for fracture work would probably be about 10 per cent of the whole. It would be unnecessary and undesirable to make any rule that all fracture cases must go to the fracture wards. The department would be there, and the cases would go there naturally if the work was well done. The very great majority of general surgeons would be only too glad to rid their wards of fractures, although they might wish occasionally to keep some special case in their own hands.

The personnel responsible for the fracture department would consist of a surgeon, an assistant, a resident, sisters, an officer in charge of the physiotherapy, and the massage staff. In addition to these there ought to be a registrar, with sufficient clerical staff to carry out a regular tabulation of results with a good follow-up system. Every student would have to act as a dresser for two or three months, and during this time he would see both the in-patient and out-patient work, he would assist in putting up fractures in the first place, and he would see the after-treatment and the late results. This is, of course, no novel plan. Its adoption has been urged ever since the war. The reasons in its favour are convincing, while the arguments against it are so weak that it really no longer presents a debatable proposition. By providing a department the very *raison d'être* of which is the study, treatment and cure of fractures, each patient admitted to the department would be assured of the best possible chances of a speedy recovery. On the other hand, in many of the teaching hospitals now the beds are overcrowded, the fracture cases are regarded as a nuisance to be dealt with by a resident, who himself is probably more interested in abdominal work, and whose chief aim is to avoid blocking the beds with fractures. If, in spite of his vigilance, a fracture case is admitted, his next aim is to shift it as quickly as possible to the limbo of a general out-patient department or to a Poor Law hospital. Very naturally, then, if a fracture has been put up in plaster or other splint in a teaching hospital and then sent on to a Poor Law hospital, the medical officer at the latter institution, who is overburdened with routine work, will be content to carry on without himself making any critical examination or initiating any fresh treatment.

The present education of the student, too, is most unsatisfactory in relation to fractures, he often never sees any treated except in the casualty department, and then only for a brief moment. More often his experience of fractures includes seeing some difficult case operated upon while the more ordinary valid cases are wrapped up and got rid of. No wonder that when he comes to practise himself he carries out the same ideas—that is, if he is cautious, he always contents himself with giving some sort of rough and ready first aid, and then tries to find out how he can send the patient away to someone else. If he is adventurous and the patient is a suitable one, he will suggest doing an open operation, and provides himself with some plates and screws for the purpose.

If the argument for a special fracture department is so strong at every teaching hospital, if it will improve the quality of the treatment and expedite the patient's recovery, if it will improve the teaching of students and train practitioners to know this part of their work—then we may well ask why this reform has not been adopted long ago in all our chief institutions. The reasons must be of an obscure character, because they have never been put into plain words by those who deprecate any change. Probably reluctance on the part of the surgical staff to specialize in fracture treatment, together with a shortage of beds, are the two main factors which tend to block progress, but in this respect there is a very definite indication of a steady change in the right direction. Many of the teaching hospitals have now got either a fracture ward or else an orthopaedic department to which fractures are sent. In most cases the number of beds available for fractures is wholly inadequate, but this is being generally remedied. I would like to emphasize this one point very strongly, most hospitals now have 10 to 15 per cent of their beds occupied by fractures, and it will not necessitate

any provision of fresh beds if this 10 per cent of the cases be put together in the same wards instead of being scattered about all over the hospital.

Municipal Hospitals

It is quite clear, however, that the teaching hospital, together with the other large voluntary hospitals, cannot deal with all fracture cases or even all of those of a serious character—for example, fractured spine, pelvis, femur, and tibia. At any rate, the voluntary hospitals cannot keep such cases for the full period necessary for functional recovery. Under existing arrangements one of two things happens. Either the bad case is refused admission to the overcrowded voluntary hospital and is sent direct to the municipal hospital, or, more commonly, it is first taken to the voluntary hospital, and then, after a few weeks, it is transferred to the municipal hospital. Sooner or later, therefore, the municipal hospital must take over many serious cases of fracture, and these will, of course, be just those which require the greatest care and skill in their treatment. The majority of municipal hospitals are, however, very much understaffed. For example, a municipal or Poor Law hospital of 500 or 600 beds often only has four whole-time medical officers and four visiting consultants—a total staff of eight, as compared with the twenty-five or thirty men who are on the staff of a voluntary hospital of the same size. In these circumstances it is almost impossible for fracture cases to receive anything but the most perfunctory treatment, and usually this is only of an expectant character. The remedy for this state of affairs is not difficult to suggest, but very difficult to carry out.

In the first place there ought to be a definite co-operation between the voluntary and municipal hospitals. Whatever else this includes it should certainly imply an active liaison between the staffs of the two types of institution. The surgical staff in charge of the fractures at the voluntary hospital should be consulting surgeons to the municipal hospital, and should superintend the work at both places. It will then be a matter of local circumstances whether bad fractures first go to the voluntary hospital and are later transferred to the municipal hospital, or whether from the outset certain types of fracture—for example, those of the femoral neck, pelvis, or spine—should from the outset go to the municipal hospital. The main and essential point is that in every city and large country town there should be secured a single fracture service for working-class patients. This would be carried out by a team of men working under a single chief, and the work would be partly done at the voluntary or teaching hospital and partly at the Poor Law or municipal institution. At the latter place there should be full provision for functional after-treatment—curative workshops where men during their recovery could be kept usefully employed, instead of drifting into that hopeless condition of compensation neurosis which awaits so many who are sent home with nothing to do. In any case such a man is a charge on the community during his invalidity, and it would really be much more economical to keep him at an institution where he is trained to resume work than to allow him to become a waste.

The Smaller Hospitals

The problem of fracture treatment at the smaller hospitals in country towns is becoming more important every day, because of the large number of motor accidents which occur almost at their doors, and in the country hospitals there is a definite selective influence by which only the worst cases remain for treatment. The injured person is usually far from home, and his own wish is to be removed to an institution near his home. This may be effected after treatment has been given. Therefore a large proportion of the fractures in country hospitals are of a serious character. The character of these smaller hospitals, the extent of their equipment, and the work turned out by them varies very much in character. Some of them are modern and very well equipped, others are certainly bad, and if it were not for the protective halo of our cherished voluntary system they would be reformed or abolished.

Probably in the better type of country hospital the fracture work compares very favourably with that done in the teaching hospitals in the service of men not interested in fractures, but, on the other hand, there are many small hospitals where the treatment is very bad. This may be due to faults in the personnel or in the equipment, it is much easier to deal with the latter than the former. It should be generally conceded that, except as a temporary emergency, no serious cases of fracture should be admitted to a hospital which is not provided with an x-ray plant and a proper supply of splints and appliances. An elaborate aseptic operating theatre is certainly not necessary. The matter of personnel is one of great difficulty, chiefly because in the type of hospital in my mind—that of about twenty beds in a town with a population of two or three thousand—all the general practitioners are on the staff, and it is difficult for one or other to act as a specialist or consultant for the other.

Probably the easiest solution of the difficulty is the appointment of a resident house surgeon who has a good knowledge of fracture work. Such a man will be of invaluable assistance to the whole staff, who will be only too glad to let him carry out routine fracture treatment. Unfortunately a large number—and I would say the majority of recently qualified men—do not possess this requisite knowledge, or, rather, practical experience. This brings us back to the first part of my thesis—namely, that our teaching hospitals do not give a student enough practical fracture work to fit him for this part of his profession. If we are asked where a man could go to in this country to get a three months' intensive post-graduate training in the treatment of fractures, we should have to admit that there are very few such places. Now this is certainly a most serious indictment of our surgical educational system.

To return to the small hospital and its fractures. At present what happens at the less satisfactory of these institutions is that fractures are put up within the first few days of admission and then nothing further is done for perhaps six to eight weeks. If at the end of that time marked deformity is revealed when the bandages are removed, or the patient gets up, the case is sent off to a specialist at some teaching centre for further treatment. Such conditions as fracture of the neck of the humerus with bad position and a stiff joint, forearm bones with crossed union, an unreduced Colles's fracture, an ununited neck of the femur, a shaft of the femur with two or three inches overlapping, a malunited fracture of the tibia or an unreduced fracture-dislocation of the ankle are common instances of serious crippling deformities which would have been comparatively easy to deal with during the first few days after injury, but which are not only difficult after several months, but at that period can seldom be restored to full functional recovery. Every case of fracture in which reduction and good position has not been attained by the end of the second week ought to have further treatment other than mere *laissez-faire*, and in the case of the small hospitals some arrangement should be made by which a consultant's opinion can be called for without any loss of prestige on the part of the practitioner in charge. This might be arranged by the national health insurance authorities or else by the accident or compensation insurance companies in whose interests it surely is that these cases should be quickly and efficiently brought to recovery.

The Relation to the Insurance Companies

This opens up another point of view about the treatment of fractures. A man has a motor accident in which he sustains a fracture. If he is a better-class patient and is conscious after the accident, he is taken to his own doctor or to a nursing home and the cost of the treatment which he undergoes is ultimately borne by the insurance company. But if he is far from home or if he is a working man, he is taken to hospital and it usually happens that all professional attendance is given gratuitously, the insurance company merely paying for loss of time on the scale of the Workmen's Compensation Act. It frequently occurs that the gravity of the case is overlooked, and that

the fracture is put up in such deformity that the patient is either permanently crippled or else has to be sent to another institution for corrective treatment which seldom gives such a good result as if the case had been efficiently treated from the outset. Surely, as a mere matter of economy, it would pay the insurance societies, in which should be included the national health insurance authority, to safeguard themselves in this matter. This could be done to some extent by providing for the services of a consultant in all severe fracture cases soon after the accident, instead of delaying until a bad result is inevitable. Still better would it be if in all large centres of population good fracture clinics could be provided where the best treatment could be given in the first place and where after-care until the patient is restored to work would be provided. Such an institution is actually in existence in Madrid, and is supported partly by a Government grant, but chiefly by the insurance societies. It is very desirable that some of the chief insurance companies should be persuaded, as a first step in this direction, to draw up a table showing the number and classification of their fracture cases, the length of time taken for recovery and the cost of such cases during invalidity. I am confident that such a statistical inquiry would go a long way towards convincing the companies concerned that it would be in their own interests to help in the working out of some such scheme as has been suggested.

An Ambulance and X-Ray Service

As far as I have been able to learn many of the ambulance first-aid services have not modified their methods since the lessons of the war. In towns where accident patients have not far to be carried this is perhaps no great matter, but when fracture cases have to be transported for many miles over country roads we may well ask why it is that the Thomas splint is not used instead of the Liston. This point has been recently brought to my mind by a vigorous letter from my friend and fellow student Pearson, who writes urging this belated reform upon the overseas branch of the St John Ambulance. The essential nature of good x-ray work, both in the first diagnosis and also in the after-treatment of fractures is generally admitted and this equally important provision of a good ambulance service is also necessary. Both these things are to hand in all cities and large towns but they are often difficult to obtain in the country districts. Patients after an accident are frequently taken to their own homes, and sometimes—for example, in an injury to the hip-joint—it is not possible to be sure of the diagnosis without x-rays. It ought to be possible to provide a portable x-ray apparatus which could be taken to such patients and then if serious fracture is discovered, the same motor ambulance could, if necessary, move the injured man to the nearest suitable hospital. The provision of such a service should be a part of our national hospital system unfortunately, however, such a system does not exist, and the voluntary hospitals are overburdened already with the struggle for existence and have moreover no sense of responsibility for national schemes. The charge would therefore have to be made out of the country rates, supplemented by the insurance funds.

Conclusion

I am very sensible of the fact that I have been preaching to the converted, and that in the main I have only been saying what has been said so much better by our founder, Sir Robert Jones. But reforms do not come in a day and it is better to repeat what we know to be true than to remain silent because good advice is not acted upon immediately.

We know now how fractures ought to be treated, and that correct treatment will save personal disablement and economize loss. We know too, that organization, segregation, and team work are the essentials of good fracture work as much in peace time as in war. I have therefore thought it my duty in the high office you have conferred upon me to repeat these things you know so well, in the hope that we may be further stimulated to work for the much-needed reforms.

British Medical Journal.

SATURDAY, DECEMBER 1st, 1928

THE ASSOCIATION IN 1928

MEDICAL men and women owe it to themselves to give a few minutes thought every now and then to what is being done on their behalf and for the public good by the professional body which speaks in their name. Our present object is to offer them some material for consideration, but not to enter into details. An article of a few hundred words that tried to cover all the manifold activities of the British Medical Association during the past twelve months would make dull reading—it would be a mere catalogue, 'a plate of bones'. The full record of the year's work will appear next April in the Annual Report of Council, and in this brief survey we shall only point out some recent landmarks to those readers who are not as familiar as they might be with what goes on at the centre and at the periphery. By so doing we may perhaps give them also a better insight into the spirit and purpose of the great piece of living machinery known throughout the world as the B.M.A.

Speaking generally, it has been a year of consolidation and of progress along accustomed lines. There are no spectacular victories to record. Membership has grown by a thousand, and is now 34,500, so that in the past ten years there has been a total net gain of more than 14,000. Material resources expand with rising numbers, fresh activities open out, and new forms of service can be undertaken. When the centenary comes in 1932 the total ought to be 40,000 at least, for the field of recruitment is still large, and, unless we are mistaken in our judgement of the youth of to-day, the aims of the Association should make a special appeal to the generation of medical students who graduate during the next few years. Side by side with the growing membership there has been a steady growth of work at headquarters and a stirring of interest within the Divisions and Branches. From all parts of the country signs have come of vigorous life. We would not say that medical politics make a stronger appeal to the general body of members, but in the scientific and social spheres 1928 has seen a remarkable increase of local activity. Pages of our Supplement have been filled each week with notices of lectures, debates, demonstrations, and post graduate courses, or of dinners, dances, golf matches, and excursions. A debt of gratitude is surely owed to the honorary officers in town and country who give time and trouble to the task of bringing their neighbours together by such admirable means. We may note also as a healthy sign of the times the disposition among individual members to make personal contact with the Head Office, both by requests for information and advice on professional matters, and by their ever increasing use of the Association's Library, whose lending department has almost trebled its output in the last six years. Another means whereby members at the circumference can be brought into touch with the centre is the collective investigation of a clinical problem. Two very profitable inquiries of this kind have been set on foot this year by the Association, one into the treatment of

varicose ulceration, and the other into the after history of gastro-enterostomy cases. Useful information was also supplied by individual doctors in response to the questions drawn up by the Association's Committee on Puerperal Morbidity and Mortality when preparing its final report.

The leading event of the Association's year, its Annual Meeting at Cardiff under the presidency of Sir Evan Maclean, was an unqualified success—well planned, well attended, and thoroughly informative in the clinical and scientific part of its programme. In this latter respect our organization does notable work for medicine. Every summer it visits a medical centre, and becomes 'a gathering point of specialized minds' and a clearing house for new knowledge and new ideas, thus the Association fulfils one of its primary duties to the members at large. Our South African colleagues, following the lead of the parent body, held their first annual scientific meeting under the new constitution at Bloemfontein in March. Among many other services to medical science—apart from weekly publication of the *British Medical Journal* and periodical issue of two special journals—the Association at home has sent lecturers to Branches and Divisions throughout the country, and has added to the number of scholarships, prizes and grants which it awards for the encouragement of research and clinical observation. A beginning has also been made with a series of articles in the lay press intended to guide the public in matters of general health.

On the political side (using the word in its widest sense) much useful work has been done in committee and elsewhere. A conference was held in June to discuss contributory schemes for hospital benefit, and medical representatives of 200 voluntary hospitals in Great Britain and Ireland attended. The Insurance Acts Committee has kept guard over the interests of panel practitioners, and nothing that bears upon insurance medical practice—whether it be the revision of disciplinary procedure, or allegations in respect of excessive sickness claims, or a questionable phrase in the latest bill—has been allowed to go by default. In like manner a special committee is watching the scheme for local government reform now before Parliament, and two memorandums of evidence were submitted to the Royal Commission before it finally reported. The encroachments upon private practice by local authorities are under investigation by another special committee, whose interim report is now before the Divisions. One more document may be mentioned here—the Association's memorandum on noise in relation to the health of the community, which has aroused great public interest and widespread support in the newspapers. Lastly, among the visible (and audible) activities of 1928 at headquarters we must record the rapid progress made with extensions to the Association's building in Tavistock Square, and the enlargement of the Scottish House in Edinburgh.

So much for a single year's work. Of the position generally, it is true to say that no other vocational organization can be compared with the British Medical Association in respect of the scope and variety of its work, or its standing in the eyes of public authorities. It comprehends every aspect of professional life. Its conjoint aims are to advance the science and practice of medicine, to promote social intercourse among the members, to defend their interests, and to uphold professional standards. And beyond all these it stands for the public welfare. As Sir Robert Philip reminded us lately at the autumn Council dinner, this great organization a hundred years ago was simply a concept within the

brain cells of a young man. Charles Hastings did not seek material advantage; he had a spiritual inspiration. Ten years ago the British Medical Association, like every other institution, was suffering from the effects of a war unprecedented in scale and intensity. It has now far more than regained such ground as was lost, and is flourishing as never before. Nothing, however, could be worse than to end on a note of complacency, or to imply that material success, such as we see around us to day, is all that matters. Charles Hastings had an inspiration.

THE LOCAL GOVERNMENT BILL AND HEALTH ADMINISTRATION

In a leading article in the *Journal* of November 10th (p. 854), written before the Local Government Bill, 1928, was introduced in the House of Commons, we anticipated that the proposals of the Government would follow certain general lines, and the text of the bill shows that these anticipations were correct. The bill—that is, the measure applicable to England and Wales, but not to Scotland—is now under discussion in Parliament, and has been strongly attacked by both sections of the Opposition, as was to be expected, since it is the principal measure of the Government just prior to a general election. It is unfortunate that the concentration of attack mainly upon the financial aspects of the bill tends to divert attention from the very important provisions for the reform of local government machinery. It is only with these provisions so far as they affect health administration that the medical profession, as such, is concerned, and it may be said at once that broadly, they will have the support of the British Medical Association in so far as they are a step towards that unification of health administration which the Association has made its aim for so long. The whole object of any suggestions the Association has to offer is to make the bill a more effective instrument in securing the practical efficiency of health services. Some modifications of the bill seem essential if grave danger to these services, including the provision and management of hospitals, is to be avoided.

There are three aspects of the bill in its relation to health administration to which the attention of the medical profession will be mainly directed. One of these is its effect upon the position of medical officers of health and of Poor Law medical officers as regards their status, and then transfer, compensation and superannuation if their offices are disturbed. The provisions of the bill in this respect may be regarded as almost entirely satisfactory. The interests of existing officers are secured, and the clause relating to the expediting of the appointment of whole time medical officers of health, though it might with advantage be somewhat more specific as to the nature of the arrangements to be formulated, is clearly a great advance in the direction which the Association has for many years indicated as desirable. The Association will need, however, at a subsequent stage, to be watchful lest its general principle that whole time medical officers should not undertake domesticary practice is violated.

The second aspect of the bill in its relation to health matters concerns its main proposals for changes in administrative machinery with regard to both form and function. Here there is unfortunately room for some disappointment and need for early activity. Poor Law guardians, as such, are to be abolished,

and their functions transferred to the councils of counties and county boroughs, but there is no guarantee of that break up of the Poor Law, as it has been called, without which there will still be much overlapping and reduplication of provision of health and other services. The new authorities may, if they wish, give assistance under the Poor Law in respect alike of attention to health, of hospital accommodation, of educational provision, and of money, food, and shelter, as one miscellaneous whole and through one entirely new Public Assistance Committee, instead of attending to all health matters under the Public Health, Maternity and Child Welfare, Mental Deficiency, and other Acts through the appropriate committees, and to educational matters through the Education Committee, leaving only the more material and immediate relief to be continued by way of the Poor Law. Indeed, this conglomerate method of administration, which perpetuates most of the old evils and leads but a little way towards the unification of health services, appears rather to be encouraged by the bill, though permission is given to authorities to adopt the alternative and only satisfactory method. In the case of counties, too, which may contain large urban districts or boroughs, which are themselves satisfactorily conducting health services within their boundaries, the council of the county may proceed to establish and manage alternative health services covering the same areas or families, instead of being compelled to delegate to the councils of such county districts all functions similar to those which they are already administering with success. Further, though councils are to be permitted to place on their committees (even on the Public Health Committee, on which this has not hitherto been allowed) persons who are not members of the councils themselves, there is no guarantee that this will be done, so that there may very likely be committees dealing with the supply and management of hospitals on which there is no one who has any knowledge or experience of such work, or has any acquaintance with the opinions of hospital staffs and other interested practitioners.

As was stated in the leading article to which we have already referred, the British Medical Association regards it as highly important that these principles of distribution of functions, of delegation of functions, and of co-operation on committees should be made compulsory on authorities instead of merely permissive. A fourth principle previously mentioned as having been put forward by the Association was that a statutory local medical advisory committee should be established in each area. This matter is not dealt with in the bill in any way. In present circumstances it may be found desirable not to press for this, especially as a satisfactory alternative may be provided by Divisions of the Association being urged to secure more effective and constant co-operation with local councils in health matters.

The third aspect of the bill in relation to health administration is the effect which its financial provisions may have on the efficiency of health services. The system of block grants over quinquennial periods is to be substituted for annual grants in aid. Under this system it will be possible for a council if it wish, to spend but little money on health services and to divert the grant to say highways. At a time when many authorities have done little or even nothing, with regard to mentally deficient persons or to maternity or infant welfare—when, indeed, they have no statutory duty with regard to the latter except to set up a committee—this may in some areas lead to lamentable neglect. Further, the present power which

the Minister of Health has of withholding grant in cases of proved inefficiency will be abolished or is made by the bill so remote and conditioned as to be wholly ineffective. The education service is exempted from this allocation to the block grant and it has been suggested that certain of the health services should also be exempted for a limited period of years. It is at least true that there is grave danger to the needed development of such essential services unless this is done or unless the Minister secures to himself further controlling powers in this connexion. We rejoice that Mr Chamberlain, in his speech on the second reading of the bill, has undertaken that this matter shall receive sympathetic consideration.

THE KING'S ILLNESS

No calling has warmer feelings of loyalty to the Crown than the medical profession, and the sympathetic interest shown by members of the Royal Family in the progress of medicine and the relief of suffering has endeared them to us all. The King's illness, therefore is a matter of personal concern to our readers. They will have gathered some idea of the nature and course of the malady from the brief but expert bulletins, issued regularly since the evening of Wednesday November 21st, by Lord Dawson and Sir Stanley Hewitt who have throughout been in attendance upon His Majesty at Buckingham Palace.

The public nowadays expects to be taken into the doctors' confidence when the Sovereign is ill and to any observant medical eye the recent bulletins, though necessarily restrained, have been informative pointing to a serious infection such as must give rise to natural anxiety. His Majesty it appears, was not in his usual health on November 17th and began to suffer from what is called in homely speech a feverish cold. By November 21st there were definite signs of congestion in one lung with some pleurisy. With an increase of fever on November 24th the inflammation of the pleura tended to increase. By that time bacteriological tests had been made and the clinical diagnosis was confirmed by x-ray examination.

Doctors know well that an infection of this kind is always serious in a patient over 60 years of age. Many of our readers will be aware also that such infections are rather different to day from those observed ten years ago. It is very difficult to put any precise limit to the probable duration of the illness, its tendency is toebb and flow and part of the anxiety of those in attendance centres round the length of these phases. While specific treatment appears to have some effect in controlling the force and intensity of the infection, such measures cannot of themselves bring it to an end.

Our study of the bulletins (including the temperature records) up to the time of going to press leads us to infer that the force of the infection is gradually spending itself and with maintenance of the patient's strength we may look for a favourable issue though early and dramatic signs of improvement are unlikely. Meanwhile the affectionate thoughts of ever, member of the Association will be with the King our Patron and the Queen and as doctors we shall wish to give a message of confidence to the colleagues who bear the heavy strain involved in attendance at the Royal bedside.

PROBLEMS OF THE SLUM

It may be remembered that at the autumn dinner of the British Medical Association last year, Mr Chamberlain, speaking as Minister of Health, stated that the supply of new houses was becoming so nearly adequate, that he proposed in the immediate future to take action in regard to the very urgent matter of dealing with slum areas. He appealed to the medical profession, along with others, to help in this by expert knowledge and advice, and by assisting to create a proper and encouraging public opinion. It would scarcely be possible to have a better aid in this direction than the volume entitled *The Slum Problem*,¹ by Mr B. S. Townroe. It has a short commendatory introduction by Sir J. Walker Smith, formerly Director of Housing at the Ministry of Health, and Mr Townroe has himself had experience in that department of the Ministry, and has also for several years been chairman of the Housing Committee of the Hampstead Borough Council, and acted as consultant to the Building Research Board. Such an experience may be taken almost as a guarantee that the book contains facts on which reliance may be placed, and suggestions which are well balanced and practical. The problems of the present situation with regard to slum areas are extraordinarily difficult, their exposition correspondingly demands qualities which are not universal possessions. They lend themselves to easy generalizations and facile statements which may pass on the political platform, or even in Parliament, as evidence of good intentions, but do not contribute in any way to creative or constructive action. Mr Townroe's book is intended to supply speakers and writers on its subject, members of local authorities and housing committees and associations, and others with information which can be turned to practical use. It may be strongly recommended also to medical men and women who are interested in health administration and propaganda, but who sometimes do not know as much of housing matters as of some others, and to elementary school teachers, who are not always sufficiently aware of the home conditions of some of the children in their charge, though these conditions, as was demonstrated by a report of the Medical Research Council,² influence the intelligence of the children to an extent of the order of one third. It is an important consideration that progressive improvement in home conditions should react favourably, not only on health, but on intelligence. The complacency with which certain large industrial, or even residential, towns proclaim themselves as being "without a slum" is a little disquieting. It depends, of course, on the definition. It is possible for a lord mayor or mayor so to define a slum as to be able truthfully to say that there is none in his city or borough. Mr Townroe quotes a definition, but it is not an exact one, and he deals broadly with his subject so as to include rural as well as urban conditions, whether they are due to the ancient timbered house, to back to back erections, to the cul-de-sac, to jerry-building, to the rows of depressing hovels in many mining villages, or to any other cause. Some localities are obviously much better than others, and the authorities of such places, whether then advantaged by due to good fortune, or wisdom, or both, are to be congratulated. In some of the worst towns the local authority has made almost heroic efforts to cope with the worst spots therein, and they are heartily to be commended. So are many voluntary associations and individual landlords of property which, without assiduous and personal attention, would inevitably have so deteriorated as to have become unfit for human habitation. Yet the conditions over large areas remain appalling. As a metropolitan sample may be taken

¹ *The Slum Problem*. By B. S. Townroe. M.A. Hon. A.R.B.A. With an introduction by Sir J. Walker Smith, M.Inst.C.E., F.S.I. London 1928. (Cr. 8vo pp. 229, 6s. net.)
Special Report Series No. 74. The Relation of the Intelligence of School Children.
1923. 1s. net.

the "Report on and Survey of Housing Conditions in the Borough of Shorehitch," recently published by the Wear-dak Press. The Hoxton conditions are no doubt very distressing because "the problem of housing is inextricably interwoven with that of sheer poverty, often of landlordism and tenant alike," but they are not unique or even peculiar. Such reports as this are valuable as arousing opinion to the need for immediate and drastic action, but there is often a tendency to assume that the one cause is bad landlordism, and the one remedy a supply of money. Great merits of Mr. Townroe's book lie that he does not allow us to forget that slums may be made by errors of conduct as well as by errors of structure, that under the former heading it is the tenant at least as often as the landlord who is at fault, that under the latter heading planning and lay-out may be as important as actual building, actual experience having proved that 85 per cent, or even more, of the cost of reconstructing a slum area may be recovered by its suitable re-planning. Mr. Townroe deals practically with the difficult question of compensation, and with such remedies as reconditioning, high tenements, garden towns (as distinguished from suburbs), of which Ietchworth and Welwyn Garden City are pioneer examples, and educated woman management of property let at weekly rentals, and he attaches due importance to education, whether of the child or adult, so that the "slum mind" as well as the slum may be eliminated.

MEDICAL AND NURSING SERVICES IN THE AUSTRALIAN BUSH

It requires a considerable effort of the imagination for the stay-at-home native of these islands to appreciate the difficulties facing the medical profession in the vast and thinly populated area of Australia. An Australian visitor once described Great Britain as having a "finished" appearance—meaning that communications and other services necessary for a comfortable existence were highly developed, that nature generally had been brought under control and that communal provision had largely removed the need for dependence on individual effort—while his own country was "in the raw." It is true, of course, that the cities and closely settled areas in Australia are as highly organized as any part of this country, but even after the exclusion of the innerless areas, which are almost totally uninhabited, the greater part of the Commonwealth has a population of less than one person per square mile, and is still awaiting development. A main problem is, therefore, the provision of medical and nursing services in the "back blocks" which are but sparsely peopled and in which travel is slow and difficult. On January 14th (p. 67) we published a reference to the work of the Victoria Bush Nursing Association, which exists to promote the establishment of a district nursing service in the country districts of that State, and which has rendered most valuable service since its inception in 1910. The report of the Association for the year ended June 30th shows that there were then in existence 59 centres including 14 with cottage hospitals, at the end of the previous year in June, 1927, the number of centres was 55 including 9 hospitals, so that definite progress has been made towards the ideal of having a hospital at every centre. It may be mentioned that at one point until the opening of a centre this year, there was no doctor or trained nurse within fourteen miles. The members of the association's nursing staff are all trained midwives, and undertake a considerable amount of maternity work, with highly satisfactory results, in addition to providing ante-natal and post-natal care. They also fulfil the duties of school nurses in most districts, examining the children and reporting defects, and giving instruction in hygiene and kindred subjects. To illustrate the nature of

the conditions it may be added that in many cases eight or ten schools are required to serve the district within the area of a centre, and that these schools have often only ten or fifteen pupils, in one case the nurse visited five schools in her district, the aggregate number of pupils being eighty. The country division of the Victorian Civil Ambulance service aims at the provision of approximately thirty stations, covering the whole of the State, and during the year 1927-28 new cars were presented to four districts, provision for maintenance and replacement being undertaken by local committees. Twenty-one stations are now in operation, and, as a further illustration of the conditions encountered, it is significant to note that in one instance the average distance covered by the ambulance for each case was almost ninety miles, in several other instances the average exceeded sixty miles, and for the whole service it was over seventeen miles per case. In connexion with these points it should be noted that they apply to Victoria, which is by far the smallest and the most densely populated mainland State in the Commonwealth. Conditions in other parts of Australia are therefore even more difficult. A map published by the Australian Inland Mission illustrates admirably the situation in respect of medical relief, showing that in some areas medical aid posts—where doctors, bush nurses, hospitals, or nursing homes are situated—are separated by distances ranging from 100 to 250 miles. The indication of "suitable bases for flying doctors" suggests an interesting possible development. There have already been cases in which the aeroplane has been utilized for the transport of practitioners, patients, and medical stores, and it may well be that in the future the light machine will normally serve the Australian country doctor for his hundred-mile professional calls, while wireless may be employed to summon a large aeroplane for ambulance work when required.

RADIUM, CANCER, AND THE PUBLIC

It is perhaps too much to hope that the views on the present place of radium in the treatment of cancer, expressed by Mr. Malcolm Donaldson in a letter we publish this week at page 1008, will put a stop to the pernicious misstatements now appearing in most of the articles on the subject in the popular press. There is at the moment a serious shortage of radium, and this shortage may in large measure be attributed to the fact that the chief source of the world's supply is virtually a monopoly. Those qualified to use radium in the treatment of disease are being hampered in their work by lack of adequate supplies, and many cancers now treated by surgery alone would in all probability be treated by means of radium if sufficient supplies of this agent became generally available. It is right that the public should know these facts. But the temptation to make a good case appear even better by backing it with a white lie or two seems to have been too strong for some of the writers now active in administering health instruction to the general public. These undisciplined propagandists are not content to say simply that radium may now take the place of "excisional surgery" in the treatment of cancer in certain sites; they must pretend not only that all cancers, at whatever stage of their development and wherever situated, will now yield to radium, but that this would be freely admitted by the medical profession were it not for the implacable determination of the surgeons to maintain their ghastly monopoly in cancer. Alas, says one writer, "wherever radium is to be had the surgeons ought to be prevented from cutting out any more tongues or noses or amputating any more breasts." This is mischievous claptrap. By all means let newspaper readers know the established facts about the use of radium in the treatment of malignant growths, but a clearing away of the fog of misrepresenta-

tion that has been allowed to envelop the whole subject would appear to be the first necessity. Mr. Donaldson raises two other issues in his letter—namely, the need for diagnostic centres at which cases of cancer might be recognized in their earliest stages, and the importance of teaching the public more about malignant growths. Both issues merit close consideration by those concerned with the public health. Whether, however, it is better to educate the public specifically in the symptoms of cancer, thus running the risk of inducing in many persons a morbid self-regarding vigilance, or to concentrate on the value of periodic medical examination, opens up problems too large for discussion in a brief annotation. But the education of the public is a matter on which the medical profession will soon have to make up its mind, in principle and in detail, for if the public is not given instruction by those qualified for the task it will seek other mentors, with perhaps disastrous results.

MIRROR WRITING

MIRROR WRITING is that variety of script which runs in an opposite direction to the normal, the individual letters being also reversed. The writing is therefore illegible until held up before a looking-glass—a familiar example of mirror-writing is seen in the imprints upon a blotting pad. Mirror-writing is met with in most diverse circumstances, and in all classes of persons, from the mentally deficient to the genius. Adults and children may show it, and it may be done consciously and unconsciously. Yet it is sufficiently infrequent in its occurrence to render it a subject of interest when observed. Dr. Macdonald Critchley has written a most interesting little book entitled *Mirror-Writing*,¹ in which he tells all that is known about it. The book contains specimens of such writing done by infants in schools, where perhaps it is most often seen, and a page from a notebook of Leonardo da Vinci, of whom it has been said that he adopted this form of script to hide his observations from the inquisitions of the Papal authorities, though the suggestion seems to imply that his genius was less shrewd than his other work would make it appear. There are also specimens of spontaneous bimanual mirror-writing done by a normal individual conscious of his doings, and a beautifully written letter by an old lady, the subject of right-sided hemiplegia, who thought that she was writing just as she had always done and as everyone else did. An oddity such as this mirror-writing, so widespread and so different in its conditions of production, suggests that the finding of a common cause for such varied exhibitions may be difficult, and so it appears from Dr. Critchley's book. It is reasonable to explain that the paraplegic whose right side is powerless writes mirror-fashion with his left hand because there is probably a derangement of the visual component of speech present, and the patient is therefore subject to the independent activity of stored-up memories localized in the right hemisphere. Writing in such cases may be impossible to initiate at will, but when it arises in response to more primitive impulses it will be executed in its most automatic fashions, mirror-wise. But such an explanation would not seem to apply to the mirror-writing of children. Yet it is not as irrelevant as may appear. Reversals are common in infant attempts at writing. The child is taught to write in a certain fashion, there is no reason behind it, but only rule, and a rule that custom has not fixed in his mind. So that on occasions he breaks a rule that is of little weight to him. It has been said that mirror-writing is a sign of left-handedness, and observations lead the author to the conclusion that it is more common among the left-handed.

¹ *Mirror Writing*. By Macdonald Critchley, M.D. M.R.C.P. *Psychic Miniatures Medical Series* No. 11. London: Hegan Paul Trench Trubner and Co. Ltd. 1928. (Pott 8vo pp. 80. 6 figures. 2s. 6d. net.)

WILLIAM BRINTON, M.D.

We wonder how many of our readers, apart from those who have specialized in gastro-enterology, would know what was meant by "Brinton's disease." There are perhaps few better examples of the proverbial prophet than that of Dr. William Brinton, who was the first to describe the rare condition which he named *hinitis plastica*, and was one of the founders of modern systematic gastro-enterology. In a sympathetic address delivered at the last general meeting of the American Medical Association in the Section on Gastro-enterology and Proctology, Dr. Joseph Sailer of Philadelphia gave an interesting account of the life and work of this physician, who died in 1867 at the comparatively early age of 44. He was house-physician, demonstrator of anatomy, and medical tutor at King's College, lecturer on forensic medicine and afterwards on physiology at St. Thomas's Hospital, and physician to the Royal Free Hospital. He was an excellent teacher, his clinics at the Royal Free Hospital were crowded, and he conducted a very large practice. In addition to about forty articles in medical journals, many on *anatomical topics*, he wrote four books, which dealt respectively with gastric ulcer, diseases of the stomach (which contains the description of *hinitis plastica*), diet, and intestinal obstruction. Of these Dr. Sailer regards the last as the most valuable, and that on diet as the poorest. In the work on intestinal obstruction Brinton advocates early operation, suggests the possibility of entero-enterostomy, which he appears to have tried on animals, objects to purgatives, and pins his faith on three drugs—namely, opium, tobacco (by enema), and belladonna. Apart from his contributions to medicine, Brinton was a keen Alpine climber, an excellent draughtsman, and a brilliant conversationalist. A portrait of him is to be found in the Royal College of Physicians.

MEDICAL MEMBERS OF LOCAL PUBLIC BODIES

We hope to publish shortly a list of medical men and women now serving on local public bodies, and we invite the help of our readers in obtaining the necessary information. Medical members of the following bodies are asked to send brief particulars to this office on a postcard addressed to the Editor: County Councils, County Borough Councils, non-County Borough Councils, Urban District Councils, Rural District Councils, also medical co-opted members of Education Committees, Maternity and Child Welfare Committees, Mental Deficiency Committees, and medical members of Boards of Guardians. Information is desired also about members of the corresponding bodies in Scotland—County Councils, Town Councils, Parish Councils, and Education Authorities, etc. Medical officers of health may be able to assist by furnishing notes of medical members of the local authorities with which they are associated. In response to the requests already published details have been received regarding medical members of more than sixty local bodies. Such information is always useful, and it will be especially valuable during the coming year in view of approaching legislation.

SIR LEONARD ROGERS, C.I.E., M.D., F.R.S., has been appointed Medical Adviser and President of the Medical Board, India Office, in succession to the late Major-General J. B. Smith.

We regret to announce the death of Dr. James Wilkie Smith of Ryton-on-Tyne, one of the oldest and most widely respected medical practitioners in the North of England. A memoir will appear next week.

THE ORGANIZATION OF MEDICAL RESEARCH IN INDIA

Recent events have brought into no little prominence the subject of medical research in India and its organization by Government, both in relation to the needs of India as a whole and with due regard to scientific research work in other parts of the Empire, including Great Britain. Our consideration of the matter may appropriately be prefaced by a brief historical note.

HISTORICAL

Organized medical research in India dates from the appointment, nearly sixty years ago, of Dr Timothy Lewis and Dr D D Cunningham as whole-time research workers in India. The first Indian Medical Congress in Calcutta at Christmas, 1894, which Mr Ernest Hart attended when Editor of the *British Medical Journal*, sent resolutions to the Government of India advocating more medical research, and the outbreak of plague in Bombay in 1896 led to the establishment of the plague laboratory there under Haffkine. In 1899 Surgeon General Harvey recommended the formation of a bacteriological department, in 1905 thirteen officers were sanctioned for research work under the Government of India, and the Central Research Institute was opened at Kasauli in the following year.

In the year 1911 a great step forward was made when, on the advice of the late Sir Pardey Lukis, the Research Fund Association was formed under the Government of India with an annual income of five lakhs of rupees (£35,000) to administer the Medical Research Department (as the bacteriological department is now called), with the *Indian Journal of Medical Research* as its organ.

In 1920 the late Professor E H Starling visited India at the invitation of Government, and reported on a scheme to build a new central research laboratory; he recommended Delhi as its site, but financial stringency held up the project. Last winter a committee was formed under the chairmanship of Sir Walter Fletcher, F R S, secretary of the Medical Research Council, and with Colonel S R Christophers, F R S, as its secretary, to report on the reorganization of medical research in India, including the proposals of Professor Starling. The other members of the Committee were Lieut-Colonel S P James, medical officer and adviser on tropical diseases, Ministry of Health, and Dr R Row, professor of pathology, Grant Medical College, Bombay. After visiting all the important research centres this Committee has recommended extensive modifications of the Starling scheme in accordance with the altered conditions of to-day. That scheme included provision for clinical and pharmacological work, this has since been provided for in the Calcutta School of Tropical Medicine and in proposed pathological institutes in connexion with the Bombay and Madras Medical College Hospitals. These changes have also done away with the necessity for locating the new Central Research Institute in a large city such as Delhi, with a great expenditure on buildings.

PROPOSALS OF THE FLETCHER COMMITTEE

After studying the matter in all its bearings the Fletcher Committee has found a very appropriate site at Dehra Dun for the Central Medical Research Institute. This site is in close proximity to other scientific institutes, with ample land and some fairly suitable buildings, and also a very good climate for a station in the plains. Dehra Dun, though not one of the large cities of India, is a place of some importance, with direct access by rail to Delhi. It is in the Meerut division of the United Provinces.

The Committee's scheme for a headquarters for an All India medical research organization includes pro-

vision for six sections. These, briefly enumerated, are as follows: (1) Epidemiology and Statistics, (2) Bacteriology, together with a serum and vaccine section in the present Ka mili Laboratory, and Immunology to include work at cholera and plague, (3) Biochemistry and Pharmacology, for which there is no provision at Kasauli, (4) Medical Biology to include medical entomology, protozoology, and helminthology, (5) the Malarial Survey of India, already in existence under Colonel Christophers, and (6) Nutrition, now being carried on by Colonel McCarrison.

The Committee advises further development of provincial research institutes in the principal cities, with six additional superior research posts. In its opinion provincial institutes should continue to work as at present on their own lines, developing their particular spheres of usefulness, each under its own provincial Government. But direct and indirect assistance should be given to the work of these institutes, along lines indicated in the report.

In regard to administration, the Committee does not recommend any radical change. The successful Research Fund Association should, it holds, continue to administer the Research Department, but the new Central Research Institute should have its own governing body. The Committee believes that the problem set before it can be solved by building upon the foundation of past experience and by securing continuity for the evolutionary process which has been going steadily forward since 1900.

In regard to the recruitment of research workers, the Committee advises that some of these should continue to be obtained from officers of the I M S, both British and Indian, but it suggests that an increasing number of research workers will have to be recruited from outside India. To allow the right stamp of men to be obtained it advises the formation of a Recruitment and Appointments Board of senior administrative and research medical men, and that this board should have the help of a consultative committee in Great Britain of four members nominated respectively by the India Office, the Ministry of Health, the Medical Research Council, and the Royal Society, who should also belong to the governing body of the Research Fund Association. This board should also make the appointments to the provincial research laboratories.

Not the least important and suggestive passages in the report are to be found near the beginning, where the terms of reference and then interpretation are discussed. The Committee insists that "medical research" must be read in its widest and fullest meaning, and that no sound system of medical research can be established unless living organic connexion is set up and maintained between applied work on the one hand and work not of immediate utilitarian character on the other. The Committee wisely places emphasis also on the importance of interpreting "medical research" to include much more than the study of actual disease. This phrase it takes to include all processes of advancing knowledge, whereby the human body may be brought to the fullest development of health and efficiency of which it is capable under good conditions of environment, and protected from disease and other injuries, or aided in its repair. Viewing the terms of reference in this broad manner it became apparent that the questions put to Professor Starling in 1920 now formed only one of a set of connected problems of the greatest importance to India, and reaching, indeed, far beyond that country.

What appears to us to be the keystone of the Fletcher Committee's report is its recommendation not only for enlargement of the medical research service in India, but for acknowledgment of the essential value of research work as such, and as a corollary the assignment to its personnel (given due capacity and experience) of equal status recognition and pay with those in charge of administrative work. The problem of recruiting good men for the medical services of India would become far easier if it were known in the medical schools that India is once more prepared to offer really scientific careers in medicine with adequate remuneration and status.

NUTRITIONAL RESEARCH IN INDIA

In a special section of its report the Committee deals with the future of "Nutritional research in India"—a problem it had been specifically directed to investigate.

No part of the report is of greater interest than this, and in none is the path of progress for medical science more clearly indicated. The Committee recognises that adequate provision for research on nutrition is essential, not only to the successful study of specific problems of disease in man and his domestic animals, but to the promotion of physical efficiency in both. Insistent as are the obvious problems of acute and epidemic diseases (such as plague, malaria, influenza and kala-azar) to meet which research in India has been sporadically organized in the past, these are not more urgent in reality than the less dramatic medical problems of daily life. "In the light of modern discoveries we know, for instance, not only that recognizable and named diseases may come to vast numbers of a population from diet which is faulty in quality, even if adequate in quantity, but also that less defined but no less tragic evils may come in the form of diminished health and energy and lowered resistance to infection." In no country in the world is the truth of this statement more apparent than in India where the work of McCay in 1910, and of McCarrison in later years, has demonstrated the connexion which exists between faulty nutrition and the physical inefficiency and low powers of resistance to infection exhibited by millions of the Indian people.

This section of the report deals at some length with the groups of phenomena to be studied in nutritional science, as well from the quantitative and qualitative as from the economic points of view. Emphasis is laid on the necessity for re-examining the older and basic knowledge of nutrition, derived from studies in temperate climates, in the light of climatic conditions in India, for while this knowledge may stand the test of re-examination it is possible that it may require some modification. Many current views of pathology and bacteriology require reconsideration in the light of the newer knowledge of nutrition. In these activities "it is not likely that any country in the world has more to gain than India herself, or more to give to other countries as the work progresses, in new knowledge of the greatest scientific and practical value."

In harmony with the recommendations of the Royal Commission on Agriculture, the Fletcher Committee recognizes the intimate community of interest between workers on nutritional science, whether in fields of "human," of "animal," or of "plant" nutrition, and it indicates the great and mutual value of close association between medical and agricultural interests in studies of human and animal physiology and pathology.

Having thus drawn attention to the importance of nutritional research to the Indian peoples and dealt with the inadequacy of the present provision for its prosecution, the Committee proceeds to make recommendations for the great increase and extension both of the existing unit for nutritional research, under Colonel McCarrison at Coonoor, and for the establishment throughout India of new units in every important centre of medical research and higher teaching. Particularly does the report deal with the part in the scheme offered for a new Central Institute for Medical Research, which should be taken by nutritional studies. With the detail of these recommendations we do not propose to deal, since no doubt they will receive careful consideration by the authorities concerned. We hope, however, that it may be found possible to carry them into effect and to combine them with the independent recommendations of the Royal Commission on Agriculture, which provide not only for an Institute for Human Nutrition in India, but for an Institute for Animal Nutrition, both establishments working in close touch with each other.

In perusing this section of the report we are impressed by the masterly way in which the case for nutrition is presented, by the great importance attached to nutritional research as a result of the Committee's labours in India, by the vast opportunities which India presents for such research, and by the scope which it affords for young men of science imbued with the pioneer spirit of investigation. If the recommendations of the Fletcher Committee in regard to nutrition be adopted in combination with those of the Royal Commission on Agriculture then India will be equipped for nutritional research, and the ultimate benefit

to India, to the Empire, and to mankind will be great in proportion to the culture and capacity of the men chosen to organize, systematize, initiate, and carry on the work.

THE ROCKEFELLER OFFER AND THE COMMITTEE'S PROPOSALS

Shortly after the comprehensive inquiry of the Fletcher Committee an announcement was made in India that the Rockefeller Foundation had offered to the Government of India about £100,000 to build and equip a Public Health Institute in Calcutta, opposite the School of Tropical Medicine, to be staffed and administered by the Government of India. On September 6th last the Simla correspondent of the Calcutta paper, the *Statesman*, reported that the Government of India had considered this offer in relation to the Fletcher Committee's recommendations, and had decided to adopt the suggestion of the latter to adapt an available site with buildings at Dohra Dun as the new Central Research Institute, at a cost of six lakhs of rupees and to provide three lakhs yearly for the upkeep of the Calcutta Public Health Institute to be built by the Rockefeller Foundation (whose offer would be open until the autumn) at a cost of 15.61 lakhs.

As the two sets of proposals (which appear to fit very well into each other) have already been sanctioned by the Standing Finance Committee of Legislative Assembly in Simla there is every probability that these important advances will be carried through without much further delay, and that by such means medical research in India will be placed on a firm footing to the lasting benefit of the country.

Noa et Vetera.

A SEVENTEENTH CENTURY CURE FOR SCIATICA

THE prescription set out below was recently found in the archives of Rochester Cathedral by my friend Miss I. J. Churchill, F.R.Hist.Soc. It was written on a blank space in the *Register Spirituum*. I should think that some poor clerk or official suffering from the complaint had had it given to him by another, and had made a note of it at the time on the only available bit of paper. It is so quaint and so characteristic of the period, seventeenth century, that I thought it would be worthy of a space in the "Noa et Vetera" column. It runs as follows:

A VERIE GOOD MEDICINE FOR THE SCIATICA

Take an ounce of fine Venice Treacle of the best & penne worthe of neates fote oyle, an ox gall and two penneworthe of aqua vite, mingle all this together and make of as it were a salve and sprede the same upon a peece of white Leather one (on) the flesshie side and Laie the same to your place of Greefe, but before you do the same take parte of the same mixture and annoynte your place of greafe with it against a good fier and lett it soke in and when it is well annoynted before the saide fier Laie it unto the place of Greefe as afforesaide the Space of xxiiij houres. Then take it off (f) and Laie freshe unto the place, this is to be used the space of viij or x daies with freshe (ANNOYNTING) every xxiiij houres annoyntinge and chafinge yo place of greafe against the fier and with goddes helpe it will heale it.

The ingredients are simple and compound. Venice treacle as late as 1753 contained sixty-two different drugs. By 1785 it was called "a pompous and useless medication." Its active ingredient was opium. It is interesting to note the use of bilor; this was believed, and still is to facilitate the penetration of a drug through the skin. I am afraid the aqua vitae, or strong alcohol would somewhat thicken the gall, though it would prevent putrefaction. The white leather is still often made use of when applying a permanent plaster. When I was young Scott's dressing was generally applied on kid skin. Note "Chafinge" = modern massage.

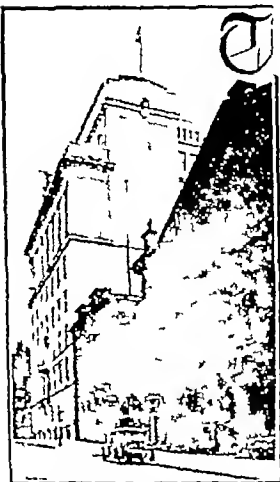
I. WILLIAM COCK

NINETY-SEVENTH ANNUAL MEETING

of the

British Medical Association,

MANCHESTER, 1929.



SHIP CANAL BUILDING

publish below the first of a series of illustrated articles dealing with the history of Manchester and describing some noteworthy features of the city and its neighbourhood, with special reference to medical institutions

MANCHESTER AND SALFORD

BY

L. V. BROCKBANK M.D. F.R.C.P.

THE Meeting of the British Medical Association is to be held in Manchester and Salford next July. The relations of the two cities are strange. They are so near together and yet so far apart. They are near because they are only separated by the River Irwell, a stream which at this part of its course rivals the Meander in finding the longest

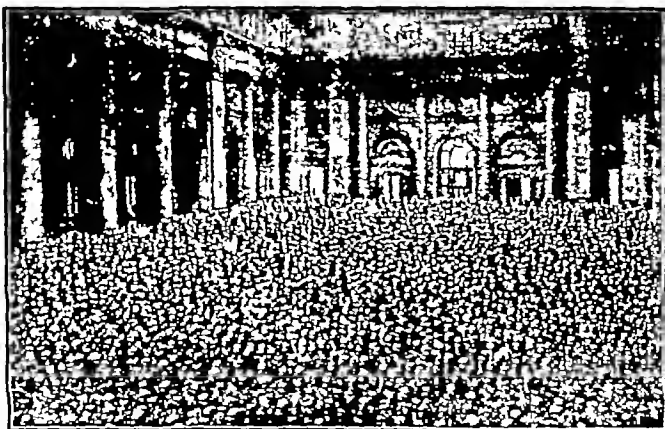
distance between two points. It is about fifty yards wide here, and Manchester is on its left hand bank—a compass point is of no use—Salford on its right bank. But they are even nearer than this, for two important residential suburbs of Salford—Higher Broughton and Kersal—are on the Manchester bank and entirely continuous with the adjoining part of Manchester, their boundaries in daytime being marked only by policemen on point duty in different coloured helmets and it might by different lighting systems. Whilst so near and even interlocked in a territorial sense, they are as far apart as possible for local government purposes, each having an entirely independent mayor and corporation of its own, Manchester's head being a lord mayor. Originally Manchester was within the authority of Salford, which was a royal demesne with a royal manor the King holding lands in it, but although once so united

in a harmonious alliance they were granted a legal separation in the fourteenth century, and have never made it up again, in spite of various approaches for the purpose on the part of Manchester. By this deed Manchester became a common manor, Salford remaining a royal demesne, and still being a royal manor, which it proudly, and justly, mentions as occasion

arises.

After the separation over ensuing centuries Manchester forged ahead, and its population is now about 750,000, and that of Salford 250,000, but many of the latter number are Manchester people who live in the Broughton and Kersal suburbs of Salford.

Manchester's civic life centres in its Town Hall which is a very large building in Gothic style facing Albert Square, an open space of proportionately large area from which a proper view can be had of the



THE MANCHESTER ROYAL EXCHANGE

tall spire and its handsome clock with dial, figures, and hands that can be seen from miles away. The business centre of both towns is the Manchester Royal Exchange, the largest exchange in the world where at high 'change 5,000 or more members transact business, chiefly in cotton, but in all trades except coal and produce each of which has an exchange of its own. Millions of contracts are made yearly

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on the Royal Exchange by word of mouth, and confirmed afterwards by contract notes, and but few are not kept. Business has been sadly to seek with us lately, and many times may the following conversation have been heard on the "boards" between business friends: "Morning", "Morning", "Owt?" "Nowt", "Morning", "Morning".

Manchester is not uncommonly called "Cottonopolis," a term which, if ungainly, is not unjust, because it is the centre of the cotton industry of Great Britain, which, it is estimated, directly and indirectly gives employment to 10,000,000 of the population, and in the mills of which £210,000,000 are invested. Some of the finest cotton thread of the world is spun in the heart of Manchester, and has been since Robert Owen, the socialist reformer, began to spin fine yarns in 1790, and I have seen yarn so fine that 140 miles length of it weighs only one pound. It would require an *Enobarbus* to describe the infinite variety and fascination of some of our *Cepea calico* printers' work on gauzy muslins made from Egyptian cotton. It is hoped that visitors competent to judge will have an opportunity of checking the truth of this statement next July.

Manchester has many industries besides that of cotton, and so has Salford, but space will only permit reference to the great channel—the Manchester Ship Canal—by which is brought, in ocean-going steamers up to 15,000 tons burthen, the raw material for the factories, and our beef, corn, eggs, bacon, and cheese. The Ship Canal offices are in the fine new ten-story-high building in Upper King Street, which the company built and owns. In this building, the tallest in the city, the Manchester Chamber of Commerce has its headquarters.

Salford has many factories, but few warehouses or commercial buildings. All the commerce of the two towns is transacted in Manchester, with its miles of streets lined by magnificent warehouses, in which goods are stored and packed, and from which they start on their journey by rail or Ship Canal to the uttermost ends of the earth. Manchester is Salford's shopping centre, entirely for the classes and almost entirely for the masses. The only Salford shop that I have ever heard of that has supplied the "quality" with necessary things was Hobson's, the boot shop—and that was Hobson's choice.

The approaches to Salford from Manchester are not cheering, it is a striking contrast to cross the river from one of Manchester's busiest and finest shopping streets into cheerless Chapel Street, Salford's main artery. This is a wide street, running to Bevel Square, in which is Salford's small, handsome town hall. The architectural features of the street begin at the Education Offices and the fine Salford Roman Catholic Cathedral. Further on, Salford Royal Hospital adds dignity to the appearance, and then the broad north road to Bolton, beginning with a fine crescentic sweep which overlooks a typical Irwell horse

shoe bend and some of Salford's factories, and leads to the handsome buildings of the Technical School, is a worthy highway for any town.

Salford at present provides the cattle market for the two towns and neighbourhood, and if any citizen, informed as to local affairs, should forget the day of the week, he can

always get a grip on Tuesday by seeing the raw material for food on its last appearance in its Anglo-Saxon forms of oxen, sheep, pigs, and calves on its way from Salford Market to the extensive Manchester abattoirs, where it is made suitable to appear on the menus of the two towns as beef, mutton, pork, and veal.

The relationship of the two towns, as I said before, is curious. Salford would be very badly off indeed without its big offspring, and the loaves of bread, not crumbs received from its bountiful table. The Manchester (not Salford) Ship Canal has nearly all its extensive dock in Salford because of the need to use the River Irwell for dock construction. The Manchester Corporation has £6,735,000 invested in the Canal, with members of its corporation forming a majority of the Board of Directors. Salford has no money invested in it, yet its rates benefit from the docks and warehouses to the extent of 7½d in the pound, whilst Manchester only receives 1½d farthings in the pound. Much the same

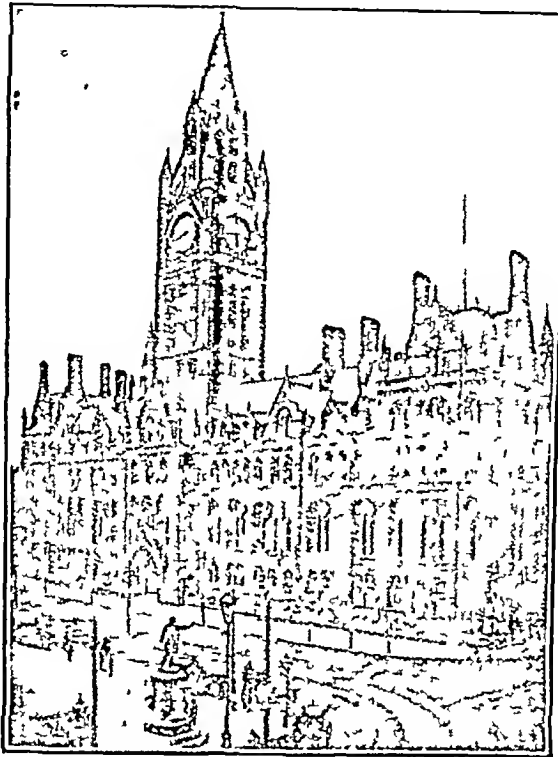
benefit from rates results from the position of the railways. Yet with all this help Salford rates are 25 per cent higher in the pound than Manchester's, and most of its valuable rateable ground is occupied. In further negotiations for amalgamation we may have an opportunity of seeing Manchester play the part of a modern commercial Sisyphus in its efforts to Salford.

Salford makes some amends to Manchester by providing space in a catpillar loop of the Irwell for the Manchester racecourse, and Manchester's premier amateur Rugby football club has moved into Salford territory for a suitable ground. Salford favours professional Rugby football, whilst Manchester provides two Association teams, and is about to provide another.

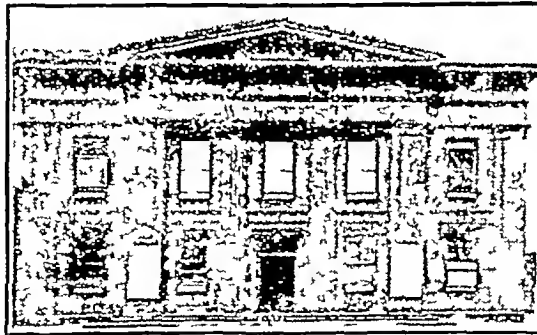
In the cricket world the Old Trafford ground is unsurpassed anywhere in England for players and 30,000 onlookers. It is taxed to its utmost when the old struggle of the Wars of the Roses is renewed on a fine sunny Bank Holiday, when as many thousands as perished in the

old wars and lie under the sod have to be accommodated on the turf within the playing ring for the three days' grim and dogged struggle. Both towns can compete favourably with each other, and with any other town, in the number of dog- and dirt-racing tracks, cinemas, and dance halls.

Manchester provides the two towns with their daily newspapers, including, of course, the *Manchester Guardian*, of world wide circulation, fame, and good repute. The



MANCHESTER TOWN HALL, ALBERT SQUARE



SALFORD TOWN HALL

local doctors and the press are on very friendly terms in spite of our general professional distaste for personal publicity, which our journalistic friends do not appreciate and would like to see less of. Not even the premier paper, however, understands the difference between the British Medical Association and the General Medical Council, and the editorial thwackings that are administered to chastise the profession as occasions arise are, accordingly, liable to fall on the wrong shoulders. We have only two theatres now instead of four, the Theatre Royal and the Comedy Theatre, which have in their time played many parts in our social life, having recently been turned into picture houses.

Manchester has had a reputation as a great musical centre since a German pianist, Charles Hallé, settled in the town and formed an orchestra in 1858, mainly of principals of his own nationality, and which was supported chiefly by the many German residents of the town. Concerts have been given each succeeding winter by the Hallé band, and under various conductors since Hallé's death. Britishers have been taught the beauties of music by it, so that now they form the great majority of the audiences at the concerts. Hallé conferred a further benefit on the town and neighbourhood by securing the foundation of the Manchester Royal College of Music in 1891. This has had a very successful career, and has trained local students so well that, to take one side only of success, instead of the Hallé Orchestra being recruited from abroad, not only all the principals, but nearly forty members of the band have been educated at the School of Music. Under the present conductorship of Sir Hamilton Harty the Hallé Orchestra, as it is still called in honour of its originator, is a magnificent instrument, envied by all musical centres, and it is a matter for regret that it cannot be got together in July, when most of its members will be leading or conducting in holiday resort orchestras. "Listeners in," however, will have had the pleasure of hearing the orchestra play on several occasions.

Primary education in Manchester and Salford is carried out on similar and efficient lines, with all the modern fine buildings and fresh air schools and school medical officer developments, but whilst in Salford the medical side of educational care is under the authority of the medical officer of health, in Manchester it is under the control of the Education Committee, which appoints a special medical officer to supervise it, and the Manchester medical officer of health has nothing to do with it.

The Manchester Grammar School, which was founded in 1515, and the Chetham Bluecoat School, founded in 1654, still carry on their good educational work. Secondary education is provided by both towns in the form of ordinary schools, domestic economy, art, and technical schools. Manchester's provision is naturally much more extensive than what Salford requires, and supplies the highest educational facilities in the Victoria University of Manchester, in which is a medical faculty, with hospital tuition provided in the Manchester Royal Infirmary, founded in 1752, which for the moment I will content myself with saying is second to none in the United Kingdom.

In religious matters Manchester has its Bishop and Cathedral of the Established Church, Salford its Bishop and Cathedral of the Roman Catholic faith. The Manchester Cathedral, with an ancient and honourable history as a collegiate church, has some impressive architectural features with very fine woodwork in its stalls. Salford Cathedral is a fine building, and so is the Church of the Holy Name in Manchester, with its handsome, newly completed tower which will be admired by many visitors in July, 1929, because of its being near the centre of the Association meetings.

The John Rylands Library is one of the treasures of the city. Its priceless contents include 3,000 manuscripts, many unique, and the famous St. Christopher print, the earliest known piece of printing in the Western world, with an undisputable date (1423) which is alone sufficient to make any library famous. The cabinet for such a collection of literary gems is a wonderful specimen of modern Gothic architecture. A fuller account of the library will be given in the *Book of Manchester*.

The British Medical Association Divisions of Manchester and Salford were formed in 1903, on a territorial basis, and contained an approximately equal number of members. They were the North, South, West, and Central Divisions, with the Central containing most of the consulting and specialist members. A need for co-operation soon became apparent, and in January, 1906, it was first proposed to form a standing committee of the four Manchester Divisions. This idea was developed further to include the Salford Division, and in June, 1907, the Joint Committee of the Manchester and Salford Divisions held its first meeting.

After the press of work involved in the inception of the National Health Insurance work was past, the feeling grew that still closer co-operation would be useful, and in 1915 the Manchester Divisions amalgamated to form the Manchester Division, the Salford Division deciding to continue its separate existence, as serving a definitely distinct area. At the present time there are 414 members of the Association and 305 non-members in Manchester, and 105 members and 81 non-members in Salford.

Passenger traffic congestion is a great problem in Manchester as in other big towns, but Salford is only troubled by it because its tramcars must come into the busiest street of Manchester, which is already overfull with its own vehicles. The Manchester tramways system is said to be the most efficient and finest in the world, and it can well be so. Its large cars carry seventy to eighty passengers in the "rush" hours, when every vehicle in the sheds is turned out. Large motor buses for local and distant service also enter the town in increasing numbers. The Manchester Committee has adopted a bright scarlet coat for its vehicles, and its trams and buses give a cheerful dash of colour to the streets.

Scotland.

Diet and Disease

A public lecture on diet and disease was given on November 21st by Dr. D. Murray Lyon, professor of therapeutics at Edinburgh, who said that modern research had shown that certain ordinary mixed diets which had long been considered satisfactory might, in fact, be otherwise. It had been found that animals fed on a diet consisting solely of cereals, pulses, and tubers failed to grow as fast or as large as they ought, and were apt to age prematurely. Control animals receiving the same diet with the addition of a little green food were found to grow more rapidly and thrive better. Similarly, in the human dietary celery or spinach added to the food appeared to supply something which was essential for proper development. In these experiments milk might replace the green knives with similar beneficial results, and it therefore appeared that the addition of green vegetables and milk to the diet of sickly, backward children would be beneficial. Rickets, which was a common scourge of city children in the past, was likely to be abolished altogether, now that the part played by vitamin D was more fully understood, and the adequate supply of this important ingredient might be ensured by adding to the diet fresh milk, butter, and eggs. The same group of substances also contained vitamin A, whose absence was apt to lead to increased susceptibility to infection. With regard to flour, the older methods of milling permitted all the necessary constituents of the grain to pass into the flour, but modern methods had robbed it of certain valuable elements. The resistant outer coat or bran of the grain, being indigestible, acted as roughage, and the wheat germ was rich in vitamins but both were removed in the modern process of milling. Constipation might often be avoided by the use of wholemeal bread. On the other hand, over-indulgence in food might lead to various passing alimentary troubles, while chronic overeating was of great importance in regard to the production of disease. With advancing years food requirements became less, although the appetite might remain as before. Increasing stoutness lessened the inclination for activity and tended to produce a continually deteriorating habit of body. Everyone deplored the poor state of the nation's teeth and many remedies had been suggested, but it was probable that better balanced diets during the

growing period and more careful attention to mouth hygiene would go far to abolish what was really a national disgrace. Owing to the variation of individual likes and dislikes it was impossible to lay down an ideal dietary, but it might be said that most people ought to reduce the amount of sugar and concentrated starchy food which they ate and exchange these for coarser forms of carbohydrates such as leafy vegetables and fruits, which yielded more vitamins and roughage, and at the same time more milk could advantageously be consumed even by adults.

Medical Service in the Field

A lecture was delivered by Mr G. H. Edington, M.D., F.R.C.P.S., on November 22nd, in Glasgow University, under the auspices of the West of Scotland Branch of the Historical Association of Scotland, on "Medical service in the field." The lecturer said that during the war the British army numbered 3,500,000 with R.A.M.C. personnel of all ranks amounting to 144,514, and that this corps had had to deal with sick and wounded arriving in the United Kingdom numbering well over two and a half million. At one time on the Western Front the regular R.A.M.C. officers were less than 10 per cent of the total doctors employed, most of whom were medical practitioners temporarily engaged by the army. In describing the differences in sickness rate which existed between this and previous campaigns, Mr Edington remarked that the contrast was nowhere more marked than in the case of typhoid fever. That cases of this disease had been remarkably few was in his opinion, attributable to the value of protective inoculation and to the patient research work that had been carried on in laboratories during many years before the war. The wiping out of typhus, which had occurred in a severe epidemic in Serbia, was also due to the application of principles founded on laboratory work. The lecturer also dealt with the organization of medical services in the field and described the chain of medical units from the regimental aid post down to the line hospital, and illustrated this with lantern slides and photographs which he had taken in Gallipoli, Egypt, and Palestine.

Veterinary Training in Edinburgh

An address on "The life and work of William Dick," founder of the Royal (Dick) Veterinary College, Edinburgh, was delivered in that college on November 20th, by Mr Alexander Miles, president of the Royal College of Surgeons, Edinburgh. Dr T. G. Nasmyth presided. The lecturer said that the meeting was being held for the inauguration of a founder's day and lecture at the Veterinary College because this was the centenary of the institution of professional examinations in veterinary art. William Dick had been in many ways a great man. He was born in the White Horse Close off the Canongate of Edinburgh, and was the son of a blacksmith from whom he early learned an interest in animals. Through his own efforts he had acquired a general education above the average for his time. Unaided and often in the face of opposition he had striven to raise the craft of farriery in Scotland to the rank of a recognized profession, and the Royal (Dick) Veterinary College was the visible result of his life's work. Having improved his own education he had felt impelled to pass on his knowledge of veterinary science to others, and he began to deliver lectures developing a comprehensive course of instruction in veterinary medicine and surgery. In 1823 on the suggestion of the University of Edinburgh the Highland Society undertook to stand sponsor for a public lecturer on veterinary surgery, and Dick was appointed to this post. The lectures were delivered in his father's forge in Clyde Street, and buildings on this site remained the headquarters of the college till 1916. As time went on there were added to the forge a stable, an animal hospital, a dissecting room, and a lecture room, of which the cost was almost wholly borne by Dick himself. Before he died in 1866, at the age of 73, he had accomplished the aim of his life, and had established in Scotland a school of veterinary science which now had few equals. Dick had not only possessed exceptional skill in veterinary surgery, but as a teacher he had been clear and lucid, and his qualities might well serve as a model for those who were preparing to follow his profession at the present time.

Indian Appointment for Edinburgh Graduate

Dr William Happer has been appointed director of venereal diseases to the Provincial Government of Madras, India, at a salary of £1,500 per annum. This appointment is the result of recommendations made by delegates of the British Social Hygiene Council who visited India during 1926-27, and is the first of the kind to be made. The duties will include the organization of treatment centres in Madras General Hospital, Madras Maternity Hospital, and various child welfare centres managed by the Red Cross Society and the Corporation of Madras, and those of lecturer on venereal diseases at the Medical School at Madras. Dr Happer, who is a native of Falkirk, after graduating in medicine at Edinburgh University, held the post of resident surgeon, and afterwards clinical assistant, in the Royal Infirmary, Edinburgh, under the venereal disease scheme of the Edinburgh Corporation. On the occasion of his departure Dr Happer was presented with a writing bureau from his colleagues in the Royal Infirmary V.D. Department, the gift being handed over by Dr David Lees, chief clinical medical officer under the corporation V.D. scheme.

England and Wales.

Medical Men and Public Affairs

An appeal to medical men to take a more active part in civic and medical politics was made by Dr I. G. Modlin, Mayor of Sunderland, at the annual dinner of the Sunderland Division of the British Medical Association held at the Palatine Hotel on November 22nd. Dr Roderick Macleod presided, and the principal guest was Professor Hugh MacLean. Mr Stanley Ritson, proposing the toast of "The Mayor and Corporation," said that it was the first occasion they had had as their guest a mayor who was also a medical practitioner, and they could not but feel pride in his many achievements. He had managed to combine a busy civic career with a busy practice, and had found time to fulfil the duties of an honorary surgeon at the Monkwearmouth and Southwick Hospital, where for many years he had carried on a large amount of surgical work with great efficiency. Dr Modlin, in his reply, referred to the changed conditions in the medical profession with the disappearance of the old family doctor. Doctors were now simply cogs in the wheels of social progress. Did they, he asked, take sufficient interest in politics, whether Parliamentary or civic, or the politics of the British Medical Association? The most dangerous foe they had to fight was the apathy of their members. After remarking that there was room for more members of the profession on the council, Dr Modlin said that in medical politics there had recently been issued an interim report of the Private Practice Committee on encroachments by local authorities upon the sphere of private practice. General practitioners had already lost a large slice of their midwifery, they did not seem to take much interest in ante-natal work, tuberculosis and venereal disease were slipping from their grasp, infectious diseases they had almost lost, and the hospitals were making greater and greater inroads on their means of livelihood. Did it not behoove the younger men to take a more active part in medical politics? It was not the older men who were going to suffer in the future, it was the interests of the younger generation of medical men that were at stake. The nation had entrusted to the corporations the care of the public health, and the nation demanded not only a lower death rate but a lower sickness rate. Public health work must progress, and unless the younger men grasped the present opportunity and took a share in co-operation with the authorities the independence and freedom of action of the medical profession would be lost, and they would become the victims of a bureaucratic service.

University of London Medical Graduates Society

The first extra-metropolitan dinner of this society was held at Birmingham on November 23rd, when some forty graduates were present, with the president, Sir St. Clair Thomson, in the chair. Sir Chilton Briscoe, Dr Dorothy Hare, Mr McAdam Eccles, and three other members came

from London, and Professor Hey Groves from Bristol, whilst Birmingham was represented by the two professors of medicine, Dr Wynne and Dr Ball, the professor of surgery, Mr Wm Billington, the professor of midwifery, Mr Beckwith Whitehouse, together with Mr Seymour Larling, Dr Graves, Dr Elizabeth Moffett, Dr Cloake, Dr Sykes, Dr Forsyth, Dr Lucy Masterman, and others. The president, in proposing "The Health of the King," said he was sure the toast would be drunk with great sincerity. Mr Billington expressed the pleasure of graduates in Birmingham at welcoming members from London and Bristol, and he hoped that future dinners would be the meeting places of members from many districts. He regretted that the Presidents of the Royal College of Physicians and the Royal College of Surgeons, both of them members of the society, had been unable to attend. Sir StClair Thomson, in an entertaining speech, traced the history and attributes of the University of London and its graduates, and of the society and its members, and complimented Birmingham in having, at least twenty five members. He was sure that the objects of the society, especially that of bringing medical graduates of the university into closer touch, was worthy of a greatly increased membership. Dr Dorothy Hare, one of the honorary secretaries, drew attention to the fact that the university now had about 4,500 medical graduates, and that the life subscription of the society was only £1. Mr McAdam Leeks alluded to the fact that these social gatherings were certain to foster a firmer university spirit, and that the society really had a function to perform which should have been exercised earlier. Mr Herbert Tilley suggested that after a Friday night's dinner it would be well that an extra metropolitan evening should be followed by golf, or even fishing, the next day, and hinted that he might present a cup for the former. After drinking the health of the president with acclamation the company adjourned for conversation and the renewing of old friendships. The next dinner will probably be held in Leeds, and the London dinner is fixed for the Tuesday night before Presentation Day.

Cumberland Infirmary, Carlisle

The committee of management of Cumberland Infirmary, Carlisle, has decided to establish a pathological department in order to deal with the needs of the institution and also of a wide surrounding area in this respect. A subcommittee was set up at the end of June to investigate and report on this subject, and eventually it was decided to recommend the provision of accommodation in a new building, the cost of which is estimated at £3,000, including initial equipment. It is believed that a considerable sum of money will be obtained from public authorities in respect of pathological investigations, and it is deduced that the cost of the department to the hospital might be in the neighbourhood of £800 annually during the first few years. The suggestion is made that work on the provision of this very necessary addition to the Cumberland Infirmary should be taken in hand as rapidly as possible in order that the new department may be actively operating at the time of the official opening of the new out-patients' department, the new wards, and the enlarged nurses' home.

Diathermy in Surgical Practice

In the course of a Chadwick Public Lecture delivered in the rooms of the Medical Society of London on November 21st, and repeated in the Guildhall, Bath, on November 22nd, Dr E. P. Cumberbatch, medical officer in charge of the electrical department, St Bartholomew's Hospital, gave an account of the history of physiotherapy, with special reference to medical electricity. Medical electricity, he said, was in bad repute until the end of the last century, because it was employed largely by charlatans ignorant of its mode of action, and applied to maladies in which its use was not indicated. It was now realized that electricity produced known chemical and thermal changes in the body. The galvanic current, for example, could generate chemical caustics, bringing about the destruction of small skin growths; it could cope with infection in the middle ear, etc., by introducing chemicals into them directly. The therapeutic properties of high-frequency currents were now known to be due to the

production of heat, both in the superficial and deep regions of the body. All other agents merely heated the surface of the body, but this one, used therapeutically in a technique known as diathermy, heated the tissues throughout. Diathermy was valuable in the treatment of angina pectoris, pneumonia, arthritis, and many other conditions. By its means a malignant growth could be heated until it coagulated throughout, with the result that its blood vessels were sealed and the risk of dissemination of the growth was reduced to a minimum. Cases had been reported in which, after such treatment, patients were free from recurrence for three, four, or even more years. High frequency currents were now used on occasion in place of the knife. A film-like electric arc was formed around a blunt needle used instead of a blade, and this not only divided the tissues but simultaneously sealed the small blood vessels. The advantages of such a proceeding in the removal of malignant growths was so great that a new surgery might be said to have commenced.

Ireland.

Request for Legislation on Milk Grading in the Free State

A PETITION praying for the introduction of legislation to ensure a safe milk supply in the Irish Free State has been presented to the Minister for Local Government and Public Health by representatives of the Irish Clean Milk Society. The signatories include 89 doctors and matrons of hospitals, and, in addition to urban and rural district councils, many public bodies subscribed to the petition, among them being the Cork Chamber of Commerce, the British Legion (Benevolent Department), Irish Labour Party and Trades Union Congress, Dublin Cowkeepers' and Dairymen's Association, Irish Transport and General Workers' Union, County Westmeath Committee of Agriculture, Irish Nurses' Union, Women's National Health Association, Irish Women Workers' Union, God Save the Children Fund, and St John Ambulance Brigade. The representatives of the society suggested the restriction of the use of terms designating milk, such as "Certified," "Grade A," etc., and further urged that pasteurized milk should be labelled as such until the introduction of legislation. At present those terms have no Governmental or departmental sanction, and therefore carry no guarantee as to the safety or purity of the milk. The Minister was extremely sympathetic, and gave an assurance that the report of the Inter-Departmental Committee on Milk Supply would not remain a dead letter, saying that the matters raised in the report were being fully examined by a specially appointed departmental committee, and that he hoped to receive this committee's report before Christmas. He intimated that he would receive another deputation from the Clean Milk Society in January, when he would be able to say how matters were progressing.

Salaries of the County Mayo Medical Officers

The Secretary of the Department of Local Government and Public Health, in the course of a letter to the County Mayo Board of Health, stated that he was directed by the Minister to call the attention of the Mayo Board of Health and Public Assistance to the inadequacy of the salaries of the dispensary medical officers in the county which have never been adjusted to meet in any way the increased cost of living, although other dispensary medical officers throughout the Free State have long since been accorded appropriate salaries. So far back as 1920 the inadequacy of the salaries was recognized, and on several occasions the Minister addressed the board on the matter, but without avail. The Minister feels that a point has now been reached when, in justice to the officers concerned, and in the interest of the public services for which they are responsible, steps must be taken to secure the payment of fair and reasonable salaries. He suggests that for the present a scale of £200 a year, rising by £5 a year to £300, to be applied retrospectively and to operate as from April 1st next, would meet the case, but does not propose to allow back pay at an increased salary under this scale to the

medical officers. It is suggested that the board should also review the salaries of the medical officer and surgeon of the County Hospital, and the medical officer of the County Home, and it is pointed out that the duties of those officers are particularly onerous, and that the rates at which they are paid are much lower than those enjoyed by medical men in other similar institutions. The letter states that since the agricultural grant was doubled in 1924 the contribution from the central fund, including the proportion of the agricultural grant applicable to poor relief charges, towards the expenditure on public assistance in Mayo County, is approximately one-half of the entire expenditure of the Board of Health, and that in the circumstances an improved scale of salaries for medical officers will not press unduly on the ratepayers. The department's letter was received in an unsympathetic manner by the Health Board at a recent meeting, and action was deferred pending the receipt of a return of the recorded work of the medical officers.

Correspondence.

RADIUM AND CANCER

SIR,—Few people have been more anxious than the writer that radium therapy should come into its own. This has happened, and at the present time there is a wave of enthusiasm for this line of treatment which threatens to be overwhelming, and will inevitably be followed by a reaction and much disappointment.

Unfortunately the public are already obsessed with the idea that radium will cure any case of cancer, *however far advanced*, and, moreover, they think that thousands of people are dying simply because they cannot afford radium treatment.

It is very necessary for us to keep a sense of proportion. What are the facts? First, that, as a palliative measure in a great many malignant conditions, radium is by far the best agent that we have ever had, and the way that the local condition clears up is simply astounding. Secondly, as a curative measure, many of us believe that it is superior to "excisional surgery" in malignant disease of the uterus and tongue. There is no doubt that as the technique is improved it will be used for early cases in other malignant conditions, and the curative results will be much greater. This process of improvement must, however, be somewhat slow, and so long as we entirely neglect to educate the public so that they will consult their doctors on the onset of the earliest symptoms, the percentage of cures will remain relatively small.

The medical profession is quite rightly crying out for radium, the lay press says we must have many radium centres, but all this is useless unless we can get early diagnosis and surgeons adequately trained in the use of radium. The profession and the public must demand, and get, such diagnostic facilities. The time has come when the medical profession must also spread propaganda to teach the public more about malignant disease. The opponents of such propaganda are in fear of creating cancer phobia, I venture to think that for every case of cancer phobia produced ten patients are relieved of that haunting fear, by careful education. It is a common experience of all to see quite a large number of patients who never mention their fear of cancer, but who are relieved of all their symptoms when once they know, in the course of conversation, that there is no evidence of malignant disease. Such propaganda must, of course, be done very carefully, but that it is possible, and would be of the very greatest value, I have not a shadow of doubt.—I am, etc.,

London W, Nov 23rd.

MALCOLM DONALDSON

THE DIAGNOSIS OF GASTRITIS

SIR,—In spite of Dr P J Mollov's criticisms (November 24th, p 963), I still maintain that the fractional test meal is the only safe and reliable method of diagnosing chronic gastritis. Even in the hands of the most experienced, gastroscopy is a method of diagnosis which is too dangerous and too unreliable to be of any real practical use. It

would, for example, be quite unjustifiable in a doubtful case of early carcinoma to substitute gastroscopy for the less dangerous and much more reliable exploratory laparotomy. The radiological method, which Dr Mollov saw practised in Berlin, was originally devised independently by Dr Gilbert Scott and Dr P J Briggs. It has been familiar to me for several years, and is invaluable in the investigation of cases of ulcer. But we have come to the conclusion that there are so many fallacies in using it for the diagnosis of gastritis that it is impossible to recognize that condition with any degree of certainty by means of the rays alone. The so-called gastro-mycorrhoea mentioned by Dr Mollov is, I am convinced, a myth. I have been on the look out for it for twenty-five years, and I have never seen a case.

I certainly agree with Dr Mollov that the opinions of Aschoff and von Bergmann are worthy of consideration. I think I have read everything they have written on the subject of gastric and duodenal ulcer, but I have the support of the large majority of British and American writers in my opinion that the evidence in favour of an infective origin is overwhelming. I believe that the theories of Aschoff and von Bergmann are both in part correct, but that the factors they regard as primary are really accessory, the one essential primary factor being infection. I am also quite familiar with Kalk's work on milk test meals. If Dr Mollov had read the English and American literature on the subject he would have realized that Kalk is only repeating experiments already performed in those countries by Rehniss, Crohn, Ryk, Bennett, and many others. Kalk's findings do not clash in any way with those of Freezer, Gibson, and Matthews: what they proved is that *in vitro* milk neutralizes an equal volume of 0.3 per cent hydrochloric acid. What Kalk and others before him have shown is that in the stomach milk calls forth a secretion of gastric juice. But if the milk is given hourly the juice secreted as a result of one feed is to a great extent neutralized by the milk given in the next feed. The result is that the total quantity of free acid in the stomach on hourly milk feeds is smaller than with any other diet.

Finally, I should like to suggest to Dr Mollov that an "after-cure" of British medical literature and British clinics might be a useful sequel to his visit to Berlin.—I am, etc.,

ARTHUR F HURST

New Lodge Clinic Windsor Forest Nor 23rd.

THE ETHER-URINE REACTION

SIR,—Dr Barber and Dr Oriel in their interesting and suggestive paper on biochemical investigations in allergic conditions, which was published on November 17th (p 880), describe a physical reaction between ether and urine which results in foam rigidity. On looking up my laboratory notes I find that I observed this phenomenon in 1905, and thinking that it might have some clinical significance I followed up the observation experimentally.

When 5 c cm of urine in a test tube are vigorously shaken for two minutes with 2 c cm of ether a foam structure results which is of variable durability and rigidity. The degree to which these two properties are developed varies with conditions which are only partially known, but among these are (1) the ratio of solid to water in the specimen of urine, (2) the total acidity of the urine, and (3) the ratio of ether to urine. As regards the last condition a urine which forms a rigid foam when the ether-urine ratio is 2 to 5 may fail to do so when the ratio is 5 to 5.

Addition of acid results in the lowering of surface tension, but if the acidity of the urine is high such addition is not essential. The addition of 0.5 c cm of sulphuric acid (25 per cent) effects a certain amount of hydrolysis, so that we are dealing with a chemically altered urine. A urine which fails to foam ordinarily may develop a highly rigid foam on the addition of 0.5 c cm of H₂SO₄ (25 per cent) before the shaking.

The formation of rigid foam is dependent on the colloidal state of the urine, for if the colloids of the urine

be precipitated by a 10 percent solution of phosphotungstic acid together with 5 per cent sulphuric acid, and then filtered, the filtrate when shaken with ether fails to form the rigid form. The degree of rigidity may be roughly calculated by inverting the test tube and noting the duration of time before the foam structure collapses and the superficial fluid escapes. Of course, in this estimation the quantities of urine, ether, and acid must be precisely measured, and repeated in all comparative experiments. It is also necessary to note the specific gravity of the urine whereby the ratio of solids to water may be determined.

So far I have failed to attach any definite clinical significance to this reaction. I have seen the reaction occur in normal urines in persons whom we would pass as normal. But, then, how difficult it is to decide who is normal and who is abnormal!—I am, etc.,

Liverpool Nov 21st

H JESLIE ROBERTS, M.D.

RECENT RESEARCH ON URTICARIA

SIR,—Embracing as this subject does a host of allied conditions having the same origin, upon which an inquiry into the nature of disease throws some light, I beg for a short space to show how this light helps to explain the phenomena encountered.

The clinical signs and symptoms of disease embracing urticaria and its allied conditions can be covered by the English word "shock" without having recourse to a meaningless verbiage. Shock results from the precipitation in the perivascular lymphatics, capillaries, and occasionally the arterioles and arteries, of protein particles in the plasma which have become too large or too agglutinated to continue circulating. Protein particles become increased in size by the imbibition of water, hence the use of the term "hydration" to cover this change. Protein particles become hydrated in two ways: (1) by chemical and physical agents causing a lowering of their surface tension; (2) by the adsorption of parts of other protein particles being broken up by chemical or physical agents which are sending them into true solution. Broken particles going into true solution lose water and undergo what can be termed "dehydration." Histamine, in virtue of its positively charged nitrogen atoms, happens to be one of numerous chemical substances capable of causing protein hydration, but there is no evidence that this substance, or any other chemically allied body, is the sole cause of the various manifestations of shock. The evidence is against the sole cause being such a definite chemical substance, for the main reason that hydration of some of the protein particles results from the dehydration of other protein particles. Indeed, this is the way in which most of the milder clinical manifestations of shock are produced and it explains the other phenomena, the result of dehydration, associated therewith.

When protein particles undergo hydration the various adsorbed constituents of which the protein molecule is composed become more and more part and parcel of the colloid protein complex, and in virtue of this change they lose their characteristics as simple substances. For example sugar, urea, amino nitrogen, etc., lose their identity and cannot be detected as such, hence explaining why their percentage in the blood falls. When the protein particles are subjected to dehydration the adsorbed constituents are detached from the protein nucleus and eventually find their way into solution in the liquid part of the plasma. The further the adsorbed constituents are separated from the protein nucleus the more they lose their colloid characteristics and the more identifiable they become as chemical substances, hence explaining why their percentage in the blood rises. In the severe forms of shock, where there is little or no dehydration the percentage of the adsorbed constituents in the blood falls, and this is why and how insulin causes hypoglycaemia. In the milder forms of shock, where the hydration of some of the protein particles undergoes the result of dehydration of other particles, the percentage of one or more of the adsorbed constituents may be raised. The adsorbed constituent which has its percentage raised depends upon the degree of the dehydra-

tion. That is to say, some constituents are more firmly adsorbed than others, amino nitrogen > mean > sugar > calcium > chloride. Thus it comes about that a rise in the percentage of the blood amino nitrogen denotes a more severe degree of dehydration than a rise in the percentage of the blood sugar. The constituents tend to be separated in turn from without inwards, so that when the percentage of the blood amino nitrogen is raised the percentage of the blood sugar is either normal or lowered. As the stage of dehydration precedes that of hydration, and is absent when the latter reaches its acme, the blood picture varies according to when it is made and according to the strength in quality and quantity of the intoxicants, which are generally poisonous substances of intestinal origin. In the first stage there is a rise in the percentage of the blood sugar, in the second stage a rise in the percentage of the blood urea and blood amino nitrogen, and in the third stage a fall in the percentage of all the adsorbed constituents. There is no blood picture typical of any clinical manifestation. The intoxicants may at the same time cause dehydration of the red blood corpuscles, and this may be sufficient to set free enough haemoglobin to appear in the urine, but there are no such bodies as specific lysins.

Hydrated protein particles act as dehydrators to the protein particles constituting the protoplasm of cells, and it is to this action that the urticarial wheal is due. The endothelial cells of the vessel wherein the precipitation takes place are the first cells to be attacked. This results in a dilatation of the vessel, an increased permeability of the wall, and an escape of the fluid and "solid" parts of the blood, according to varying conditions, into the tissues around, constituting what is known as oedema. Once protein particles have been subjected to these altered chemico-physical changes, the signs and symptoms resulting therefrom may be caused or aggravated by substances having no relationship to the original intoxicants. This fact explains why tests employed to detect so-called cutaneous allergy are useless, and throw no light upon the primary cause of the hydration or hypersensitiveness.

Bodies hydrated tend to become foreign in the blood, and readily find their way through the vessel walls, particularly when their permeability is increased. Some of these bodies escape through the glomeruli into the urine, and when the urine is shaken with substances insoluble in water the complex colloid substances undergo such enormous dispersion as to make in Barber and Ortel's test the ether opaque and frothy. Some years back I showed the same phenomena to occur in the cerebro-spinal fluid withdrawn from cases of parenchymatous syphilis of the central nervous system when shaken with toluene. The nuance of colours following the addition of nitric acid to urine, and the pink to violet coloration

of the hydrochloride

are indicative of the presence of hydrated colloid particles in the urine, and hence in the blood, and are tests much easier to employ.

Cardiac failure is an expression of protein hydration, hence the reason it is overcome by drugs able to break up the hydrated particles (dispersion) and to restore them to the circulation (digitalis, strophanthus camphor, ecdiazol, etc.). Hydrated protein particles have their surface electricity more under control than other particles, thereby explaining why they appear less negatively charged and more "acid." Calcium, adrenaline, etc., sometimes relieve the milder symptoms of shock, but only when they are able to cause dispersion of the hydrated protein particles, in no instances do these or still more useful drugs touch the cause of the hydration. Calcium and adrenaline function as conductors, which, generally speaking, do not cause dispersion of hydrated protein particles so efficiently as do dehydrators. It is for this reason that the dehydrator glucose is so valuable in the more severe forms of shock represented clinically by insulin hypoglycaemia, eclampsia, coma, etc. There is an association between hydration and what is known as vagotonia. Space forbids the connexion being elucidated here, but the point is mentioned to draw attention to the fact that adrenaline does not act by stimulating the sympathetic nervous system—I am, etc.,

London W 1 Nov 23rd.

J E R McDONAGH

ETIOLOGY AND TREATMENT OF PAPULAR URTICARIA

SIR,—In his article on urticaria in the *British Medical Journal*, November 17th (p. 879), Dr. Rupert Hallam states that

Papular urticaria is influenced neither by dieting nor drugs, but the patient obtains a respite if he be removed from his own environment

There is a curious factor common to all the sufferers recover immediately they are admitted to hospital, even though no treatment of any description be given. The rash returns after their discharge

These are sweeping statements, and I cannot but feel that I shall not be alone in disagreeing with Dr. Hallam.

I can recall many cases in which the elimination of an offending food, sometimes only found after prolonged investigation, has led to the disappearance of the trouble. To quote a recent case in my private practice: A male child, aged just 4 years, was brought to me last September. He presented the typical rash of papular urticaria, which the mother stated had been present for eighteen months. There was severe itching at night and the child rarely experienced an unbroken night's rest. On questioning the mother concerning the diet I found that the child was particularly fond of bananas, a fruit which I have frequently found to be an etiological factor in this disease. The only remission in the disease had been for two weeks in August of this year, during the annual holiday, when the child had not eaten this fruit. I advised the elimination of bananas from the diet. On seeing the child two weeks later the parents reported that the spots had only appeared on one occasion since the first consultation. A week ago, that is six weeks after the last consultation, the parents stated that the rash had not reappeared during this time.

In this case the cause of the trouble was discovered with fortunate rapidity, in many cases it is only discovered after keeping a food chart for some time, and after repeated trial and error. From my own experience I believe that this disorder is influenced by dieting, and that it is unnecessary to invoke the aid of some virtue which is only to be found in the atmosphere of a hospital, the absence of which from the patients' homes produces this malady—I am, etc.,

NORMAN BURGESS, M.A., M.B.,
M.R.C.P.

Clifton Bristol Nov. 21st.

DEFINITION OF DRUNKENNESS

SIR,—As one of the prime movers in 1925 who induced the Council of the British Medical Association to set up a special committee on tests for drunkenness, on which I served, may I be allowed to comment on the present discussion. Periodically the question seems to reappear in your correspondence columns and Dr. Sidney Matthews, having found himself recently in some difficulty, seeks for guidance. The advice given him does not seem to have been altogether satisfactory.

The definition adopted and recommended by this *ad hoc* committee is repeatedly referred to, but in no instance is it quoted in full, in order that your readers can form their own opinion with regard to Dr. Matthews's difficulties, it may be stated that the definition is

'That the person concerned was so much under the influence of alcohol as to have lost control of his faculties to such an extent as to render him unable to execute safely the occupation on which he was engaged at the material time'

Now, Dr. Gordon Wilson stated on November 24th (p. 964) that this definition was specially drafted to apply to the offence of being drunk in charge of a motor vehicle. As a matter of historic fact that is not so, and it is obvious that that is not so. It applies equally well, for instance—and was intended to apply—to accidents in factories or other employments, to walking on a cliff or other height, to conducting a child through or near traffic.

Dr. Matthews says, in the *crux* at issue, "the man had been drinking, but he passed every test that I could put to him, yet I knew he was not fit to drive a motor car." That is, without any applied test, Dr. Matthews was satisfied that his patient was "unable to execute safely the occupation on which he was engaged at the material time."

If that is so, then why hesitate to apply the word "drunk"?

Many seem to fail to accept what I ventured to suggest in the *British Medical Journal* several years ago, that the word "drunk" is a relative term, if this were more fully appreciated the difficulties in certain classes of cases would be cleared away. For instance, one listens to a long story of a friend recounting an action taken, and in reply one says, "You were very wise to have done so" (or not to have done so, as the case may be). But by so speaking you do not intend to convey, nor does your hearer understand, that your recounter has the wisdom of the East. If subsequently in court that roman were to be referred to no one would conclude that it had been used except in relation to the circumstances at issue at the material time.

And yet when a doctor, having first, before examination of a patient, recited for his own use or subsequently in court quoted the definition of the Association's committee, then finds it necessary to decide that the word "drunk" should be, or not be, used in regard to the case, the facts being proved, he and the court seem to boggle over the question (that is, start with fright, shy, hesitate, demur, equivocate, fumble). Why should this be so? Is it not entirely because unconsciously there has been introduced into the use of the word "drunk" a moral aspect, and one dislikes to become publicly a judge of a neighbour's morals? Had the alcohol been absorbed involuntarily this hesitancy would not arise. Is it not desirable that the medical profession should ignore the moral aspect in all cases of "being under the influence of alcohol," and confine itself to the scientific aspects of a case?

The report of the special committee is well worth re-reading, and copies can, I believe, be obtained on inquiry at the Association's headquarters, price sixpence—I am, etc.,

Hove Nov. 26th.

E. ROWLAND FOTHERGILL

SIMPLE PHLEBITIS AND EMBOLISM

SIR,—When, recently, a colleague developed a "simple phlebitis" in the calf of the left leg, the validity of the traditional treatment—three weeks in bed—came into question. I think it will be generally agreed that women who do their own housework very often suffer from slight phlebitis without lying up and without oral effects. An admittedly inadequate examination of the literature in the libraries of the Royal College of Surgeons and of the Royal Society of Medicine was not fruitful. Romanis and Mitchner (*Science and Practice of Surgery*, 1927) say: "Simple Phlebitis.—The thrombus does not become infected, and there is little or no tendency for pieces of it to soften and break loose." An ex-president of the College of Surgeons told me he had never known of a fatal embolus following a simple phlebitis.

I have heard of two fatal cases—one where an old man insisted on his cook massaging his leg, the other where the patient slapped his own thrombosed leg violently, declaring he was quite sound. I have, at the moment, under my care a lady, who, while being kept strictly in bed for phlebitis, has developed a small patch of dry pleurisy and a slight haemoptysis which suggest an infarct, but I have never heard of a fatal sequel to a patient getting up—after pain and fever have subsided—and leading an easy quiet life.

It would obviously save a great deal of nursing and worry if the three weeks with bed pans and so forth could be avoided. It would be useful if others would record their experience and give evidence which would throw light on the problem of whether there is, in fact, danger in a patient leaving his bed in such circumstances.

Northwood Nov. 12th.

O. HILTON

POSSIBLE CUMULATIVE EFFECT OF EMETINF BISMUTH IODIDE AND EMETINE PERIODIDE

SIR,—I write to inquire whether any of your readers have observed a cumulative effect from either of these two chemicals. A case just concluded in South Africa has brought out the suggestion that emetine may sometimes be eliminated in an irregularly intermittent manner.

The use of "E.B.I." and "F.P.I." in amoebic dysentery carriers has been extensive, and it will be recalled that the

Medical Research Council, as the result of an investigation, specially emphasized that large quantities of inactive bismuth iodide are essential, and total doses of not less than 30 to 40 grams, in daily doses of 3 to 4 grams, were advised.

A warning should, I think, be issued with regard to the treatment of schistosomiasis in children. Not only should the dose be carefully reduced in proportion to age, but the possibility of an accumulative effect should be safeguarded against by watching the general condition of the patient and by examining the urine with an alkaloidal reagent to see that proper elimination is proceeding.—I am, etc.,

London W 1 Nov 24th

W H MANTON

SPONTANEOUS PNEUMOTHORAX SUPERIMPOSED ON ARTIFICIAL PNEUMOTHORAX

SIR,—In your issue of November 17th (p 895) Dr S P Wilson records an interesting case of spontaneous pneumothorax occurring in a patient with artificial pneumothorax. Certain features of this case do not correspond with the typical picture presented by Hutchinson and Blair (*Tubercle*, June, 1926), as deduced from their series of seven cases. In all these cases there was a very considerable rise of temperature (in six of the cases from 103° to 105°) coincident with the onset of symptoms. In all such cases, where air is not withdrawn, there occurs a typical "staircase fall" of temperature, extending over a period which varies with the height of the initial rise.

There is no doubt that lung rupture had occurred in Dr Wilson's case in view of the x-ray evidence before and after the onset of symptoms. This would suggest that a rise in temperature, due, as Hutchinson and Blair suggest, to suddenly increased intrapleural pressure, is not a necessary manifestation of lung rupture. In view of the fact that of their seven cases two definitely developed pneumothorax, one a pleural fistula another had to undergo thoracoplasty, and two others died (cause not stated), would it not seem that pyrexia only occurs with infection of the pleura in such cases and is not a manifestation of increased pressure per se?—I am, etc.,

Leeds Nov 18th

HUGH G GARLAND, M B, M R C S

"THE RIGHT TO PRACTISE"

SIR,—The report of Dr J Gordon Macqueen's address to the Hygiene Division, published in the *Supplement* of November 24th (p 229), contains the following concrete statement made for the information and guidance of the profession:

No degree or diploma of itself, however high it might rank in the medical or surgical world, entitled anyone to practise, the inclusion of a practitioner's name in the *Medical Register* and that alone conferred this right.

This is wholly contrary to fact and law. There is no legal inhibition upon the practice of medicine and/or surgery by any of His Majesty's subjects and registration under the Medical Acts confers no special privilege in his respect—that is, *qua* "the right to practise." As Dr Macqueen's address proceeds from one who is qualified in law as well as medicine, and thereby bears the impress of authority, I have been induced to comment on the matter.—I am, etc.,

Cambridge Wells, Nov 24th

W F HEMPHON

ULTRA-VIOLET RAY THERAPY

SIR,—I would like to know upon what evidence Professor Dixon bases his statement on October 13th (p 644) that "physicians are generally agreed that radiation by ultra-violet light is contraindicated in highly nervous and neurotic people." My own experience has been quite the reverse of this, and I regard these patients as the best subjects for the treatment.

In speaking of nerve cases I include the chorea of children, disseminated sclerosis, a myasthenic type of encephalitis lethargica, cases of menopausal neuroses which were actually borderland cases, and sent to no other means of treatment had failed, neurasthenia and the insomnia of anxiety or nerve pain. If any would be interested in the history of these cases I shall be glad

to supply the information, since it appears to me that such a statement by Professor Dixon is bound to influence physicians who have not had the opportunity of testing it. I believe that many of the nerve-racked souls at present in the various institutions would rapidly show improvement if judiciously treated by ultra-violet rays.

In regard to the irradiation of children, it is said that they react much more readily than do adults. Such has not been the case in my own practice. Nearly all the children treated by me can stand a dose which would cause a second degree erythema in almost any of my women and some of my men patients. These children will tan, but do not redden.

I should perhaps add that every one of my patients undergoes a thorough clinical examination with tests of physiological excretions in doubtful cases, and, where necessary, the treatment is combined with an appropriate internal medication to assist the good work of the mercury vapour lamp. Like Professor Dixon, I do not regard artificial sunlight as a panacea, but I think he should revise his opinion about nerve cases, so that this great class of sufferers may receive the benefit of their healing and stimulating rays.—I am, etc.,

12 Grosvenor Nov 24th

E C MUDIF

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

THE House of Commons spent three days this week debating the second reading of the Local Government Bill and then considered the final resolution recommending the bill.

The Parliamentary Medical Committee met on November 27th, discussed the Local Government Bill, and adjourned in order at a subsequent date to confer with the special Committee of the British Medical Association before the committee stage of the bill begins in the House of Commons. The Committee discussed the bill's proposals on block grants and their effect on health services, particularly venereal disease services, it also discussed the proposals of the bill regarding hospitals, and opinion appeared to be generally in favour of each authority under the bill establishing a hospital subcommittee of the public health and housing committee. The Medical Committee further considered the proposal of the British Medical Association regarding transferred services under Clause 4 of the bill. This proposal would make obligatory the provision of assistance under the Public Health and Kindred Acts by virtue of the appropriate Act and not by way of poor relief. The Committee passed no resolutions.

Local Government Bill

On November 26th Mr CHAMBERLAIN moved the second reading of the Local Government Bill. Dealing with the history of the Poor Law he pointed out that in 1872 the whole country was divided up into urban and sanitary districts. The Act of that year was responsible for the origin of the medical officers of health, whose appointment was a statutory duty on those sanitary bodies. Since the Acts of 1872 and 1888 there had been no serious attempt to reform local government. Our system of local government was, in many respects, obsolete and out of date. Under the existing system there was a great deal of overlapping. From time to time Parliament had entrusted to the major local authorities the responsibility for the prevention or treatment of various diseases. There was tuberculosis, the charge of lunatics and mental defective and the great maternity and child welfare services, yet every one of those things had to be dealt with also by the guardians in the discharge of their duties. Thus there existed the remarkable and paradoxical circumstance that the question of whether a person should receive treatment at the hands of the county borough or the county council or whether he should receive it under the Poor Law from the guardians depended not upon the nature or need of his infirmities but merely upon whether he was destitute or not.

The Government had an overwhelming weight of authority in proposing to hand over to the county councils the functions of the guardians. The case did not depend merely on the easing of the financial burden, strong as it might be on that ground. It opened up a wide field for the improvement of our health services. The whole trend of practice in modern medicine and surgery was toward the treatment of many cases in institutions where there could be accumulated the specialized equipment and skill which were not always available in private homes. When the bill became law we should have a position in which there would be one single health authority in each area whose duty and function it would be to survey the whole institutional needs of that area. They would have at their disposal all the institutions now in the hands of the guardians, in many the accommodation was not fully occupied. They would have an opportunity of reclassifying their institutions of closing such as were no longer suitable for modern requirements at all, of altering and

adapting others and of using one for one purpose and another for another purpose. Even to-day there was a certain amount of classification attempted in many of the institutions of the guardians particularly in the large areas, but it must be clear to everybody that with the small opportunities that were to be found of each particular case in any one institution it was quite impossible either to get the sort of classification that they wanted or particularly to bring to it that equipment and that specially skilled staff and nursing which were essential if they were to get the best results. Only a general review over comparatively large areas and a general readaptation of buildings would suffice if a satisfactory solution of this problem was to be obtained.

Clause 4 gave power to the county borough councils and county councils to treat persons either under the Poor Law or under a number of special Acts. If they adopted those Acts for the purpose persons treated thereunder would be separated out and treated by other committees according to the nature of their ailments. The bill did not leave the county councils and county borough councils to deal with all destitute persons in future under the Poor Law as they had been dealt with in the past. The power now given to the councils was permissive and not mandatory although he was disposed to think that some day it should be made mandatory. To say that Clause 4 must be mandatory would be to put upon local authorities duties which they were not to-day capable of carrying out.

Explaining the method in which these transferred functions were to be dealt with Mr Chamberlain said it was essential that the body which provided the money should retain financial control. He had been extremely anxious to provide that as far as possible the local knowledge, the local interest and local experience that had been so valuable in the past should not be lost. In Clauses 3 to 7 provisions were set out which showed how they were going to try to combine central financial control with the fullest possible use of this local knowledge. It would be the duty of every county council and county borough to prepare an administrative scheme. In that scheme they were to appoint a Public Assistance Committee. This was not necessarily a new committee, it might be one of the existing committees of the council. To that committee in the first instance, the council would refer these transferred functions and it would receive the recommendations of the committee as to how they were to be dealt with. Of that committee two-thirds must be members of the council and the remaining one-third might be co-opted among the co-opted members must also be women. Clause 6 stated that each county must under its scheme divide up its area into a number of smaller areas each of these comprising one or more county districts. In each of these areas there had to be set up a subcommittee of the Public Assistance Committee specially designed to carry on as far as possible the duties of the old boards of guardians where it was compatible with the new financial arrangements. The subcommittees were to be called guardians committees, and it was hoped that members of them would continue to call themselves and to be called by other people guardians. Two-thirds of the guardians committees would be elected members and there would be a considerable number of actual members of the old boards who would become members of the new guardians committees. There would also be co-opted members which again must include women. The duties of these committees included the examination of applications for relief and the determination not only of the amount but the nature of the relief they would determine whether the applicant should or should not be admitted to an institution and they were not excluded from visiting inspecting and even managing any Poor Law institution if the Public Assistance Committee thought fit.

Clause 13 provided for the recovery of expenses. Under the existing law it was the duty of guardians to recover either the whole or part of the cost of relief from any person maintained in these institutions. It was not the law that the local authority must do it although some of them did, and he thought in the case of maternity homes they always did so. But, obviously if the functions of the guardians were to be transferred to the council they must not have a situation in which one person who happened to be destitute would have the cost of relief demanded from him while another person, not destitute who went into an institution of his own accord did not. There must be one rule for both and so the bill provided that the local authority would have the duty imposed on it of recovering such part of the cost of maintenance in an institution as an inmate could afford. But they excepted in that provision the case of an infectious hospital where persons went in for the good of a community and that also included the case of the tuberculosis sanatorium.

He saw from the amendment paper that this was taken as involving some danger to the maternity services. At present he did not see how that could be the case. It was the general practice of local authorities to make charges for institutional relief and seeing that a woman who had her confinement in an institution was relieved of the cost of a doctor or midwife, and that she had in most cases the maternity benefit secured to her it was difficult to understand why she should not be asked to make some contribution to the cost of her maintenance in the institution. He would only say that he had an open mind on the subject. He was anxious that nothing should be done that would in any way hamper or check the development of the maternity services to which he attached the utmost importance. If he could be convinced during the committee stage of the bill that this provision would have that effect or that any amendment could usefully be inserted which would still further protect the maternity services he would receive any such suggestion with respectful consideration. Clause 15 applied to London the provisions which applied to the counties in general with the necessary adaptations. The Metropolitan Asylums Board and the Metropolitan Common Fund would

disappear. The functions of boards of guardians were handed over to the London County Council, and the London County Council was left to make its own arrangements for the administration of the law through subcommittees. Part II of the bill dealt with registration services when the guardians disappeared their functions would be handed over to the counties and county boroughs. Registrars would be placed on a salary basis instead of being paid by fees.

Dealing with highways and road making Mr Chamberlain said that the question of town planning was bound up with the design and alignment of roads. Provision was made for the inclusion of the county councils in joint town planning committees with other local authorities.

A number of clauses followed which were all in accordance with the recommendations of the Onslow Royal Commission. Clause 45 provided that the county council might, out of the county rates, make a contribution towards the expenses of a rural district for the purpose of improving sewerage or water supply. Clause 48 was designed to bring together education authorities and maternity and child welfare authorities. It was provided that the maternity and child welfare services might be handed over to the authority which was also the education authority so that continuous supervision might be exercised over the health of the child. Clause 50 dealt with the supervision of midwives, Clause 51 with the review of accommodation for infectious diseases in counties and Clause 52 authorized the delegation of certain functions from the London County Council to the metropolitan borough councils.

Turning to the finance of the bill Mr Chamberlain said that the Government's plan was that national contributions to local services should be distributed not in accordance with what the local authorities spent but with their needs including of course their relative ability to pay. De-rating took away a large existing source of revenue of the local authorities and replaced it with a larger sum. That sum instead of being a percentage grant based on something received twenty thirty or forty years ago would be based on needs reviewed from time to time. The block grant was to be recalculated every five years and the amount was to be fixed for each year in any period of five years. The distribution among the counties and county boroughs was first to be partly and ultimately entirely made according to a formula. The result he anticipated would be that each local authority would be secured resources adequate, not merely to carry on the services as they were to-day but to allow for reasonable expansion in accordance with the public conscience and the demands which the increasing revenues of the country would permit.

He had been very much astonished at suggestions which had been made that the system of block grants would injure or even starve the health services and especially the maternity and child welfare services. If he thought for a moment that that would be so he would never allow it to go through but he was convinced that those fears were utterly groundless. Leaving out of account three or four wealthy towns which had an exceptionally high expenditure on these services the average grant received by the authorities throughout the country in respect of maternity and child welfare was about 5d per head of the population. He took as instances one or two towns under the average which were therefore not receiving the average maternity and child welfare service. Oxford, a comparatively wealthy place with nearly £8 10s rateable value per head of the population had a maternity and child welfare grant of 4d. Under the new scheme its grant in the first five-year period would be 26d and the final grant, when the full formula came into operation, would be 31d per head. In an entirely different case that of Merthyr whose rateable value was only £2 6s per head the maternity and child welfare grant was now 4d. The grant in the first quinquennium would be 73d per head, and finally 108d. In Tynemouth where there was special need the rateable value was £4 1s and the maternity and child welfare grant was 38d, the gain in the first quinquennium would be 162d, and when the scheme became fully operative 206d per head.

Comparing these figures of the grant per head with the amount spent to-day on maternity and child welfare service which on the average for the whole country was 5d per head it was perfectly clear that the formula would give ample resources to every locality to deal with this service and to multiply it many times over. There could not be any question about the adequacy of the amount available it was not an expensive service and it did not take much money to produce considerable results. He had taken much trouble to protect it in the bill. Clause 75 provided that in the county districts voluntary associations would receive, in addition to the population grant an increased grant to enable them to carry on the service. Again under Clause 83 the voluntary associations were protected because the schemes to be prepared by local authorities showing the contribution to be given to them must meet with the approval of the Minister who had the final say as to what the contribution might be. Under Clause 86 the Minister had power—such as he had never before held—to take away the grant or that portion of the grant which he might think right from any local authority which failed to maintain this service adequately. If in the committee stage it could be shown that the clause gave insufficient protection to this service he would consider any amendments which might be put forward. There was no service to which he attached more importance and in which he took a greater interest than maternity and child welfare and he was not going to allow any consideration to interfere with its fullest possible development.

The needs of areas in accordance with which the national contributions would be distributed would be measured by an ingenious and carefully worked out formula which would be found in the fourth schedule of the bill. Obviously the popula-

tion was the principal factor which governed the need of a locality, but it was not the entire measure of the need. They had also to take into account the relative wealth and poverty of different districts, and so rateable value per head and number of children under 5 were used to weight the population. They would find a larger proportion of children in the poorer districts and it would not do to rely only on rateable value as a measure of the relative wealth and poverty.

Having dealt at length with the financial provisions, Mr. Chamberlain concluded by prophesying that the scheme though it might well be altered in details in its passage through the House would in its main outlines still hold the field, and that it would prove to be a courageous, comprehensive, and successful attempt to remove anomalies and injustices which had too long been allowed to impair and weaken the magnificent structure of local government.

Mr. A. GREENWOOD moved the rejection of the bill on the grounds among others that it would perpetuate the evils of the Poor Law system and would arrest the normal and steady development of local health services by the establishment of fixed block grants from the Exchequer by the imposition of a charge for treatment in hospitals especially maternity hospitals, which was calculated to increase the already high mortality among mothers. He contended that to combine roads and public health in a block grant was an absurdity. The block grant was a Treasury device for saving money to the Exchequer, because it meant the spending of less by the Government on local government services. The Government was allowing the spirit of the Poor Law to pervade the whole of local government. Their proposals would injure the health services of the country. Health authorities would be in the position of having to make inquiries and ascertainsments and to collect money when they should be fighting out disease, that would reduce medical officers to debt collectors.

Dr. FREMANTLE said that in the amendment of the Labour party, and in that on the paper in the name of the Liberal party, it was suggested that the gravamen of the case against the bill was the injury that would be done to the health services. The amendment before the House said that the bill would arrest the normal and steady development of local health services and would increase the already high mortality among mothers. It was a challenge which must be met. When he read the bill he felt that it was a measure in regard to which they would have the general sympathy of those members of the Opposition who worked with Mr. Greenwood for the improvement of the health services. Here was a measure that was fulfilling a large number of the great objects which had been put forward in several Royal Commissions, and above all in the Royal Commission on the Poor Law—a measure it seemed to him in which they could gladly co-operate—at least in so far as the health service section was concerned—for the common cause and obtain amendments. He wished to call attention to the most authoritative announcement that had yet been made by the medical profession. It had only recently been put into his hand, and he had had no share in preparing it. It was the considered statement of the British Medical Association Poor Law Reform Committee. The Committee sat for a long time on the subject, and their general conclusion was. Resolved that the Council be recommended to express its approval of the Local Government Bill 1928, in so far as it attempts to secure unification of the medical services of the country. The bill was discussed under three main categories: first machinery of local administration; secondly the effect of the bill on medical officers of health and Poor Law medical officers; and thirdly the effect of the finances of the bill on the health services. After endorsing the measure under these several heads in which they were particularly concerned, the Committee proceeded to suggest certain alterations, modifications, and amendments which could be produced in committee and which would be put forward in due course. He hoped that members in all parts of the House would combine with him in helping to get amendments accepted further to improve the machinery of the bill.

Being himself a medical officer of health for a county area in which these matters were constantly to the fore, who for a period of twelve or fourteen years had had to consider work and report upon the complications which this measure hoped to simplify, he wished to state that in the course of those many years, county medical officers of health had always felt the hopeless confusion of authority which existed between the different bodies dealing with health and that in every way the work of public health had been crippled because of this complexity. There was no relation between the Poor Law authorities whether in their relief services and their institutional services and the sanitary authorities. There was no real combination between the sanitary authority on the one hand and the county authority on the other. The only powers that the county authority had over the sanitary authority was occasionally to report to the Local Government Board as it formerly was or to the Ministry of Health as it now was cases in which the sanitary authority was in default and it appeared that the Ministry might take certain action. One of the most crying needs was for some kind of co-ordination among the different authorities. The bill met that need in a way that exceeded any proposals that had been made hitherto and the fact that had been alleged against it that it was a combination of different measures was from this point of view clearly in its favour. It was taking the opportunity to bring together an enormous number of these different services in order to make a big move, a big change, and a big reform—indeed more than a reform for it was an absolute revolution of local government. One point on which obviously members on the opposite side must be agreed was that there was a measure of co-ordination and a revolution that was essential for the public health service. The bill gave power to the county authorities to establish definite

relations with the sanitary authorities responsible for hospitals, and at the same time to use the institutions of the Poor Law for combined purposes. There was the possibility of co-ordinating the whole of the former hospital services of the country, which was of enormous advantage in regard to the cause of infection, and which might lead to economy. At the same time, they might secure much more efficient services and more efficient institutions for the patient.

Another point which required co-ordination, and which had not been mentioned that evening—it was not mentioned by the Minister of Health in his opening speech—was the question of mental hospitals and mental deficiency institutions. A very large amount of work in regard to dementia was the concern of the Poor Law and the Poor Law institutions, and a large amount of work in regard to the question of mental asylums, mental hospitals, and mental deficiency came under the county councils. Under this bill they had the possibility of co-ordinating this work and the county councils would be able to deal with the mental ailments, dementia, and mental deficiency as one undivided authority for the whole county area.

They did not intend to give, continued Dr. Fremantle, and he certainly could not as a medical officer give unstinted adherence to the bill without suggesting the necessity for considering the need for amendments. He had listened with gravity and anxiety to the suggestions that had been made against the bill from the point of view of those who were concerned with maternity and child welfare services. It was quite true that those were developing services, and were a great essential need of the country. They were administered largely by voluntary effort, and it was certain that many of those concerned with the services were seriously alarmed as to the possibilities of danger from the operation of the block grant. The Minister of Health had said that the last thing he intended was to hinder the maternity and child welfare services in any way, and he had put into three clauses definite provisions for easing their situation. Dr. Fremantle hoped that still further security would be given. He was not at all sure, although he believed in the block grant system in the long run for the sake of the eventual good to local government, that the time was ripe to apply it at once to the maternity and child welfare services, and it might be advisable and possible to give a little longer time—say, for the first quinquennium—under the present system while the voluntary associations were making the adjustments necessary to enable them to work the new system proposed.

In regard to the much debated subject of the local supervising authority under the Midwives Act, a further reservation had to be made in regard to co-ordination. It was a difficult subject and obviously it would be better theoretically if the Act could be administered by the same authority which administered the Maternity and Child Welfare and other Acts. But the difficulty was that midwives and those associated with them felt strongly that the only authority capable of securing the proper experience and the proper inspection of midwives was the county authority. There were minor exceptions, and it was hoped, in regard to any rate, to that aspect of the midwives service, that the responsibility which was given by this bill to the Minister of Health to approve or not approve the transfer might be most carefully used.

He had shown that the Poor Law Reform Committee of the British Medical Association approved the bill in its attempt to secure unification of the medical services of the country. With regard to that, there were two reservations which should be mentioned and which were capable of adjustment he hoped, in committee. The first was in regard to the distribution of Poor Law functions under Clause 4. This clause provided that the Poor Law functions might be distributed in regard to health services among the committees of the county councils or county borough councils which dealt already with education and public health Acts, the Maternity and Child Welfare Act and so forth. But it used the word "may." That gave authorities the option of transferring these functions to the new guardians subcommittees which would make confusion worse confounded. It would perpetuate the present position, which would be right against the report of the Poor Law Commission which this bill practically proposed to carry out. Members on all sides of the House who had been keen on public health development were even keener on the proper distribution of functions and the British Medical Association and the medical officers of health were combined in saying that they wanted each committee of the county councils and county borough councils to be responsible for the whole sphere of service quite independently of the separate individuals or class of individuals with which they were dealing.

The question of the hospitals was a most difficult and thorny one. There was naturally a great feeling on all sides who were keen upon the voluntary hospitals—and all that they meant—regarding the competition which might be set up between the voluntary hospitals and the municipal hospitals. The best arrangement for overcoming this difficulty was by mutual understanding and co-operation and it was strongly suggested by the British Medical Association—and he backed the suggestion—that the county and county borough councils should be required to set up hospital subcommittees who would be able to advise them regarding the efficient management of the hospitals and effect co-operation with the voluntary hospitals. Some regret might be expressed that the Lunacy Acts were left out of Clause 4. The reason for this omission was that it was intended to deal with those Acts in pursuance of the report of the Royal Commission. They had pressed for that for a long time and he hoped that it would be carried out in the next Parliament. He noted with satisfaction the co-ordination of the medical officer of health services as a step in the direction of the further increase of whole time medical officers of health, he was however at loggerheads with the Minister of Health in regard to the rural areas. He maintained that they could not say that one system was ideal rather than

another, and the suggestion that the only way to deal with rural areas was by whole time medical officers who did not engage in private practice was, in his opinion, wrong. What was wanted in rural areas were men of the best character, with the best opportunity to carry out the work. There were obvious exceptions, but there must be some latitude allowed.

Lastly, he hoped that some further progress might be made in separating the health services from the system of relief. That had been the cardinal policy of the medical profession all along. It was a very difficult question, and he still thought that those who could afford to pay ought to do so and that the public services ought not to be abused. But, on the other hand, they had the precedent of the Infectious Diseases Acts, and he hoped that by degrees as these municipal health services developed under this new arrangement, the strictly health services might be considered as extra services and separate from relief. He challenged the Opposition parties in regard to their denial of the value of this bill to public health. The future of the measure must depend upon the backing given to it in the country. For that purpose they wanted publicity above all things. The best way to secure publicity for the bill was through the B.B.C., and he urged the Government to arrange that speeches, representing all parties, should be broadcast. If that were done, he believed that the country would be immensely enlightened regarding this bill which might be rightly called the Magna Charta of public health and local government.

The debate continued until the evening of November 28th, when the House divided.

Replying to a question on November 26th Sir Kingsley Wood said he did not anticipate that any permanent addition to the staff of the Ministry of Health would be necessary in the event of the Local Government Bill becoming law. Work incidental to the inception of the scheme would involve some temporary addition to the staff, and the consequential expense was estimated at £50,000.

Preservation of Infant Life Bill

LORD DARLING, in the House of Lords, on November 22nd, moved the second reading of the Preservation of Infant Life Bill designed to prevent children being destroyed at birth. This bill passed through the Lords last session but failed to obtain support in the House of Commons after its title had been changed to the Child Destruction Bill. Lord Darling now said that one of His Majesty's judges had drawn his attention to the number of cases where no punishment could be awarded to a person for the killing of an infant during birth because the killing was neither murder nor abortion. The bill was in the form in which it left a Select Committee of the House of Lords last year.

LORD ATKIN said this gap in the criminal law had been recognized by many generations of justices. The bill in its present form was not a satisfactory piece of legislation. The practical effect of making an offence of the killing of a child during birth by the mother would be very small. It would be difficult to persuade a jury that a woman ought to be held criminally responsible for an act done in the pangs of an unintended, uncaused, and possibly difficult labour. The bill applied to third persons, to doctors and to midwives, and raised the position of the doctor who had to consider during delivery whether to save the life of the mother or that of the child. Under the bill such a doctor committed a criminal offence unless he proved that he acted in good faith and that his action was needed to save the mother's life. He objected to creating crimes by legislation and throwing on anyone the onus of proving that he was innocent. Doctors had been harassed quite enough by legislation, and should not have to consider whether a disappointed parent or a mischievous attendant would charge them with this offence. The provision of the bill making it an offence to kill a child in the mother's body more than twenty-six weeks after conception was unnecessary, because it was impossible to do so without procuring, or attempting to procure a miscarriage.

LORD DAWSON associated himself with Lord Atkin's arguments. The House should not be too anxious to fill this gap in the law. It was a good thing in many cases if the law turned a blind eye to this offence by unmarried mothers committed after months of anxiety often culminating in difficult labour. These girls, in many cases did not require legal conviction but the hand of understanding and fellowship. If he were a professional man who had knowledge of an act of this kind and satisfied himself it had been done under stress of impulse and anxiety, he should not consider it part of his duty to divulge the fact to the powers that be. The bill would inflict a hardship on men in the profession to which he belonged and on midwives. It threw on them the onus of proving that they were not committing a crime. It would go far to inhibit them and discourage them from doing their work. In fairness and justice to the doctor and in the interest of the community he urged the Lords to reject the bill.

LORD RUSSELL concurred in these arguments. LORD HAILSHAM said Mr. Justice Talbot in a charge to a grand jury had pointed out the gap in the law and had said. The result of the law is that a fully born child in many cases can be destroyed with impunity and I do not think it very creditable to our legislature that the defect in the law should be left unremedied. Lord Hailsham said he shared this view. He did not think anyone contemplated that a distraught mother should be punished if she killed her child before it was fully born any more than in similar circumstances just after it had been born. Such circumstances were always taken into account in the modern courts. He agreed that it was most important to safeguard the position of the doctor and the midwife. Largely because of representations

by Lord Dawson on that point the original bill had been sent to a select committee, on which Lord Dawson served. Whether the exact phraseology of the bill was sufficient to safeguard the profession might be considered again by a select committee or by the House of Lords in committee. As he read the bill, although, in fact, a doctor was mistaken in thinking it necessary to kill the child in preserving the life of the mother yet so long as he acted in the honest belief that the necessity existed he would not be under any liability. Since Lord Atkin felt no doubt on that point it ought to be made clear in committee. LORD ATKIN said he was content that the bill should be examined in committee.

The bill was then read a second time.

Protection of Animals (Amendment) Bill

In the House of Lords, on November 22nd, LORD BANBURY moved the second reading of the Protection of Animals (Amendment) Bill. He explained that this short bill proposed that any owner of a dog found guilty of cruelty to the animal might, in addition to any other punishment he deserved from receiving a licence to keep a dog or dogs.

LORD DAWSON OF PENN pointed out that the original Act contained no definition of cruelty. In view of recent controversies on what constituted cruelty in experiments on animals, Lord Dawson suggested that Lord Banbury should amend his bill by inserting a definition of cruelty as 'pain inflicted wantonly and needlessly.'

LORD DESBOROUGH speaking for the Government, thought the proposal of the bill impossible to carry out. An applicant could go to any one of 12,000 money-order offices and take out a dog licence. The Government would not oppose the second reading of the bill but could not offer facilities to the measure in its present form.

LORD BANBURY, replying to Lord Dawson's suggestion said he had specially drafted the bill so that the House should not go into other questions such as what constituted cruelty.

LORD DESBOROUGH remarked that 3,000,000 dog licences had been taken out last year.

The bill was read a second time.

National Health Insurance.

Definition of a Spinal.—DR. VERNON DAVIES asked Mr. Chamberlain on November 22nd to state his reason for deciding under the National Health Insurance Regulations that a spinal jacket required for the treatment of tuberculosis of the spine was regarded as a spinal but that a spinal jacket required for the treatment of lateral curvature of the spine which was often due to tuberculosis, was not a spinal, and therefore could not be supplied to insured persons. MR. CHAMBERLAIN said the reason why a different view was taken with respect to the appliances was that he had to look not to the name given to an appliance but to the precise object which it was intended to serve. He had invited the Insurance Acts Committee of the British Medical Association to discuss with the Ministry the difficulties of defining spinals for the purposes of medical benefit. MR. EVANS asked whether Mr. Chamberlain knew that many osteopaths cured curvature of the spine without any appliances.

Bills

Young Persons in Offices.—On the motion of Miss WILKINSON the House of Commons on November 21st gave a first reading to an Offices Regulation Bill 'to regulate offices and the employment of young persons therein.' Introducing the bill Miss Wilkinson said no protection, except the local sanitary by-laws covered workers in offices. They were outside factory legislation and the Shops Acts. The grievances were growing worse with the overcrowding in great cities. Women were entering offices where the sanitary conditions were doubtful even for men and inadequate for women. In some recently built offices there was no ventilation. In one of the most modern buildings in Regent Street the office was underground and artificial light was necessary all day. One girl there had been warned by a doctor that she was in danger of contracting pernicious anaemia if she continued to work underground. The bill recognized that it was not possible to reconstruct all offices in a year. It gave wide powers to local authorities and put the onus on the owner.

MR. WARDLAW MILNE secured a first reading on November 21st for a bill making it obligatory for owners of motor vehicles to be insured against third party risks.

Post-race Encephalitis.—MR. CHAMBERLAIN stated, on November 21st that of the five cases of post-race encephalitis (four fatal) mentioned on page 145 of the Rolleston Committee's report four were vaccinated with Government lymph and one was not. In the latter case and three of the former death occurred.

Nurses and the Midwives Acts Committee.—Asked, on November 22nd by Mr. Kelly why the profession of nursing had been refused representation on the Departmental Committee appointed to consider the working of the Midwives Acts 1902 to 1916, MR. CHAMBERLAIN said he did not consider it necessary to appoint a registered nurse on this Committee as the various nursing organizations could give evidence before it. Only one of these organizations declined to avail itself of this opportunity.

Obituary

SIR HECTOR CLARE CAMERON, M D, F R C S, C B L,

Dean of Faculties and Emeritus Professor of Clinical Surgery in the University of Glasgow

We have to record with great regret the death of Sir Hector Clare Cameron, the famous Scottish surgeon, which took place in his eighty-sixth year, on November 22nd, at his home in Woodside Crescent, Glasgow.

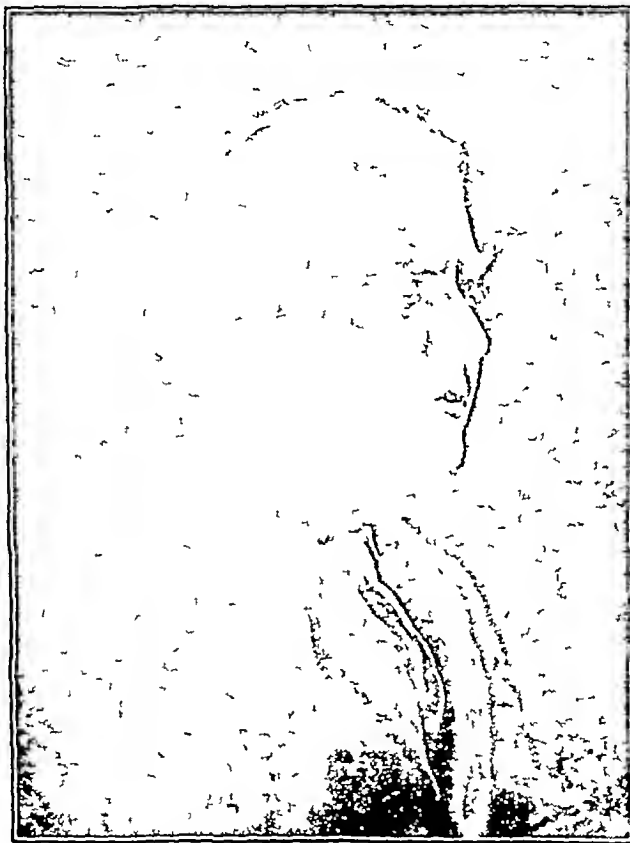
Sir Hector Cameron was born in Dumfries, British Guiana, on September 30th, 1843. He was the second son of Donald Cameron, sugar planter. Sent home for his education, he first went to Madras College, St Andrews, and afterwards was a student in the Arts classes of the ancient University of that city.

His medical education began in Edinburgh University, but the greater part of his course was taken in the University of Glasgow, where Joseph Lister was then Professor of Surgery. He graduated M B, C M in 1866 and M D in 1868. In the latter year he became assistant to Lister at the Royal Infirmary. The association then began and deepened throughout his life, and although two years later Lister was transferred to Edinburgh, Cameron, who despite many inducements to move eastwards with his chief, had decided to remain in Glasgow, became one of the leading propagandists of the young, antiseptic school, and continued both in precept and practice to develop and spread the doctrines of his master. At the early age of 32 he was appointed surgeon to the Royal Infirmary, resigning this post in 1871, when he obtained a similar position in the Western Infirmary. In 1900, on the retirement of Dr George Buchanan from the chair of clinical surgery in Glasgow University, Cameron was elected by the University Court, without advertisement to that chair, which he occupied until 1910. He held from time to time many other appointments—surgeon to the Royal Hospital for Sick Children, consulting surgeon to the Glasgow Royal Asylum, surgeon to the Eye Infirmary and to the Lock Hospital. For many years he was a member of the University Court as a representative of the senate, and of the General Medical Council as representing the Royal Faculty of Physicians and Surgeons of Glasgow. He held examinations in the Universities of Cambridge and Aberdeen. Such offices as his professional brethren could confer on him he also occupied with unanimous assent—among them the presidencies of the Royal Faculty of Physicians and Surgeons, the Pathological and Clinical Society and the Royal Medico-Chirurgical Society of Glasgow. At the meeting of the British Medical Association in Toronto in 1906 he was president of the Surgical Section. During the war he became Red Cross commissioner for the Western District of Scotland, and since 1920 he acted as convener of the Ralston Red Cross Hospital. He was also dean of faculties in the University of Glasgow, and was appointed by the General Medical Council to supervise the examination in medicine conducted by the medical schools of Great Britain and Ireland.

These numerous services received signal marks of national and academic approval. He was knighted by Queen Victoria in 1900, in 1911 the University of St Andrews made him an honorary F R C S, in the following year his own university conferred the like honour, and after the war he was created C B L.

His contributions to medical literature were not numerous, but between 1870 and 1884 articles from his pen appeared occasionally in medical journals and transactions, on such subjects as ophthalmology, tracheotomy, foreign bodies in the air passages, trephining, etc. At wider intervals in later years he wrote upon such questions as the treatment of hip joint disease, and on the analogy of cutaneous cancer and tuberculosis. He was the author of valuable papers and addresses on Lister and his work, in particular the Dr James Watt Lectures on the evolution of wound treatment during the last forty years published as a book in 1907. This is a historical and documented account of the origin and development of antiseptic surgery, and bears the imprimatur of Lister himself, thus contributing a definitive record of the great surgeon's system and ideas.

The relative paucity of his publications was due principally to the fact that his bent was clinical rather than scientific. As has already been indicated, he began his professional life as a disciple of Lister. When his master left him the fallen mantle of apostleship descended upon him, and for the rest of his life he was content by voice and hand to expound and illustrate the truth of the new surgical learning. His opportunities for original research and writings were also restricted by the great and steadily growing pressure of private work. As an operating surgeon his reputation was not exceeded by that of any contemporary. The social standing of his patients



SIR HECTOR CLARE CAMERON

made no limit to his sense of duty. He was pre-eminently accessible to the less fortunate, and countless instances are on record of his generous and unsparing beneficence to the needy and humble who sought his services. As a teacher he was always popular, alike in his Societies and his didactic moods. An interesting expositor, he avoided set orations, and his lectures were replete with the results of his own experience, and illustrated with historical parallels and allusions. And likewise as operator he was methodical, calm, and self-reliant. Conservative in his outlook, he distrusted sensation and "brilliance" in surgery. "Gentlemen," he would say, "you must not make your light shine at a patient's cost." Or again, "To open an abdomen without a constructive diagnosis is the height of surgical curiosity." In his wards, theatre and lecture room, his students never failed to realize the deep human sympathy that informed all his work. "Il n'y a pas de maladies, il n'y a que de malades" was the motif of ethical discourse or ward visit. His belief in Listerian antiseptics, as distinguished from the illogically termed "aseptic system," remained unshaken to the end of his hospital term, and when, during the war, the foul infectious of the soil of

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Thandlers reproduced in casualty clearing stations and base hospitals the horrors of pre-antiseptic surgery, and necessitated a revival of some post-Listerian modes of treatment, his gratification over the vindication of the older system was not concealed.

He retired from the clinical chair and from active surgical practice in 1910. This event was one of the severest ordeals of his life. When contemplating his imminent resignation he wrote in a private letter:

Dr Quincey in the *Confessions* quotes a passage from Dr Johnson and he says that it is the only feeling remark that Dr Johnson ever made. It is this: "No one ever did anything consciously for the last time of those things which he has been long in the habit of doing without sadness of heart. The sentiment is a feeling one because it is so truly natural and human. When I therefore some day soon realize that I am making my last hospital visit (I have been making them for thirty-six years—since 1874) I know I shall feel sad and indeed. The mere anticipation weighs on my spirits."

On the occasion of this retirement he was entertained to dinner by fifty of his former assistants and house-surgeons, and presented with a loving cup which bore the inscription—

H C C
Magistro carissimo Discipuli
MCMX

No memoir, however brief of Hector Cameron's life would be adequate did it not include a reference to the richness of his mind and the graces of his personality. In youth he had absorbed much of the spirit of the ancient classics and of the great works of English literature. In later years his retentive memory furnished him with many an apt allusion and quotation. He had an Augustan love of the Latin tag and the polished phrase, *le mot juste* had an ineluctable attraction. Unrivalled as a raconteur, he was delightful in social converse, and his correspondence provided many characteristic examples of the vanishing art of letter-writing. Outside of his scholarly interests fishing and shooting were his favoured recreations, and in both sports he excelled.

But to all who knew him the most abiding memory will be that of his almost old-world courtesy and graciousness. If in his public duties he ensued compromise more than controversy, it was because of his broad humanity, his catholicity of spirit, and his innate kindness of heart. Alike as teacher, surgeon, colleague, administrator, and man of the world, he earned the respect and admiration of his associates, and, what is more rarely vouchsafed to outstanding men, the deeper homage of affection from his friends. His fine features, crowned for many years with a wealth of silvery hair, marked him out on any platform or in any society. Two eminent artists—Henry and Greiffenhagen—have painted the outward semblance, but no material portraiture will presore to future generations the real picture of nobility and charm that is treasured by those who know him best.

J F

Sir Hector Cameron married a daughter of Mr. William Hamilton Macdonald, who predeceased him in 1879. He is survived by a daughter and two sons—Colonel Donald Cameron of the Army Service Corps Staff College, and Dr. Hector Charles Cameron of Guy's Hospital.

We are indebted to Sir Donald MacAlister, Bt, President of the General Medical Council, Principal and Vice-Chancellor of the University of Glasgow, for the following tribute:

May I repeat here, what I felt moved to say in my presidential address to the General Medical Council this week, concerning Sir Hector Clare Cameron? I announced that last week that veteran died, full of years and honour at the age of 85. One of the last survivors of Lord Lister's personal assistants and coadjutors—he has fifth been described as Lister's "beloved disciple"—he held a high place, not only among Glasgow celebrities, but in the affectionate regard of the surgeons of the world. "To myself his loss is irreparable, for from time to time when, in 1889 he first welcomed me to this Council as a colleague, until the end he was my unfailing friend and counsellor, on whose kindly wisdom and manifold experience it was

ever my privilege to draw." To the Medical School and to the University of Glasgow he was a pillar of strength, revered and beloved for his unselfish interest in, and devotion to, their well-being. Lamented alike as teacher, as surgeon, as administrator, and as benefactor, he had a unique place in their regard. In testimony may be cited the honorary offices he held—as consulting surgeon to several of Glasgow's great infirmaries, his presidency of the Royal Faculty of Physicians and Surgeons, his dignified place, to which he was elected and re-elected as Dean of Faculties in the University, his membership of its University Court and Senate, and many others, heaped upon him by bodies and institutions which he had nobly served, or which desired to derive honour from association with his honoured name. His warmly affectionate nature, his ready helpfulness, his freedom from any trace of self-seeking, his transparent honesty of purpose, and the immediate impression of deep sagacity and practical wisdom which he conveyed, made him a very Nestor among us, and a Nestor loved and admired beyond others. His loyalty to Lister, his cherishing and setting forth of the valued memorials of his master which he possessed in rich abundance and his broad and cultured utterance on all occasions of ceremony, will long be remembered in Scotland. With him a great representative of a great generation passes away, and some of us cannot but feel that no one quite fitted to take his place is left to us.

Mr. G. H. Edington, D.Sc., M.D., Lecturer on Clinical Surgery at the University of Glasgow, writes:

By the death of Sir Hector C. Cameron the community of Glasgow mourns one of her most prominent citizens, and the Medical School one who in the days of his active professional work occupied a foremost position in the ranks of surgery. I was privileged to receive my early training in his wards, and later to be associated with him in his work, and his death now severs a friendship which remained unbroken for a period of over thirty years.

As a teacher he had the gift of presenting problems to his students couched in language which, enriched by happy simile and apt metaphor, fixed itself in their memories. His description of the ailments of the patients brought to their notice was illustrated by examples drawn from his wide clinical experience and likewise from his reading in the literature of the subject. His operations were carried out with a meticulous attention to detail which was in itself a liberal education for the onlookers. There were, however, taught in his clinic things which were outside the mere bones of clinical surgery. He, by his example, taught us veracity, concern for the best interest of the patient, care for the feelings of others, and a warm and broad humanity. The humblest patient in his wards received the same consideration as any of his cases in private and it was no uncommon occurrence for him to return to the hospital in the afternoon to see how those on whom he had operated in the morning were progressing, while very rarely did he miss paying a Sunday visit. He was a pattern of dignity and modesty, never thrust himself forward, never cried his wares in the market-place. We junior students took it I am afraid, as a matter of course, and the degree of his modesty and his professional skill only became known to us when we moved to other clinics and saw very different post-operative results. We failed not then to draw a comparison, and were struck by our late chief's merits, and his equally marked unobtrusiveness. When later I came to enjoy his friendship and to talk with him in his home circle I was able to appreciate that I was in the presence of one who was not only a surgeon, but a man of wide education and wide interests. He was a keen lover of sport, and during his vacations he enjoyed shooting, fishing, and golf. He was keenly interested in birds, and delighted to draw attention to their various notes. He had a well stored memory, and freely drew on it for anecdotes and quotations apropos whatever subject might be under discussion.

When, as they did, honours came to him they were fully appreciated. He never vaunted them. They were all unsought, and were conferred on him in recognition of good work well done, and they gave pleasure to his many

friends and to his even more numerous patients. His attitude to honours was fittingly summed up in a brief note which he received from an old Scottish lady, a former patient, on the occasion of his knighthood. She wrote

'Some ha'e sought it,
Some ha'e bought it,
You ha'e wrought it.'

Concerning his knighthood, which was conferred on him by Queen Victoria during his tenure of the Presidency of the Royal Society of Physicians and Surgeons, he was from home when the *Gazette* appeared. He was quite unaware of its coming, and he told me that his first intimation of it was a telegram of congratulation from one of his friends in Glasgow being handed to him in his hotel before breakfast. The telegram was vague, and it was not till he had gone downstairs and seen the newspaper that he knew definitely the cause of congratulation.

It was characteristic of Cameron that, although feeling the burden of years, he did not sink down under it, but kept going in and out, and calling for friends, till this summer, when increasing feebleness caused him gradually to keep to the house. Up till shortly before his death he was keenly interested in hearing of all that was going on, but he was perceptibly weakening, and the end came very quickly. A great gap has been caused, but it is some consolation to his many friends to know that he passed without obvious suffering. Those of us who knew him well and came under his influence feel thankful that we were privileged to have had him so long as an example. He was in truth

'a verray parfit, gentil knyght.'

[The photograph reproduced on page 1015 is by Lafavetto of Glasgow.]

IMPERIAL CANCER RESEARCH FUND

DR MURRAY'S ANNUAL REPORT

In the annual report of the Imperial Cancer Research Fund for the period 1927-28 the director, Dr J. A. Murray, F.R.S., outlines a number of general features of the cancer problem frequently ignored in the discussion of special investigations. This report, the twenty-sixth of the series, was presented at the general meeting of the Fund, held on Wednesday, November 28th.

Variations in Susceptibility to Cancer

The conclusion that cancer begins as a local disease has determined general recognition of the fact that in its earliest stage the disease is curable. This conclusion, however, has not always held the field, and, as Dr Murray points out, it has been established only through the experimental investigation of cancer in animals. Tumours, experimentally produced, may be removed at an early stage, or after being allowed to grow for a time, or not at all, the former proceeding, it is found, is effective in preventing both local recurrences and the dissemination of cancer throughout the animal's body. Experiments on these lines have brought to light yet another fact of a general nature. Mice differ so much in their response to irritation that while some subjected to tar painting will show signs of cancer in about four months, others, similarly treated under identical conditions, may remain cancer-free for a much longer period, and a small percentage may fail to develop cancer even after being tar painted for a year. But if apparently susceptible mice, from which tar cancers have been surgically removed, are subjected to a second course of tarring, they are found to be distinctly resistant, and it is, in fact, very difficult to obtain the second tar tumour. The same phenomenon was noted in mice from which spontaneous cancers—for example, of the breast—had been surgically removed, their skin was found to be tar-resistant.

The conclusion, Dr Murray suggests, appears to be inevitable that the factors determining differences in susceptibility are not locally restricted in particular tissues, but are of some general constitutional nature. If this theory

is correct some statistical evidence would be expected showing such general factors to be active in determining the incidence of cancer in the different tissues of man. As a small piece of confirmatory evidence Dr Murray cites the rarity with which multiple malignant new growths have been observed. Moreover, a comparison of the incidence of cancer in men and women in special relation to its incidence in organs peculiar to each sex and in organs common to both sexes, shows that in females over 30 per cent. of the incidence of cancer falls on the specific sexual organs, especially the uterus and breast, while in males the incidence on the specific sexual organs is very low. If such incidence were determined entirely by local factors in the different organs and tissues, one would expect a much higher total incidence of cancer in women, then special sexual organs being so liable to develop cancer. Actually the total incidence is the same for both sexes. In all organs common to both sexes, except the gall-bladder and thyroid gland, the incidence of cancer is higher in men than in women. To account for the apparently equal total incidence by the operation of a local factor in each organ one would have to assume first that something in the mode of life in men sets up with greater frequency local conditions leading to cancer in the organs common to the sexes, and that by coincidence this frequency happens to be of the same order, as that of the incidence of cancer in the organs specifically female.

Comparative Mortality Statistics

Cancer statistics of Holland, Switzerland, and Japan are generally comparable with those of England and Wales and lead to similar conclusions. Of particular interest is the fact that though cancer of the breast is twice as frequent in English women as in Dutch women, and is rare in Japanese women, the total cancer mortality in women of these countries is the same. In Japan there is a very high incidence of cancer of the uterus, in Dutch women, though cancer of the uterus is also only half of that in English women, cancer of the digestive tract is far more frequent, the higher incidence in one group of cancers, both in the Japanese women and the Dutch, almost exactly balancing the lower incidence in the other. If the incidence of cancer were determined entirely by local factors this remarkable phenomenon would have to be attributed to coincidence. Italian figures are at some variance with those of other countries, showing not only a lower general cancer mortality, but a much lower incidence of cancer in males than in females. It is suggested in the report that this might be due to racial factors, it may, however, be accounted for by under-diagnosis of cancer in non-accessible sites, which is more likely to occur in men than in women. On the whole, Dr Murray concludes that the incidence of cancer is determined by general factors, local factors determining merely the site at which the cancer develops.

The Filterable Fowl Tumour

Work on the new fowl tumour, discovered by Dr Beggs in the laboratories of the Imperial Cancer Research Fund is being continued. The importance of this tumour, which has been proved to arise from endothelial cells, lies in the specificity of the "agent" or "agents" responsible for its transmission, in that it restricts its activity entirely to endothelial cells. The view that the filterable fowl tumour is not a true malignant neoplasm, but an infective granuloma, cannot therefore be sustained. Dr A. Carrel's experiments, in which he claims to have produced a typical Rous tumour by injecting into a fowl chick embryo, together with some simple chemical substance such as indol, have been repeated by other workers with negative results.

Diet and Cancer

A large-scale repetition of Fujimaki's experiments has failed to verify his conclusion that stomach cancer may be induced in rats kept on a diet free from vitamin A. In such rats hypertrophy and keratinization of the fore-stomach epithelium is frequent, but no actual cancer, in the stomach or elsewhere, has been observed in the laboratories of the Imperial Cancer Research Fund to follow vitamin A starvation. Moreover, the phenomena described

by Fujimaki, are not specific for vitamin A deficiency but have been observed in conditions of B avitaminosis, and even in old stock rats which had always received a diet adequate in vitamins. Dr Murray states categorically that there is no reliable evidence—experimental, statistical or clinical—which would indicate a causal correlation between cancer and the absence or presence in the excess of any particular dietetic constituent.

Evidence of Transmissibility of Cancer

Experiments carried out in the laboratories of the I.M.D. have shown that Professor Heidenhain's belief in the transmissibility of cancer from animals to man derived from work purporting to prove its transmissibility from man to animals, is based on error. Dr Murray emphasizes the fact that Heidenhain's conclusion, if correct, would revolutionize our conception of the nature and treatment of cancer, and, in so far as it meant that any case of cancer in animals or in man might be a source of infection, would spread profound alarm among the public. Dr Cramer, however, has shown that the malignant growths observed by Professor Heidenhain were in reality spontaneous tumours and not the result of infecting the animals with human cancerous material.

The Warburg Phenomenon

Experiments have shown that the Warburg phenomenon that is, high aerobic glycolysis by cancer cells—normal tissues effecting glycolysis if at all, only when oxygen is absent—cannot serve to distinguish cancerous from non-cancerous proliferations, a singular phenomenon has been observed in the study of cellular overgrowths produced by virus infections. These latter are also capable of effecting a partial splitting of carbohydrates under aerobic conditions. An investigation has also been made into the therapeutic possibility, suggested by Warburg, of affecting cancer growth by varying the oxygen pressure in the inspired air. Prolonged exposure of animals with cancer to high pressure of oxygen, within the limits of safety, produced no effect on the tumours, while low oxygen pressures delayed their growth and produced extensive necrosis. Even prolonged exposure, however, could not completely arrest the growth of tumours, and only produced their regression. Dr Murray concludes that there is no evidence that alterations of oxygen pressure, even within the limits of safety, are by themselves of therapeutic value.

VOLUNTARY HOSPITALS IN GREAT BRITAIN

A SURVEY OF 1927

The ninth annual report on voluntary hospitals in Great Britain (excluding London) for the year 1927 has been compiled by Mr R. H. P. Orde, and is published by the recently constituted Central Bureau of Hospital Information. This agency, which has been set up by the Joint Council of the Order of St. John and the British Red Cross Society in conjunction with the British Hospitals Association, has taken over the work of publication from the Joint Council, in addition to other duties in connexion with the accumulation and distribution of information relating to hospital affairs. Its services are placed freely at the disposal of the voluntary hospitals, and also of public authorities.

The report covers institutions containing over 99 per cent of the voluntary hospital accommodation in Great Britain outside the London area, giving detailed surveys of the financial position of 755 hospitals containing 48,212 available beds, the total number of hospitals in Great Britain, outside London, is given as 760 with 48,696 beds, so that only a very small proportion of the available accommodation has not been brought within the scope of the review. Taken in conjunction with the statistical report for 1927 on the finance of London hospitals, issued by King Edward's Hospital Fund, which was noticed in the *Journal* of October 27th (p. 771) the report affords a practically complete account of the position of the voluntary hospitals. A general summary of the finances of the 755 hospitals reviewed shows that in 1927 the amount of income available for maintenance was £7,103,044 while receipts for capital purposes amounted to £1,511,024, giving a total income of

£8,614,068, the expenditure on maintenance was £6,100,442, and on capital account £1,498,012, leaving a surplus of £1,015,614. The number of hospitals with a credit balance on their maintenance account was 562, or 74.44 per cent of the total, and 7 per cent more than in 1926. As compared with this year, income available for maintenance increased in 1927 by £714,025, and expenditure on maintenance increased by £169,023, receipts for capital purposes decreased by £16,776, and capital expenditure by £237,165. The surplus of £1,015,614 compares with £250,220 in 1926, but was lower than that recorded in the three preceding years.

Details regarding the number of patients treated were obtained from 753 hospitals which provided during 1927 for 729,765 new inpatients and 2,907,193 new outpatients, showing increases of 36,599 and 149,783 respectively over the previous year. For purposes of analysis England and Wales and Scotland, are dealt with separately, and hospitals are divided into three main groups—the first containing those with 100 or more beds, the second those having from 30 to 99 beds, and the third those having less than 30 beds—and certain special groups are also differentiated, such as hospitals associated with medical schools, specially large hospitals, and those devoted to particular classes of disease. The tables relating to the volume of work done in the voluntary hospitals show that in England and Wales there has been a remarkable increase in the number of cases dealt with in the out-patient departments of the large hospitals, out of a total increase of 115,555 in this category, these hospitals were responsible for 113,690. The pressure for bed accommodation in this class was also much greater than in the smaller hospitals. This was also true in Scotland, and in that country, further, the proportion of available beds occupied in all classes of hospital was higher than in England and Wales. A striking feature of the figures relating to these countries is the rapid extension of surgical operative work, it is only possible to give an approximate comparison but it appears that from the details available the number of operations per hospital rose from 698 in 1923 to 866 in 1927. In the therapy, electro-therapeutic and massage departments there has also been a substantial expansion. It is satisfactory to learn that all classes of hospital in England and Wales shared in the general prosperity, and that the position of the large hospitals, which formerly were relatively worse off than others, has improved considerably, the ordinary income of this group having risen from £2,957,375 in 1926 to £3,292,298 in 1927. In Scotland, however, there was little change in the financial position, and the figures suggest that while the English hospitals have more than recovered the voluntary support they enjoyed before 1920 the Scottish are still below the 1925 level.

The main sources of income on maintenance account per available bed in 1927 were as follows for the hospitals of the two countries—Voluntary gifts, England £80.75, Scotland £62.97. Receipts for services, rendered, England £29.40, Scotland £16.30. Interest from investments, England £18.89, Scotland £29.75. Extraordinary income, England £18.93, Scotland £27.15. It will be seen that the Scottish hospitals received much less for services rendered, although income from this source is steadily increasing in both countries, while the accumulation of large invested funds is a notable source of strength, particularly in times of depression which has been fostered in the North. The report contains a series of analyses of hospital expenditure which should be exceedingly valuable to all engaged in hospital management.

Sir Arthur Stanley contributes a prefatory note directing attention once more to the difficulties created by the increasing number of road accidents, and this subject is dealt with also in a series of special articles by representatives of the hospitals of insurance and of the motoring public. Mr Orde, in his introduction to the report, states that from replies received to a questionnaire it is estimated that in 1927 approximately 26,000 inpatients and 39,000 outpatients were treated in provincial voluntary hospitals at a cost of about £230,000 towards which approximately only £26,000 was received from or on behalf of the patients. Lieut. Colonel J. T. Woolrich, Perseus gives an account of the development and working of the St. John Ophthalmic Hospital at Jerusalem. Among supplementary matters are a memorandum on the assessment of voluntary hospitals and an analysis of some contributory schemes for paying or private wards.

The report may be obtained from the Central Bureau for Hospital Information, 19, Berkeley Street, W.1, price 1s. 6d. post free.

Universities and Colleges.

UNIVERSITY OF OXFORD

At a congregation held on November 24th the following medical degrees were conferred

D.M.—R J Brocklehurst H F Turner D G T Horn Cross

UNIVERSITY OF CAMBRIDGE

At a congregation held on November 24th the following medical degrees were conferred

M.D.—A D Whitelaw

M.D. B.Clin.—N R Barroett H S Waters P R Duckton

Mr A I R Wollaston, M.A. B.Ch. D.S.C., has been re-elected to a Fellowship at King's College and appointed tutor

Mr T F Cameron, M.A., has been elected Master of Convillio and Cinis College, in succession to the late Sir H A Anderson M.D., F.R.S.

UNIVERSITY OF LONDON

Mr H L Eason has been elected chairman of the Library Committee for 1928-29

The following degrees have been conferred

D.Sc. in Anthropology—Mr F G Parsons J.R.C.S. University Professor of Anatomy for thesis The Physiology of the Intestine

D.Sc. in Physiology—Mrs Norah Liddle for the Is Study of Absorption in the Stomach and Small Intestine

UNIVERSITY OF LIDS

Dr H H Moll has been appointed honorary demonstrator in pharmacology and therapeutics

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated

SURGERY—J Freud W S Ghal W D Chan-Jones H C Johnson

T.H.S. Lyle A Weeks

MEDICINE—J Freud W D Chan-Jones T C Gross M H Rashwan

L. Wasef

FORENSIC MEDICINE—W D Chan-Jones D F Michael

PHARMACY—A Datta J D B Games I C Cross A Liberis T K S

Lyle A Weeks

The diploma of the Society has been granted to Messrs E C

Gross H C Johnson T H S Lyle M H Rashwan, L. Wasef

Medical News.

THE Fellowship of Medicine and Post Graduate Medical Association announces that a lecture will be given on Monday, December 3rd, at 5 p.m., by Dr C A Sutherland at the Medical Society of London, 11, Chandos Street Cavendish Square, W.1, on 'Some cardiac problems in childhood'. A demonstration on cancer will be given on the following Wednesday by Mr Herbert Paterson at the Wellcome Museum of Medical Science 33, Gordon Street, W.C.1, at 4 p.m., and on the same day at 2.30 p.m., a clinical demonstration in urology will be given by Messrs Atwater Coyte Loughman and Lory at All Saints Hospital on Thursday December 6th, at 10 a.m., Dr Robert Hutchison will give a clinical demonstration at the Hospital for Sick Children. Two lectures and demonstrations are free to members of the medical profession. From December 3rd to December 16th there will be a special afternoon course at the Infants Hospital, under the direction of Dr Eric Pritchard with visits to other centres. This course is of special value to medical officers of welfare centres—the fee is £3 3s. A special course in dermatology at the Hospital for Diseases of the Skin, Blackfriars will also begin on December 3rd, ending on December 14th, and consisting of clinical instruction in the outpatient department each afternoon from 2.30 p.m., with two special demonstrations. The complete list of special courses for 1929 is now available, and may be obtained, together with particulars of the general course of instruction which is continuous throughout the year, from the Secretary of the Fellowship 1 Wimpole Street, W.1. The Fellowship will resume its lectures at the Medical Society of London about the middle of January with a series entitled 'Pitfalls in medicine and surgery'. It is also proposed to hold a further series of demonstrations at the Wellcome Museum of Medical Science, and weekly clinical demonstrations in medicine and surgery will be given at various hospitals.

A LECTURE on life in the Island of Tristan da Cunha will be given in the cinema theatre of the Empire Marketing Board in the Imperial Institute, South Kensington, at 5 p.m., on Thursday, December 6th by Mrs Rose A Rogers, author of *The Lonely Island*. The lecture will be illustrated by lantern slides and films, including that taken of life on the island in connexion with the *Quest* expedition.

A NEW children's wing at the Wembley Hospital was opened on November 21st by Princess Arthur of Connaught. The wing includes a medical ward and a surgical ward (each of eight cots), two observation wards, two private wards, a casualty theatre, and other accommodation. New quarters for the domestic staff have also been provided. The cost of the extension has exceeded £17,000 and only about half this sum has been received. It is hoped that a new x-ray and developing room and a laboratory will shortly be added.

MESSRS EDWARD ARNOLD AND CO announce for early publication a new edition of Garrod, Batton, and Thursfield's *Diseases of Children*, which has been revised throughout and largely rewritten, under the editorship of Dr Hugh Thursfield and Dr Donald Paterson.

THE annual report of Livingstone College for 1927-28 contains an account of the annual meeting in the summer, to which we referred on June 23rd (p. 1096). Sixty-three students entered for various courses held during the year, of whom six took the full course. In addition to these, twenty-seven students attended a short course on the care of health in the tropics. It is stated that the deficit on the year's working is about £50, and an appeal is made for more substantial assistance. The report includes extracts from letters from past students in different parts of the world, emphasising the value to missionaries of the elementary training in first aid and medical subjects which the College exists to provide.

THE following appointments have recently been made in foreign faculties of medicine. Professor Herzog of Innsbruck has succeeded Professor Marx in the chair of laryngology at Munich, Professor Pöckl of Pragno has succeeded Professor Wagner Jauregg as head of the psychiatric clinic at Vienna, Professor Werner Gerlach, professor at the General Hospital at Barmbeck, has succeeded Professor R. Beneke in the chair of general pathology and morbid anatomy at Hamburg. Professor Kurt Brand of Glessen has succeeded the late Professor Johannes Gadamer in the chair of pharmaceutical chemistry at Marburg, and Professor Guiber has been succeeded in the chair of pathological anatomy at Innsbruck by his assistant, Dr. Franz Josef Lang.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS as well as orders for copies of the *Journal* should be addressed to the Financial Secretary and Business Manager.

THE TELEPHONE NUMBERS of the British Medical Association and the *British Medical Journal* are *MUSEUM* 9861, 9862, 9863, and 9864 (internal exchange four lines).

THE TELEGRAPHIC ADDRESSES are **EDITOR of the British Medical Journal, Astology Westcott, London**

FINANCIAL SECRETARY AND BUSINESS MANAGER

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MEDICAL SECRETARY *Mediscera Westcott London*

The address of the Irish Office of the British Medical Association is 16 South Frederick Street, Dublin (telegrams *Bacillus, Dublin* telephone 62550 Dublin) and of the Scottish Office 7 Drumshigh Gardens, Edinburgh (telegrams *Associate, Edinburgh* telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

A PAGE TURNING DEVICE

"W. N." writes: Do any of your readers know of a mechanical device for turning the leaves of a book? I am writing on behalf of a friend who is paralysed in both upper and lower limbs so that the only motive power could come from depression of the chin. I should be grateful for any suggestions.

INCOME TAX

Allowable Expenses

"R. H." inquires whether there is available for reference a detailed list of allowable expenses as officially approved.

* * * We are not aware of any detailed list to which official agreement has been given, and the circumstances of different cases vary between such wide limits that a list sufficiently

detailed to be really useful is not likely to become available. On the particular class of expense to which "R. II" refers—cost of motorcar, coat and gloves, dust coat etc.—we fear the law is against him: such expenses cannot be correctly said to be incurred wholly and exclusively for professional purposes—they are too personal in character.

Cost of Indoor Assistant

"A. W." inquires what is the usual amount allowed off income tax for food board and lodging of an indoor assistant. He suggests 30s per week, but the Inspector at taxes considers 20s adequate in view of the fact that one third of rent rates etc., have been allowed.

It is impossible to lay down any general rule where so much depends on the circumstances of each individual case. If the one third allowed is adequate to cover that portion of the house which is occupied, wholly or partly by the assistant, and also the relative cost of cleaning, laundry, general domestic service etc., then the question is reduced to an estimate of the out of pocket expenditure on the assistant's food etc. Prima facie the one third is quite as open to attack as the 20s per week.

Expenses of Employment

"A. F. I." inquires with regard to expenses incurred as an assistant medical officer of health.

It is a fact that no deduction can be made in respect of interest which would have been received if he had not had to use the capital to build a garage. On the other hand, deduction can be made in respect of the rental value as assessed to income tax, of the garage so erected. Further the expenses allowable are those actually laid out for the purposes of the employment, and exclude any allowance for work done—for example cleaning, etc. by him self. The authorities are within their rights in restricting the expenses allowed to exclude those which reasonably relate to private use.

LETTERS, NOTES, ETC.

SECURITY OF TENURE IN PUBLIC POSTS

"A. M." writes I watch with interest the discussion initiated by Dr. Molinarius under the title 'Security of tenure in public posts, settling for as it does the many grievances of medical officers in the mental hospitals service, and my only fear is that the dread "this or response must now cease" may appear before the British Medical Association has been induced to do a little more in our behalf. The varied opinions already expressed only go to show the extremes of conditions that exist in different institutions and the need for some uniformity to be brought about by an authoritative body. In my few years of service I have met several colleagues from other institutions all with similar complaints and there has been some talk of forming a society to further our interests without victimization but a higher body such as the British Medical Association is needed for a task of this sort. The main points have already been stressed: security of tenure, participation in administration access to the committee for fair promotion and facilities for study, but, as may be seen from other letters conditions vary from place to place. This is surely an urgent reason for advising against entering the service—the uncertainty of local conditions. Until the British Medical Association can see its way to agitate for justice and equality of conditions the mental service must perforce remain the purgatory of those with influence."

BIOCHEMICAL INVESTIGATIONS IN ALLERGIC CONDITIONS

DR. R. CHALMERS (Darlington) writes: I am in full agreement with Drs. Barber and Orle (November 17th p. 880) when they say that allergy is beyond question the most important biological and medical problem that exists or ever has existed. I have been doing routine chemical and microscopical examinations of urines in my cases for the past ten years, and some five years ago a letter of mine appeared in the *Journal* on what I termed leucina bodies in the urine. I referred to them as being impure forms and the only reason for calling them such was because of their microscopical appearance simulating those depicted in Simon's *Clinical Diagnosis* and that I always found them in cases where I suspected there was present a chemical disturbance of the liver. In the intervening years I have sought in vain to find an explanation of those bodies by sending them to laboratories and to high authorities in the medical world, at last I sent drawings and descriptions of these to the medical journals for publication to try and get some enlightenment. These were returned to me until I could tell what their nature was. I have however kept on noting and recording these and allied findings in my patients and now have records of many hundreds of different kinds of cases. After reading Dr. Orle's account of his ether reaction I had an opportunity of trying it in a case of severe jaundice. I found it strongly positive and on examination of the serum found minute oil globules as he describes and also beautiful specimens of what I have designated leucina bodies. These did not show in the centrifuged specimen of the urine itself. I am very pleased to see that Dr. Orle who found his ether reaction positive first in a case of cardiac failure has raised the point of what relation

this hepatic tendency may have on cardiac pathology. In a paper which I sent to the *Journal* a month ago but which has not been published I refer to the same point and state that it is my belief, come to from continuous observation of my cases along those biochemical lines that the hepatic chemistry is a very important element in such diseases as coronary disease, angina pectoris, and myocardial disease.

PREMATURE SEPARATION OF PLACENTA DUE TO RELATIVE SHORTNESS OF THE UMBILICAL CORD

DR. C. J. HILL (Atherton, Minster near Rotherham) refers to a previous account by him of a relatively short umbilical cord causing retention of the membranes. *British Medical Journal* April 16th 1927 p. 750. He now reports another case of the same kind, in which shortness of the cord caused delay in a breech case until birth of the shoulders the placenta and membranes being torn from their site with subsequent haemorrhage into the uterus. The patient's pulse, which had been normal increased to 120 and she began to look pinched. She was lightly anaesthetized and a boy 5½ lb. was felt rising to above the umbilicus. Despite good pains there was no progress. In the birth of the head owing to distension of the uterus the third stage of delivery was uneventful. Pressure on the abdomen was applied during delivery.

SANITARY INSPECTORS

MR. WILLIAM G. KIRSHAW, J.B.E. (President of the London Centre of the Sanitary Inspectors' Association) writes: I have read with considerable interest the remarks on the teaching of hygiene in your issue of October 27th. I hesitate to question any conclusions at which so great an authority as Professor Jameson has arrived but I would point out that his observations in regard to the general educational qualifications for entrants to the Inspectorate do a great injustice to those who would be candidates who have served the necessary apprenticeship in one or other of the building trades because he infers that apprentices in the building crafts to-day are so lacking in general education as to be unable to pass. If they have not already done so one of the examinations mentioned in the regulations of the Joint Examination Board. If such is the case then I doubt if they would be competent to meet a builder upon his own ground because to-day, clerks of works, builders, and their managers and foremen are generally speaking highly educated men who have found it much more profitable to remain in the building trades where higher remuneration is obtainable than that which the Ministry of Health permits local authorities to pay to their sanitary inspectors. I wholeheartedly admit the great advantage which a practical training in the building trades is to a sanitary inspector and what a valuable asset it is to the authority he serves but if craftsmen are to be encouraged to devote the time and money necessary to obtain the training and qualification in the many duties which a sanitary inspector to-day has to perform which have no association at all with the building trade for example as Professor Jameson points out—a certificate as inspector in meat and other foods then they must be assured that the salaries which they will receive as sanitary inspectors shall be at least as good as those which they may reasonably expect to obtain if they remain in the building craft. The remedy lies in this direction rather than in lowering the educational standard.

OUR LEARNED BROTHERS

"N3" writes Dr. Herbert Spencer's story (November 17th p. 915) of the American obstetrician who derived Caesarean section from *recoedere* reminds me of the surplus I felt when "tactons eruditus" met my eye in (I think) the advertisement pages of a small medical periodical from across the Atlantic.

'HISTORY OF SCARLET FEVER.'

DR. GORONWY JONES (Swansea) writes: In this article (November 24th p. 925) I should like to point out one little error—that is, the date of the quotation from *Pepys' Diary*. In my copy of the *Journal* it is difficult to say whether it is 1654 or 1664. However the correct date is November 10th 1663.

AN ENGAGEMENT CALENDAR

The Diary of Appointments for 1929 published by the Dental Manufacturing Company Ltd (1 Newman Street, W.1) is conveniently arranged and well produced. The pages are spaced for weekday engagements at quarter hourly intervals from 9 a.m. to 9 p.m. and an address book is tucked into the end cover. Many medical practitioners especially consultants should find it just as useful as the dental surgeons for whom it is primarily intended. It can be had in various coloured bindings and interleaved with blotting or ruled paper at the price of 6s. 6d. or 8s. postage 6d. extra.

DISCLAIMER

DR. STELLA CHURCHILL writes disclaiming responsibility for the use of her name in connexion with an advertisement of a brand of India rubber hot-water bottle.

VACANCIES

NOTIFICATIONS of offices vacant in universities, medical colleges and of vacant resident and other appointments at hospitals will be found at pages 74, 75, 76, 77, 80, and 81 of our advertisement columns and advertisements as to partnerships, assistantships, and locumtenencies at pages 78 and 79.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 243.

The Lloyd Roberts Lecture

ON

SOME PROBLEMS IN GASTRIC SURGERY

DELIVERED IN MANCHESTER, OCTOBER 23RD, 1928,

BY

SIR BERKLEY MOYNIHAN, Bt, M.S.,

PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND

THIS present year has seen a great revival of interest in the subject of gastric and duodenal ulceration. Methods of medical treatment neither new in manner nor now in kind have received a new impulse under new names from those who

"labouring for invention bear arms
The second burthen of a former child"

Bold adventures in surgical procedure have received fresh, unexpected, and even stronger advocacy and support. Experience, it is said, is the name we give to our mistakes, and it is in the hope that my experience of the last thirty years may do something to check newcomers in the field from repeating the errors of their predecessors that I am confirmed in my choice of the subject of this address to-day.

The year began with a paper by MacLean, Jones, and Fildes upon the "Cure of gastric and duodenal ulcers by intensive alkaline treatment." The page heading of this article and in the subsequent lively correspondence is "gastro-duodenal ulcers." There are gastric ulcers and there are duodenal ulcers. The differences between them are not merely geographical. I recall the time when our French colleagues, among others, were profoundly sceptical as to the frequency of duodenal ulcer, and under my own eyes were certainly confusing these two conditions in the operation theatre no less than at the bedside. When that useful landmark the pyloric vein was described, and its value attested by Latarjet and many others, a term of compromise and confusion, "juxtapyloric," was introduced. The use of this term deprives much recent literature, including a laborious investigation by Dr Lucy Wills,² of some of its value, for it is clearly not recognized that pyloric ulcer exists in only one case in a hundred, and that gastric ulcer close to the pylorus is very unusual. In my series of over two thousand cases, less than 3 per cent of chronic gastric ulcers were at the pylorus or within an inch and a half of it.

In my opinion no real advance in our knowledge of the etiology, clinical manifestations, or treatment of these two diseases, gastric ulcer and duodenal ulcer, will be made if we speak of them as one. The time may come when, more fully equipped with knowledge, we may speak of them in synthesis, but for the moment the closest analysis of every particular attribute surely continues to be necessary. These two forms of ulcer occur, as a rule, as Hurst has emphasized, in opposed types of individual. There are, so far as we can judge, some similar factors and some dissimilar factors at work in their production, the chemical condition of the stomach contents in the two conditions is almost always very different, their symptoms enable a clinical and anatomical discrimination to be very frequently, though not invariably, made, their behaviour in respect of haemorrhage and of perforation is not the same, the pylorus forms between them a barrier very rarely overstepped, and finally, a gastric ulcer becomes malignant in a formidable proportion of cases, whereas malignancy in a duodenal ulcer is an event so rare that few pathologists have seen it. The use of such terms as "gastro-duodenal ulceration" and "juxtapyloric ulcer" is, therefore, slipshod and misleading, an evidence of intellectual untidiness, and should be dropped.

It is true that both gastric and duodenal ulcers may be acute or chronic, that when acute they cause a sudden haemorrhage and, very rarely, suffer perforation. Acute

ulcers, as Bolton³ and M. J. Stewart⁴ have shown, are multiple, heal quickly, and often leave little or no trace behind, yet one patch of acute ulceration may persist and lead to the development of a chronic ulcer. Haemorrhage and perforation, though themselves acute, are, with few exceptions, the evidence not of acute but of chronic ulceration which has assumed fresh activity. In a series of gastric ulcers observed by Professor Stewart and myself over a period of twelve years, we found that in 61 cases where death occurred from perforation the ulcer was of the chronic type in 60, in 14 cases whose death occurred from haemorrhage the ulcer was of the chronic type in 13. In the acute case the ulcer was a terminal condition associated with advanced disease, and haemorrhage was not the determining cause of death. In a similar series of cases of duodenal ulcer during the same period this truth also holds good, twelve deaths from haemorrhage all occurred in cases of chronic ulcer, in 17 deaths from perforation there were 109 cases in which the chronic ulcer had given way, in 12 cases acute ulcer was present, so that there were 4 cases in which both acute and chronic ulcers were found—in every one it was the chronic ulcer which had perforated.

I have fully discussed the relative values of medical and surgical treatment in my little work [*Two Lectures*, Wright and Co.], but certain points require, perhaps, a further statement. It is, in the first place, indubitable that both gastric and duodenal ulcers heal, and remain healed. In their sound healing they may produce conditions requiring relief by surgery. "Pyloric stenosis" is virtually always duodenal stenosis, contractures in the stomach are usually in the body of the organ and cause the condition known as "hour-glass." Professor Stewart finds evidence of open or healed ulcers in about 5 per cent of the bodies examined on the *post-mortem* tables in Leeds. Often no history of any period in which symptoms were present is found in the clinical notes, or is to be obtained from relatives. The fact that healing does occur affords, however, a strong, indeed an undeniable, plea in favour of an adequate trial of medical treatment. No surgeon upon whose judgement I would rely suggests operative measures for anything but the rebellious cases or those in which the ulcer is large and incoercible, emergencies, of course, excepted.

In the next place, we must be convinced that an ulcer is in truth present before embarking upon treatment, or building up statistics, and disseminating views based thereupon, as to the efficacy of any specific therapeutic method. Much of the literature on this subject of medical treatment is encumbered with error and with half-truths. In discussing the matter with the protagonists of anonymous methods in other countries I have been distressed to find how slender may be the accepted evidence as to the existence of an ulcer. Unless we know that an ulcer is indubitably present how can we assess the value of treatment which has been supposed to "cure" it? Even radiological evidence must sometimes be criticized. Let me quote Case I from MacLean's paper:

"A married woman aged 30, was admitted on Oct 28th, 1927, and discharged on Nov 19th. She gave a history of very severe upper abdominal pain radiating through to the back. This pain had been present off and on for over three years. In 1925 she was under treatment for some months and again in 1926 for six weeks. During the present year she had never been free from pain and discomfort of some kind. On examination she was well nourished showing very acute tenderness over the right epigastric region otherwise nothing gross was detected. From the time she was put on alkalis and diet the pain disappeared and she made an untroubled recovery. Whereas on Oct 28th she had a very large penetrating ulcer of lesser curvature on Nov 17th the report was no ulcer seen and no tenderness. The patient is now in good health and there are no symptoms of dyspepsia. The epigastric tenderness has also disappeared entirely."

Here is a patient "well nourished," and therefore requiring care in investigation, examined on the day of admission to hospital, when a "very large" ulcer is found. I confess that I should be loath to accept such evidence. What time was given for the due and most needful preparation of the stomach? Does anyone with any experience or of good judgement suppose that a "very large penetrating" ulcer, such as is supposed to be shown in the figure, can disappear in three weeks? Sometimes I am confronted

with a "very large" gastric ulcer too high in the stomach to be resected, in such cases I perform jejunostomy, with or without cholecyst-gastrostomy, or gastro-entrostomy combined with jejunostomy. The healing of the ulcer is watched under x-ray examinations. I have never seen an ulcer of the size depicted in this instance heal completely in less than four months, even when the stomach was in a condition most favorable for healing, being at rest, receiving often the four carbonates or bismuth carbonate alone, all sources of infection having been removed, rest for some weeks being enforced, and all ancillary methods, including blood transfusion, used to advance and encourage healing. It is not enough to see "a disappearance of the crater" of an ulcer to conclude that the ulcer is healed. In the process of healing the first stage is the "flattening out" of the crater, a deep crater becomes shallow, this does not mean that the ulcer is healed, only that the first stage is accomplished.

We must therefore make certain that, in all cases used to establish principles and to inculcate the value of methods, an ulcer is in truth present, that we are walking by sight and not by faith alone. The words "uninterrupted recovery" used in the above report within three months of the beginning of treatment betray an optimism which must excite our envy, but never, I hope, our emulation.

It is not the physician alone who accepts a diagnosis of gastric or duodenal ulcer upon wholly insufficient evidence. As I shall presently mention, the surgeon, whose error is far more serious, may carry out a short-circuiting procedure in cases (unfortunately in many cases) where no trace of an ulcer exists, where indeed other pathological states are present, have caused a number of the symptoms of ulcer, and are completely overlooked. The high repute of medical treatment, no less than the strictures passed upon surgical treatment, are earned in no small degree by a process of make-believe. By drugs and diet no harm is done to an ulcer which exists only in the mind of the healer. Grievous and irreparable harm may be done by the act of the surgeon, and his art brought thereby into disrepute. It is not only the patient who is sacrificed, our cause is wounded in the house of our friends.

Furthermore we must remember that medical treatment is a dangerous, a prolonged, and, I fear, a very tedious business. Our object is not temporarily to abolish symptoms, but to secure the firm healing of the ulcer. To banish symptoms is so very easy, as I have over and over again asserted. To suppose that this implies an "uninterrupted recovery" is to deceive ourselves, and to accept false values.

"One most important point," writes MacLean, "is to warn the patient that if any symptoms return he must go back to milk or light diet for a day or two and take the powder four or five times a day." If symptoms return, what has happened? The unhealed ulcer has probably taken on a new activity, the edge is spreading, there is infection all around, and a local spasm is excited, and if x-rays do not always show this, operation most certainly does. Is the suggestion of a "day or two" of dietary restriction really the best that can be offered? The word "cure" is used almost frivolously by MacLean, for in his paper published in January, 1928, the dates on which treatment began in the cases recorded are November 1926, April 1927, July 1927, April 1927, February 1927, 1927 (no month), July 1927, April 1927, October and November 1927, February 1927, April 1927. Is there anyone who is so beguiled as to feel satisfied that in such cases ulcers are healed and are to remain healed? No account is taken of the seasonal variations, the cyclical character in the symptoms, to which I called attention a quarter of a century ago, nor of the difference between "relief" and "cure." We are, moreover, in ignorance of the frequency of these supposititious "cures" (or of their duration) to the total number of cases treated.

It may be urged that in many cases of gastric ulcer the treatment by intensive administration of alkalis, with the purpose of neutralizing excessive or normal acid, is theoretically unsound. If there is hyperchlorhydria, as in most cases of duodenal ulcer, their value may be understood. But when the acid content is low or absent, what reasons

are there for such large and repeated doses of alkali? I expect we are not so much concerned—at least I am sure that patients are not—with reasons as with results. I am by no means confident, as many are, that good results must be attributed to the neutralizing power of alkalis, but I am content to use these until some wiser investigator discovers the clue, if other clue there be, to their power. Kinsella¹ suggests that the potent effect of alkalis is not so much to neutralize acid as to dilate the pylorus, spasm being overcome, the stomach empties and that degree of rest is allowed which encourages the ulcer to heal.

Because of my leaning to medicine rather than to surgery, I have referred as many early cases as possible of gastric or duodenal ulceration to my medical colleagues for treatment. I may therefore speak with experience of the procedure. All due care must be taken to remove the sources of infection—in the mouth, accessory sinuses, tonsils, and so forth. The commonest origin of infection, the appendix, is inaccessible apart from surgery, for drugs here are useless. Not the least of the advantages of surgical treatment, as I have formerly pointed out, is that it enables this source, and other associated lesions in the gall-bladder, or elsewhere, to be eradicated.

At the beginning of medical treatment rest for a few weeks is absolutely essential. Food in the meagre quantities and at the frequent times laid down as essential by Sippy, Spriggs, Hurst, and Izod Bennett is given, and the triple or quadruple carbonates administered when the acid content is normal or high. Medical treatment should be a matter of as great devotion and surrender on the part of the patient as is surgical treatment. The perfunctory and haphazard procedures which leave too much, leave in fact almost everything, to the patient are the cause of disappointment, and of the "recurrences" or real disasters with which the surgeon has reluctantly and so frequently to deal. The healing of an ulcer is, as a rule with negligible exceptions, a difficult and tedious business, it does perhaps sometimes occur easily, and possibly in recent acute cases even quickly, as *post-mortem* experience suggests, but if we wish to make sure of it, no pains can be too great, for if failure occurs in the first instance it is hardly likely to be so easily accomplished at a second or later trial. My advice to patients is to exercise the greatest possible loyalty to advice in the matter of diet, alcohol, drugs, rest, warmth, and clothing for at least a year and to avoid foolish risks for ever. My very wise friend Dr. Hurst is far too optimistic when he says that "very large chronic ulcers which have penetrated the pancreas or the liver may require as long as three months" to heal. I have known them take over three years. After all it can be no advantage to a callous ulcer, in respect of its power of healing, that it should lie in the stomach rather than elsewhere, let us say upon the surface of a limb. And we do not even there expect to find such rapid cicatrization as MacLean and others suppose.

The patient who has experienced many recurrences, in whom one or more chronic ulcers have existed or are still present, is only wasting time and risking his life, by continuing medical treatment. Though almost all the patients who come to the surgeon for help either in their acute emergencies, or because of protracted disability, have undergone medical treatment on many occasions, it is rare indeed to hear of one who has unfalteringly submitted to the full prolonged ritual. So far as the poorer people are concerned the hospitals of the country are powerless to deal with them, accommodation is quite inadequate. We are driven to cope with catastrophes, but do little to prevent their recurrence. The treatment of gastric and duodenal ulcers in the mass is now an economic rather than a medical problem.

Medical treatment in the past has failed very badly. It fails far too often to-day. Certainly almost all the fatalities in these diseases occur in those who have been submitted to medical treatment, and must accordingly be attributed to the failure of that treatment. This form of treatment, beyond all reckoning more dangerous than surgical treatment, will be even less successful if a free and easy method, acclaimed as adequate by high authority, should ever become popular. If surgery is to meet a smaller demand it will only be when general practitioners

and physicians realize that medical treatment, at present so very unsatisfactory, can only become safe when it is made more rigorous and when loyalty thereto is continued for longer periods. The ambulatory and perfunctory treatment of gastric and duodenal ulcers by triple carbonates, and an inadequate dietary restriction, has added much to my surgical anxieties in the past few months, and I am by no means alone in this unhappy experience.

It is personally interesting to me to recall that on the last occasion on which I referred to the "triple carbonates" I repeated a suggestion I had often made before. It has since been widely noted upon abroad, and at home chiefly by my colleague Mr L R Brathwaite. It was this, that if the success of gastro-enterostomy is to be ascribed to the alkalinizing properties of the bile which enters the stomach through the new opening (if, that is to say, my friend Mr H J Paterson is right in believing the operation to have a "physiological" action), it would surely be better to anastomose the gall bladder to the stomach, so that the supply of alkali should be continuous and automatic. I have performed this operation in cases of inaccessible large ulcer in the stomach with a normal or high acidity and in cases of jejunal ulcer it is too early yet to speak of permanence in the good results. For details of this method I may refer to the paper of Mr Brathwaite.

In spite of the most careful and protracted medical treatment a certain proportion of cases of gastric and of duodenal ulcer is found irremediable except by surgery. The proportion will vary according to a number of factors: the age and general condition of the patient, the duration of the ulcer, the care exercised over intensive medical treatment and its duration, the subsequent attention paid to diet and other matters, the occurrence of haemorrhage, of stenosis, or of chronic perforation with adhesion to neighbouring parts and in the case of the stomach the tendency to carcinoma. All ulcers, or almost all, should at first be so diligently treated as to encourage healing, but not all ulcers are capable of healing. I have no means of knowing the number of recalcitrant cases and all estimates are open to objection. Donald Balfour⁸ asserts that in the aggregate these complications occur in 67.3 per cent of cases of gastric ulcer. In the Mayo Clinic however as in all large hospitals, it is chiefly the rebellious cases which seek relief, the earlier cases are dealt with nearer home and if treatment proves successful do not reach the consultant or the hospital. Forman⁹ in a small number of cases carefully followed and examined found 57 per cent of failures after medical treatment. David Smith¹⁰ gives the results of medical treatment in 214 cases observed between 1913 and 1922. If immediate results are accepted it is found that 67 per cent of males are "cured," and 2 per cent die of females 76 per cent are "cured" and 5 per cent die. Of cases observed between five and fifteen years after treatment 29 per cent of males were cured and 19 per cent died, of females 40 per cent were cured and 15 per cent died.

So far as duodenal ulcer is concerned I think it is very rare for any patient who has given a quite definite history of two or more attacks to recover permanently and completely. Subsidence of symptoms and freedom from recurrence for months, or even for years, may often be observed as I pointed out long ago but in the end there is a fresh outbreak of trouble.

This recrudescence of symptoms is due to various causes. An indolent unhealed ulcer clinically unobtrusive in its callous state may have assumed a new activity of destruction at some part of its edge, or an old ulcer lightly healed may have broken down afresh or an infection in the mucosa near the chronic ulcer may have led to the appearance of an acute ulcer or, rarely, an entirely new chronic ulcer may be developing. We cannot always decide which of these events has happened but we may safely say that as a rule it is an incompletely healed callous ulcer which breaks down. I have seen this repeated recrudescence in literally hundreds of cases indeed a very large proportion of patients upon whom eventually I am compelled to operate give a history of repeated attacks followed by intervals of repose. The permanent "cure"

of the patients after the most praiseworthy devotion to treatment is indeed a rare event when the ulcer is in the duodenum and has suffered relapse.

The main indications for surgical treatment in cases of duodenal ulcer are recurrence of symptoms, stenosis and haemorrhage. During the last few years surgeons in some parts of the world have been in revolt against short-cutting operations. My friend Professor Pannett¹¹ in this country is, to my regret and surprise, among the irreconcilables. My own opinion of these operations (gastro-enterostomy and gastro-duodenostomy), based upon a longer experience than that of any surgeon now in active practice in this country (for I was the first surgeon to operate upon a duodenal ulcer which had been previously diagnosed), is that they have very strong claims to be considered as among the most successful of all abdominal operations. Wherein lies the cause of so grave discrepancies in opinion?

In the treatment of a duodenal ulcer by operation gastro-enterostomy alone should never be performed. In all cases the ulcer must be dealt with directly by one device or another. Over twenty years ago I learnt this lesson for I found, after "successful" gastro-enterostomy, that one patient died three years later from perforation of the original untreated ulcer, and that one patient (whose second operation was witnessed by Dr J B Murphy) had a recurrence of symptoms, with haemorrhage, and the original ulcer, or no ulcer in the same position was found in a state of great activity. I have operated for haemorrhage in several cases where other surgeons have performed gastro-enterostomy, and have found the original ulcer untouched at the first operation, in an acutely active condition with large vessels entering it. I have therefore urged that in all cases of duodenal ulcer the ulcer itself must be treated directly, whether gastro-enterostomy or gastro-duodenostomy is performed, the appendix must then be removed and the gall-bladder, spleen, and liver examined. Treatment of the anterior ulcers is not difficult. If the ulcer is on the posterior surface, with or without an anterior ulcer, the duodenum may be opened, the ulcer cauterized, and the pylorus temporarily closed by an encircling suture.¹² It is possible that on *post-mortem* examination a lesion of the posterior wall may be found more often than my operation figures indicate. The fact remains that in the cases requiring surgical treatment the anterior ulcer is more often present, and that when two are present the anterior is the older. The exceptions to this are less than 20 per cent in number.

The necessity for direct treatment of the ulcer is not recognized even by the latest writer,¹³ and no doubt his dissatisfaction with the operation of gastro-enterostomy is based, in part at least, upon the inadequacy of his attack, if indeed there has been any, upon the ulcer itself. But both before and after operation something more requires to be done. The patient must be carefully prepared, and regard must afterwards be paid both to diet and to drugs. Cure must be exercised for months. The healing of the edge of an anastomosis does not occur by first intention. Until healing is complete bismuth carbonate or the "triple carbonates" should be given, and a special diet advised. In competent hands, and with the care before and after operation that are required, the mortality is now not more than 1 per cent. Pannett¹⁴ assesses the mortality at 4 to 5 per cent, and adds that it is bound to be higher in the statistics of those surgeons who reserve it for the worse risks. Dr I Bennett¹⁵ in referring to my work spoke of my "selection of cases." The suggestions here implied are that the mortality is low because of a choice exercised among the cases submitted to operation: that cases with high risks are omitted, and that in consequence the mortality is small. This is not the true position. I never make any selection of cases, except among early ones which are referred to the physician or to the general practitioner: all cases in need of surgery receive it. There is however a selection of the day for operation. Patients may be kept waiting for two or three weeks to receive transfusion of blood and other most necessary preparation. The immediate slip-die attack is foolish, a selection of cases for the reason implied

would be criminal. The truth is that patients suffering from chronic duodenal ulcer are "good surgical risks" unless there has been a recent haemorrhage. This is indicated by insurance statistics, which show a prospect of life above the average for those surviving operation.¹⁶

What are the ultimate results of gastro-enterostomy? The differences given by various operators, from parts of the world far apart, are inexplicable. The causes of complaint after gastro-enterostomy should now be due to no technical detail directly concerned with the operation itself, but only to conditions which develop subsequently. Mr. Lalor¹⁷ gives a disturbing account of 36 per cent of "unsatisfactory" cases. A review of my cases shows that indifferent results, which are in the gross about 6 to 8 per cent, include complaints of "indigestion," haemorrhage, "recurrence of symptoms." A review of unsatisfactory cases submitted to me after operation by others shows that the commonest cause of disappointment is the wrongful performance of the operation. In my book on *Abdominal Operations* I have dealt with the conditions for which I have known this operation to be practised. They include lead poisoning, the vomiting of pregnancy, rickets, proptosis, cholelithiasis, tabes dorsalis, achlorhydria, and so on.

The very success of gastro-enterostomy in the appropriate case has led to its unjustifiable performance in the cases not requiring it—in cases where the symptoms mimic those of organic disease of the stomach or duodenum. The operation is blamed, the fault lies wholly with the operators. In such cases the anastomosis must often be undone, and the treatment of the patient begun afresh. If the operation is adequately performed in the case fully requiring it, and if reasonable care is subsequently exercised, two conditions only in my experience cause anxiety—haemorrhage and gastro-jejunal ulcer. Haemorrhage occurs, as a rule, from an ulcer at or near the anastomosis, which may declare itself in no other way. It occurs also in cases where less than adequate attention has been paid to the teeth. Removal of infection from the mouth will sometimes prevent recurrence of haemorrhage, as Kusterman¹⁸ also has shown. Bleeding is found sometimes in those whose blood coagulation time, for some reason, is longer than the normal, and in those whose spleen is enlarged. I have twice operated upon cases of duodenal ulcer in patients suffering from early splenic anaemia. Haemorrhage occurred after the performance of gastro-enterostomy, and the spleen had subsequently to be removed. Haemorrhage may occur from an acute ulcer, not recognizable on the operation table, and with difficulty discovered, or discovered when recently healed, upon the post-mortem table. I think I have rarely if ever read any statement so opposed to my own experience as that of Pannet¹⁹ when he says: "The liability to haemorrhage from a gastric, but particularly a duodenal ulcer, is about as great after an operation as before." The only possible explanation seems to be that gastro-enterostomy is performed in cases of gastric ulcer for which it is unsuitable, and that where an ulcer lies in the duodenum it is left untouched, that, in short, little has been accomplished by the operation either to affect the healing of the ulcer, or to remove it.

The real drawback—indeed, in my experience the only serious one—to the operation of gastro-enterostomy is the occurrence of a gastro-jejunal ulcer. The frequency of this appears to be extremely variable. Mr. Digby Chamberlain searched the records of my cases over a period of twelve years, ending more than two years ago. He found that 184 per cent of cases had developed a secondary ulcer. As a rule this form of ulcer, if it comes at all, comes within two years of the operation, some few cases begin while the patient is still in hospital, no relief whatever following the operation, but I have known cases develop as much as nineteen years later. Let me, therefore, to be safe, assess the frequency of this ulcer in my own series at 4 per cent. In such cases a further operation, detachment of the jejunum, followed sometimes by gastro-duodenostomy, gastrectomy, or jejunostomy with which I am well pleased may be performed. The immediate results of these operations are good, the remote results

leave still much to desire. The ultimate results of the operation of gastro-enterostomy are spoiled by this complication in probably 4 to 5 per cent of cases. Much lower and far higher estimates than this are given. Mr. A. H. Burgess, a most accomplished artist in surgery, has rarely, if indeed ever, observed jejunal ulcer among cases operated upon by himself. The highest is that of Dr. R. Lewisohn,²⁰ who, in a series of 68 cases, found 23 (34 per cent) who had developed gastro-jejunal ulcer. In consequence of this unhappy experience Dr. Lewisohn and many other surgeons follow the lead of Haberer¹ and advocate the routine performance of partial gastrectomy for duodenal ulcer. Before I entertain so repugnant a proposal I should like to feel that gastro-enterostomy is given, what it certainly has not yet received, a fair chance. I suggest the following procedure as an invariable routine:

- 1 A careful examination and preparation of the patient in respect of blood condition, teeth, sinuses, etc. so that the operation may be performed at the time the patient is most adequately prepared to undergo the ordeal.
- 2 Confirmation of the clinical diagnosis: the ulcer being seen, felt, and shown.
- 3 Destruction of the ulcer or ulcers by the cautery or other wise repair of the duodenum followed by a short-circuiting operation, gastro-enterostomy or gastro-duodenostomy, the opening being of large size.
- 4 Removal of the appendix: examination of the liver, gall bladder, spleen and other abdominal organs.
- 5 Care in the diet (a printed diet being given), abstinence from tobacco, alcohol, and salt; the administration of the triple carbonates, regard to rest and warmth for a few months at least.

With these precautions fully observed we shall hear very little either of the mortality or of disappointments after gastro-enterostomy. The advocacy of gastrectomy for duodenal ulcer because of the supposed ill effects of gastro-enterostomy leaves me in consequence quite unmoved. As I have said, the defect in relation to the short-circuiting method lies more often with the operator than with the operation. The recommendation of other and more extensive procedures lacks, therefore, in my most deliberate judgement, any initial justification. What, then, is to be said in regard to gastrectomy when performed for duodenal ulcer? There is no doubt that, even in the most skilful hands, it is a more serious operation. The cases which are supposed more especially to require it are those with deep excavating ulcers on the posterior surface of the duodenum. In these cases, and to a certain degree in many others, the removal of the duodenum may, and indeed does, present difficulties and closure of the stump of the bowel may be so arduous and uncertain a task as to suggest to one if its warm advocates the need for drainage. But what if the duodenum leaks? The mortality in the hands of its supporters is from 5 to 10 per cent. Mr. N. Lake²² gives 9 per cent, Okinczev²³ gives 13.6 per cent. Less practised operators will show an even higher mortality. The unanswerable deduction is, therefore, that if after gastro-enterostomy every case eventually unsatisfactory were to die from the operation, the survivors in whom the result is good would be equal in number to the survivors after gastrectomy. Those who die after gastrectomy, that is to say, are equal in number to those who in my own practice die after gastro-enterostomy plus all those who ultimately prove unfavourable cases. But are the survivors after gastrectomy in any better case than the survivors after gastro-enterostomy? The answer is as yet uncertain, because of the recent date of many operations, and of the absence of any series of cases from competent operators in which a late history is available. The facts that are accessible appear to show that gastrectomy for ulcer in the duodenum has the same defect as gastro-enterostomy—whether in the same proportion or not is unknown. Those who advocate gastrectomy assert that secondary ulcers will be unlikely to follow because of the inactivity which results. But anacidity does not result even when two-thirds of the stomach have gone, and secondary ulcers do undoubtedly follow (Klein).²⁴

Louria,²⁵ reporting some of Haberer's cases, writes: "Studies of the gastric content of the stomach after

gastric resection showed either a total absence of free HCl or greatly reduced figures." Finsterer, realizing that the ordinary method of gastrectomy does not produce acidity, advises that three-fourths of the viscous should be removed. In many of my cases of gastrectomy for gastric ulcer when the acid curve has been normal or high (an unusual condition) test meals taken many months later still show the presence of free HCl. Even when less than one-third of the stomach remains, acid may be produced. I have now had under my own care in a series of just over 100 cases of gastro-jejunal ulcer, 12 cases which followed gastrectomy performed for a secondary ulcer at, or near, the site of a gastro-enterostomy originally undertaken for duodenal ulcer, one case of secondary ulcer after primary gastrectomy for duodenal ulcer, and one case after Devino's operation. Dr Hurst states "that there are in the literature 100 cases of secondary ulcer after gastrectomy. I have never seen such an ulcer when the stomach has been removed for gastric ulcer, but my friend Mr. Fincher records one case." It is clear, therefore, that the chief claim of the advocates of gastrectomy, that secondary ulceration is avoided, cannot be substantiated. There seems to be an inveterate and unconquerable tendency on the part of a few patients to develop ulcer in spite of all our care. These patients are of the "hypersthenic gastric diathesis" described by Hurst.

Haberer's results, both immediate and in the early years after operation (thoro has not yet been time to observe late results), are less satisfactory than many surgeons are able to secure by simpler methods than his. Louria, in reviewing 166 cases of duodenal ulcer operated upon by Haberer between January 1st, 1925, and January 1st, 1927, gives the immediate mortality of gastrectomy as 8.4 per cent. 107 cases were traced, and the results were classified as excellent in 83, "fair" in 16, and "poor" in 6, of whom 2 developed gastro-jejunal ulcers. Having regard to the fact that the first case in the series was operated upon less than four years ago we may assume that this is the best that can be said for gastrectomy. Is this satisfactory? As compared with my own experience it is far less satisfactory than are the results of gastro-enterostomy.

We may then, well ask, What possible grounds for the advocacy of gastrectomy can be established. It is evident that it is dangerous even in the hands of its warmest advocates, a mortality of 5 to 10 per cent. is, in my judgement, prohibitive, for it means that a larger number of people are caused to die in order that a smaller number may live to experience a possibly slighter chance of developing a new ulcer. The clinical results, in my experience, do not in any particular show to advantage when compared with those of gastro-duodenostomy or gastro-enterostomy, and there is certainly not a great degree of freedom from the only serious sequel, gastro-jejunal ulcer. My own unequivocal and most confident opinion is opposed to it. It is one more evidence of the familiar Teutonic capacity for finding a difficult way of doing easy things. I regret that the wise and cautious judgement, the sanity of outlook, and care for the individual patient, which hitherto have always characterized British surgery, have not rendered all our surgeons immune from rash and most intemperate persuasions by Continental and transatlantic operators. In surgery the search is always for safety and simplicity in full accomplishment of our object. Gastrectomy for duodenal ulceration is neither safe nor simple, nor does it bring an adequate reward, if indeed it brings any slightest reward in the form of better ultimate results. We know the worst of gastro-enterostomy, the best is unsurpassable, we have yet to learn the worst of gastrectomy, though what we know is bad enough. The best that I am told of gastrectomy, and the little that I see of its results, leave me in the most contented frame of mind with regard to gastro-enterostomy, provided always that strict observance has been paid to all necessary details concerned with its performance.

In describing short-circuiting operations a Continental surgeon has written a paper upon "gastro-enterostomy, a disease." The title is admirable. Gastro-enterostomy is a disquieting and formidable disease—serious, widespread, and highly contagious—but its victims are to be found

among surgeons rather than among patients. It is the irrelevant application of the operation to unsuitable cases, and its imperfect performance in cases that do require it, that have brought it into disgrace and disrepute. Over twenty years ago I urged that the operation should never be practised unless the ulcer was "visible, palpable, demonstrable." The unwarrantable procedure of "gastro-enterostomy for symptoms" still goes on all over the world, and Dr Hurst is in consequence driven to say that among his private patients "gastro-enterostomy is the commonest gastric disorder of to-day, and undoing gastro-enterostomy is the gastric operation we most frequently recommend." Dr Hurst knows quite well that in making this statement he is offering no contribution to the question of the surgical treatment of gastric or duodenal ulceration. I have "undone" several cases for him, and a large number referred to me by other surgeons. I have never met with a single instance in which, this deplorable procedure being necessary, there was any unequivocal sign of an old or a recent gastric or duodenal ulcer. Where the operation has been necessary the junction need never be separated, except, of course, in cases of jejunal ulcer, when the normal channel is to be restored or gastro-duodenostomy is to be performed. The necessity to undo an anastomosis is not a reflection upon an accredited surgical operation, but upon the judgement of the physician who advised it or of the surgeon who performed it. I mention the physician deliberately. To a few surgeons who have performed a needless operation I have written for details of the conditions found, and have received a reply that the short-circuit was made upon the advice and at the direct request of a physician. During an operation a competent surgeon never needs advice from anyone as to the procedure he should adopt, no physician can possibly understand the surgical indications, the technical procedures, their appropriate application or their probable results as well as the surgeon, upon whom alone responsibility for the technical part of the operation must always rest.

CONCLUSIONS

What, then, are my conclusions in regard to the treatment of gastric and duodenal ulcer?

1. Ulcers of the stomach or duodenum do heal, and remain soundly healed for years.
2. When healed, stenosis in the body of the stomach or in the duodenum may result, and surgical treatment for a mechanical deformity then be necessary.
3. Medical treatment should always be given a first and a second trial, if it then fails success in later efforts is extremely improbable.
4. The present methods of medical treatment are proved by experience to be of little value, and are highly dangerous. The majority of patients who die from either of these diseases succumb because medical treatment has failed to relieve them. Medical treatment undoubtedly has a mortality greatly exceeding the highest mortality following any surgical procedure adopted for chronic ulcers of the stomach or duodenum.
5. The failure of medical treatment is largely due to its insufficiency. To be successful such treatment must be rigorous and protracted. The loyal co-operation of the patient is essential. Very few patients now receive any treatment offering a reasonable prospect of healing of the ulcer.
6. When medical treatment has failed surgical treatment must be adopted and should not be delayed.
7. Experience shows that surgical treatment, adopted when medical treatment has failed, is far less dangerous and far more effective in attaining our object than medical treatment, the immediate and remote mortalities are smaller, the after effects far more satisfactory.
8. The failures of operative treatment by competent surgeons are due chiefly to the development of fresh ulceration at the new anastomosis.
9. The causes of this new ulceration lie partly in the diathesis of the patient and partly with details of the operation.
10. Surgical treatment should consist in the eradication of the ulcer or ulcers, by gastrectomy if the ulcer lies in the

stomach, by a short encircling operation combined with destruction of the ulcer when it lies in the duodenum Balfour's method and Walton's method have proved excellent in the hands of their authors. Other complementary procedures within the abdomen must be observed.

11 Gastrectomy in the treatment of duodenal ulcer is more dangerous than gastro-entrostomy, and does not appear to give any better late results, if indeed its results are so good. It should therefore have no place among surgical methods for the treatment of duodenal ulcer at the present time.

12 The medical treatment of gastric ulcer and of duodenal ulcer is perhaps not so much a medical problem as a problem in social economics. Rest in bed, freedom from anxieties, abstinence from work, complete repose in fact, are essential if treatment is to have the best chance of success. A counsel of almost unattainable perfection!

13 The connexion between gastric cancer and gastric ulcer is so clear³⁰ that gastrectomy alone, wherever it is practicable, should be regarded as the appropriate surgical treatment for chronic incoercible gastric ulcer.

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THE INTERPRETATION OF THE RADIOGRAPHIC APPEARANCES OF GASTRIC ULCER

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When a radiologist detects a projection on the outline of the opaque food in the stomach he makes a positive diagnosis of an ulcer, and when the apparent pocket is deep he describes it as a "penetrating" ulcer. The question that arises is whether he is or is not justified in making the statement that it is a "penetrating" ulcer. We have all seen "penetrating" ulcers—ulcers that apparently penetrate into the stomach wall, sometimes even showing

hardly penetrated the muscular coat at all, and with no overhanging of the edge. It is difficult to imagine how an ulcer of this type could have given rise to such a definite x-ray picture of a pocket, for in the actual excised specimen there was nothing to suggest the presence of either the niche that held the opaque food in a deep cup or the pocket of air above it. There can be no doubt, therefore, that the conditions seen at x-ray examination must be far different from those that we find either in the excised specimen or even on opening the stomach at the operation when anaesthesia and other abnormal conditions are present.

The only reasonable explanation of such discrepancies is that, in life, the mucous membrane may be heaped up around the ulcer to such an extent that it actually over-



FIG. 1.—Large ulcer on lesser curvature probably penetrating into the muscular coats. Suggested outline of the base of the mucous membrane indicated by a dotted line.



FIG. 2.—Small ulcer on the lesser curvature possibly healing. Suggested outline of the base of the mucous membrane dotted in. Note the half shadow around the base of the ulcer suggesting the thickening of the mucous membrane. (S 190 24)

a small bubble of occluded air above the opaque food in the niche. When such a pocket is fixed on palpation there seems little room to doubt the true nature of the condition. Yet I have seen these radiographic appearances when excision has shown merely a flat ulcer that

laps the ulcerated surface, and thus forms a surrounding crater. On many occasions, by the aid of radioscopic palpation, I have convinced myself of the presence of quite minute ulcers by reason of the residue left in such pockets when the opaque food has been manipulated up

and down the rugae. The smallest of these ulcers that I have seen after excision was not more than an eighth of an inch in diameter, and did not even penetrate the whole thickness of the mucous membrane. The crater in this specimen was far too shallow to account for the definite

appearance of the crater. I have on a number of occasions suggested that the ulcer was healing, and this opinion has been confirmed both clinically and by further x-ray examination.

Radiographically we can diagnose an ulcer, but we cannot

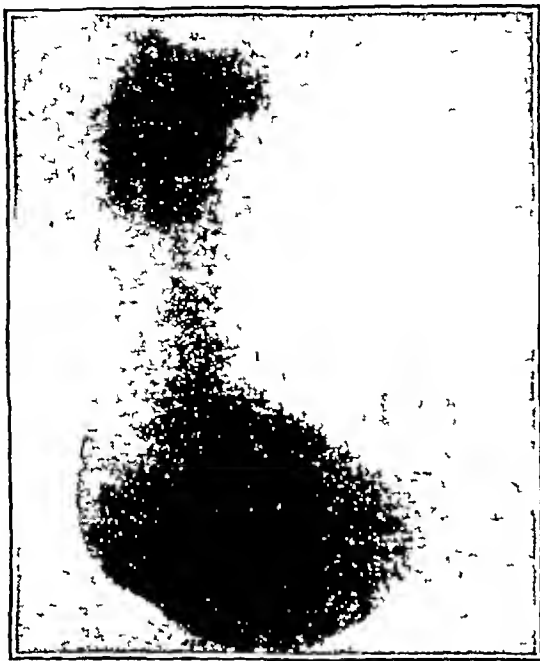


FIG 3.—Ulcer on the lesser curvature. Suggested outline of the base of the mucous membrane dotted in. Note the half shadow below the ulcer due to thickening of the mucous membrane. (S 1070/24)

and quite heavy shadow of the food residue that was constantly retained on palpation. I am quite certain, therefore, that when radiologists detect what we describe as a "penetrating" ulcer they are often picturing a much more extensive pathological condition than actually exists. If I am right in my deduction we may, and actually do, get an appearance of a penetrating ulcer from a mere erosion of the mucous membrane, the heaped-up surrounding mucous membrane being almost entirely responsible for the depth of the crater and for the appearance of "penetration."

If this explanation is correct there is little difficulty in understanding how even apparently large ulcers can disappear in a comparatively short time—a sequence that radiologists frequently have the opportunity of observing. It would be obviously impossible for a real penetrating ulcer of chronic type to heal in so short a space of time as a few weeks, but far from improbable that an erosion should heal in this time. Moreover, the way in which such ulcers close in, radiographically, seems to point to the correctness of this deduction—we do not see the edges healing over the crater and tending to enclose the pocket. As healing takes place the crater becomes shallow and V-shaped and then flattens out—indicating to my mind, that as healing progresses the surrounding mucous membrane loses its heaped-up character and the local contour assumes its normal level. On the V-shaped appear-



FIG 4.—Large ulcer on the lesser curvature. Patient in supine position. The stomach lies over the vertebrae and there is therefore slight pressure on the region of the ulcer. Note the half filling of the shadow around the ulcer due to the extensive thickening of the mucous membrane with the distorted rugae radiating towards the ulcer. Suggested outline of the base of the mucous membrane dotted in. (S 302/24)

as yet be certain whether we are dealing with a perforating ulcer, a penetrating ulcer, or a mere erosion, the apparent depth of the crater probably depends far more on the surrounding thickness and puckering of the mucous membrane than on the extent of the actual damage to the coats of the stomach, the degree of local spasm of the mucous membrane will depend on the irritation from the ulcerated surface. As this ulcerated surface heals and becomes less sensitive, so the local spasm of the musculature in the mucous membrane will subside, with the result that the crater will no longer be of the nature of a pocket, but a V-shaped niche.

In looking through a number of radiographs of gastric ulcer there is a certain amount of evidence that this hypothesis is correct, as will be seen on reference to the radiographs reproduced.

I suggest, therefore, that the nomenclature used by the radiologist is at fault, and that although what he sees may indicate a deep

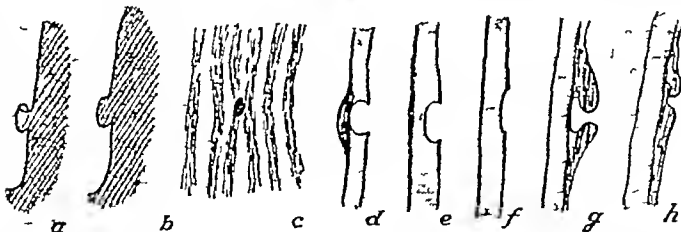


FIG 5.—a and b Typical x-ray appearances of gastric ulcer on the margin near the lesser curvature. c Crater of ulcer hidden among the folds of the mucous membrane on the anterior or posterior wall. d, e and f Diagrams of pathological specimens of perforating, penetrating, and mucous membrane erosion ulcers. g Suggested interpretation of the x-ray appearance of the pocket being due to overfolding of the heaped up mucous membrane. h Diagram of suggested conditions on healing of ulcer. The mucous membrane loses its heaped up condition the ulcer becomes shallow and conical or V shaped before it disappears.

crater on the outline of the contents of the stomach, yet he is not justified in calling it a "penetrating" ulcer. The radiologist has no means of determining whether this ulcer crater is formed merely by a heaping up of the mucous membrane or whether it is in fact due to a "penetration" of the muscular coat or even to an actual perforation into a dense mass of surrounding reaction.

OBSERVATIONS ON RENAL FUNCTION IN
UNILATERAL DISORDERS OF
THE KIDNEY *

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It is unlikely that chemical analysis of the urine can be of much use in the differential diagnosis of unilateral kidney disorders, because various pathological conditions may produce similar effects on renal function, but analysis of the urine will seldom fail to distinguish the affected from the normal kidney. The urine from the affected kidney is nearly always less concentrated, as Bullerton's¹ specific gravity test usually shows, and chemical methods are more sensitive than the specific gravity test in detecting this change. In considering the results of analysis it must be remembered that urines collected separately from the two kidneys are not always identical in volume or in composition, even when both kidneys are normal.² The differences then, however, seem to be comparatively small, and may be due, for the most part, to irritation produced by the ureteral catheters.

The chief value of chemical analysis lies not in diagnosing the presence of calculus or tubercle, but in the possibility of estimating the degree of injury to the kidney cells.

There is no doubt that a unilateral diuresis of reflex origin can be produced without injury to the kidney. This diuresis is an effect of irritation on the nervous control of the blood supply, and is probably the first result of ureteric calculus and of the toxins of tubercle. The most important problem, from a biochemical aspect, is to distinguish this reflex diuresis from loss of concentrating power due to inefficiency of the kidney epithelium. The volumes of the urines from the two kidneys cannot as a rule be determined with accuracy, since the amount of leakage past the catheters cannot be ascertained. The recognized characteristics of diuresis must be compared with those of renal failure and the results applied to the study of unilateral kidney disorders.

Diuresis

1. In diuresis the urine becomes more like the plasma, perhaps because the kidneys have less time to produce alterations. This generally means that all the constituents of the urine become more dilute. But if the concentration of chloride in the urine before diuresis was lower than that in the plasma, this approach to the plasma involves an increase in the concentration of chloride while the concentrations of other substances are reduced.

In the usual forms of diuresis a rise in chloride concentration can rarely be observed, since the plasma dilution which causes the diuresis also lowers the plasma chloride, and hence tends to lower the chloride of the urine. In unilateral reflex diuresis plasma dilution does not occur, and in any case a comparison is made between urines excreted simultaneously by two kidneys supplied with the same blood, and not between urines excreted in two different periods during which the composition of the plasma has altered. Therefore in suitable conditions, a rise in the concentration of chloride may be expected. To say that during diuresis the urine approaches the plasma in composition is probably less correct than to say that it approaches the glomerular fluid. And if, as is generally supposed, this fluid is a protein-free filtrate from the plasma, we cannot escape the conclusion that a Donnan³ equilibrium exists at the filtering membrane and that the concentration of chloride in the filtrate is higher than in the plasma (cf. cerebrospinal fluid). Wearn and Richards's⁴ analyses of glomerular filtrate furnish direct evidence that it is higher. This point is mentioned in the interests of accuracy, but has not been considered in examining the results. It may render interpretation difficult when the concentration of chloride in the urine happens to be near the plasma concentration, since it may determine the borderline between rise and fall in the urine chloride as an effect of diuresis.

2. In diuresis the various constituents of the urine do not all suffer an equal lowering of concentration. Chloride is less affected than other substances, and urea is probably somewhat less affected than phosphate and creatinine. The following explanation is given by Cushny.⁵

The urine is concentrated by absorption of water from the glomerular filtrate and not by secretion into it of dissolved substances. Chloride is readily absorbed with the water, and although in diuresis the escape of fluid may result in a lower concentration of chloride in the urine, this effect is partly counterbalanced by the fact that less of the chloride itself is absorbed. Urea is normally absorbed to some extent, but much less easily than chloride, while it is doubtful whether creatinine is absorbed at all. Urea thus shares a little of the advantage gained by chloride in diuresis, but always shows a net loss of concentration, and since creatinine, unabsorbed in any case, has nothing to gain by rapid passage through the kidney, its loss of concentration is more extreme. The rejection of this theory will not, of course, affect the validity of the observations.

Renal Failure

In this, as in diuresis, there is a fall in the concentration of the urine, but careful study reveals certain distinguishing features.

1. There is evidence of failure in chloride excretion, and in the later stages the concentration of chloride in the urine remains below that in the plasma even when salt is given to the patient.^{6, 7}

2. There may be defective excretion of urea. This is not easily recognized, except by concentration tests or by examination of the blood, and both of these methods would probably fail in the present investigation. But urea excretion suffers before that of creatinine,⁸ and if the concentrations of these substances can be compared in corresponding samples of normal and abnormal urine any existing defect should become apparent.

The best examples of renal failure are witnessed in chronic interstitial nephritis and in arterio-sclerosis of the kidney. The order in which this failure involves the various constituents of the urine seems related to the degree of resistance which the normal tubule epithelium offers to their passage back from the glomerular filtrate to the blood while absorption of water is proceeding. Thus, chloride passes back most readily, next urea, next phosphate, and creatinine with the greatest difficulty. And in nephritis chloride excretion appears to suffer first, then that of urea, phosphate, and creatinine, in this order. To avoid misunderstanding it should be mentioned that nephrosis or pure hydraemic nephritis is not a good example of renal failure. Function tests give no evidence of failure, and the low water and chloride output in this disease can be attributed for the most part to other causes.⁹ In dealing with unilateral kidney disorders blood area estimation is usually of little value, because one healthy kidney is sufficient to keep the blood urea normal. Concentration tests may have a limited field, but require less direct interpretation than in nephritis, for reflex diuresis, even without renal failure, would probably prevent good concentration of urea.

There remains the application of the above criteria to unilateral disorders, as a method of distinguishing reflex diuresis from renal failure. The urines from the normal and the affected kidney must be compared. The following statements are deduced from the considerations already discussed.

(a) In reflex diuresis the ratio of the chloride concentration in the urine from the affected kidney to the chloride concentration in the urine from the normal kidney should be greater than the corresponding ratios for urea, phosphate, and creatinine. (See Table I.)

TABLE I
Urine in Reflex Diuresis (Movable Kidney)

	Chloride (NaCl)	Urea.	Phosphate (P ₂ O ₅)
	Per cent	Per cent	Per cent
(a) Normal kidney	1.72	1.74	0.094
(b) Affected kidney	1.53	1.39	0.069
Proportion of (b) to (a)	89	80	73

* Note that the concentration of chloride is less reduced than those of urea and phosphate.

Urine from Damaged Kidney (Pyonephrosis)

	Chloride (NaCl)	Urea	Phosphate (P ₂ O ₅)
	Per cent	Per cent	Per cent
(a) Normal kidney	1.45	1.02	0.62
(b) Affected kidney	0.63	0.59	0.039
Proportion of (b) to (a)	43	58	63

Note that the concentration of chloride is more reduced than those of urea and phosphate

(c) In reflex diuresis the chloride concentration in the urine from the affected kidney should probably not fall below that in the plasma (about 0.6 per cent sodium chloride), so long as the chloride in the normal urine remains above this level (See Table II)

TABLE II
Urine in Diuresis* (Denervated Kidney)

	Chloride (NaCl)	Urea
	Per cent	Per cent
(a) Normal kidney	0.77	0.81
(b) Affected kidney	0.60	0.51
Proportion of (b) to (a)	78	63

* Not reflex since nerve connexions have been destroyed but electrolyte in origin and thus of similar type

Note that although the concentration falls in diuresis it does not fall below that of the plasma (about 0.6 per cent NaCl)

Urine from Damaged Kidney (Pyonephrosis)

	Chloride (NaCl)	Urea
	Per cent	Per cent
(a) Normal kidney	0.87	1.69
(b) Affected kidney	0.41	0.64
Proportion of (b) to (a)	47	38

Note that while the concentration of chloride from the normal kidney is higher than that of the plasma, the concentration of chloride from the affected kidney is lower than that of the plasma

(c) If the chloride concentration in the urine from the normal kidney is below that of the plasma, reflex diuresis should cause a higher chloride concentration in the urine from the affected kidney than exists in the normal urine (See Table III)

TABLE III
Urine in Diuresis (Denervated Kidney)

	Chloride (NaCl)	Urea
	Per cent	Per cent
(a) Normal kidney	0.50	0.75
(b) Affected kidney	0.60	0.21
Proportion of (b) to (a)	200	28

Note increase in concentration of chloride caused by diuresis when the normal concentration is lower than that of the plasma (about 0.6 per cent NaCl). Diuresis renders the urine more like the plasma

Urine from Damaged Kidney (Hydronephrosis)

	Chloride (NaCl)	Urea
	Per cent	Per cent
(a) Normal kidney	0.32	1.09
(b) Affected kidney	0.14	0.23
Proportion of (b) to (a)	44	28

Note that even when the concentration of chloride from the normal kidney is below that of the plasma the concentration of chloride from the affected kidney may be still lower

This statement and the previous one may require slight modification if there is a Donnan equilibrium at the glomerular membrane. None of the results yet obtained are of assistance in deciding whether any modification should be made

(d) In reflex diuresis the ratio of the urea concentration in the urine from the affected kidney to the urea con-

centration in the urine from the normal kidney should probably be somewhat greater than the corresponding ratio for creatinine (See Table IV)

TABLE IV
Urine from Slightly Damaged Kidney (Calculus in Pelvis Moderate Dilatation)

	Chloride (NaCl)	Urea	Phosphate (P ₂ O ₅)	Creatinine
	Per cent	Per cent	Per cent	Per cent
(a) Normal kidney	1.45	1.32	0.142	0.112
(b) Affected kidney	0.63	0.75	0.050	0.053
Proportion of (b) to (a)	46	57	35	47

Note injury shown by greater reduction in chloride than in urea. But urea is less reduced than either phosphate or creatinine

Urine from Severely Damaged Kidney (Pyonephrosis)

	Chloride (NaCl)	Urea	Phosphate (P ₂ O ₅)	Creatinine
	Per cent	Per cent	Per cent	Per cent
(a) Normal kidney	1.45	1.02	0.032	0.066
(b) Affected kidney	0.63	0.59	0.009	0.047
Proportion of (b) to (a)	43	58	63	71

Note that urea is reduced more than either phosphate or creatinine indicating some failure in urea excretion. Phosphate is sometimes almost much reduced in comparison with creatinine

In spite of numerous estimations the position occupied by phosphate has not been ascertained. The excretion of phosphate often bears a close resemblance to that of creatinine, but is apparently much more sensitive to changes in the kidney

The disturbance of one or more of these relations is regarded as indicating some degree of renal failure. The extent of the disturbance is of assistance in estimating the damage to the kidney

Finally, it should be stated that only about fifty cases have as yet been examined. All were patients of Professor Fullerton, who performed the ureteral catheterizations and obtained the specimens of urine. Most of the results are in harmony with the observations made by the surgeon, but a few apparent exceptions have still to be explained. Some possible sources of doubt may be mentioned. Clinical confirmation can only be considered satisfactory when the surgeon has had an opportunity of seeing the kidney, but in some cases an operation is not thought advisable or is refused by the patient, and in the remainder a complete examination can only be made when the kidney is sufficiently diseased to justify nephrectomy. Again, it must be borne in mind that the kidney which is taken as a normal control may not in reality be normal, although the blood urea is probably a safe guide in most cases. A less obvious error may be the cause of other misleading results. It is possible for fluid introduced into the bladder to travel up the ureter and dilute the urine which is passing down the catheter, particularly when the ureteral orifice has lost its valve-like character. Professor Fullerton has been careful to avoid this accident. Further, the urine from a very bad kidney can probably contain enough serum or pus to increase materially its low concentration of chloride, and perhaps enough to reduce the concentration of phosphate and other substances

It is fair to point out, in conclusion, that the examples given in this paper are chosen for the purpose of illustration. A general survey of the results justifies the application of principles discussed but at the same time emphasizes the need for further investigation, directed especially towards reflex diuresis in the healthy kidney

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OPTIC NEURITIS FOLLOWING SPHENOIDAL SINUSITIS LOCATED BY THE DIFFERENTIAL EXPLORATORY TEST *

BY

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Among the various lesions of the optic nerve that are known to occur as a result of sphenoidal sinusitis from infection by pyogenic organisms, definite optic neuritis may be one of the most important to trace to its source. In milder cases we believe that bacterial toxins alone suffice to cause relative scotoma and contraction of visual colour fields, but with a definite optic neuritis it seems probable that the infective organisms from focal sepsis of the involved sinuses penetrate the optic nerve sheath, as in the case of chronic sphenoidal sinusitis demonstrated after death by the researches of Pickworth.¹

On disinfection and drainage of the focal infection largely depends the saving of sight, and also, possibly, the averting of very grave sequelae.

When the infected sinus is anatomically normal in development—that is to say, when the two sphenoidal sinuses



FIG 1—Photomicrograph showing Gram positive micrococci in the dural sheath of an optic nerve (Pickworth)

are bilaterally symmetrical with a medial septum dividing the right from the left—the diagnostic location of the focal infection is relatively simple, and then the opening and draining of the infected sinus is fairly straightforward. Unfortunately the anatomical development of the sphenoidal sinuses and the posterior ethmoidal cells is very frequently most irregular, for one sphenoidal sinus may be very large, while the other is small, much undeveloped, and, so to speak, so tucked away as to occupy a small corner difficult of access. Again, the posterior ethmoidal cells may be exceptionally large, and extend back so as to occupy the space proper to a sphenoidal sinus, they may even extend backwards above the corresponding sphenoidal sinus, which then lies beneath the backward extension of its posterior ethmoidal cell.² When healthy, such abnormal anatomical conditions are immaterial, but when infected the actual location of the diseased sinus may be a matter of supreme importance, for although an infected cell be small and extraordinarily undeveloped, it may be large enough to breed millions of pyogenic organisms.

Formerly I fear I must have failed on many occasions to detect focal infections in such circumstances until I hit on a method by which the difficulties mentioned may be circumvented. Thus, for want of a better term, I speak of as the "differential test," as related in two remarkable examples I reported recently.³ In the case I now record this diagnostic method proved invaluable.

A man was referred to me by Dr Prosser James in December, 1927, with blurred vision and aching in his left eye. He had tonsillotomy at the age of 10 and a traumatic septal deflection when he was 12 and more or less recurrent nasal catarrh since then. No history of syphilis or gonorrhoea was present, but he had influenza in 1921. His eye troubles began with iritis in the right eye in January 1925, but he later developed left-sided iritis and was then seen by Dr Leighton Davies, who diagnosed optic neuritis.

Read in the Section of Laryngology and Otology at the Annual Meeting of the British Medical Association Cardiff 1928.

When I first saw him there was no nasal discharge, and in fact, examination of the nasal passages was negative with the sole exception of slight fullness of the minute vessels in the arch of the rhina, as seen by endorhinocopy. Such vascular fullness I had seen before in similar cases, and therefore, despite the absence of any other indication of nasal infection, the sinuses were explored with the suction syringe by my usual method.

The results obtained were as follows. The right antrum was clear and sterile.

The left antrum contained pus (*Staphylococcus aureus*). The sphenoidal sinus entered through the right nasal passage contained some blood, some crystals, but no organisms, the sphenoidal sinus entered through the left passage was sterile. The right posterior ethmoidal cell ($3\frac{1}{2}$ inches) contained blood from which *Staphylococcus aureus* was recovered. The left posterior cell ($3\frac{1}{2}$ inches) was clear and staphylococci were similarly obtained from it. But on applying the differential test it was proved that the sphenoidal sinuses entered through the right and left nasal passages were one and the same cavity! It followed that the other sphenoidal sinus had yet to be found by the use of a fresh cannula passed through the left nose, but directed more outwards entrance was effected into the small left sphenoidal sinus, from which blood-stained mucus was extracted. The differential test proved that this was a separate cavity from what had been previously entered, it being in fact the true but ill-developed left sphenoidal sinus which had at first been missed entirely. The essential focal infection causing the optic neuritis lay within this small left sinus, culture of its contents yielded a pure growth of streptococci. It was freely opened as well as the large right sinus, and the intersinus septum was clipped away so as to throw both sphenoidal sinuses into one cavity, the other infected sinuses were likewise opened through the nose.

The results of this operation and further course are best shown by citing the reports of Dr Leighton Davies, who writes:

When I first saw him in March 1925, he had very severe iridocyclitis of both eyes with double optic neuritis vision R 6/24 L 6/60. He had an x-ray examination of his teeth, and two were removed on account of abscesses at the roots. I had the patient's nose examined, and it was then reported free from infection. Some staphylococci were found in the mucus and for this he was given autogenous vaccines. He improved very considerably, and curiously enough, relapsed each time the vaccine was given up. By October, 1925, the iritis had entirely disappeared, and the optic neuritis was rapidly subsiding. In December I discharged him as cured. He started work in London but almost immediately began to relapse and was seen by Mr Fleming.

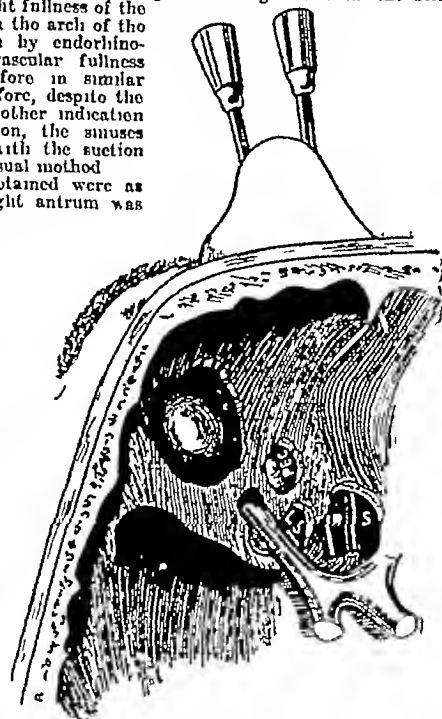


FIG 2—One cannula passed into the sphenoidal sinus through the right nasal passage and another through the left owing to abnormal overdevelopment of the right sinus both cannulae have entered this sinus, the small ill-developed left sinus has been missed. Proof of this is afforded by attaching the syringe to one cannula and quickly injecting sterile water, which appears escaping from the free projecting end of the other cannula.

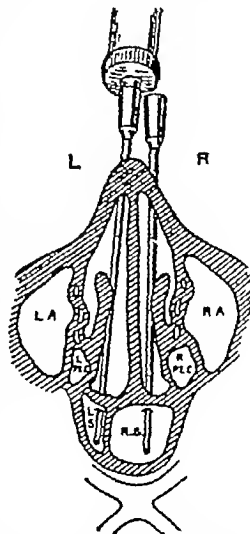


FIG 3—By directing the left exploring cannula more outwards it has been made to enter the small left sphenoidal sinus previously missed. Consequently the two cannulae being now in separate cavities, water injected through the one obviously cannot escape through the other. Hence the proof of having entered both sinuses, one over large the other abnormally small.

By October, 1925, the iritis had entirely disappeared, and the optic neuritis was rapidly subsiding. In December I discharged him as cured. He started work in London but almost immediately began to relapse and was seen by Mr Fleming.

In March, 1926 he was seen again by Dr Davies when there was a distinct recurrence of the optic neuritis, but no iritis he had practically recovered by July, 1926, and in the meantime had had a tonsil enucleated. In November, 1927, he had another recrudescence of his optic neuritis. On no occasion has there been any scotoma, either relative or absolute, the fields were quite symmetrically contracted, and there was no enlargement of the blind spot.

On January 2nd, 1928, three weeks after the sinus operation, Dr Leighton Davies reported

"The vision has improved, and this improvement is associated with a very definite lessening of the optic neuritis which may be said to have practically subsided, though of course, the appearance of the discs is not quite normal. He has never made quite such rapid improvement."

On April 30th, 1928, three months after the nasal sinus operation, Dr Leighton Davies reported

"All the evidence of any congestion of the blood vessels of the retina has disappeared."

Timo plano can show whether the remarkable improvement following operation will be permanent. The main purpose of this communication is to describe the diagnostic technique for infection of irregularly developed sphenoidal and posterior ethmoidal sinuses, which has proved immensely helpful in several cases coming under my notice. I believe that it would have been impossible to detect the highly virulent focus of staphylococcal infection in this case except by the diagnostic method described. At any rate it is felt that such exploratory methods have the advantage of giving exact information as to the presence and location of an infection, or of its non-existence, in which case any useless operation could thereby be avoided.

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PROSTATIC OBSTRUCTION

A SUGGESTED PROCEDURE FOR MORE ACCURATE DIAGNOSIS AND FOR THE TREATMENT OF SELECTED CASES

BY

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The procedure described in this paper is suggested for the treatment of various types of prostatic obstruction, for which the methods of treatment at present employed are

not entirely satisfactory. It is devised particularly for dealing with small and moderate enlargements of the fibroid type and with local adenomatous projections on the vesical orifice. In most of the prostates of this type the pathological capsule is so ill developed, or is so adherent that clean enucleation is impossible. It is these cases that give so much trouble during operation and are followed by the least satisfactory results.

The technique here described serves two purposes: (1) the more accurate diagnosis of the type of prostate that is causing obstruction to the urinary outflow; (2) the destruction by electro-coagulation, under visual control, of the offending portion of the prostate. It entails the use of two instruments, which may respectively be termed the diathermy catheter and the suprapubic cystoscope. The catheter is passed per urethram, the bladder is then distended with water and the cystoscope passed into it by suprapubic puncture (Fig 1).

Description of Instruments

The diathermy catheter is exactly similar in shape to the ordinary gum-elastic coude catheter (Figs 2 and 3). It is 12 inches long and 22 Charrière in circumference. It consists of a metal tube insulated with special boilable lacquer. It is provided with two lateral eyes on the bend, and terminates in a detachable silver electrode. Various

shaped and sized electrodes can be fixed as desired. The proximal end terminates in a cylindrical chamber and connecting plug attached thereto at right angles. The chamber is provided with a stopcock, which controls the flow of the fluid. The catheter is connected to the diathermy machine by means of a rubber-covered cable with push-in connector.

The suprapubic cystoscope consists of a valved cannula (Fig 4) fitted with compression ring and rubber washer, trocar and cannula (Fig 5), and telescope (Fig 6). The size of the cannula is 21 Charrière in circumference and 4½ inches long. It is provided with a sliding guard, which can be fixed in any position. The optical system, owing

to its comparative shortness (6½ inches in length) and large diameter, gives a very brilliant image. It is, in addition, provided with wide angle objectives. The lamp is enclosed in the alignment of the telescopic sheath in order to ensure smooth passage through the cannula. It is connected to the battery by means of the usual switch, which is sprung into a groove behind the eye shield. Leakage at the proximal end of the cannula can be controlled by means of the compression washer in the cannula.

Anæsthesia

The procedure can be carried out under methylal or sacral anæsthesia combined with local infiltration at the site of the suprapubic puncture,

but in the main I have used general anæsthesia.

Technique

The patient is placed on the table in a moderate Trendelenburg position. The indifferent electrode of the diathermy machine is applied to his thigh preferably the right as the operator stands on his left side. The diathermy catheter is introduced and the bladder filled with sterile water from a funnel. It is filled to such an extent as to ensure that the peritoneal reflection is raised away from the pubis so as to allow of the introduction of the cystoscope into the bladder. A small incision, a quarter of an inch long is made through skin only, in the middle line, 1 inch above the pubic symphysis. The trocar, carrying

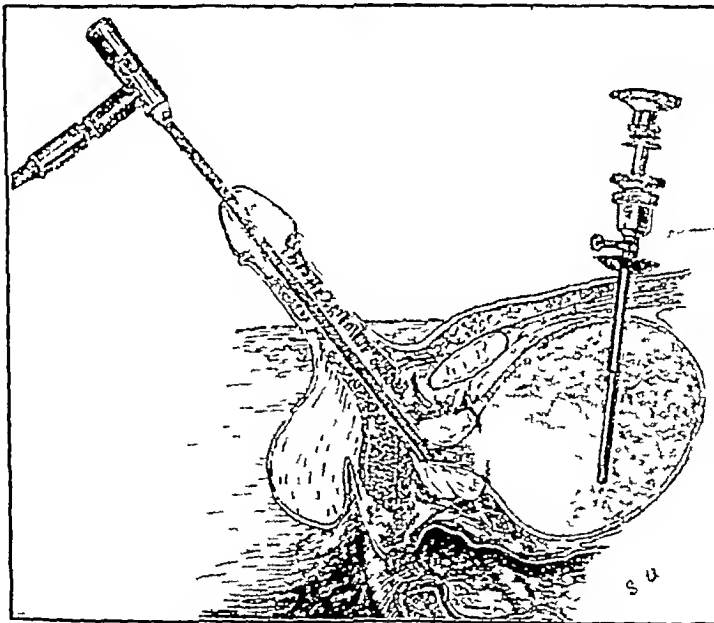


FIG 1.—The cystoscope should have been shown as entering the bladder nearer the pubic symphysis and in a vertical direction.

the two sheaths of the cystoscope, is thrust into the bladder in the same way as though for suprapubic aspiration. Immediately this is done the funnel is lowered and a few ounces of water are allowed to run out of the bladder. The object of this is to diminish the tension on the bladder wall, and so prevent the tendency for fluid to escape

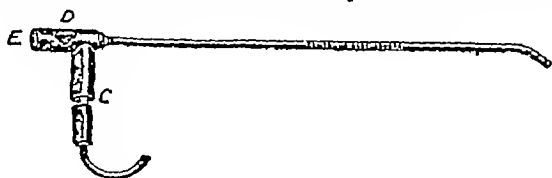


FIG 2.

through the aperture, outside the sheath, into the space of Retzius, at the same time too much fluid must not be run out or the bladder wall will tend to retract off the sheath, thus leaving its distal end in the aforementioned space and not in the bladder. The trocar and inner sheath are now withdrawn, leaving the outer sheath in the

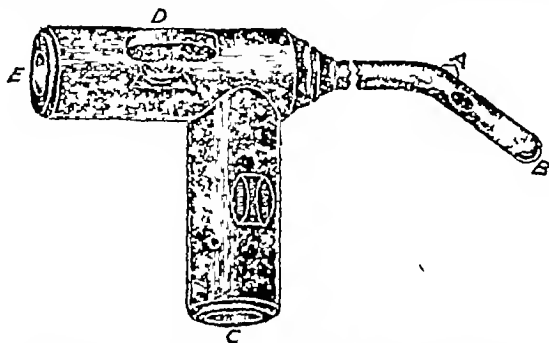


FIG 3.—Fig 2 enlarged to nearly two-thirds natural size. A, Lateral view. B, Detachable silver electrode. C, Connecting plug for diathermy machine. D, Stopcock. E, Orifice for filling bladder.

bladder. Water is prevented from escaping by the valve in the outer sheath. The proximal end of the withdrawn inner sheath is fitted with about 1 foot of rubber tubing and reintroduced through the outer sheath. Water from the bladder can thus be conveyed into a suitable receptacle. The funnel is now raised and water poured into it *ad lib*



FIG 4—Valved cannula

In this way a free current passes through the bladder and irrigates it in a most effective manner. As soon as the fluid escaping from the bladder is perfectly clear, the inner sheath is withdrawn and replaced by the telescope, which is passed with its fenestra towards the pubis. A pint or so of water is left in the bladder so as to allow a sufficient

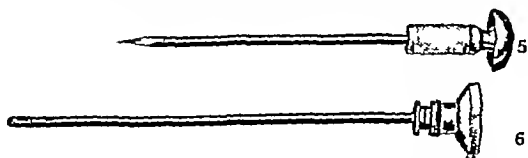


FIG 5—Trocar and cannula

FIG 6—Telescope

volume of clear medium in which the end of the cystoscope can be moved. The tap of the catheter is turned off and the filling tube and funnel detached, the switch is attached to the cystoscope and the light turned on. The catheter is manipulated with the left hand and the cystoscope with the right. By moving the telescope up and down in its sheath, and by adjusting the proximal end of the whole instrument in the medial plane of the patient, the vesical orifice and the tip of the catheter projecting through it can easily be located. The appropriate degree of distension of the bladder must be maintained, for in this way only can the prism of the telescope be kept at some

distance from the base of the bladder. By adjusting this distance there is no difficulty in visualizing clearly the whole vesical aspect of the prostate. This is obviously a great advantage over the view obtained through a per urethral cystoscope, where only a segment of the orifice can be seen at a time, and that at very close quarters with its consequent magnification and distortion.

Examination of the Vesical Orifice and Vesical Aspect of the Prostate

The condition of the orifice, whether it is stenosed or deformed, and the precise macroscopic detail of the prostate, whether it is locally or generally enlarged, can be demonstrated. By adjusting the catheter so that its point just shows inside the bladder, and then moving it, it is possible to gauge the mobility or fixity of the vesical orifice. In the same way a fairly good idea can be formed as to the softness or hardness of the prostate. By using the tip of the catheter as a seeker, the prostatic urethra immediately below the orifice can be explored. Median bar formation, if present, can be demonstrated, together with the extent of its development and the degree to which a local adenoma projects into the urethra. With the information obtained in this way, in addition to that which has been previously obtained by the clinical, instrumental, and laboratory investigations, it is possible to give an opinion as to the nature of the obstruction to a degree of accuracy that is otherwise impossible.

Decision as to Further Procedure

With the instruments *in situ*, and with the information above obtained, the type of surgical procedure to be carried out is decided upon. If it is decided to do a one- or two-stage prostatectomy the suprapubic cystoscope is withdrawn. This done, leakage of fluid from the bladder takes place, rendering it less prominent than is desirable for making a suprapubic incision. There is no difficulty, however, in exposing the anterior surface of the bladder although it is not adequately distended. This being accomplished, an assistant applies the tip of his finger to the puncture in the bladder wall to prevent further leakage, and the bladder is redistended. The extraperitoneal fat and reflection are displaced upwards and the anterior surface of the bladder displayed. The assistant now takes his finger off the puncture, and the scalpel is immediately thrust into the bladder and the incision made. Further procedure is carried out as if the suprapubic puncture had not been made. On the other hand, if electro-coagulation is decided upon, the cystoscope is left *in situ*, the appropriate terminals are attached to the catheter and indifferent electrode, and the operation proceeded with as described below.

Method of Electro-coagulation

Controlling the cystoscope with the right hand, the prostate is brought into view, the catheter is manipulated with the left hand, the metal tip is embedded in the tissue to be destroyed, and the current turned on. At the beginning the current should be low, and should be gradually increased. The coagulating process is clearly seen through the cystoscope, and as soon as the whitening of the tissue occurs the current is turned off. The tip of the catheter is then embedded in another portion of tissue and the above procedure repeated. In this way substantial portions of the obstructing tissue and the whole of a small or medium sized adenoma can be destroyed at one sitting. A valuable feature of the procedure is that it is often possible to see the exact portion of tissue that requires destroying, and the coagulating process can be confined to that tissue only. If during the process of coagulation the medium in the bladder becomes clouded, the bladder must be washed through as above indicated and refilled with clear water.

The destruction of tissue having been completed the catheter is withdrawn from the bladder and replaced by a soft rubber or gum-elastic catheter of large size. I have found the Marion many-holed catheter particularly suitable for the purpose. The bladder is thus drained by the urethra for three days, so that the suprapubic puncture may become sealed. On the fourth day the patient is allowed out of bed.

This paper is not concerned with the general indications for prostatectomy. The same pre-operative investigation

is necessary whatever type of operation it is ultimately decided to perform. As regards pre-operative treatment, it is specially important that infection of the bladder should be combated as far as possible before treatment by electro-coagulation.

Indications for Electro-coagulation

Conditions suitable for treatment by electro-coagulation are the following:

- 1 Slightly enlarged prostates, especially those where there is only a local adenoma encroaching on or obstructing the vesical orifice, and obviously causing definite impediment to the outflow of urine. The indication is the stronger if at the same time the prostate is relatively small and fixed. It is in this type of case that electro-coagulation by this technique is of particular value.

- 2 Middle lobe obstruction.

- 3 Median bar obstruction.

- 4 The small fibrous prostate and contracture of the vesical orifice.

- 5 Flap formation resulting from previous operation.

- 6 Relief can be given to cases of obstruction in extreme old age those suffering from intercurrent diseases or those in which the renal function has deteriorated to such an extent as to render the ordinary operation for prostatectomy one of extreme gravity.

After-Treatment

For two or three weeks after operation a mixture containing hexamino and acid sodium phosphate is administered. During the first few days the patient complains of bladder irritability, and this may continue in diminishing degrees for about three weeks. This symptom can be alleviated to a certain extent by giving tincture of hyoscyamus. For about three weeks after electro-coagulation has been carried out sloughs of various sizes are passed in the urine, sometimes causing temporary obstruction to micturition. In one of my cases the patient was unable to pass the slough, having tried unsuccessfully to remove it by means of a Bigelow's evacuator. I adopted the following procedure. The bladder was distended with fluid and the cystoscope reintroduced at the site of the old scar. A lithotrite was passed and the slough seized and broken up under visual control. The larger portion of the slough was withdrawn in the jaws of the lithotrite and the remainder was removed by means of the evacuator.

Complications

Other complications that I have encountered are slight incontinence of urine, double epididymitis, and prevesical suppuration. In no case has there been any haemorrhage. One patient, aged 80, died of uraemia, a result that can hardly be attributed to the operation, since he was suffering from diabetes, was very anaemic from persistent haematuria, and had a non-protein nitrogen figure of 85 mg per cent. In the ordinary course of events I should not have operated on this patient, but as a last resort was induced to do so because of his very persistent and copious haematuria.

Early Results of Treatment

I have now used this technique for diagnosis alone or diagnosis and treatment in over fifty cases. Owing to lack of experience, bad selection of cases, and technical difficulties with the instruments, some of my early cases, though encouraging in their results, were not strikingly successful. Later results have improved substantially. Of the last twelve consecutive cases, one, referred to above, died, four cases, three of which came under my observation with complete retention, have been markedly benefited, inasmuch as micturition is now free and they have improved greatly in general health; they still, however, have some nocturnal frequency. The remaining seven cases may be classed as complete successes, inasmuch as they have urinary streams of good force and volume, which are passed without hesitancy or straining and without being followed by dribbling. They can retain their urine all night, and there has been a striking improvement in their general health.

As far as my present experience goes I am satisfied that, with this technique, detailed information about the prostate and vesical orifice obstruction can be obtained such as is impossible by any other means. It is therefore a definite aid to diagnosis. As regards treatment, I have had a high percentage of cases showing immediate relief, either complete or partial, but have not yet had them

under observation for a sufficiently long period to make any remarks as to the remote results.

I may incidentally mention that I have used this technique with complete success in three cases of papilloma of the bladder, in which the growth was either too large, or situated too near the vesical orifice, to be dealt with by perimethral diathermy, and have crushed a vesical stone with the ordinary lithotrite under visual control through the suprapubic cystoscope.

The instruments described above have been made for me by the Genito Urinary Manufacturing Company, and I have to thank Mr Schranz of that company for his technical advice and for the efficient way in which he has constructed the instruments to meet the requirements of the technique. I have also to thank my colleague Mr Stanley V Unsworth F.R.C.S. for his drawing of Fig 1.

STRANGULATED FEMORAL HERNIA

A COMPARISON OF VARIOUS METHODS OF TREATMENT,
WITH ESPECIAL REFERENCE TO END-RESULTS

BY

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THERE still exists some doubt as to the advisability of relinquishing the old (lower) operation for femoral hernia. H. W. Carson¹ writes "I have been unable to find statistics of the end results of Lotheissen's operation." It is, perhaps, for this reason that in some quarters (to judge by the reports of disappointed candidates for the English Fellowship) the inguinal route for femoral hernia is looked upon with distinct scepticism, if not actual disfavour.

In order to determine the relative values of the various operative methods I have analysed my series of cases of strangulated femoral herniae, paying particular attention to the ultimate end-results. I have chosen *strangulated* cases because there are sufficient in each group to make a comparison. It would be manifestly unfair to compare the end-result of, say, a case of strangulation operated upon in the middle of the night by the older technique with an unstrangulated femoral hernia repaired at one's leisure by Lotheissen's method.

Disadvantages of the Lower Operation for Strangulation

The lower operation has been practised for years, and has saved thousands of lives, but it is beset with certain dangers and difficulties which, from time to time, have been recorded.

- 1 Resection and anastomosis within the limits of the wound is extremely difficult, and in many instances impossible. If resection is necessary laparotomy must usually be performed.

- 2 If the sac has been slit up in order to release a constriction high up in the neck, a loop of intestine may be reduced extraperitoneally. This is an error easily committed, and referred to by Jonathan Hutchinson, jun.²

- 3 The bladder is in more danger than when other methods are used.

- 4 The abnormal obturator artery, if cut causes embarrassing haemorrhage, whereas, when operating from above, the artery may be seen and is accessible.

- 5 The loop of imprisoned intestine may suddenly retract into the peritoneal cavity after the obstructing agent has been divided, and so prevent proper inspection unless laparotomy is performed.

It so happened that it was objection No. 5 which, in 1923, finally led me to abandon the lower operation.

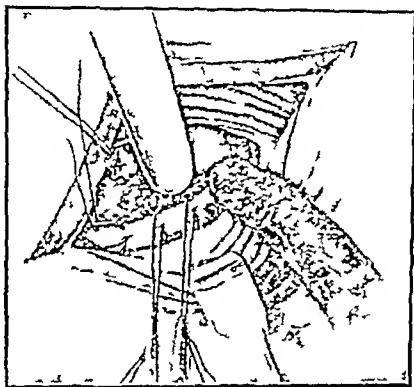
A woman aged 28 had a strangulated femoral hernia of thirty hours duration. After Gimbernat's ligament had been nicked the obstructed loop before it could be inspected slipped back into the peritoneal cavity. Two days later general peritonitis supervened and laparotomy showed that a small patch of lifeless intestine had given way—evidently where the constricting band had been present. The patient died. I have never performed the lower operation since.

Analysis of Cases Treated by the Lower Operation

Number of cases	20
Died	4
Number of recovered patients traced	10
Lump returned	5

The Inguinal Route (Lotheisen's Operation)

The inguinal route for femoral hernia, while being technically a more difficult operation, is relatively immune to those dangers referred to above. Resection and anastomosis can be carried out within this area as readily as through a laparotomy wound. The only danger peculiar to this route is the proximity of the femoral vein, but if the simple precaution is taken of protecting the vein with the finger during the insertion of the deep sutures the danger fades into insignificance. It has been my privilege to discuss the merits of this operation with a number of the younger surgeons, some of whom had lately embarked upon actual operative work. When asked what they found to be the difficult part of the operation there was a general consensus of opinion that it was placing the sutures through the peritoneum and Cooper's ligament which overlies the ilio-pectineal line. This information emboldens me to describe a method of inserting these sutures which simplifies the operation. The femoral artery is located by its pulsation with the left index finger in the wound. The finger is now shifted 2 cm. to its inner side, where it will rest upon the femoral vein. Here the finger comes to rest and remains throughout this critical stage of the opera-



Method of placing the deep sutures referred to in the text

tion. In order that the ilio-pectineal line may be clearly visible good retraction is necessary, and a valuable instrument for this purpose is Sargent's retractor. Its shining surface helps also to reflect light into the depths of the wound. It is held by the assistant in such a way as to keep back both the internal oblique and the peritoneum (see figure). With a rather small curved needle mounted on a holder three sutures are passed through the peritoneum and Cooper's ligament overlying the ilio-pectineal line—the first being near the finger guarding the femoral vein and the last near the insertion of Gimbernat's ligament. After each suture has been placed the needle is removed, and the two free ends of the suture clipped together with a haemostat. The accompanying figure will make this stage of the operation clear. The detempered bendable needle, made by Philip Spencer of Redditch, which I described elsewhere,³ is very useful in passing these deep sutures. It may be bent up into a U shape, which materially aids matters when working in a confined space. Furthermore, it does not readily break if bone is encountered. The remainder of the operation is simple. Retractors and the guarding finger are removed. The free ends of the three sutures are passed through the conjoint tendon from its deep to its superficial surface, and tied in pairs. Thus the conjoint tendon is approximated to the ilio-pectineal line—the essential step in the repair by Lotheisen's method.

Analysis of Cases Treated by the Lotheisen Principle

Number of cases	32
Died	1
Died two years later no recurrence up to time of death	1
Untraced	4
Recurrence	2
Alleged recurrence, no hernia found on examination	1
No recurrence between one and six years after operation	22

Hey Groves's Operation

To those of us who were taught and brought up in the belief that to sever Poupart's ligament was permanently to weaken the abdominal wall Hey Groves's operation, which the originator described in 1923,⁴ was something of a surprise. His results, however, were so good as to compel attention. Personally I have used the method in only a small number of cases, but these have been the very worst subjects for any operation—namely, those who were so fat that Lotheisen's operation would probably have been very difficult, or those who were so ill or old that life was almost despaired of. The operation is quick and efficient, and the end-results are exceedingly good. It combines the simplicity of the older operation with the safety and good end-results of the new. Resection and anastomosis is not quite so readily performed through this exposure as in Lotheisen's operation.

Number of cases	7
Died	2
Untraced	1
No recurrence	4

Conclusions

1 Owing to the better exposure of the seat of the strangulation, Lotheisen's operation is less likely to be attended by operative accidents than the lower operation. Hey Groves's operation shares with Lotheisen's method this advantage.

2 The end results of both Lotheisen's and Hey Groves's operations are very considerably better than the old lower operation.

3 The technique of Hey Groves's operation is easier to understand and to master than that of Lotheisen's operation.

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CANCER TREATED IN GENERAL PRACTICE BY COLLOIDAL LEAD

BY

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I was very much interested in the proceedings of the International Conference on Cancer, especially in the discussion relating to the treatment of this disease by lead salts. The pessimistic conclusions of some members who were present appear to justify a report of my treatment of two cases of cancer which, two years ago, were condemned as hopeless and inoperable. Although my experience has been limited to two cases only, the results have been both illuminating and encouraging.

CASE 1—Carcinoma of the Right Breast

The patient was 49 years of age and unmarried. In February 1924, I performed a radical amputation of the breast. The tumour was examined microscopically, and reported to be definitely carcinomatous. In June 1925, definite cancerous nodules appeared in the scar. The patient was now admitted to the Ashdon under-Lyne Infirmary, where Mr. Marcus Mamourian made a wide excision of the skin involved. In the following month she began to attend twice a week for x-ray treatment but in spite of this the cancerous nodules reappeared in the skin and extended rapidly. In May, 1926 the whole of the right anterior chest wall was one mass of cancerous nodules. A further excision was suggested to her but she declined to undergo any further operative intervention and x-ray treatment was continued. By this time the patient had become very cachectic and there was definite dullness on percussion over the upper right lobe of the lung and the mediastinum. She complained of difficulty in swallowing. There were undoubtedly secondary deposits of growth within the chest wall. As a last resort I began to give injections of colloidal lead. In June, 1926 the first injection of 1 c.cm. was given *intramuscularly* into the gluteal region. This was repeated every four days the dose being gradually increased until by the end of a month she was having 15 c.cm. After six months' treatment the scars on the chest wall instead of being fixed became movable, the nodules in the skin had disappeared, and she had gained 14 lb. in weight. There was no albuminuria, and the patient felt very much better. During this time 166 c.cm. of colloidal lead were injected into the gluteal region. In the next two months only one injection of 10 c.cm. was given. At the end of this period there was a reappearance of the cancer nodules in the skin of the right

anterior chest wall, and they continued to increase in number. Injections of 12 c.cm. were now given at intervals of one week, and in addition small injections were made locally into the cancer nodules. Again the cancerous nodules began to show what I regarded as a reactionary stage: the nodules gradually becoming red in colour then pink, and later still pale and glistening. A marked diminution in size was obvious and they ultimately disappeared altogether. The pain had gone from the chest, and she could breathe and swallow with comfort.

I continued the injections monthly for four months. Then three small nodules reappeared in the scar. The period between each injection was shortened again, and the nodules began to go through the same reactionary changes as before. In consequence the intervals were lengthened but apparently they were too long to keep the cancerous nodules under control as these increased in size and number. Again weekly injections were given, and it was necessary to persevere in this treatment for a further six months before all the nodules disappeared for the third time.

What appears to me to be the most striking fact in the course of the treatment of this case is that undoubtedly the cancerous cells can be definitely influenced and controlled for a considerable period by the injections of colloidal lead. As soon as the injections were diminished, either in amount or frequency, then did the cancerous growth regain its activity. In this particular case the effect of the injections on the cancerous nodules was apparent and clearly demonstrated.

During the whole period of twenty-seven months the total amount of lead injected intramuscularly was 804 c.cm. (or 12 grains). No albuminuria occurred at any time. So far there has been no further recurrence of the nodules in the skin, although only three injections have been made during the last two months, but her weight has decreased 6 lb. Whether the progress made in this case can be maintained remains for the present a matter of doubt.

The second case has been even more striking in view of the vast general improvement noted in the patient's health and appearance.

CASE II—*Carcinoma of the Rectum*

In October 1926 the patient a woman aged 41 was found to be suffering from an advanced carcinoma of the rectum. The surface of the growth was excavated and involved the whole circumference of the bowel. Its edges were raised, eroded and indurated and bled when examined. The growth was high up in the rectum (5 in. from the anal orifice) and the surrounding tissues were infiltrated. Marked cachexia was present her weight being 7 st 10½ lb. There was a definite trace of albuminuria.

In November 1925 I started a course of intramuscular gluteal injections of colloidal lead commencing with 5 c.cm. and a week later giving 10 c.cm. These were repeated about once a week the amount varying from 8 to 14 c.cm. Occasionally the patient complained of slight abdominal pain of a colicky nature. Sometimes the injections were followed by a small increase of the albuminuria. With the occurrence of slight abdominal discomfort or an increase of the albuminuria the amount of the lead injected was decreased or the interval between the injections lengthened. By this means she was enabled to take the injections without any real discomfort. At the end of six months treatment the patient had gained 14 lb. in weight. She said she felt very much better and certainly her statement was supported by her general appearance. Her appetite improved and the abdominal pain was practically absent. There had only been slight haemorrhage from the bowel. Examination at this stage indicated that the edges of the ulcer were softer the rectum itself could be moved more freely and it did not feel so fixed as formerly. The ulcerating process had extended downwards an inch further in the rectal wall and the lumen of the bowel directly above was narrowed and fibrosed. In addition to the intramuscular injections the patient was instructed to inject into the rectum two drachms of the lead solution with a urethral syringe this to be carried out once a week. During the first six months 300 c.cm. of lead solution were given intramuscularly.

The patient was very satisfied with her progress and anxious for further treatment. The very definite improvement in her general health and appearance and consideration of the rectal condition still present encouraged me to persevere. The injections were omitted for one month and then continued varying the interval between each injection or the amount given according to the response.

The patient has been under treatment for twenty-two months and has gained 24 lb. in weight. The improvement in her looks has been so marked that some of her friends scarcely recognized her as the same woman and she is now able to perform her household duties.

Rectal examination indicates that the ulcerated edge of the growth has extended downwards much further and practically involves the anal canal. The lumen of the rectum is greatly reduced and is about the diameter of a lead pencil. The rectal wall itself appears to have been replaced by a solid mass of fibrous tissue. The rectum is not so fixed as before and can be moved more freely over the sacrum.

The question which arises is: Will the growth be defecated and exterminate itself when it reaches the anal margin? Should this be the case and the glandular involvement

(which undoubtedly must have been present earlier) have been influenced in a similar manner to the rectal growth, then one might look hopefully for a cure of the condition. It seems remarkable that with such diminution in the size of the lumen of the bowel the patient has not developed obstructive symptoms. With this in mind she has been kept on a modified though nourishing diet, and has taken regularly sufficient casena and liquid paraffin to ensure a dark action of the bowels. There have been no bladder symptoms. The amount of albumin in the urine has varied slightly from time to time, but even now is no greater than when the treatment was begun. General tonic treatment has been given in the form of Ca ferri iod and Ca glycerophos co. The total amount of colloidal lead given intramuscularly to date is 632 c.cm., or 10 grains of lead.

The first patient had very small and insignificant superficial veins of the arm, and it would not have been possible to give a prolonged series of injections, so the intramuscular method was substituted. This patient stood the procedure so well that I decided to repeat the method with the second case. Both patients stood these injections well, and by giving them alternately into either buttock no untoward results occurred locally, except that the site of injection sometimes remained a little indurated. Occasionally slight tenderness was complained of for a day or two. The patients were treated at the surgery, and were advised to rest quietly for twenty-four hours, after which time they went about as usual.

Generalization regarding two cases only is not possible, but the results achieved and the observations made in the case of the secondary carcinoma of the breast, where the growth could be kept under direct observation, emphatically proves that lead has a very definite and detrimental action upon cancer cells. Intramuscular injections appear to produce the desired effect without causing acute toxic symptoms, and the patient can be brought more gradually, and with greater safety, under the influence of lead.

The encouraging response in these cases appears to warrant a more general consideration of the treatment. The lives of these two patients have been undoubtedly prolonged and made more comfortable and hopeful. One can only trust that by reporting these cases a little further encouragement may be given to the pioneers in the fight against cancer with lead salts. Moreover, the treatment does not appear to merit such wholesale condemnation and adverse criticism as it has recently received.

TREATMENT OF HAEMORRHOIDS BY THE GALVANO-CAUTERY

BY

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In October, 1925, I read a paper at a meeting of the Hæmorrhoid Society on the treatment of hæmorrhoids by the galvanocautery. A synopsis of it was published in the *British Medical Journal* of November 28th, 1925 (p. 992), and attracted a good deal of attention. It seems advisable therefore that I should make public the new experiences I have encountered during the past three years, with notes of exceptional cases.

My records during this period are in entire accord with the opinion I expressed in 1925—namely that the method I then advocated is the best means of curing hæmorrhoids known at the present time, it has been adopted by many of my colleagues in the treatment of their own patients.

The subject-matter of this communication falls into three categories:

General Observations

The rotating speculum made to my design by Messrs. Allen and Hanburys has proved of inestimable value. It ensures quick accurate and neat work. It is not necessary to withdraw this speculum and reinsert it as had to be done when the older patterns were used. The cut-away gap can be revolved in a second to catch any portion of protruding mucosa which may drop into it.

I find however that for some cases in which hæmorrhoids are high up, above the internal sphincter, it is

necessary to use a 3-inch speculum. The original one was only 2½ inches in length, the extra half-inch makes all the difference. The cautery humors will last for months if care be taken to prevent them from being overheated, they will stand a bright red heat, but not a white heat.

In those patients who have a very rigid external sphincter it is necessary to dilate the anus gently before introducing the speculum, for reasons given later. I am unable to understand the assertions of those who state that the rectal mucosa is insensitive. The comment of a great physiologist may be recalled, though his wording was more blunt and humorous, the gist of what he said was as follows. It was a wonderful forethought on the part of Nature to endow the rectal mechanism with such a delicate sensitivity that we are able to distinguish between gaseous and solid matter.

Recently, when canterizing a portion of the mucosa, 2½ inches above the anus, in a highly strung lady, she flinched at every puncture and complained of pain, although I had previously given an injection of eucaine and adrenaline. I admit that the rectal tissues are extraordinarily insensitive in some people, but in very few.

Patients who show a tendency to arterial spouting during treatment should be carefully questioned as to any haemophilic history, such as is evidenced by free bleeding after dental extractions, and precautions similar to those mentioned later should be adopted. When the puncture caused by so fine a point as a Schimmel's needle excites arterial bleeding it is obvious that one must be on the look out. It does not follow that blood conglutates inside the vessel because it is seen to clot outside.

Uncommon Varieties

The Congenital Pile—This is not a true haemorrhoid, but is of the nature of a polypoid growth. It is covered with adventitious tough epidermis showing chamois-like follicles, and is usually about the size of a small walnut, there is a long thin pedicle which arises from the mucosa above the internal sphincter. It is extruded before each defaecation and causes great distress, but it does not bleed. For such a condition I use a flat-bladed cautery burner, and cut through the pedicle as near its base as possible, there is no bleeding, and a perfect cure is effected immediately. I have seen three such cases since 1925.

The Conglomerate Haemorrhoid—This is the largest of all, being composed not of one but of many convoluted varicose veins, with an arterial supply in proportion. It arises almost invariably from the anterior wall, and has a wide base, it is irregular in shape, and is about the size of a large French plum. It comes down with every motion or with any strain during the daily work, replacement is difficult, and causes great distress. The cases which I have seen were in men with enlarged prostate, more rarely it is found in women with a retroverted uterus. In either case it is obvious that the pressure from above, by these organs, interferes with the venous return flow.

In one case the worst I have ever seen there were large oedematous masses of prolapsed mucosa surrounding the anus, which gave the appearance of a small jelly fish. A large ulcerated pile was in the centre. The patient, a man aged 45, had had to wear a diaper for months owing to the constant profuse mucopurulent blood stained discharge. His condition was pitiable, and it had affected his general health to a very marked extent, he was pallid, very anxious looking and was greatly distressed. I had grave doubts as to whether I could cure him, however after firm pressure on the protruding mass, which reduced the oedema considerably, I was able to destroy the largest and the most ulcerated of the haemorrhoids. In this case I had to use the cautery on about a dozen different occasions, but the prolapse gradually subsided and in two months the patient had completely recovered. Two years have elapsed, and he remains perfectly well.

Complications

These, fortunately, are very rare. Until 1925 I had not observed any condition which could be called a complication, since then, perhaps owing to a large increase in the number of patients treated, I have noted the following.

Fissure—It is a pity that this term is still used, for patients do not understand its very slight significance, and when told that they are suffering from fissure are apt to think that it is some horrible rectal disease, instead of

which it is merely a slight split like a cracked lip. I cannot understand why it should be considered necessary to magnify this condition into one necessitating operation, as is so frequently done. Three of my patients, complaining of considerable discomfort in the anal region, showed on examination after treatment that the pain originated from a slight laceration at the edge of the anus, all had very rigid sphincters. It is quite easily cured by gentle scraping after an application of cocaine and painting with the solution of crystal violet and brilliant green, or with scarlet red ointment.

Fistula—One case, the only one I have ever seen, occurred about three years ago, the why and wherefore I am at a loss to know. If I did not use Schimmel's needles, and if I did not make it an invariable practice to sterilize my own hypodermic syringe, I should have attributed the infection to the injection of the local anaesthetic used. As I invariably employ glass ampoules of the latter, the anaesthetic itself could not be blamed. This fistula was very small and quite near the anus posteriorly. It healed at once after incision and scraping, and scrubbing with the crystal violet solution. This patient completely recovered forthwith.

Haemorrhage—As a rule there is none, with the exception, perhaps, of a streak of blood during defaecation. I have, however, had three cases in which considerable secondary bleeding occurred. Such secondary haemorrhage is very worrying to the doctor and also alarming to the patient. In each of the three cases the bleeding started quite suddenly about the fourth day after the first application of the cautery. In one case there was a clear history of haemophilia, and I do not doubt that the other two patients had also haemophilic tendencies. Haemophilic serum was given freely, and the rectum was packed. These measures proved successful, and there was no return of the haemorrhage. Since these cases occurred I have made it a practice to question every patient carefully, and, if considered necessary, to give a full dose of normal serum before treatment. Erythrin by the mouth is also useful, and measures may be taken to increase the calcium content of the blood.

Pain—This symptom is only experienced in cases where the extremely sensitive nerve endings in the skin are involved, as in haemorrhoids which are partially covered, even ever so slightly, with perianal skin. When this condition is found the patient must be warned that there may be some after-pain and a sedative suppository be prescribed. I advise the following:

Morphin sulph	gr 1/2
Cocain hydrochlor	gr 1/2
Gelatin melle q.s. ut fiat suppos unum	

Sig: A whole suppository, or half of one, to be used when required.

The pain, in the case of accidental fissure, yields at once to cocaine ointment.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ABDOMINAL FRICTION IN PERITONITIS

It does not seem to be mentioned in textbooks that in early peritonitis there may be a subdiaphragmatic friction exactly resembling the friction of pleurisy. The first time that I heard it was in a case of perforated duodenal ulcer, where there was no vomiting, but pain and a well-marked friction rub on the right side from the sixth rib down to the costal margin. This caused some delay in operating, being mistaken for pleurisy, but a few hours later the friction was replaced by silence and loss of liver dullness owing to gas from the perforated duodenum. Since then I have heard this abdominal friction on the left side over the stomach in a case of very acute cholecystitis, and, quite recently, on the right side in peritonitis due to a perforated typhoid ulcer, in that case the friction extended a couple of inches below the costal margin.

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INJECTION OF VARICOSE VAINS WITH CARBOLIC ACID

The cure of varicose veins by the use of sclerosing injections has now replaced the extensive and often mutilating operations of the past. Since Southwate popularized intravenous injections in this country many thousands of cases have been cured, but the method cannot yet be said to have reached finality. There are certain objections to all the sclerosing solutions in use, sodium salicylate and saline solutions give rise to very considerable pain when injected, gumme may produce abortion in pregnant women, and pain and excessive loss at the menstrual periods, glucose seems quite unreliable. Further, in each method the injected substance is poured into the general circulatory system, which for the treatment of a purely local disease seems open to grave objection. In rare cases of marked idiosyncrasy even life itself may be endangered. A sclerosing substance which will remain localized at the site of injection should be free from objection.

For some time past I have discarded the solutions in general use and instead inject from two to four minims of undiluted acid carbohc liquid (B.P.) into the lumen of the affected vein. Only a small amount of acid is required, 4 minims is sufficient to obliterate a large varicose saphenous vein. The acid destroys the endothelial lining, and is then at once locked up in the clot which forms immediately. Since adopting this method, which I have now used in a very considerable number of cases, I have not experienced a single undesirable result, local or general. Providing the injection is made with due care ulceration never takes place. The injection in all save a very few susceptible persons is practically painless, the usual complaint, if any, being of the prick of the needle. The vein almost immediately hardens. Four to eight veins may be injected at a sitting with complete safety although many patients prefer the lesser number. From twelve to thirty-six hours later the usual inflammation sets in, but even this seems to be less severe than with other injected solutions. This inflammation dies down after a few days and the vein shrinks up, often with an almost dramatic rapidity. Sometimes a week after the injection it is difficult to find the remnants of the vein.

When very large masses of varices are present as often in the calf, a crepe bandage may be applied after the injection. This partially obliterates the vein, and only permits a flattened clot to form, thus saving some unsightly results. Veins below the knee are best injected with the patient standing for the large veins in the thigh a descending injection is best.

The only instruments required are an ordinary 1 cm. Record syringe and a No. 2 short-bevelled steel needle $1\frac{1}{2}$ inches in length. Messrs. Allen and Hanbury's now keep these in stock. After drawing up the carbolic acid into the syringe the needle must be carefully wiped with cotton wool, otherwise in some susceptible people a nasty skin burn may be caused by the coming of acid on the outside of the needle. The needle being of rather large calibre it is wise to insert it at least half an inch away from the vein, and to enter the vein obliquely, if possible from underneath. This prevents any of the acid and blood reaching the skin along the needle track. When the vein is entered a little blood is aspirated through the needle until curled up clot is visible in the syringe. The piston is then pushed home, driving the clot and acid together back into the vein. In occasional difficult cases where the vein cannot be entered a drop of acid may be deposited on the under surface of the vein. This proves quite effective. On no account should any of the acid be injected on the surface of the vein next the skin or ulceration might easily occur. The needle is not removed for some seconds after the injection. On withdrawal pressure is kept up for a few moments over the needle track, thus effectually sealing it.

There seem to be no contraindications to this method. One obtains 100 per cent. of cures and no special syringes or other appliances are needed. Veins do not become immunized to the acid, as they often do to the other solutions in use, rather they seem to become more susceptible after each treatment. Obviously there is no danger of introducing sepsis into the clot.

London. N.W.5

P. P. DILTON

Reports of Societies.

DECIDUAL FORMATION IN THE OVARY DURING PREGNANCY

At a meeting of the North of England Obstetrical and Gynaecological Society held in Manchester on October 26th, with the president Mr. LEITH MURRAY (Liverpool), in the chair, Dr. D. DOUGAL (Manchester) gave an account of decidual formation in the ovary during pregnancy.

Dr. Dougal said that when performing Caesarean section or some other operation on the pregnant uterus he had often been struck by the peculiar appearance of the ovaries. The outer surfaces were streaked or mottled with a reddish brown material, and this, on microscopic examination, was seen to be composed of irregular outgrowths of connective tissue apparently derived from the tunica albuginea. The cells of this tissue frequently showed a decidual reaction. The ovary which he was now exhibiting was removed, together with a three months gravid uterus, from a woman with severe mitral stenosis, in whom it was considered advisable to terminate the pregnancy and perform some sterilizing operation at the same time. Both ovaries from this case showed the streaked appearance he had described, but in this particular one the condition was more marked and almost resembled a papillary growth. Its appearance on microscopic examination was that of typical decidua. The decidual cell was generally described as being large and oval, with faintly granular and vacuolated protoplasm and a prominent nucleus. Both nucleus and protoplasm stained faintly with the usual reagents. The cells themselves lay in a fibrillar matrix and around them were numbers of small round cells. Wilfred Shaw gave the classical characters of decidual formation as the presence of decidual cells together with round cells in a fibrillated matrix. The decidual cell was normally and properly found in the endometrium, where it was derived from the stromal cell, it could be demonstrated in the premenstrual phase of menstruation and in uterine and extrauterine pregnancies. Its distribution, however, was much wider than this, for it had been found in the muscle wall of the uterus, the cervix, Fallopian tubes, ovaries, pelvic peritoneum, appendix, omentum, and various other organs—ectopic decidual cells. This distribution closely resembled that of endometrioma, and if Sampson's theory as to the causation of these tumours was accepted it was tempting to ask if the ectopic decidual cells had any relation to them. Wilfred Shaw did not accept Sampson's views on endometrioma, and explained the distribution by suggesting that the property of decidual formation was not inherent in all cells but only in those derived from the sub-coelomic connective tissue. In true cases of endometrioma, whether in the uterus, recto-vaginal space or ovaries, a decidual reaction could generally be demonstrated during pregnancy. The occurrence of decidual formation in the ovary was stated to be very constant during pregnancy, whether the latter was uterine or extrauterine, and Wilfred Shaw and others had found a similar change during menstruation. The cells were arranged usually in groups in the connective tissue of the tunica albuginea and formed either nodules projecting from the surface of the ovary or flattish areas. More rarely the cells were found deep in the cortical stroma. In the case of ovarian pregnancy which he had described there was a very well marked nodule of decidual cells immediately under the surface of the ovary. It was formerly supposed that decidual cells were produced through the local stimulus of the embedded ovum but this view was untenable at the present time for it was now realized that the decidua of pregnancy was merely a further development of the decidua found during the premenstrual phase and was developed whether the ovum was in the uterine cavity or elsewhere. As a matter of fact pregnancy was not necessary for the formation of a decidua at all for Loeb had been able to produce this structure in rabbits during pseudo-pregnancy by injuring the lining of the uterine cavity. This observer's experiments appeared to show that the primary factor in the formation of the uterine decidua was the presence in the circulating body fluids of

a hormone developed in the corpus luteum. This hormone sensitized the uterine mucosa and other cells, which then formed a decidua in response to any non specific irritation.

The President described the occurrence of islands of decidual tissue on the peritoneal surface of the uterovesical reflexion. He showed microscopical sections of such an island which though easily removed by light pressure, left a raw bleeding surface behind.

Mr W. W. KING (Sheffield) said that he had excised one of these rusty-looking ovaries at a Caesarian section about the time of the publication of Wilfred Shaw's paper and had found decidual cells both on the surface and in the substance. The latter were of special interest, as they appeared to be either a decidual change in the connective tissue cells of an old corpus luteum or a metaplasia of the luteal cells themselves into decidual cells. He showed slides illustrating the presence of the decidual cells arising in the corpus luteum, but confessed that he was unable to determine from which type of cell they arose. He had seen similar rusty-looking ovaries in the course of operations upon fibroids, but on section these only showed connective tissue and mesothelial cells derived from the peritoneum.

Sarcoma of the Uterus

Dr DOUGAL described a case of sarcoma of the uterus in a patient 58 years old, who had been married thirty-three years and had borne one child twenty-five years previously.

Fourteen years ago one breast had been removed for carcinoma and three years later a similar growth was removed from the opposite breast. The menopause occurred at the age of 55, after this there were one or two irregular periods, and then nothing was seen until about seven months before the operation. During this period of seven months she had had a constant blood stained and yellowish discharge. She complained of no pain, the discharge being the only trouble and the one for which she sought medical advice. Her general health had not been good for six months and her appetite was poor. On examination the uterus was found to be much enlarged and to form a firm uniform tumour reaching almost to the umbilicus. A diagnosis was made of carcinoma of the body of the uterus or carcinoma with fibroids, and she was admitted immediately to hospital. The uterus was removed with both appendages and one or two enlarged glands were excised from the iliac groups. The uterus was about the size of a five months pregnancy and contained a large necrotic growth in its cavity there were also one or two small fibroids. The hysterectomy was perfectly straightforward. The patient made an uneventful recovery and went home at the end of three weeks. The uterus measured 7 inches in length, 5 inches in width and 4 inches antero-posteriorly. There was a fibroid about the size of a walnut low down on the right side and one or two smaller fibroids elsewhere in the wall of the uterus. The enlargement of the uterus was due to a large necrotic tumour which filled the cavity and contained areas of haemorrhage. Microscopic examination allowed the growth to be a round-celled sarcoma, so presumably it originated in the endometrium. Three months after discharge from hospital the patient complained of severe sciatica in her right leg. On examination Dr. Dougal found a definite fixed swelling in the right side of the pelvis and advised that there was nothing more to be done except to relieve her pain. However, as her own doctor was anxious that some further treatment should be tried she was readmitted and Dr. Birckett applied radium by needles inserted into the right vaginal fornix. This treatment did not improve matters, for within four weeks she had become so ill that she had lost the use of her lower limbs. She was admitted to the Christie Hospital, where she died in about a fortnight's time four months after the uterus was removed. Dr. Powell White who made a post mortem examination reported that there was a recurrent mass of growth occupying the pelvis and infiltrating the vagina and bladder giving rise to acute cystitis. The growth had extended along the walls of the pelvis behind the rectum but the latter was not infiltrated. The growth had involved the upper part of the sacrum and the adjacent portions of the ileum on both sides and had invaded the spinal canal producing compression of all the roots of the cauda equina. There were no enlarged glands and no metastases. The sites of operation in both breasts were quite sound. Microscopically the growth was a small round-celled sarcoma and was infiltrating the bladder, muscle walls, nerves, and bones.

In Dr. Dougal's experience sarcoma was a very rare tumour; he had only seen four cases during the last three years. The majority of the patients had been elderly women, past the menopause. A point of interest in the present case was the extraordinary infiltrating power of the tumour, which had largely destroyed the osseum and lower part of the spinal cord.

Dr. BRENTNALL also showed a specimen of sarcoma of the uterus. The growth was largely submucous, apparently in process of becoming polypoid, although in places it reached almost to the peritoneal surface of the uterus. It was nowhere encapsulated, but macroscopically it was of the circumscribed variety. Dr. Brentnall thought it was

a primary sarcoma of the uterine muscle, arising as such *de novo*, and not in a pre-existing fibroid. In the fresh state the tumour was soft, and the cut surface presented a yellow and lobulated appearance. There were no haemorrhages into the tumour, and no evidence of gross necrosis or the formation of cystic spaces such as were described as occurring in these tumours. Sections of the tumour showed it to be composed of solid masses of small round cells. There was nothing to suggest a fibromyoma. The patient was alive and well two years after operation.

Dr. DONALD discussed the question of the diagnosis of sarcomata, and the President commented on the extreme malignancy of the tumours in his experience.

Red Degeneration in Fibroids

Dr. DOUGAL, who described two cases of red degeneration in fibroids, thought it was obvious that the acute pain in these cases must have been due to the high tension within the capsule of the tumour, and that this in turn must have resulted from interference with the return blood flow. Fletcher Shaw and Lorth Murray had both agreed that this interference was due to thrombosis, but was not the process of thrombosis too slow to account for the sudden onset of the symptoms? Might there not have been some other factor which suddenly held up the return circulation, and was followed later by a secondary thrombosis after stasis had occurred? In the case of a twisted ovarian cyst this factor was readily demonstrated in the pedicle, but the great majority of red fibroids were intramural, and the only way in which the circulation could be suddenly obstructed would be by spasm of the surrounding uterine muscle. This might easily be set up by the irritation of the tumour acting as a foreign body, in the same way that the muscle of the gravid uterus sometimes developed a spasm—tonic contraction or contraction ring—as a result of a similar stimulus. The uterine muscle was more sensitive during menstruation and in the gravid state, and it was known that degeneration was more frequently met with at these times. It might be urged that there was no blood extravasation in the tumour in the case of red degeneration, whereas in a twisted ovarian tumour this was present in the cyst wall and in the loculi. The consistence of a fibroid, however, was much tougher than that of an ovarian cyst, and the vessels were therefore less likely to rupture. Fletcher Shaw had divided fibroids of a red colour into two pathological classes, thrombotic and angiomatous, and was of opinion that cases with clinical symptoms belonged to the former group. In many of these thrombotic cases, however, the symptoms were few or very slight, so the process of thrombosis did not completely explain the very acute symptoms he had described. Two days previously he had removed a typical red fibroid associated with pregnancy, and the patient had never complained of any pain.

Rupture of the Uterus

Dr. GERRARD (Manchester) described a case of rupture of the uterus.

The patient was admitted to hospital after the first twin had been delivered by natural forces, the second twin was impacted by the hand and cord being prolapsed. Attempts at delivery by version had been made without success. On admission the patient was in good condition with a pulse of 102. On abdominal examination the most obvious feature was the prominence of a foetal hump to the left of the umbilicus. This was easily identified as a leg, and the possibility of rupture of the uterus was discussed but was ruled out owing to the excellence of the patient's general condition, the suggestion being made that the uterine wall was extremely thin from distension by twins and hydramnios. The pelvic measurements were normal. Vaginal examination revealed a prolapsed hand and foot and an umbilical cord which was not pulsating. There was no bleeding. Under anaesthesia delivery of the child was effected without difficulty by traction on the presenting foot. There being no abnormal amount of bleeding after this manoeuvre the patient was left to deliver the placenta herself. On palpation of the uterus abdominally a rather puzzling state of affairs was found. The impression obtained was that the placenta had left it but downward pressure failed to push it out from the vagina and on drawing the uterus upwards the cord shortened. It was therefore presumed that the placenta was still *in utero*. After an hour's time there was no sign of the placenta, the patient's condition was not too good but there was no cause for alarm. After two hours she was beginning to show signs of shock and as there had been a little bleeding a further anaesthetic was given to allow manual removal to be performed. On introducing the hand into the uterus no placenta

could be found and one became aware of a large rupture of the anterior wall of the lower segment. The cord was therefore cut off short, the vagina carefully swabbed out with antiseptics and packed with sterile gauze, and the patient who was by now in rather a critical state, was removed to the theatre. On opening the abdomen the missing placenta was found in the region of the spleen. There appeared to be quite a negligible quantity of blood in the abdominal cavity—less than an ounce in fact—and there was no bleeding from the torn uterus which was well contracted, but it was deemed advisable to perform hysterectomy. This was done rapidly by the ordinary subtotal technique, except that an opening was left in the cervix for drainage. The pelvis was peritonized, the abdomen mopped out and the abdominal wall sutured in layers, no drain being left in. An intravenous saline injection was given and the patient was treated for shock on the usual lines but she was placed in "Fowler's" position as soon as it was deemed advisable. She had a swinging temperature, and some vaginal discharge for a week following operation but the abdominal wound showed no signs of suppuration and the patient was able to proceed home within three weeks.

Dr Gerrard said that the points of interest in this case seemed to be the following: (1) The small amount of haemorrhage, due presumably to the situation of the tear. By way of contrast he cited a case which he saw about a month later, where a woman was admitted to hospital with a breech born as far as the head, which was hydrocephalic. While the instruments were being boiled the patient suddenly cried out, collapsed, and died within ten minutes. A post-mortem examination revealed a tear through the uterine artery. (2) The fact that one of the child's legs was probably projecting through the rupture into the abdominal cavity when the patient was admitted would have indicated the correct diagnosis had her condition not been so good. (3) That the placenta and membranes should be delivered into the cavity of the abdomen.

Formation of an Artificial Vagina

Mr W W KING (Sheffield), who described the formation of an artificial vagina, said that the procedure adopted was based upon one originally described by Graves and recently modified by Davies and Cron. The methods of forming an artificial channel in cases of congenital or acquired absence thereof comprised (1) those of the Baldwin type in which the small intestine was used, (2) the Schubert type in which a segment of rectum was employed, and (3) those in which the vagina was fashioned out of vulval flaps. The Baldwin operation gave very good results from a functional point of view, but it had a heavy mortality amounting to 17.5 per cent. Operations which employed portions of the rectum gave nearly as good functional results and had the much lower mortality of 3.3 per cent. The objection to the method was that it was liable to be followed by incontinence of faeces or faecal fistulae. Many women would risk a 3.3 per cent. mortality even for a plastic operation to avoid a nullity suit, but all would prefer a life of celibacy to a life of faecal incontinence. Because of these objections, and perhaps also on account of a certain repugnance to the idea of using portions of the intestinal tract for intercourse, attention had been focused upon the flap methods of operation. Papers had recently appeared by Frank and Geist and by Davies and Cron which described operations of this type. The speaker had no experience of the former operation, which involved raising bridge-like flaps from the thigh and transferring them by three successive operations to the recto-vaginal space to line the new canal. He had had, however, the opportunity of performing the operation of Davies and Cron. He had found certain difficulties in the technique, and the result was a vagina which was rather small and too short. As a result he had devised a technique which he had had the opportunity of employing in one case with apparent success, though sufficient time had not elapsed to speak of the final result. The steps of the new operation were described in detail and illustrated by lantern slides, from original drawings.

Various Cases

Dr K V BAILEY (Manchester) described a case of melanotic sarcoma of the vagina with secondary deposits in the inguinal glands.

Examination disclosed a large fungating mass the size of a coconut protruding from the vagina. This mass was attached to the region of the left labium minus and left vaginal wall over a relatively small area, though one could not say that it was pedunculated. A further smaller growth sprang from the region

of the posterior vaginal wall, near its junction with the perineal skin. There was also a hard nodular area in connexion with the under surface of the urethral orifice. In addition to these growths the vulva showed scattered irregular areas of a definitely gangrenous nature. These spread as far upwards as the mons, downwards to the anal canal and laterally to the skin covering the adductor muscles. In view of the obvious local discomfort Dr Bailey decided to excise the vulva as far as possible—thus removing the main mass. This he did on June 7th. The base of the main mass was included in the excision, as was also the smaller perineal growth. It was impossible to extirpate totally all the gangrenous areas, and he did not prolong the operation in order to excise the nodule from the urethra. To his intense surprise the incisions healed in ten days by first intention. Moreover, the scattered gangrenous areas cleared up within two weeks and the patient appeared much better. Meanwhile he had examined the growth microscopically and ascertained its nature. Such was the startling nature of the patient's improvement and the completeness of the healing that he decided to deal with the involved glands and the urethral nodule. The second operation was performed on July 17th, less than six weeks after the first. The nodule below the urethral orifice was found to penetrate the wall of the urethra and a much larger prolongation of it almost completely blocked the urethral lumen. This, of course, caused the difficulty in micturition. The urethral orifice was reconstructed after removal of this growth, which 'ebbed out' like a small gland. The involved glands in both inguinal regions were then removed, and the fatty tissue cleared out. Complete healing again took place and the patient was discharged from hospital two months after admission without a sign of the growth. Microscopical examination showed that the tumour was a melanotic sarcoma.

Dr Bailey added that he had seen the patient again on the day before the meeting. There was a small recurrence in the region of the left vaginal wall, close to the incision. The patient felt well. He thought that radium would now have to be employed.

Dr DONALD (Manchester) described a case of ovarian pregnancy.

A young married woman 22 years old was admitted to the Royal Infirmary with acute abdominal symptoms. There had been irregular uterine haemorrhage for about six days and previously to this a period of six weeks amenorrhoea. The acute abdominal symptoms commenced two days before her admission, the pain being worse on the right side. There was also definite shoulder pain. The patient was acutely ill, and presented the typical appearance of a ruptured extrauterine gestation. The abdomen was found to be filled with blood. The right ovary which was much enlarged and contained a blood clot was removed. The uterus and other ovary were quite healthy. The specimen consisted of the right ovary and tube. The ovary was enlarged and measured 3 in by 2 in by 2 in. It contained two cystic cavities, the larger being a typical dermoid cyst with sebaceous contents and embryonic process, the smaller a typical blood mole. Sections of the mole showed chorionic villi quite definitely. The tube on this side was perfectly healthy. The specimen was a good example of ovarian pregnancy and was of added interest because of the associated dermoid tumour.

Dr DONALD (Manchester) showed a specimen of uterus sub-septus removed from an unmarried lady, aged 56. She had had no regular periods for six years, but for some months had frequent uterine haemorrhage. On examination under an anaesthetic the double condition was not made out, as the uterus was small, and no definite tissue was obtained by the curette. The very free bleeding was the decisive factor in the choice of a panhysterectomy. There was a fibroid the size of a hazel-nut in the left cornu, and a soft adeno-carcinoma in the right cornu.

Dr DONALD also showed a specimen of carcinoma of the cervix and body of the uterus. The primary growth was evidently in the cervical canal, and the whole cervix above the external os was deeply invaded. Above this, and situated in the muscle of the body of the uterus, was a rounded mass, about the size of a walnut, which proved to be a solid alveolar carcinoma.

PROGNOSIS AND TREATMENT OF ECLAMPSIA AND ALBUMINURIA

At a meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on November 16th, with Dr J S FAIRBANK in the chair, Dr JAMES YOUNG read a paper on the prognosis and treatment of eclampsia and albuminuria, with special reference to the risk of recurrence in subsequent pregnancies.

Dr YOUNG said that investigations during recent years at the Edinburgh Royal Maternity Hospital disproved the usual belief that eclampsia and pre-eclampsia did not tend to recur in succeeding pregnancies. He had previously shown that forty-seven eclamptics had had eclampsia or

albuminuria fifteen times, and abortion, accidental haemorrhage, and stillbirth without toxæmia six times, in their previous gestations, this gave a total recurrence of abnormality of 44.7 per cent. Dr Jessie Sjö, who had followed up forty-two eclamptics who became pregnant again, had found a recurrence of toxæmia in 30 per cent and of total abnormality in 40 per cent of sixty subsequent pregnancies. The recurrence rate in cases of albuminuria and preeclampsia was, in so far as toxæmia was concerned, forty-four in eighty-one, or 54 per cent. Including such conditions as abortion and accidental haemorrhage without toxæmia the recurrence rate was 69 per cent. These figures emphasized the risk of future pregnancies to any patient who had once had a toxæmic pregnancy. Such findings illustrated the inadequacy of the present classification of the toxæmia of late pregnancy, which was based upon the view that the recurrent toxæmia belonged to a class by itself, and was explained as being caused by a chronic renal defect. Dr Young believed that there was no clear evidence that the kidney was ever anything more than a secondary factor. It was often damaged, but this was the result of the action of the toxins, and if long continued was apt to cause persisting renal disease. In two out of sixty-six eclamptics and six out of seventy-three albuminurics, the follow-up revealed evidence of chronic renal disease. The striking fact was that, although the numbers with further toxic pregnancies, and those without, were about equal, in seven out of eight cases with renal defect there had been two or more toxæmic pregnancies. This showed that the chronic kidney lesion was caused by the toxæmia, and was naturally greatest in those most exposed. Such facts indicated the great importance of keeping a patient under strict ante-natal care if she had once had a toxic pregnancy. This need was as nigent in a woman who had had eclampsia as in one with albuminuria. In the present state of knowledge such recurrence could not be prevented in succeeding gestations, and, in view of the high risks, Dr Young suggested, as a working rule, that prevention of pregnancy should be advised where there had been two successive toxic pregnancies. In his experience, when the sequence had once revealed itself in a patient, it usually meant that all the pregnancies would be involved. Except in mild cases it was unwise to allow the pregnancy to continue if the toxæmia appeared before the seventh month. This involved gambling with the life and health of the mother in the interests of the child, whose chances were problematic. It had to be remembered that there was a great risk of the child dying in the uterus as the result of the toxæmia, while many who were born alive survived only for a short time. For these reasons it might be in the interest of the child, as of the mother, in cases seen at a later stage of pregnancy to induce labour at once if the child had reached viability. For the induction of labour Dr Young preferred the use of the gum-elastic bougie, and, as soon as uterine pain commenced, he advised 5-minim doses of pituitary extract, at half-hourly intervals, till a total of 2 ccm had been given. Where the blood pressure was high oxytocin might be preferred. In the comparatively rare cases of severe toxæmia without fits, but in which there was urgency, he preferred Caesarean section under spinal anaesthesia, which was better than general anaesthesia, in that it did not add to the toxæmia. The spinal method eliminated the risk of irritation to the bronchioles and of bronchitis, which was great in such cases, and with it there was a remarkable natural haemostasis of the uterine wound.

The Age Incidence of Carcinoma of the Body of the Uterus

In a joint paper Professors DONALD and FLETCHER SHAW expressed the opinion that, with the rarest exception, cancer of the body of the uterus did not occur under the age of 40, or, alternatively, until after the retrogressive changes of the menopause had commenced. The authors had investigated 177 cases, the scrutiny of which revealed the fact that only one patient was under the age of 40, and even in this instance there was some doubt. In about half the cases the patients were between the ages of 50 and 59, and in one-third between 60 and 69. Definite information as to the onset of the menopause was obtained

in 147 cases, and in only two uncomplicated cases had the disease appeared before the menopause. These results differed considerably from statistics recently published, the difference being mainly in the percentage of cases under the age of 40. Various sources of fallacy were mentioned to account for the discrepancy, these included sarcoma, as distinct from cancer, cervical carcinoma spreading into the body of the uterus, and diagnosis depending solely on the microscopical examination of minute scrapings. The possibility of a causal relationship between uterine fibroids and cancer of the body was mentioned, and also the fact that the retrogressive changes of the menopause might begin at a comparatively early age. In these latter cases the women were sexually older than their years.

Rhabdomyo-sarcoma of the Ovaries

Dr J. D. BURNS and Dr WILFRED SHAW read a short communication on rhabdomyo-sarcoma of the ovaries, occurring in a patient with abdominal enlargement, who was admitted to St Bartholomew's Hospital on June 18th.

She had had two children the last being born two years previously. Menstruation began at the age of 14 and was normal, the last period being just before admission. She was in normal health until three weeks before admission, when she noticed some difficulty in micturition, together with rather rapid enlargement of the abdomen. On examination an elastic tumour was found rising out of the pelvis. It was tender and dull to percussion. On vaginal examination the body of the uterus was found to be not markedly enlarged, the left fornix was depressed by the lower pole of the tumour. The abdomen was opened and the tumour was found to be a cyst of the right ovary. It was not adherent and so was easily removed. There was no ascites or evidence of secondary growths on the peritoneum. The patient made an uninterrupted recovery and was discharged on August 9th. Previous to this she received x-ray treatment over the abdomen, it having been recognized that the tumour was malignant. On microscopical examination the tumour proved to be a rhabdomyo-sarcoma of the ovary.

The Etiology of Cancer

In a short communication on the etiology of cancer Dr R. WISE said that there was abundant evidence that the early cells of the embryo were not always irreversibly determined, there was sometimes a migration of embryonic cells, with subsequent lodgement in various embryonic tissues. These migrated cells, being the original growth cells, were retained for a time, and were nourished in their entirely new and unusual environment. Dr Wise suggested that in cancer cases those migrated embryonic cells, or their descendants, were started in their erratic and uncontrolled multiplication by endocrine stimulation and local irritation.

INDIVIDUALITY AND EPIDEMIC DISEASE

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on November 23rd, with the president, Dr F. E. FREEMANTLE, M.P., in the chair, Dr H. P. NEWSHOLME (Birmingham) read a paper on individuality and epidemic disease.

Dr Newsholme explained that he was taking, in illustration of his theme, outbreaks of disease which were homely in type, rather than widespread epidemics in which individuality might have become submerged. There was a danger, in classifying infectious diseases as separate species, that information arising from individual features in particular outbreaks might be neglected. In one series there were twenty cases of febrile illness in a school, all showing a sudden onset, and consisting of fever, sore throat, and some reddening of the pharynx, not unnaturally the disease was labelled influenza. With one exception the recovery was rapid and uneventful, but the exception was tragic. A convalescent girl became emotional, severe headache developed, and within twenty-four hours there appeared stiffness of the jaw, paralysis of the muscles served by the fifth nerve, salivation, failure of deglutition, and heart weakness, she died a few hours after the onset of the paralysis. At the necropsy no cerebral lesion was evident macroscopically. In childhood she had had considerable nervous tension, had lost a parent when quite young, and had lived a discouraging existence. Thus an outbreak otherwise colourless was brought into prominence by an unusual effect of the disease on one or more individuals. Mostly when this occurred the individuals in

question seemed themselves to have been of exceptional type, suggesting that two factors might be concerned in producing the specific features of a particular outbreak—namely, the stability of the virus, and the qualities of the individual attacked. He gave several instances of this looking upon function as "habit in action," and the functions of the body, of its organs, tissues, cells, as a sort of complex of habits, these habits were capable of being disturbed to the extent of producing loss of function, with the accompanying symptoms. Two factors might bring this about: (1) when the habit was so poorly developed, or so delicately developed, as to need little to upset it, (2) when stress was brought to bear on the habit, this stress being a specific virus or an unfavourable environment, either physical or mental conditions. An interesting confirmation of this difference of manifestation according to the individual was forthcoming in Pugh's experiments on dogs in connexion with acute encephalitis. Some dogs showed the usual symptoms of that disease, while others had symptoms indistinguishable from nervous distemper, these latter being pampered and "spoiled" dogs. In the case of human patients the children forming the exceptions in epidemics were often those whose parents were difficult to handle. A virus which had a relatively slight specificity and comparatively low virulence might cause a general increase in invalidity and mortality by disturbing indiscriminately the cell habits of the most unstable members of the community. Obviously, the more specific the virus, the more easily seen would be its selective action on persons who had a weakness of cell habit: the more virulent the virus, the more readily would it break down cell habits which were even relatively stable. This seemed to be the explanation of the increase in general mortality which was observed during a pre-epidemic period. The increase in specificity which accompanied the course of an outbreak suggested that there might be a reciprocal action between virus and victim. Still, a weakly specific virus would, on the whole, select the person who had corresponding weak cell habits of particular cells: apparently the action of these cells might react on the virus and give it an increased sensitiveness towards cells of the kind. Body cells reacted to a virus by becoming immunized, or specially sensitized against, or rendered specific towards, the virus: the same might reasonably be assumed in reference to the bacterium. Dr. Newsholme quoted Adams to the effect that if man could protect himself against bacteria, bacteria, by increasing their virulence, might guard themselves against extinction by man. In conclusion, the speaker discussed the question of increased specificity with the progress of an epidemic in its bearing on the gradual emergence of more specific types of disease—such as encephalitis or anterior poliomyelitis—out of a wave of infection which was at the outset of a less determinate type.

The President said that this thoughtful paper again drew attention to the importance of soil as well as seed, while stressing the latter.

Sir WILLIAM HAXER related a case in which 20 out of 22 persons assembled at a Christmas party contracted influenza. Their symptoms varied greatly, and as probably most of the persons became infected as the result of meeting on that occasion, one particular bacillary strain being concerned, the variation in the manifestations was an interesting study. The symptoms included mild fever, headache, great gastro-intestinal disturbance, colds, sore throats, and bronchitis. Had these people not been together on that convivial occasion no one would have thought of attributing all those symptoms to a common influenza.

Sir GEORGE BUCHANAN remarked that in the case of such diseases as measles and small-pox the position was governed by the degree of immunity against the disease already possessed, and the question was why when a wave of carrier infection swept through a whole population, the members of a particular household developed symptoms while others went free. The history or the nervous make-up of the persons rendered ill might supply the solution. Sometimes the explanation might prove to be more anatomical than was usually thought—for example, the condition of the nasal and other sinuses might be involved. In the case of post-vaccinal encephalitis some of

these factors could be eliminated. Sometimes a double pathology might be at work.

Surgeon Commander DUDLEY said that the *B. typhosus* could be considered a stable micro-organism, yet in some places typhoid was only a mild disease, while in others it was remarkably virulent, the difference might be accounted for by either racial variants or variants in the organism. He agreed that a double, or a multiple, pathology would sometimes be at work. In swabbing a throat it did not follow that one particular organism detected was the cause of the symptoms, for any of the other varieties seen in the swab might be an important factor. During the war he had been able to trace cases of influenza to particular ships by the character of the chief symptoms. The Pfeiffer bacillus was present in all the cases, but the difference was in the associated organisms. He declared himself a great believer in multiple pathology.

Dr J. A. GLOVER expressed his agreement with the last speaker concerning double infection.

NATURALLY ACQUIRED IMMUNITY

At a meeting of the Liverpool Medical Institution, on November 15th, Dr C. O. STALLIBRASS read a paper illustrated by lantern slides, on naturally acquired immunity in human communities.

Dr Stallibrass outlined the history of our knowledge of acquired immunity, pointing out that knowledge gained from laboratory experiments on animals was not always applicable to man owing to the different portals of infection and the greater longevity of man. The effectiveness of acquired immunity, and the rate at which it was lost in different diseases, could be gauged by the liability to relapses and second attacks. A very high and permanent immunity was often secured in diseases caused by filterable viruses, in the bacterial diseases it tended to be less in the protozoal and spirochetal diseases—for example, relapsing fever and malaria—the immunity was often of a very low order. Much light was thrown upon the rate of loss of immunity in man by the steady increase both in the numbers of lesions and of fatality in severe small-pox with the lapse of time since vaccination was performed. Infection might take the form of the typical clinical cases, the abortive cases—*les formes frustes*—and the subinfections. This latter term was applied by Adams in 1899 to the passage of intestinal organisms, during digestion and in inflammatory states of the intestines, into the lymph channels and the portal system. Each of these types of infection might be effective in producing immunity. The information acquired from tests of susceptibility to toxins (Romer, Schick, Dick) tests of cutaneous hypersensitivity (Zoeller, von Pirquet, typhoidin), and tests for the presence of agglutinins (Vidal, Weil-Felix) had thrown much light on the acquisition of immunity both in the individual and the herd. They indicated a much wider spread of infection or subinfection than was indicated by the statistics of notified diseases. Alongside the visible epidemic of clinically diagnosed cases there was an invisible epidemic of subinfections, revealed only by bacteriological tests or the immune reactions just described, and this invisible epidemic was, in a number of diseases, more effective in the production of herd immunity than was the visible epidemic. Examples were quoted from the typhoid, and more especially the paratyphoid infections, from typhus, from cholera, and from poliomyelitis, in all of which *les formes frustes* and the immunizing subinfections occurred with greater or less frequency. In poliomyelitis there was evidence that a most extensive invisible epidemic accompanied the visible outbreak and left behind it a largely immune population. In other diseases, such as small-pox and measles, the subinfections played little or no part in the production of herd immunity. The converse aspect of the case was the doctrine stated by Dudley that those who had been longest exposed to an infected environment suffered least when exposed to an epidemic, and those who had been least exposed suffered most. Examples were quoted from Dudley relating to typhoid in a warship, and from Evans relating to influenza in the garrison of Woolwich.

Reviews.

THE PRACTICE OF REFRACTION

Among those engaged and interested in ophthalmology Mr W S DUKE-ELDER has already made for himself a considerable reputation by reason of his investigations into the physics and physiology of the conditions that influence the circulation of fluids within the eye, and hence are influential in the causation of glaucoma. Further, his work summarizing recent advances in ophthalmology has marked him out as a keen student and critic of the work of others. He has now produced a book upon a more routine subject, which has been written upon by many workers. It would seem that there could be little new to write about refraction, and little possibility of varying the presentation of the subject. Yet Mr Duke-Elder's *Practice of Refraction*¹ is essentially a new book, and his presentation of the subject is both arresting and illuminative.

At the beginning of the book we are not confronted with the usual diagrams of the paths of light, we are taken right to the heart of human conditions by a thoughtful consideration of evolutionary processes and the important part vision has played in these. Then follows a chapter upon the incidence of eye strain, and the symptoms that are to be associated with refractive errors. These two chapters lift the practice of refraction from the humdrum methods of the so-called "refractionist" to the proper level of intelligent medical practice. They are fitting recognition that the eyes, and their defects and disorders, are intimately associated with the whole make-up of the patient, and cannot be effectively treated without due ability to correlate the general condition of the patient with the condition of the eyes. Mr Duke-Elder, in his consideration of the results of eye strain, makes plain the frequency of ill effects from comparatively small errors of refraction, but he gives a most wholesome and necessary warning against driving this finding to a logical absurdity.

"It should be pointed out that every small error by no means requires correction. There is undoubtedly a tendency at the present time to do this and to provide a large proportion of the population with totally unnecessary glasses. Sometimes this habit is positively pernicious, as in the provision of convex lenses to young hypermetropes with small errors, thereby depriving them of the stimulus to accommodate."

Thereafter the book follows the general lines of such works. But the whole exposition is on a high level, so that it conduces to thought, and not to mere slavish absorption. On one point we could wish the author would reconsider his description of retinoscopy. In the general statement his reference is clearly to the light reflex, but in the account of the variations seen in different forms of refraction he tends to revert to the old custom of description in terms of the shadow. It is true that where there is light there is generally some shadow. The artist gets his effects by deft delineation of the shadows, but the observer finds his delight in recognition of the high lights in the picture. It is certain that students of retinoscopy who learn to look for the movement of the light in the reflex gain a greater mastery of the method, and become much more accurate in their work, than do those who follow the older method of looking upon retinoscopy as the "shadow test" or "skioscopy." The concluding chapter deals with a matter upon which both the ophthalmic surgeon and the general practitioner who does eye work should be informed—the making and fitting of spectacles. Much judgement is needed to determine what form the prescription of glasses should take, and this is to be related as a rule to the type of work that the wearer of the glasses will be engaged in most frequently.

¹ *The Practice of Refraction*. By W Stewart Duke-Elder M.D. F.R.C.S. Churchill's Empire Series. London J and A. Churchill, 1928 (5½ x 8 pp xiii + 410 208 figures, 12s 6d net).

MODERN THERAPEUTICS

Modern Methods of Treatment,² by Dr LOGAN CLENDENING of the University of Kansas, first appeared in 1924, and a second edition has now been published. The chief aim of the author has been to improve the teaching of therapeutics, for his remarks in his preface that instruction given in this subject by teachers of clinical medicine is inadequate, it should be an essential part of the training of all medical students. He also points out some of the chief defects in the existing textbooks of therapeutics. As one of these he mentions a style of deadly boredom—a defect of which he himself cannot be accused, for his book is written in an interesting and sometimes racy manner.

The first part contains 480 pages, and is devoted to general therapeutics, the second, of 300 pages, deals with the application of remedies to particular diseases. In his review of general therapeutics the author has made a careful selection, he discusses the actions of only the more important drugs, and more than half of this part is devoted to dietetics, hydrotherapy, massage, radiotherapy, climatology, and psychotherapy. These important subjects are very difficult to take up systematically in a manual of therapeutics, for one reason because of the dearth of accurate knowledge concerning the effects produced by therapeutic measures other than drugs, and Dr Clendenning deserves praise for his endeavour to provide an adequate discussion of matters usually dismissed in summary fashion by the compilers of textbooks.

The particular merit of this volume is that the author has throughout kept in mind the golden rule that it is patients and not diseases that require treatment. Hence all measures that may benefit a sick person are given due consideration. His style, as we have said, is clear and readable, and important therapeutic principles are frequently driven home by apposite anecdotes from real life. The book is one that can be recommended to the medical profession with confidence, for it is based on sound general principles, it provides well balanced judgements on the relative values of methods of treatment, and it is full of practical hints drawn from personal experience.

X RAYS IN DIAGNOSIS AND TREATMENT

With the improvement of technique in radiological diagnosis, and the extension of radiotherapy, new editions of many of the older useful and popular German treatises have become necessary.

Among recent issues attention may be called to the fifth edition of the *X-ray atlas of the normal in man*³ by Professor RUDOLF GRASHEY of Munich. The fourth edition was reviewed in our columns on March 8th, 1924 (p. 430). Textual changes have been made in the new volume to bring the information up to date, and more illustrations have been incorporated. Special care is taken to indicate how to obtain the best photographs of different parts of the skeleton, and the interpretation of the various normal and abnormal appearances is discussed in a lucid and practical way. Since accuracy in diagnosis depends essentially on appreciating departures from the normal which are sometimes very slight, this book can be commended to students of radiology as likely to help them to determine the standards which must form the basis of judgement.

Professor HERBERT ASHMANN's textbook of radiological diagnosis⁴ has passed into a fourth edition, and we have received the first part of this, which deals mainly with diseases of the heart and lungs. A second part in course of preparation will comprise pathological conditions of the abdominal contents and of the nervous system. Great care has been taken with the illustrations, which are very numerous and include contrasting views of the normal and diseased organs. Recent advances in knowledge are well

² *Modern Methods of Treatment*. By Logan Clendenning, M.D. Second edition. London H. Kimpton 1928 (Roy. 8vo pp. 815 5s 6d figure 45s net).

³ *Atlas typischer Röntgenbilder vom normalen Menschen*. Von Dr med. Rudolf Grashey. Fünfte verbesserte Auflage. Lehmanns Medizintechnik. Allentien Band V. München J. F. Lehmann 1928 (Cr. 4to pp. xi + 226 234 figures on plates and 373 figures in the text M.26).

⁴ *Die klinische Röntgendiagnostik*. Von Dr. Herbert Ashmann. Vierte umgearbeitete und verbesserte Auflage. 1. Hälfte. Leipzig F. C. W. Vogel 1928 (7½ x 10½ pp. 512 1 000 figures, 20 plates M.25).

represented, and the popularity of this useful book should increase.

An attempt to combine radio-diagnosis and therapy in one volume⁵ is made by G. KOMMANN of Oldenburg, who has collected articles on various aspects by a large number of German experts. A wide field of study is thus covered, and some of the articles are of considerable interest, but with so ambitious an objective it is inevitable that there should be a little overlapping and a certain amount of rather dull writing. The index will, however, facilitate reference to special points.

Professor P. KNUSS, on the other hand, finds radio-therapy a sufficiently large subject to justify the publication of a volume⁶ as the third (and last) of a series of books devoted to the application of electricity to medicine. Different authors discuss the treatment of diseases of the eyes, the nervous system, endocrine disorders, and morbid conditions of the thoracic and abdominal contents. Practical details receive full consideration, and clinical cases are described with the aid of illustrations. Numerous references to the German literature on the subject appear at the end of the various sections.

It is convenient to notice here, in conclusion, a handy book⁷ relating to new knowledge regarding the application of electricity to diagnosis and treatment, although radio-logy is expressly excluded from its scope. Professors LUDWIG MANN of Breslau and FRANZ KRAMER of Berlin deal more particularly with the theoretical and scientific sides of their subject, but the various clinical applications receive attention. References to the current literature of various countries are numerous, and the book should be of considerable assistance to those whose interests lie primarily in this branch of research.

MONGOLISM

THE problem of Mongolism has attracted the attention of many investigators probably because it is such a definite distinctive disorder with varied and fascinating aspects for study. Dr KATE BROUSSEAU and Dr H. G. BRAINERD have between them produced the latest contribution on this subject in a monograph entitled *Mongolism: A Study of the Physical and Mental Characteristics of Mongolian Imbeciles*.⁸ While both these authors have had wide experience with Mongols they have refrained from elaborating any new thesis, and instead have brought together and compared the observations and theories of many workers in this field. The result is a valuable and concise exposition of most of the known facts about Mongolian idioct. After a brief introduction the various theories as to etiology are brought forward, and at the end of an otherwise very fair discussion the authors rather lamely support the theory of endocrine disturbance. The next two chapters form the bulk of the book, and contain almost all that is known about the pathology and the physical, nervous, and mental characteristics of Mongolism. A chapter on diagnosis follows, but appears to make differential diagnosis more difficult than it really is. Prognosis is dealt with, and then a very excellent section on therapy and educational training. This last contains many valuable hints for the guidance of those who have to advise about or train Mongol children. But the recommendation for early institutional care in almost every case requires more qualification than is given here, and there might perhaps have been some discussion of "Mongoloid" conditions, some of the very few borderline cases. The lists given of complications and conditions sometimes associated with Mongolism appear to be very full. Congenital obliteration of the bile ducts might be added to the latter, and curiously enough, there

is no mention of the excessive furrowing of the skin of the palms and soles, which is supposed by some observers to be a constant feature of the disorder. The references throughout appear to be very extensive, and these are grouped in a bibliography of nearly twenty pages. The book is altogether a very serviceable summary of present knowledge on the subject.

SOME TEXTBOOKS ON PHYSIOLOGY AND BIOCHEMISTRY

THE serial publication of Dr OTTO FURTH's comprehensive textbook of physiological and pathological chemistry⁹ has received repeated notice in these columns. The edifice continues to grow towards completion with commendable regularity. The sixth part—completing volume 11, and the survivor of the field of metabolism—is now in print. This part is devoted to the problems of the metabolism of fat, nutrition, biological oxidation, gaseous metabolism, and the question of fever. The ground covered is wide, a great body of experimental inquiry is assembled and analysed with a pleasing critical sense. All that is done is well done, and the author shows no sign of wearing of his long and arduous task. The completed work will form a big contribution to the general literature of biochemistry. It is a pity that a careless error in assembly should permit the cover to display a description of the contents which is contradicted by the subject-matter of the part.

The teacher of experimental physiology does not lack a choice of excellent textbooks to assist him in his practical training of students. To add to their number would, therefore, seem justified only if the intention were to challenge conventional methods of instruction. In his *Manual of Experimental Physiology*¹⁰ Dr M. HAMMOUNA expressly disavows this intention. He offers, merely, to a larger public the course which he has found useful to his own classes in the Cairo Medical School. The book follows closely upon the matter and method of its elders. Nevertheless, it has some claims on the attention of teachers and students, particularly those who may be similarly placed to the author and his pupils. Dr Hammouna realizes the width of the preliminary training which is expected of students of physiology in British schools, and feels the disadvantage under which his classes labour. He therefore attempts to smooth the difficulties of those called upon to exploit unfamiliar apparatus and principles—biological, chemical, and electrical—by more detailed descriptions than are usually to be found in such books. It is probable that this manual will be found acceptable to other classes than those of the author.

Elementary Anatomy and Physiology,¹¹ by Dr MARY R. MULLINER, a second edition of which has now appeared, is an interesting textbook addressed to students in hygiene and physical education. In this matter of the general instruction of the laity in the ways of their own bodies there is likely to be a diversity of opinion. Accordingly the form and substance of any particular attempt to provide such instruction is certain to encounter a variety of criticism. The present volume is not above reproach, but, in so far as it represents a serious and painstaking attempt to give an elementary and balanced introduction to human anatomy and physiology, it merits commendation.

ANNALS OF MEDICAL HISTORY

THE third quarterly instalment of the tenth volume of *The Annals of Medical History*,¹² so successfully edited by Dr FRANCIS R. PACKARD, contains twelve articles in addition to the editorial and the book reviews. In his account

⁵ *Kurzes Handbuch der Gesamten Röntgen Diagnostik und Therapie*. Herausgegeben von Gerd Kohlmann. Berlin: S. Karger, 1928. (Sup. roy. 8vo. pp. xi + 917. 773 figures. 8 plates. M.53.)

⁶ *Handbuch der Röntgentherapie*. Herausgegeben von Ges. Medizinalrat Professor Dr. med. Paul Krause. III. Teilband. Leipzig: G. Thieme, 1928. (Sup. roy. 8vo. pp. xv + 731. 273 figures. M.56.)

⁷ *Neuere Erfahrungen auf dem Gebiet der medizinischen Elektrizität, Lehre mit Ausschluss der Röntgenstrahlung*. Herausgegeben von Professor Dr. med. Ludwig Mann unter Mitwirkung von Professor Dr. med. Franz Kramer. Leipzig: G. Thieme, 1928. (Sup. roy. 8vo. pp. vv + 501. 256 figures. M.39.)

⁸ *Mongolism: A Study of the Physical and Mental Characteristics of Mongolian Imbeciles*. By Kate Brousseau, Docteur de l'Université de Paris. Revised by H. G. Brainerd, M.D. London: Baillière Tindall and Cox, Baltimore. The Williams and Wilkins Company, 1928. (Med. 8vo. pp. vii + 210. 37 figures. 20s. net.)

⁹ *Lehrbuch der Physiologischen und Pathologischen Chemie*. Von Dr. Otto Fürth. Band II. Lieferung VI. Leipzig: F. C. W. Vogel, 1928. (Sup. roy. 8vo. pp. vi + 335-615. M.15.)

¹⁰ *A Manual of Experimental Physiology*. By M. Hammouna. Cairo: Whitehead Morris Ltd. 1927. (6 x 9½. pp. xvi + 167. 146 figures.)

¹¹ *Elementary Anatomy and Physiology*. By Mary R. Mulliner. M.D. Second edition, thoroughly revised. The Physical Education Series. London: H. Kimpton, 1928. (6 x 9½. pp. xvi + 403. 309 figures. 2s. net.)

¹² *Annals of Medical History*. Vol. X, No. 3, September 1928. Edited by Francis R. Packard, M.D. New York: Paul H. Hoeber, Inc. London: Baillière Tindall and Cox, 1928. (8½ x 12½. pp. 213-322. Illustrated. Subscription in Great Britain £2 2s. a volume of four numbers.)

of William Heberden's "Prefatory essay to an introduction to the study of physic" Dr Le Roy Crammer describes his discovery and purchase of this unpublished criticism of medical education, and gives a sympathetic review of the life of the author of the *Communicaries*, whose portrait appears on the cover. The frontispiece presents Olof Rudbeck the elder (1630-1702) of Upsala, who is shown by Dr O Larsell to have discovered the lymphatics about 1650 independently of Pecquet. Dr M W Hollingsworth gives an English rendering, apparently for the first time, of Richard Lower's account of blood transfusion in his *Tractatus de Cordis*, the Latin original and the translation being placed side by side. The influence of James Blundell of Guy's Hospital on the development of blood transfusion is described by Drs H D W Jones and G Mackmull, who mention that his removal of a cancerous uterus vaginally was possibly the first operation of its kind in Great Britain. Dr John Rutty of Dublin (1698-1775), a Quaker and friend of John Wesley, took forty years in writing his *Materia Medica, Antiqua et Nova*, and was, as Dr W T S Sharpless shows, very sober on his own shortcomings in the "Spiritual diary and soliloquies," which he kept from 1753 to the year of his death. In "The heritage of Paracelsus" Dr Percy M Dawson of Madison, Wisconsin, contributes, as a supplement to a former article, the considered criticism of one "who opened for himself and other children of mediocrity the door of the future." The life of Theodor Billroth (1829-94), who made Vienna a surgical Mecca and at first operated upon every form of malignant disease, because surgical prognosis was but imperfectly formulated, is detailed by Dr E R Wieso of Pittsburg. The protocol of a necropsy by Bernard Tormus in the fifteenth century is translated from a manuscript in the Riccardian Library at Florence by Dr Lynn Thorndike, who adds some reflections on a record which transports us "as by some magic carpet back into the very midst of the medical theory and practice of long ago." Dr G A Williams contributes a short essay on Michael Servetus, physician and heretic, Dr Andreas Nell of Kandy, Ceylon, writes on the Sinhalese Olas or book manuscripts about early medicines and how they were made, and Dr R L Moodie gives a short note on the palaeopathology of Patagonia. Dr W B Howell of Montreal records how an anaesthetist during the course of a three hours' abdominal operation saw Abernethy, Astley Cooper, and Liston walk into the operating theatre and discuss the strange proceedings, until a nurse tactfully woke him up. Dr Packard (whose name in the table of contents appears on one occasion as "Packad") reviews Dr A G Gibson's book on the Radcliffe Infirmary, Oxford, Dr W C Alvarez of the Mayo Clinic pays a tribute to the wide activities of Dr Nicolas Leon, and Dr Thomas McCrae discusses Professor Hans Kohn's article on the history of angina pectoris.

NOTES ON BOOKS

*The Text book of Histology*¹³ by F T LEWIS and J L BREMER, has an interesting, genealogy. Its immediate fore-runner was the second edition of Lewis and Stohr's *Text-book of Histology*, a book based on the fifteenth German edition of Stohr's histology. The break in continuity with Professor Stohr's textbook took place apparently on account of the incorporation of an embryological introduction to each section, an addition that was unwelcome to Professor Stohr, and the numerous German editions of his textbook, continued after his death, follow the more usual lines in dealing simply with adult tissues and organs. The special feature of the present book is the arrangement on an embryological basis, each section being preceded by several paragraphs giving the developmental history of the organ to be studied. The book is lavishly illustrated with 485 illustrations, of which 32 are in colour.

Most of the candidates for the diploma in public health will welcome the issue of another edition (the tenth) of Dr R BURNETT HAM'S well known *Handbook of Sanitary Law*,¹⁴

¹³ *A Text book of Histology*. By Dr Frederic T Lewis and Dr J L Bremer. Philadelphia: P. Blakiston and Co. London: H. K. Lewis and Co., Ltd. 1928. (Med. 8vo pp. ix + 551. 485 figures. 5 dollars.)
¹⁴ *Handbook of Sanitary Law*. By R. Burnett Ham, M.D. D.P.H. Tenth edition. London: H. K. Lewis and Co., Ltd. 1928. (Fcap 8vo pp. xxxii + 284. 6s 6d net.)

which, since its first issue in 1899, has been largely instrumental in making the study of this subject possible to many candidates, few of whom have had the advantage of a legal training. With this guidance the student is enabled to obtain rapidly a comprehensive view of the extent of the legislation on the various matters dealt with, the handy size of the volume makes it convenient for study at odd moments, an advantage all the greater in that sanitary law is a subject which most people can only absorb in small doses. A useful note is given of the old Acts repealed (and omitted) and the new Acts inserted—a very comprehensive list, the latest item of which is the Nursing Homes Registration Act, 1927. The issue of the book in an interleaved form might be useful to the student, it would certainly be useful to the public health official.

In India, owing to the less advanced state of public health work, medical officers may be called upon to initiate a chemical laboratory and to train and supervise assistants. To help them Lieut Colonel A D STEWART and Major T CRAWFORD BOYD have compiled a manual of *Public Health Laboratory Practice*,¹⁵ which should prove of much service to those whose duties entail the chemical analysis of water, sewage, foodstuffs, etc. The authors give a concise and clear description of the methods of analysis they have found suitable in Bengal and Calcutta. The especial value of this book lies in its application to Indian conditions, as it gives much useful information on the analysis of Indian foods and Indian water supplies. Information is included on food standards, these should be of assistance to local authorities there. The authors have succeeded in embodying in a small compass much practical information relating to the more important parts of public health chemistry.

In their little work on endemic summer typhus¹⁶ Drs D OLMER and JEAN OLMER describe the clinical picture and laboratory findings, with the histories of sixty-two cases, in an outbreak of an eruptive fever which was first observed by one of them in 1922, and since then by many other French practitioners on the Riviera. The eruptive fever is questioned, outbreaks of which have been occurring in the region of Marseilles and on the Mediterranean coast during the hot season of recent years, is probably a modified form of typhus fever akin to Brill's disease or tropical typhus. It differs from the typical, or Old World, typhus in the season of its appearance, its generally mild character, the absence of lice, lack of contagiousness, and low mortality. Inoculation of guinea pigs with the patient's blood did not produce a characteristic rise of temperature, but the Weil-Felix reaction proved positive in a certain number of cases.

¹⁵ *Public Health Laboratory Practice*. By A D Stewart, M.B. F.R.C.S. Ed. D.P.H. and T Crawford Boyd, F.R.C.S.I. D.P.H. London: Milford, Oxford University Press. 1928. (Demy 8vo, pp. iii + 303 + v. 12s 6d net.)
¹⁶ *La fièvre exanthématique (Typhus endémique d'été)*. Par D Olmer et Jean Olmer. Paris: N. Maloine. 1928. (64 x 83 pp. 90. 16 fr.)

PREPARATIONS AND APPLIANCES

PREPARATIONS FOR TREATMENT OF GLAUCOMA

We have received three preparations sold by the Saccharin Corporation Ltd for the treatment of glaucoma.

Laevo-glucosane contains laevo-rotatory synthetic daltanephren substance which has the same pharmacological action and potency as adrenaline, it also contains 2 per cent of optically inactive methyl-amino-aceto-pyrocatechol substance which is described by Fraenkel (*Arzneimittelsynthese* third edition, p. 442) under the name adrenalon. This is a sympathicomimetic amine which has an action similar to but weaker than adrenaline. This mixture which has a powerful action is intended for instillation into the eye and it is not suitable for sub-conjunctival injection. As it causes moderate burning in the conjunctiva the makers advise preliminary administration of a local anaesthetic (holocaine).

Dextro-glucosane consists of 0.2 per cent of dextro-rotatory daltanephren which corresponds to dextro-rotatory adrenaline and also 1 per cent of methyl-amino-aceto-pyrocatechol. This preparation has an action similar qualitatively to that of laevo-

a totally different preparation for it is 10 per cent) of the amine histamine.

This substance has an exceptionally strong hyperaemia of the conjunctiva and

constriction of the pupil. This preparation is recommended for acute glaucoma.

The use of these preparations is based on the work of Dr Hamburger (*Archives of Ophthalmology*, 1, 533, 1926) who claims that instillation or injection of adrenaline or of amines with a similar action will reduce intraocular pressure in cases of chronic glaucoma by causing constriction of the intraocular vessels. He also claims that histamine reduces the intraocular pressure in acute primary glaucoma. The Saccharin Corporation supply histamine which indicates that Hamburger's claims have been confirmed by various ophthalmologists. If the claims outlined above find general support then these preparations will represent an important advance in the treatment of glaucoma.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

PROGRESS OF THE NEW ORGANIZATION

The annual meeting of the Court of Governors of the London School of Hygiene and Tropical Medicine was held on November 30th in the Council Room of the British Medical Association's House in Tavistock Square, with Sir Holburt Waring in the chair, when the board of management presented the fourth annual report.

It was stated that substantial progress had been made towards the completion of the organization of the school, of the building and of its equipment. The work of the old School of Tropical Medicine, which was taken over in 1924, continues to make satisfactory progress, and the director reported that there was an increase of no less than 17 per cent in the proportion of students sitting for the Diploma in Tropical Medicine and Hygiene who were successful. In the advanced courses in bacteriology established in temporary quarters in Gordon Square, all the five students who sat for the new university diploma were successful in obtaining it.

The project for a new imperial hospital for tropical diseases remains in abeyance in consequence of an important decision taken by the Seamen's Hospital Society, whose representatives have informed the Minister of Health that they no longer intend to close the hospital at Endsleigh Gardens and that it is desired to co-operate very closely with the school and to afford not only the present, but considerably improved facilities for the clinical and pathological study of tropical diseases. The director expressed once more his sense of the debt which the school owes to the society. He referred also to the wide programme of research upon which members of the staff of the school are engaged. The board is applying a part of the capital, as well as the income of the Milner Research Fund to expenditure on research, being fully alive to the importance of the part which research must assume in the work of the school. The term of the agreement with the Government of Southern Rhodesia for the maintenance of a field research station at Salisbury has been extended for a period of five years from February 22nd, 1928.

A school council, it was reported, has been constituted on an academic basis and plays an increasingly important part in the organization of the teaching and research in the school and all associated questions. The board has expressed its intention to recognize to the full the important functions of the council as an expert advisory body and to give effect to its recommendations so far as these are not inconsistent with the board's decisions on those broad questions of policy, administration, and finance for which it is ultimately responsible.

Written representations were made by the board of management to the Minister of Health and through him to the Treasury so long ago as January, 1925 that the original undertaking on the part of the Government to provide the school with a grant of £25,000 a year would be quite inadequate if the school were to proceed with the building which had been planned, with its equipment and with the appointment of the necessary staff. The board pointed out at that time that on the best estimates which could be furnished, an amount of £50,000 per annum would

be required for maintenance, and in submitting estimates for the year 1928-29 it was stated that, upon the closer review of the estimated expenditure now possible, the board did not feel justified in modifying the original figure.

In the new university quarter of London the scheme for a great school of preventive medicine, which is at once a school of the University and an imperial and international centre, is nearing completion. In the ranks of the research workers and post graduate students who will attend this centre there will be found those destined to become the medical officers of health of the future and to serve in this capacity in this country or overseas. The wonderful progress in public health in all directions during the last half century and the rapid growth of an enlightened public opinion which has made this progress possible, give every promise that the new school will succeed and the measure of its success should be reflected in the vital statistics and the reports of medical officers in the future.

The London School of Hygiene and Tropical Medicine owes its inception to the recommendations of a committee presided over by the Earl of Athlone in 1921 and to the timely and large beneficence of the trustees of the Rockefeller Foundation, who recognizing the unique claim of London to be a world centre for the teaching of hygiene, offered the sum of nearly half a million sterling to provide a site and to build and equip a school of hygiene if the British Government would under-

take that it should be adequately maintained. The gift was accepted and the responsibility undertaken. It will be remembered that the old London School of Tropical Medicine at Endsleigh Gardens whose godfather was Joseph Chamberlain and whose first inspired director and guardian for many years was the late Sir Patrick Manson became merged in 1924 under the terms of the Charter and with the cordial support of the managers, the Seamen's Hospital Society in the new corporation. The liaison between the school and the Seamen's Hospital Society—in the provision by the society and its medical staff of clinical and pathological demonstrations—will continue.

The name of the director of the school

Dr. Andrew Balfour is a household word in the tropics as also in their respective spheres of science and medicine are those of the learned professors who are either already actively engaged in teaching and research on the staff of the new school or helping to build up its organization and equipment until the time has arrived next year for them to take charge of their several departments. Professor R. T. Leiper is head of the division of medical zoology which embraces a large part of the subjects taught in the old School of Tropical Medicine. Professor W. W. C. Topley conducts research in bacteriology and the classes for the new university diploma in that branch of science at temporary premises in Gordon Square. Professor M. Greenwood gives special courses in epidemiology and vital statistics at Mount Vernon and has not severed his relations with the Ministry of Health and the Medical Research Council. To the chairs of biochemistry and of chemistry as applied to hygiene have been appointed Professor P. Hartley and Professor M. E. Delafield. Dr. W. W. Jameson has been designated professor of public health and enters upon the charge of this important department of the school's activities in January next.

The new building of which a photograph is reproduced is so far as the main structure goes approaching completion, but will not be ready for the formal opening until the summer of next year. It will be seen to be a noteworthy addition to the public buildings of the metropolis and in its dignified lines and proportions it is a worthy embodiment of the high purposes to which, by the terms of the gift to the British Government, it is to be devoted. The architects—Mr. Morley Horder and Mr. Verner Rees—have made the best possible use of the site which is an excellent one. The building stands behind the British Museum and is near the University College and immediately adjacent to the newly acquired site of the University of London.



NEW LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

The fine lecture theatre will hold about 260 persons. There will be a first class museum running the whole length of the wide frontage, on the second and third floors, and on the semi-basement. The library, occupying the whole length of the Keppel Street frontage on the first floor, whilst fulfilling in its design its primary functions, will also be a handsome reception room for the various social and scientific functions that will take place from time to time in connexion with hygiene and tropical research. In the elevations the architects have achieved largeness, breadth, and solidity. The Keppel Street facade—the frontispiece to the whole building—has been enriched by a deep frieze composed of wreaths, with the names of many great pioneers in hygiene and tropical medicine, as a homage to their work. Finally, efficiency for its purpose as a workshop has been the criterion in the design of every feature of the building.

FARADAY'S DIARY

SIR WILLIAM BRAGG'S DAVID LLOYD ROBERTS LECTURE

THE David Lloyd Roberts Lecture was delivered at the House of the Royal Society of Medicine on November 29th by Sir William Bragg, President of the British Association, whose subject was Faraday's diary. The lecture was preceded by a largely attended reception, at which Lord and Lady Dawson of Penruddock received the guests. An exhibition of some Faraday relics was arranged in the library.

Lord Dawson, in introducing the lecturer, said that this annual lecture had been rendered possible by the generosity and foresight of a distinguished member of the medical profession, Dr. Lloyd Roberts. It was given under the auspices of three different bodies in turn, and this year it had come round to the Royal Society of Medicine. The audience was fortunate in its lecturer, and the lecturer in his subject, for Michael Faraday was a pioneer genius, who had not only added greatly to the knowledge of mankind, but contributed vastly to the civilization we enjoyed. Sir William Bragg was a successor of Faraday as director of the Royal Institution, and possessed in an eminent degree the spirit of his master, alike in searching out the secrets of nature by experiment, in the quality of his thinking, the grace of his diction, and in a certain intangible, but very real, quality of human feeling.

Sir William Bragg said that the work of Faraday had always been to him something to look up to, more particularly since he went to the Royal Institution. Faraday's diary was a day-by-day record, in manuscript, of the researches which he conducted at the Institution from 1828 to 1862. From time to time during the progress of those researches the results were summarized and presented to the Royal Society. The diary possessed an extraordinary fascination for the student of science, and indeed for everyone interested in the development of thought and discovery in Faraday's time. There had been great writers of diaries before, but no one had written a diary of this kind. The diary was interesting first because of the tremendous consequences of Faraday's work upon modern activity. In a world which was drawn together by means of communications based upon Faraday's discoveries, which had learnt from him how to use electricity as a tool, which founded great industries on his laws of electro-chemistry, and had based its conceptions of Nature's forces upon a unity which he was the first to establish experimentally, the account of his researches must be invaluable. But the diary was no mere record of experimental arrangements and observations. Before he planned an experiment it was Faraday's custom to write down all that he thought he might do and perhaps observe. The course of the work would be altered as he proceeded, but at least he would trim his perception by previous consideration to estimate at its true value that which he was about to see. When the experiment was proceeding he stopped to think, puzzled perhaps by some unexpected development, hindered by some failure or inefficiency of his apparatus, but delighted when he made his point. There was a famous passage in the diary where he related how, having tried hundreds of experiments for a fortnight, he had suddenly succeeded, and the capitalized and underscored "But" which broke the long sequence of failures made the page radiant with the triumph of the patient investigator. It was a memorable result too, for it established for the first time a connexion between magnetism and light, the appreciation

of which was vital to the understanding of those electromagnetic theories on which so much of modern science was built, and from which so many modern industries had sprung.

Faraday, the greatest worker in the realm of physics and chemistry that the world had ever seen, worked with a great purpose—that of proving the unity of Nature. He felt that gravity, electricity, magnetism, chemical action, cohesion, light, and heat were all connected with one another, and that their activities were interchangeable. Some of these connexions he succeeded in proving and describing, some he failed to establish, though he declared his conviction that they existed, in later days other workers, using knowledge he could not possess, and apparatus far more powerful than he was able to command, had verified his belief. It was this singleness of aim which led him directly and naturally to his many discoveries. The simplicity which marked his diary was part of his whole life. "If we owe to Faraday the greater part of all those developments of electricity and magnetism which have made our modern world what it is, perhaps it is not for those that the world owes him the greatest debt—not for his experiments at all, but for the spirit in which he made them."

Sir William Bragg then exhibited through the lantern photographs of pages of the diary. The diary contained a million words, six thousand pages, sixteen or seventeen thousand numbered paragraphs, and the writing was of the fine delicate character belonging to the early Victorian period, very clear in a way, but trying if read continuously. Typewritten copies had now been made, which rendered the task somewhat easier, and it was hoped to publish the diary before long. The lecturer also repeated, with apparatus as nearly as possible similar to that which Faraday himself had used, some of his experiments. He described Faraday's momentous discovery of induced currents, whereby he had subdued the domain of magneto-electricity, and prepared the way for every dynamo and motor now functioning. "Simple as the thing looked, it moved the world," Faraday saw further into the nature of electricity than any man of his day. His conception of an electrified body was not that the electrical charge was a sort of liquid in the stuff of the metal, but that the metal furnished the end points for the electrical force which was in surrounding space. Page after page of the diary was devoted to Faraday's quest for the connexion between magnetism and light. Some of the experiments he recorded were really the basis of the electro-magnetic theory. He was equally determined to find some connexion between gravity and light or heat. Although he was on the right track, he never knew how hopeless it was for him to dream of reaching the goal, for how could he have anticipated Einstein, or have guessed that the light from a star bent through an air? Finally, the lecturer repeated some of Faraday's experiments with ice, showing how two pieces of ice placed in warm water would freeze together, an action which introduced Faraday to the fascinating study of crystal structure and the study of the formation of glaciers and their movement.

Sir William Hale-White, in expressing the thanks of the audience, commented upon the great simplicity of Faraday's character. His type of genius must ever be of interest to followers of a calling which touched his own at many points. In a minor way Faraday had an interest also for the profession, because as a boy he had lived in the heart of what was now medical London, at first in Jacob's Well Mews, a few yards from the House of the Royal Society of Medicine, and later in Weymouth Street. Moreover, one of the most distinguished Fellows of the Society, Dr. Bence Jones, was his great personal friend and biographer. It was noteworthy that the founder of the whole science of electricity was a medical man, William Gilbert, President of the College of Physicians and physician to Queen Elizabeth. It was he who coined the word "electricity," and he was credited with twenty separate discoveries in electricity alone. Faraday, Sir William Hale-White continued, was a great lecturer. Few reputations survived the lecture table, but Faraday's had done so, largely because he had followed his own dictum that no one lecturing must do justice to his subject, please his audience, and satisfy the honour of a philosopher.

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GASTRIC AND DUODENAL ULCERS

WITH the rise of abdominal surgery and the increased opportunities thus offered for observation of what disease has done and of the results of operative intervention, our knowledge of gastric and duodenal ulceration has been changed out of all recognition. There would appear to be evidence, such as that provided in 1922 by Dr Newton Pitt from *post mortem* material, that fatal ulceration of the stomach and duodenum has become absolutely more frequent, and not only more widely recognized, since 1880. The available data—surgical, statistical, medical, diagnostic, therapeutic, and radiological—have mounted up apace in recent years, and during the past twelve months a large number of papers and several reports of discussions have appeared in our columns and elsewhere. These show a remarkable divergence of views, especially on the important matter of treatment, and in this respect not only the somewhat hackneyed question of the relative efficiency of medical and surgical treatment, but as to what is the most advisable operative procedure. This clash of opinion is wholesome in stimulating further investigation and thoughtful consideration of the complicated problems.

The term 'peptic ulcer' has for a considerable time been applied to ulcers occurring within reach of the acid gastric juice—gastric, duodenal and jejunal, the last being the occasional product of gastro-enterostomy—as it seems clearly established that this one etiological factor is common to them all. Possibly with some despair at their complete explanation, the etiological factors have been somewhat overshadowed in recent discussions by the problem of treatment, and yet a moment's thought must show that the necessary basis for prophylactic and curative treatment is a knowledge of causation. It is true that the responsibility of sepsis and bacterial necrosis of the alimentary mucosa is fully recognized, but attention seems now to be focused on the fully developed disease, except with regard to the acute ulcers.

In his Lloyd Roberts Lecture on "Some problems in gastric surgery," printed at page 1021, Sir Berkeley Mornihan, speaking with authority of thirty years' experience (which he modestly agrees may be defined as 'the fruit of mistakes') points out that no real advance in our knowledge of the etiology, clinical course, or treatment of gastric and duodenal ulcer will be made until these are regarded as distinct conditions with differences more fundamental than those of site. He deprecates the use of the terms 'gastro-duodenal ulceration' and 'pyloric ulcer' and further, laying stress on the pyloric vein as a landmark useful in the distinction of gastric from duodenal ulcers, he finds that chronic gastric ulcers close to the pylorus occurred in only 3 per cent of his 2 000 cases. On the other hand, according to Dr Izod Bennett there is little difference between a duodenal ulcer and a gastric ulcer close to the pylorus, and the relation of the pyloric vein to the pylorus is not constant, and its use as a surface marking misleading; thus a reason emerges for the difference of opinion as to the frequency or rarity of gastric ulcers close to the pylorus.

An accurate estimation of the comparative value of the different methods of treating gastric and duodenal ulcers is surrounded with difficulties, and comparisons based on statistics are not free from fallacies. It may be well, therefore, to see on what aspects there is not any serious divergence of opinion. There appears to be a general agreement in the view that medical treatment, including sufficient rest, proper diet, and elimination of septic foci, should always be tried first; that acute ulcers should not be operated upon; and that gastro-enterostomy is often performed unnecessarily. Dr Arthur Huist¹ recently defended his statement that 'gastro-enterostomy is the commonest gastric disorder to-day,' and that undoing gastro-enterostomies is the commonest gastric operation he recommends. Sir Berkeley Mornihan also deprecates the frequency of unnecessary gastro-enterostomies, some of which are ascribed to the physician's advice, and quotes with approval the title of an article in a foreign journal, "Gastro-enterostomy a disease." The surgical recommendation that medical measures should be tried first appears to be balanced by the conviction that it often fails. Thus the President of the Royal College of Surgeons, who confesses to a 'leaning to medicine rather than to surgery,' states that it is beyond all reckoning more dangerous than surgical treatment. On the other hand, the modified Sippy treatment practised for five years by Professor Hugh MacLean² and his colleagues has given extraordinarily good results and in their hands did not cause any anxiety on account of alkalosis or other untoward conditions, except in the presence of advanced chronic interstitial nephritis. They therefore conclude that in the majority of uncomplicated cases operation is unnecessary. In this connexion the long-continued alkaline treatment has been recommended to prevent relapse. As the medical dictum is so diametrically opposed to his own, Sir Berkeley Mornihan has criticized the premisses on which it is based, and has questioned the extremely rapid healing of a penetrating ulcer, but in this connexion an explanation may perhaps be found in Dr A. I. Barclay's interesting paper printed at page 1026. According to Barclay the term 'penetrating,' though apparently justified by radiographic appearances, may really be suggested by, and due to, a heaping up of swollen mucous membrane, so that what appears to be a deep ulcer may in reality be shallow, and therefore capable of healing much more rapidly than would otherwise seem possible. While there is a general agreement as to the method—namely, the neutralization of acidity—among the advocates of medical treatment, there is much divergence of opinion and practice among the surgical experts. Thus the incidence of jejunal ulcer after gastro-enterostomy for duodenal but not for gastric ulcer (a subject recently treated at length by Hurst and Stewart³) has given rise to measures directed to its prevention, and so rendered the procedure less simple.

The view that these ulcers, especially duodenal (Hurst), but also gastric (G. Draper), depend in greater or less degree on an underlying constitutional make-up or diathesis is a logical argument against any operation save, perhaps, extensive removal of the sites of the ulcers but without entering further on the somewhat academic question of such a drastic operation, which after all, bears rather on the decision whether or not to adopt surgical treatment, a brief reference should be made to partial gastrectomy and duodenectomy as a

¹ Hurst A. F. *Lancet*, 1928, ii, 477.

² MacLean H. Jones I. and Fildes G. *Lancet* 1928, i, 14. MacLean H. *British Medical Journal* 1928, i, 610.

³ Hurst A. F. and Stewart M. J. *Lancet* 1926, ii, 42, 805.

remedy and as a safeguard against recurrence. Sir Berkeley Moynihan and Mr Flint of Leeds are both content with gastro-enterostomy for duodenal ulcer provided that the ulcer is destroyed, and are opposed to partial duodenectomy or gastrectomy as being more serious and dangerous procedures. Mr C. A. Pannett, on the other hand, writing on debatable aspects of gastro-duodenal ulceration, advocates partial duodenectomy for duodenal ulcer, which he has performed in sixty-one cases. Mr Norman Lake urges that, as the cause of ulceration is the acid secretion of the stomach, the only operation that can remove the liability to recurrence of ulceration and bring about a permanent cure in duodenal ulcer is partial gastrectomy. On these divergent opinions it is difficult, at any rate at present, to form a fair and reliable conclusion.

FITNESS FOR INDUSTRIAL WORK

THE factory system is always presenting fresh, insistent problems for the student. The mediaeval craft guilds which governed industry by rigid rules for at least six centuries, came to an end by reason of the inability of their leaders to look ahead and keep pace with the progress of the times. They served their day and generation well so long as communication between one country and another, and even one town and another, was difficult, but when, with steam and growth of population, communication became easy, the limitation placed on output became intolerable. From what we can see, through the veil of years, of the output dating from that era, the guiding principle of the craftsmen seems to have been to supply not, as now, what the people want, but what they thought the people ought to have. In this they were aided by the absence of competition, in the sense understood to-day. Long as the hours worked may have been, the mediaeval craftsmen enjoyed their work. Their skill, derived from a seven years' apprenticeship in the use of the proper tools, and their knowledge of the quality of the material used, were their great asset and pride. Recreation they indulged in—plenty of it, no doubt, with every saint's day as a holiday—but this they seem to have organized so that almost all shared in it.

No glamour of romance can be conjured up around the industrial revolution which followed on the decay of the craft guilds. While it was in progress perhaps the darkest page in English social history came to be written. Industrial unrest dates from then, and although the grossest abuses in the exploitation of child labour have ceased after a century of factory legislation, it is a question whether the dragon's teeth then sown have not raised a crop of other troubles for missionaries and teachers to cope with. No one needs to be told now that one of the phases through which industry is passing is that of mass production. Aspects of this phenomenon form a good deal of the subject-matter of two little books by the writers most competent to deal with them. Professor T. H. Pear in *Fitness for Work*¹ discusses the problems involved in the capacities, abilities, and skill favouring or hindering fitness, the motives underlying work and play, the part played by intelligence, intellect, and skill, and the differences between them, industry, laziness, and other psychological aspects of work, and the effect of all these on present-day employment and play. Professor E. P. Cathcart, in *The Human Factor in Industry*,²

treats of almost precisely the same subjects in chapters under the headings of physiology, fatigue and monotony, alleviation of fatigue, environmental factors, and industrial personnel.

Professor Pear's book reminds one at times of the sage who, behind his hand at his face, laughs at the many aspects under which skill may be regarded, and asks, 'Is industrial skill worth while?' A whole chapter is devoted to answering this question, which would be preposterous were it not for the abnegation of craft skill in the mass production of to-day. 'Skill may become,' he says, 'one of the gravest problems of our time, for all who work for their living and for some who do not.'

In the arts, including surgery, and in games and sports, we revere the skilled person. But to the question, 'Is skill worth while economically, on a mere balancing of expenses against receipts?' the answer depends upon our judgement of economic tendencies. There is the Ford tendency to simplify operations. This would substitute the use of jigs and gauges for all those processes implied in the activity of the craftsman's eye. Laboratory tests would replace, as far as possible, his judgement of material. All such changes tend towards the elimination of skill.

As a society (if we could act as a society) we can either consume more articles produced without skill, or fewer things but made with much skill—for example, masses of cheap machine-made furniture or a few good pieces. Commercial social pressure is towards the former alternative.

Professor Pear has a pretty wit, and draws his examples and analogies from sports, such as skiing and skating, as well as from industrial work. He professes only to have depicted the situation, and to have drawn some of the features which distinguish the development of modern mass production and its effect on the persons engaged on it. 'Knack,' he likens to a state in which the leisured semibreves and minims give place to tense semiquavers and demisemiquavers: the wide folds in the time fabric ruck into pleats. He tries to be extraordinarily fair to what in relation to modern work, is and is not skill, what is and is not intellect, and to the motives animating work and play. He discusses all this with a wealth of illustration and reference to dozens of books and studies in the subject.

The plight we are in is brought home by the fact that monotonous and repetitive work is almost always preferred to varied work if a penny more can be earned by it. What is to be done to render tolerable this development of modern industry? According to Mr Arthur Pound, modern conditions of industry are such that the best thing to do is to train a youth for the right use of leisure. Professor Cathcart, in a significant passage on the natural rhythm with which each individual ordinarily does his work, or would do it if he were allowed, says that if the belief in the existence of the individual rhythm is correct, then the whole system of workshop organization with distribution of shafting throughout the shop, is fundamentally wrong. Instead of working at his optimum rhythm and rate, the average man has to obey the inexorable rhythm of power-driven machinery, and again, in criticizing (not in any carping spirit) the effort to secure vocational selection, the real fundamental trouble he says, is that we know little or nothing of the evolution of aptitudes as age matures.

The factory system has brought many troubles upon mankind. We are paying to-day a heavy price for the selfishness and lack of vision of early industrialists. Some of the hardships followed inevitably

¹ *Fitness for Work*. By T. H. Pear. M.A. B.Sc. London University of London Press Ltd. 1928. (Cr. 8vo pp. 287 5s net.)

² *The Human Factor in Industry*. By E. P. Cathcart. C.B.E. M.D. F.R.S. London. Oxford University Press. 1928. (Cr. 8vo pp. 105 5s net.)

the change from the domestic to the factory system of industry, "but in a larger measure they were due to the fallacy of regarding the workman solely as an economic unit, and ignoring all other aspects of his life." Evils of long growth cannot be cured in a month or a year, but intelligence and goodwill may, in time, provide remedies for some of the worst symptoms. It is comforting, therefore, to note that the professor of psychology and the professor of physiology are agreed that right lines for the rationalization of industry are being worked out by the Industrial Fatigue Research Board and the National Institute of Psychology.

EVOLUTION OF THE BRITISH RACES

SIR ARTHUR KEITH is a never-failing stimulator of thought, particularly when he links the present with the past in order to elucidate processes of development. It was only to be expected that he would make good use of the opportunity afforded him this year when invited to deliver the Huxley Memorial Lecture before the Royal Anthropological Society. The subject of the evolution of the human races is one which arrests attention inevitably, and in Sir Arthur Keith's hands it gained a new interest on November 27th, when he suggested that the modern discoveries with regard to the endocrine glands threw light on old problems of racial differentiation. When Professor Huxley, in January, 1870, addressed a lay audience on the forefathers and forerunners of the English, he disturbed uncomfortably the *esprit de corps* of the orthodox, who held that the peoples of England, Scotland, Wales, and Ireland were fundamentally different. Huxley suggested that any apparent difference was not one of essential origin, but rather of proportion—the proportion in which the Xanthochroic, or Nordic, element was mixed with the Melanochoic, or Iberian, element. In his peroration he went so far as to assert that the arguments about the difference between Anglo-Saxon and Celt were a mere sham and delusion. Sir Arthur Keith, who yields to none in his devotion to the memory of Huxley, used this pronouncement for a text which introduced a fascinating discourse. He checked the arguments of Huxley in the light of modern ethnological discoveries, and showed how the four primitive types—namely, the Xanthochroid, the Mongoloid, the Negroid, and the Australoid—might have come into existence. He then proceeded to suggest how intermediate or graded types might have been produced, also in part as the result of endocrine modifications. In his inimitable way he touched on racial distribution and evolution, bringing into prominence the conflict between civilization and natural evolution in such widely separated and contrasting localities as the Caucasus in ancient times and in our modern centres of industry. He defined the four nationalities of Great Britain and Ireland as being differentiating races which had still further to travel along this road. Their journey was governed by the co-operation of three agents, which were (1) physiological processes, which regulated the growth of the human body and determined its racial characteristics, (2) an isolating or segregating mechanism, both psychological and physical in nature, which tended to preserve a local people in its purity, and thus permitted physiological processes to work undisturbed through many generations, and (3) a selective mechanism, represented by changing environment and inter-racial competition. Hybridity would, therefore, seem to have played only a subsidiary part in the evolution of races. Sir Arthur Keith did not fail to draw the practical deduction that political problems must be considered from a biological and evolutionary

point of view. The full text of his lecture will be found in the *Journal of the Royal Anthropological Institute* (vol. LVIII).

OPIUM PROBLEMS

At the fifty-third session of the Council of the League of Nations, which assembles on December 10th, there will come under consideration the appointment and powers of the Permanent Central Opium Board to be established in accordance with the provisions of the Geneva Convention of 1925. The Board is to consist of eight persons "who, by their technical competence, impartiality, and disinterestedness, will command general confidence", it is provided, moreover, that its members shall be, "in equitable proportions, persons possessing a knowledge of the drug situation, both in the producing and manufacturing countries on the one hand, and in the consuming countries on the other hand, and connected with such countries." They are to be appointed for five years, and are not to hold "any office which puts them in a position of direct dependence on their Governments." As our readers are aware the United States Government has declined to participate in the appointment of the Board, preferring to co-operate in accordance with the provisions of the Hague Convention of 1912 rather than with those of the Geneva Convention of 1925. The Spanish Government has, it is reported, by royal decrees established a State Narcotic Bureau for the restriction of commerce in certain listed narcotics so as to prevent their use without a proper medical prescription. A virtual State monopoly is thus created, under which notification will be given to the Governments of countries with which Spain places orders for the quantities of the narcotics which will be required for legitimate use. It is thus hoped to assist in checking the present excess of manufacture, which leads to illicit traffic. Smuggled opium in Shanghai has led to a serious *mélée* between the municipal police and the military gendarmerie, in the course of which some 20,000 ounces of contraband opium mysteriously disappeared. It is said that the military authorities in the Shanghai area regard the opium trade as their perquisite, and that opium has been the bone of contention in all the *Tuchuns'* warfare for the possession of Shanghai. Doubtless this illicit traffic in opium in China and the Far East will engage the attention of the recently appointed commission of the League of Nations, and prepare the ground for the conference which is to be held next year on the whole question of opium smoking and the licit and illicit trade associated with it. Interesting light has been thrown on the activities of the Indian Government's opium factory at Ghazipur by a recent answer given in the House of Commons. It appears that during the last four years large quantities of morphine have been manufactured at the Government factory at Ghazipur, and "substantial markets" have been found for the sale thereof outside India. Thus, in 1923-24, 4,050 lb of "crude morphine" were sold for 155,993 rupees, in 1924-25, 2,000 lb for 145,211 rupees, and in 1925-26, 6,099 lb for 224,887 rupees. It is stated that the morphine is made "from waste products and contraband opium." We understand that representations have been made to the Government of India to the effect that contraband opium, when seized, should be destroyed rather than utilized for augmenting the excess of the drug already on the market. A memorandum issued by the non-official Anti Opium Information Bureau at Geneva draws attention to a resolution adopted by a committee of the Reichstag, which is considering the reform of the German penal code. This resolution, passed on October 29th, calls upon the Government to take measures to limit the manufacture of narcotic drugs in Germany to the quantities necessary for medical use in

that country, it was formulated after the receipt of a statement showing a very considerable increase in the number of drug addicts in Germany. The proposal is of special interest owing to the fact that Germany has a considerable export trade in narcotic drugs. In view of this it is doubtful if the committee's suggestion is practicable, while among the effects of its adoption—even if the Government were willing to sacrifice the export trade—would be the deprivation of non-manufacturing countries of a source of legitimate supply. The main significance of the resolution is therefore, perhaps, its recognition of the gravity of the drug addiction problem.

THE GENERAL MEDICAL COUNCIL AND THE PRESS

THE disciplinary cases which came before the General Medical Council at its winter session just concluded were neither numerous nor, save in one instance, of general interest. Two of the cases resulted in protracted inquiries, and in both of them the charge was of such a nature that on the grounds of public decency the Council very properly decided to hear them in private. Hitherto it has been the general rule of the lay press that cases which come before the Council shall be reported only if they result in censure of the practitioner's name from the *Medical Register*. No one seems to know how such a rule or custom arose, it is not observed by the medical journals, and circumstances can readily be imagined in which such a suppression might be very unfortunate. The fact that certain charges are pending against a practitioner is often common talk in his neighbourhood—there are always mischievous tongues to spread and decorate such information—and it might be very desirable to have in the general press the explicit statement that he had been exonerated by the court of professional discipline. In so far, at least, as the Council's decision of "not proven" can ever be an exoneration. But in general the lay press has adhered to its rule, sacrificing in consequence many a good "story" from its point of view. Some newspapers lately, however, have not only transgressed this rule, but have scurried up the Council's disciplinary proceedings with all the devices of sensational journalism. During this recent session one practitioner was accused of having committed adultery with a woman with whom he stood in professional relationship, the Council found that the facts alleged were not proved, but this did not prevent a London newspaper from printing under sensational headlines a descriptive sketch of the proceedings, in which we read of the "clenched hands" and "tired face," and so on, of the respondent. The press is, under a most salutary law, prevented from publishing divorce court proceedings beyond certain narrow limits, and it seems rather hard that because a co-respondent in such proceedings happens to be a medical practitioner his case should receive publicity before a professional tribunal which it could not have received in the divorce court itself. On the other hand it would be, even in some of these cases which involve delicate points of professional responsibility, a loss to the medical profession if the Council conducted its disciplinary business in secret. Cases continually arise which deserve reporting in the fullest detail, not because of any piquant interest they may possess, but because of the guidance they afford in the matter of professional ethics. One of these is reported in the *Supplement* this week—the case of a medical man of high personal standing who received a warning from the Council on account of his association with an institution which it was held had advertised to the lay public certain special treatments. The bare announcement of the decision in such a case would be quite valueless without a narrative of the facts upon which it was based and which were brought out at the hearing.

EYE JAZZ

POPULAR journalism has its advantages for the general public, and it has its disadvantages. A wise editor can influence his readers for their benefit, but a foolish editor may bring them to confusion. In no sphere are these potentialities more likely to be realized than in the publication of notes regarding matters of health and sanitation. Of late there have been signs of better care in the issue of articles dealing with health. We are apt to conclude that the foolish articles will only be seen in flimsy dailies and weeklies, and that the wise ones will always mark the more established and responsible journals. But alas! this is not always so. We have just seen a note entitled "Eye gymnastics," published in a daily newspaper of a great provincial city, so great a city that it might be the metropolis of the country were there no London, and the paper is one that has an international reputation in the political sphere, and has helped to shape history in the past. This great paper has fallen before the craze for the light magazine page, but its light is surely darkness when it advises its readers to discard their useful spectacles for a scheme of eye gymnastics that would be more properly described in the term of our heading. Here is the "scheme."

"The best exercise possibly is one in which both the eyes are screwed up tightly whilst the lungs are filled with breath, releasing the eyes and the breath at the same moment suddenly, then blinking the eyes several times. This brings the blood coursing about the eyes. Another is to look up, down, to one side, to the other side as far as possible in each direction changing about as quickly as possible, and then reversing the order."

Had the editor of this most reputable newspaper mislaid his glasses when he passed this for publication? Does he think that the stretched eyes of the myope can be shortened by such jazz, or the crooked eye of the astigmatic made straight, or the stiff eye of the elderly made limber as in youth? Did he forget that in the county school quite near to his editorial sanctum there were children who, by reason of their knowledge of elementary physiology, would blush to write such stuff? The writer of the paragraph in this newspaper says "Undoubtedly for the young such a cure should certainly be tried before artificial aids are adopted." Nothing more pernicious could have been written. To teach such jazz to a child is calculated to start an angry habit spasm distressing to the holder and a curse to the subject of it. Yet there are misguided folk who are actually subjecting their children to this indignity—and they are inconsistent withal, for at a recent inquiry by an educational authority as to why a certain short-sighted boy was attending school without his glasses, the father stated that he was receiving "special treatment" that made glasses unnecessary, yet the father himself found his own glasses an imperative necessity for his work. Why do not the advocates of these monkey tricks (for such they are, as any visitor to the Zoo can see for himself) work their alleged cures in a field where results would be manifest and incontrovertible? Why do they not try to straighten a tip-tilted nose by the practice of gymnastical wriggling of the nasal musculature, or to resolve the efflorescence of a monstrous "frog-blossom" by digital percussion? We would venture to suggest to editors that in publishing such paragraphs they injure the reputation of their journals for sound sense.

IMPERIAL CANCER RESEARCH FUND

At a meeting of the general committee of the Imperial Cancer Research Fund on November 28th, with the president, the Duke of Bedford, in the chair, the annual report of the director, Dr J. A. Murray, F.R.S., was unanimously adopted, on the motion of Sir Humphry Rolleston, chairman of the executive committee. A summary of this report appeared in our last issue (p. 1017). Sir Humphry Rolleston reviewed the ground covered in the report, and

afterwards called attention to the importance of the work of the Fund in promoting critical investigation of the findings of other workers. He referred particularly to such statements as claimed to have demonstrated the infectivity of cancer, or to have established a direct specific causal relationship between diet and cancer. Assertions of this nature were not merely of theoretical interest, but necessarily aroused the attention of the general public, which was naturally anxious to know how much truth there was in them. The adoption of the report was seconded by Sir D'Arcy Power. Moving a vote of thanks to the chairman and members of the executive committee, the sub-committees, the honorary treasurer, and others who had assisted in the work of the Fund, the president referred to the widespread public interest in cancer and to the amount of attention recently given to the clinical aspects of the disease. The immediate practical developments in the treatment of cancer, he pointed out, could of necessity give but little information on the more fundamental problems of the disease. After emphasising the importance of research, he commented on the financial position of the Fund, and referred specially to the approaching cessation of the liberal grant by Lord Atholstan of £2,000 per annum for ten years, which was completely absorbed by the expenses of the Stroud laboratory. He added that unless they could make up this annual income in some way the expenditure on research work would have to be reduced. He expressed the hope that the munificent contributions of £10,000 and £3,000 received through the good offices of Sir Basil Mathew would be followed by other liberal donations.

DEEP SEA FISH

DR MICHAEL GRABHAM may well be called the Grand Old Man of Madeira, on which subtropical island he has been perhaps the best known and most distinguished figure for so many years. Dr Grabham betook himself to Funchal in 1861, there to become the acknowledged leader of the British community and the trusted adviser of the Portuguese on all sorts of medical and other scientific matters. Not long ago he went on an all-night voyage in a fishing boat to the island of Porto Santo to investigate and substantiate the alleged total absence of dental caries among the inhabitants of that remote islet. He tells his readers, in a paper read at the recent meeting of the British Association in Glasgow, with all the zest for adventure of a youth, how well he fared on that occasion on the flesh of "that enticing creature" the great red scorpion fish, grilled over glowing charcoal, with a sweet potato, and washed down with "coffee" made from roasted barley. Reference to the *pièce de résistance* of this meal brings us to the subject of Dr Grabham's paper, which was "The subtropical deep-sea food fishes of the Madeira district." He writes of these with the knowledge of a naturalist and the enthusiasm of an amateur fisherman who has himself dragged many a great fish from its retreat some two thousand feet or more below the surface. But lest the ardour of the reader and possible disciple should be cooled by the thought of having to haul in the above mentioned length of line with a hundred pound sherry at the end of it, he tells us that owing to the destructive effects of rapidly diminishing pressure, "In the last few hundred feet the monster rises faster than we can pull him in, and shoots out of the water like a cork or an empty bottle, not dead but helpless." This and many other valuable food-fishes and their habits, as far as known, are described by Dr Grabham. Of one of these, the *Ruvettus pretiosus* or oil fish of British ichthyologists, he tells that it acts as a violent and sudden purgative if eaten incautiously. Here surely is an opportunity for some of the eager purveyors of cures for intestinal stasis to add to the list of nostrums

samples of which they press upon the often thankless practitioner. In his brief paper, written at the age of 88, Dr Grabham has certainly succeeded in his avowed aim, "of engaging interest and research rather than to speak in detail of the knowledge already acquired from the abysmal depths of subtropical Madeira."

THE KING'S ILLNESS

DURING the past six or seven days the King's illness has caused great anxiety, and the bulletins issued at frequent intervals by his medical attendants have been followed everywhere with profound concern. It must be apparent to all that His Majesty is fighting an acute infection, and that the strain upon his reserves of strength, and in particular upon his circulation, has been severe and continuous. The essential facts in the statement printed below have been authorized for communication to the medical profession.

Reviewing an illness which has now passed into its third week, the clinical picture becomes more complete.

The lung infection belongs to a type with which clinicians have become acquainted during the last ten years. A variety in which there is no set duration—no crisis—but where there are phases or chapters of infection varying in number, where the temperature settles slowly and intermittently. It is for this reason that the strain on the heart is so considerable, the strain being decided not only by the violence but by the length of the infection. The widespread pleurisy unfortunately extended to the diaphragm, causing severe pain, which needed constant control. Attacks of bronchial spasm have from time to time added to the difficulties.

As early as practicable in the illness a blood culture was taken and a positive result obtained. This infection was coccal in character. Blood counts have shown a leucocytosis of the polymorphonuclear variety. Radiology has been useful, and the clear pictures obtained confirmed the clinical evidence that the lower two-thirds of the right lung was the area involved.

As all physicians know, an important part of the treatment consists in saving the patient the wear and tear of pain and distress, and promoting restfulness and sleep, and in this the best of British nursing is playing no small part. In addition to the foregoing, therapy directed against the infection has taken the form of chemical antidotes, the raising of immunity, and the promotion of leucocytosis. There is reason to think that a measure of control—and it is to be hoped a measure of curtailment—has thus been secured. At this date (Wednesday, December 5th) the physical signs in the chest have diminished and the corresponding local symptoms have improved. There is, however, still ebb and flow. There is up to the present no appreciable pleural effusion.

Medical men do not need to be told that the strain on the myocardium of a severe infection lasting over two weeks must be an anxious problem, and especially in a patient over 60 years of age. This strain on the heart and the severity of the general toxæmia are together the chief cause of the serious anxiety which must for some days continue to exist.

The following have contributed in their various ways to the care of His Majesty during his present illness: Lord Dawson of Penn, Sir Stanley Hewett, Sir Humphry Rolleston, Sir E. Farquhar Buzzard, Dr L. E. H. Whitby, Dr H. K. Graham Hodgson, Nurse Pordie (Westminster Hospital), Nurse Black (London Hospital), Nurse Davies (London Hospital), and Nurse Gordon (St. Thomas's Hospital).

Nova et Vetera.

A CLINICAL NOTEBOOK OF 1710

This small vellum covered book of one hundred pages, measuring six inches by four, with a still efficient metal clasp, is filled with notes of cases taken, as the dates show, in the year 1710. In appearance it much resembles a modern bankers' passbook. It once belonged to Dr Thomas Wallace of Ipswich (1680-1763), and it is to the kindness of his great-great-grandson, Mr W Roco Wallace, that we owe the opportunity of examining it. Oddly enough, the name of Dr Wallace only appears in pencil on the end paper, and here it is hardly in the form of an autograph. The name of John Brownian is written in a contemporary hand in ink on the flyleaf, but the hand differs from that in which the notes are written. Besides notes of hospital cases the book contains five pages headed "Symptomata," which consist of a list of symptoms and names of diseases and of remedies for them. At the end of the book half a dozen reversed pages are devoted to rules and examples of arithmetical progression, a subject which seems to have little enough to do with medicine or therapeutics.

The greater, medical, part is written in a very clear hand and in Latin, and at the top of the page is generally written the name of the ward in which the patient lay. These ward names constitute the chief indication of the place where the observations were made. There are thirteen wards mentioned, as follows: Susannah, Lazarus, Cutting, Isaac, Jacob, Noah, King's, Jennal, Tobias, Job, Lydia, Deicas, Elizabeth. It seemed obvious that in the year 1710, when hardly any provincial hospitals existed and certainly none at Ipswich, these notes could only refer to some hospital in London. Inquiries made and courteously answered by the secretaries of St Bartholomew's and St Thomas's Hospitals showed that of the thirteen ward-names in the book, ten were in use at St Thomas's about the date in question, and the remaining three might have been found to have been in use there had not certain records disappeared. Five of the names were also in use at St Bartholomew's, including the strange one of Cutting, which was common to the two hospitals. Sir D'Arey Power kindly tells us that "The Cutting ward was the operation ward at St Bartholomew's Hospital, and for convenience the deadhouse was just underneath, so it must have been in the Cloisters—i.e., a range of rooms on pillars." In addition to the evidence of the ward names the fact that the names of Drs Mead and Cotesworth are mentioned in the notebook makes it almost certain that the note-taker made his observations on patients in St Thomas's. Of the famous Dr Mead there is no need to say more. Dr Cotesworth was Caleb Cotesworth, M.D., of whom we learn from Munk's Roll of the Royal College of Physicians that he was

'formerly a surgeon but then disfranchised of his company' was on the 1st October 1688, admitted a licentiate. He was created doctor of medicine by Tillolson Archbishop of Canterbury on 3rd March 1692, and was admitted a Fellow of the Royal Society in 1718. He was physician to St Thomas's Hospital, and died on 2nd May, 1741, having amassed a fortune of between one and two hundred thousand pounds the greater part of which he left to his wife, who, surviving him only a few hours, died intestate.

His history is a good instance of the possibility at that time of making a fortune out of physic, without leaving any mark on the progress or history of the medical art. It also furnishes an example of the strictness with which the College of Physicians then, and for a long time, repudiated the taint of surgery. Every surgeon who desired to become a licentiate was obliged, as was Cotesworth, formally to divest himself of all official connexion with the Company of Barber Surgeons or later with the Corporation of Surgeons.

In turning over the leaves of this little book the first thing that strikes us is the absence of all but one reference to surgery, even in Cutting ward. Most of the cases in this ward, however, have no disease recorded against their names, but only prescriptions. The writer may therefore have ignored their surgical aspects. The second is a

similar silence on the subject of bleeding, which does not seem to have come into vogue so early as 1710, and the third is the great frequency with which blisters were ordered. A patient was lucky, apparently, if he or she left hospital without having been blistered several times. Blisters to the nape of the neck were almost as common as a dose of house medicine. We must confess that we are puzzled by some of the abbreviations used. A very common one is "B et C." For instance, in Lazarus ward John Barwell, who was "luc venerat inguinatus," was ordered "B e C h s nq purg p o d 3ss", and again "B e C D D em lacto." We hope that some of our readers more learned in ancient prescriptions may be able to interpret these signs. Lazarus seems to have been a "foul" ward. In it Richard Tomlins, who was afflicted with nudes on the arm, leg, forearm, and wrist, with severe pain (dolore vehementi) of the left arm, was very vigorously treated. He took Bolus 17, vomitus 11, pil 7 (vomitus exhibitum superiore die Secuta est pilula de inferiore oe) et unctione 111. He recovered after remaining in hospital over two months. The record ends "NB Omnia haec per dejectione operabantur." Epileptics were given blisters to the head and haustus epilepticus. After three such prescriptions a note is added "Hi tres Epileptici erant," so that there should be no possibility of mistake. Yet there may have been, for one of the three is stated to have been cured—"Curatus" is the laconic but triumphant note. This case was blistered on the calf instead of the head. Samuel Males, who "gravior epileptici orat," was blistered on the right arm and "nearly all the head," but despite these and other remedies "abut meritis."

The names of patients in this book are those still familiar in English country places to-day. "Sara Mendapace" seems auspicious, but, alas for Sara! the diagnosis was "Uteri Cancer." There is a total absence of "Maes" among these names, and there are very few obviously Irish or Welsh. The Celtic fringe had not yet begun to assert itself.

The pharmacy of this notebook is practically that of Salmond's translation of the *Pharmacopoeia Batava*, second edition, published in 1700—only ten years earlier. This work by Sir George Bate, who was physician to Charles I, Oliver Cromwell, and Charles II, was long popular. Some of the rather disgusting and ineffective animal materia medica survived. Aqua or liquor limacum was made from red snails and salt, and Salmond said it was "a singular noddyne and arthritic." Haustus epilepticus was much prescribed in these notes, but there is no haustus of any sort in Bate. Electuarium epilepticum, however, contained "white dung of a peacock, dried." Spiritus millepedum was made from wood-lice, which Glisson had recommended in the cure of rickets. Salmond said that it "opens all obstructions."

We have only found one record of a surgical operation—a case of lithotomy, which proved fatal.

The touching belief here shown in the efficacy of a whole list of drugs which we know to have had none but a psychological effect, was of long standing in 1710, and still lingers. It will probably be long before "advice and a bottle of medicine" (especially the bottle) ceases to be demanded by millions of our fellow countrymen.

E. MUIRHEAD LITTLE

A REPORT on Borna's disease, prepared by S. Nicolas and J. A. Galloway, and recently published by the Medical Research Council (Special Report Series, No. 121), contains special points of interest to students of human neurology. Although this dangerous communicable disease of horses, cattle, and sheep has not spread to this country from America, it is not unknown in continental Europe. The immediate interest which the pathology of Borna's disease has to medical science depends on the fact that this is a virus disease, and the present report is a useful contribution to our knowledge of virus diseases in general. Moreover, the infective virus produces changes in the brain and spinal cord, the so-called encephalo-mylitis of sheep and cattle, which throw light on analogous forms of encephalitis and myelitis that occur in sporadic or epidemic form in human beings. In addition to gaining new knowledge of the general pathology of this disease, the authors have shown that animals can be successfully immunized against it.

NOISE AND THE PUBLIC HEALTH

DEPUTATION TO MR NEVILLE CHAMBERLAIN

A joint deputation from the British Medical Association and the People's League of Health was received by Mr Neville Chamberlain, M.P., Minister of Health, on December 4th, the purpose of the deputation being to present to the Minister resolutions recently passed by these bodies on the subject of noise in relation to public health.

The representatives of the British Medical Association, who were introduced by Sir Richard Luce, M.P., were Dr H B Brackenbury (Chairman of Council), Dr C O Hawthorne (Chairman of Representative Body), Mr N Bishop Harman (Treasurer), Dr J W Bone (Chairman of Medical-Political Committee), Dr Dan McKenzie, B.M.S., T G Nasmyth (Edinburgh), Dr Alfred Cox (Medical Secretary), and Dr Courtenay Lord (Assistant Medical Secretary).

Sir THOMAS HORDER introduced the People's League of Health deputation, which consisted of Sir Robert Armstrong-Jones, Professor C Robertson (University of Edinburgh), Dr Thomas Beaton (Medical Superintendent, Portsmouth Mental Hospital), Dr M B Ray, Mr E B Turner, and others, with Miss Olga Nethersole (Honorary Organizer of the League).

The Minister was accompanied by Sir George Newman, Senior Medical Officer.

Dr BRACKENBURY explained that at the last Representative Meeting of the British Medical Association a resolution on the subject of noise was carried unanimously. This resolution had a Scottish origin, and, of course, it was recognized that the Ministry of Health had to do administratively with England and Wales, and another body with Scotland, but it was the business of the Council of the British Medical Association to carry into effect, so far as it could, the opinions of the Representative Body, and it had acted upon this resolution in two ways in Great Britain to bring to the notice of their local authorities the need for using whatever powers those authorities might possess with a view to the suppression of unnecessary noises, and, in the second place, it had presented the resolution to the Minister, together with a memorandum dealing with the subject in its clinical and scientific, and not so much in its administrative, aspects. On the medical and scientific side this was regarded as an urgent matter, and his Council was fortified in that view by the very large volume of support which the action of the Association had received, both from the public press, and, through correspondence, from individuals and public or semi-public bodies. The Association had been urged to persevere in this matter to the best of its ability. In addition to such reinforcement some further points had been brought to the knowledge of the Association, such as, in certain localities, the noise of aeroplanes, and, in certain small towns, the noise arising from traffic over cobbled roads. This latter nuisance appeared to be even greater than was supposed when the memorandum was drawn up.

Mr CHAMBERLAIN: Is that a recent development?

Dr BRACKENBURY: It has become more evident to us as a public danger from the correspondence which has followed the publicity given to our resolution. Not only is the motor and other traffic much greater over these cobbled pavements but for protection people are driven to close their windows and thus they suffer again from lack of proper ventilation.

Mr CHAMBERLAIN: They have been doing that for hundreds of years.

Dr BRACKENBURY: At any rate there has not been the same necessity for doing it in the past. We have been trying to teach people the need for domestic ventilation and now this fresh element comes in. I have only to add that we in taking this action are voicing a large volume of professional and public opinion.

Baillie NASMYTH (Edinburgh) said that he had been a medical officer of health for about thirty years, and, of course, he had had continuously to deal with nuisances of various kinds. This very serious nuisance, however, was not dealt with under the Public Health Acts either of Scotland

or England. In 1927 he brought the matter before the Public Health Committee of the Edinburgh Town Council. It was readily taken up, and he was surprised at the prompt acquiescence in his view that noise had become a great nuisance, he was surprised also at the volume of opinion on this subject from the medical profession, culminating in the unanimous passing of the resolution from the Edinburgh Division at the Cardiff meeting in July. The Public Health Committee in Edinburgh unanimously resolved to recommend that suitable provisions on this subject should be inserted in the next provisional order promoted by the corporation, and this course had again been approved unanimously by the Edinburgh authorities. He wished to emphasize the extraordinary support these proposals had received from the press all over the country, an indication that people were becoming seriously alarmed as to the devastating effect of noise on public health.

Dr DAN MCKENZIE wished to emphasize two points. In the first place, as practising physicians and surgeons, their interest in the matter was the interest of the sick person, and from experience in their practices they knew that the public noises in London and other big cities caused much interference with the process of recovery. In the second place, they were mindful of the interests of persons in health, whose exposure to the deleterious effects of noise had also to be considered, because the noises were of such a nature as to interfere with necessary repose. This interference was found to reduce the amount of good work done by the community, though it was difficult to estimate the full extent of the harm thus wrought. He wished to add that it had been shown during the past year or two that it was possible to reduce noises in the streets of London—for example, whistling for taxis—with the minimum of inconvenience. There were a large number of noises of the same character in the streets, and some of them might be eliminated by a little arrangement without disadvantage to anyone.

Sir THOMAS HORDER then introduced the representatives of the People's League of Health. He said that the persistence and increase of noises in and about the streets had become an intolerable nuisance, and likely to cause serious damage to the nervous system. He read a resolution which had been carried at a meeting of the People's League of Health on February 22nd, urging the control and diminution of preventable noises in view of the emphasis by eminent neurologists and mental experts of the grave effect of noise upon the nervous system and its part in increasing the incidence of functional mental and nervous disorders. He also read a letter from Sir Maurice Craig, who was unable to be present, stating that he (Sir Maurice) had been impressed for many years by the increasing number of persons whose health had suffered from noises in the streets of London. Sound sleep being a fundamental necessity for mental health, it was evident how important the question of disturbing noises became. When exposed to such noises the auditory centres in the brain could never be at rest and nerve fatigue resulted, with all its concomitant disabling symptoms. Over-stimulation of the nervous system was one of the most important factors in bringing about minor and at times major mental disorder, and noise was an important cause of such over-stimulation. Sir Thomas Horder read another letter from Sir Thomas Oliver of the University of Durham, who wrote of the ill effects of noise on the health of work-people in factories and other places where this nuisance was really preventable. Some machinery was so deafening as to produce not only temporary but permanent disability. Only a small percentage of men who followed the occupation of riveting for fifteen or twenty years escaped deafness.

Sir ROBERT ARMSTRONG-JONES said that he spoke with some knowledge and authority on behalf of the mentally ill, who frequently also suffered from certain functional nervous disturbances, such as irritability, erethism, exhaustion, and anxiety. To the neurotic person, "who did the work of the world," sleep was a vital necessity, but under present conditions often impossible of attainment. The ordinary worker who had a prearranged setting for his period of rest was repeatedly roused by loud and disturbing noises, and rose in the morning shaky, confused,

and unrefreshed after his so called night's rest. His health suffered in consequence, his work deteriorated, and he joined eventually that highly sensitive neurasthenic group of persons who jumped every time the clock struck. The general health of children also soon became affected, and their growth impeded through lack of sleep. The human ear was a double instrument, not only hearing sounds, but keeping the body balanced and the muscles in proper tension through the vestibular nerve. The effect of noise was therefore not only to disturb rest, but to bring about unsteadiness and giddiness and create muscular tremors. Noises also, or strong arrhythmic vibrations, were as definitely conveyed to the bones of the skull as to the walls of a house, and the fluid which was the essential conductor of sound within the canals of the ears passed on these vibrations to the brain, even subconsciously during sleep, with the result that the sleep was unrefreshing and the fatigue not lessened. The noises that disturbed sleep and distressed the mind comprised the sudden unexpected shocks, such as loud motor hooters, uncontrolled exhausts, pneumatic drills, vibrations of fast-driven vehicles with solid tyres, railway whistles, barking dogs, milk cans, noisy trains and trams, and all kinds of strident horns. He begged that local authorities might be given power to stop hooting and prohibit the use of solid tyres.

Professor GEORGE ROBERTSON (Edinburgh) said that noise was more harmful to the highly strung and nervous, many of whom were the salt of the earth. He called attention to three effects of noise: (1) disturbance, excitation, and irritation, which had consequences of many kinds on conduct, (2) constant strain on nervous energy, causing mental exhaustion and neurasthenia, and (3) broken and interrupted sleep. Loss of sleep occurred as a cause or symptom of mental breakdown in about 75 per cent of cases, and was undoubtedly one of the causes of insanity, even as the production of sleep was one of the means whereby insanity was prevented or cured.

Dr THOMAS BEATON (Portsmouth) drew attention to the great incidence of mental and nervous trouble, and said that noise was evidently a large contributory factor.

Dr M. B. RAY said that perpetual over-stimulation of the auditory sense had a most deleterious effect upon the power of concentration in children and adults, and produced varying degrees of instability. He also spoke of the noises around city hospitals, especially at night.

Mr E. B. TURNER gave his experience of the numerous cases of illness which immediately followed the removal, many years ago, of the bars in the South Paddington residential district, which bars had hitherto prevented the great volume of horsed goods traffic from the Great Western station proceeding at all hours of the day and night through the quiet squares and streets of that district. He suggested legal action to enforce "zones of silence" around hospitals, white lines drawn across openings of side roads into main roads, and a ten miles an hour limit at such points, thus doing away with hooting when vehicles crossed side roads, limitation of weight and bulk of goods carried by road, enforcement of the use of pneumatic tyres on lorries, prevention of sale of motor cycles not efficiently silenced, the making of by-pass roads to cut off as many country and suburban towns as possible, and the amendment of Section 91 of the Public Health Act, 1875, so as to include noise among statutory nuisances.

The Minister's Reply

Mr NEVILLE CHAMBERLAIN, in replying to the discussion, to which, he said, he had listened with much interest, for he, like most other individuals, not only disliked but resented noises, spoke as follows:

When it comes to practical measures to reduce noise, I think you probably realize that this is a matter which is more in the hands of the Minister of Transport and the Home Secretary than in those of the Minister of Health. It is for them to deal with noise as a matter of order and government, and, in fact, they are now considering what further regulations shall be made to reduce preventable noise. It is true that Sir Thomas Horder has just suggested that I should undertake the amendment of the

Public Health Act, 1875, and include noise among the various matters which may be treated as nuisances. It is a fact that the nuisances dealt with under the Public Health Act are confined to sanitary matters, and noise cannot be brought under the statute as it stands, though certainly, assuming all other things were favourable, it would be possible to insert an additional clause to bring in noise. But I think that before such an amendment were introduced the question would have to be considered much more carefully than those who have had it in hand have thought necessary up to the present. It would be necessary to consider, first of all, how to define noises, and, secondly, how to prevent them. It is obvious, for instance, that such noises as the barking of dogs—and, I might add, the caterwauling of cats—which may be very distressing to people, especially at night, are noises which, nevertheless, it would be very difficult to prevent.

What is it, then, that you suggest that I should do as a result of this deputation? I confess I am not quite sure. You desire to impress me with the weight of your opinion as to the injurious effects of noise upon health, and possibly you have it in mind that if I am sufficiently impressed I may add my voice to the representations which have already been addressed to the Home Secretary. You may think that, by making a little noise in his ear and in that of the Minister of Transport, I may induce them to treat this matter with more urgency and in greater completeness ("Hear, hear"). Well, I am not at all indisposed to take a sympathetic view on that point (Applause). But I want to say something further to you—namely, that the impression left upon my mind from what you have said is that every speaker has had in view, not the needs of healthy people, but of sick people. I see some of you shake your heads, but I am going to say something more on that point. I know that you have said in a general way that the nuisance of noise affects healthy people as well as sick, and Sir Robert Armstrong-Jones has drawn a most alarming picture of what may happen to the healthy community if these noises continue. Well, I hope I am a healthy person, but I do not recognize these effects as occurring in my own case. It is true that I am sometimes—not often—kept awake at night, but it is not the noises that keep me awake, it is other matters, such as worry. Although the noises may be startling, unexpected, and arrhythmic, they do not trouble me. No doubt, if I were one of those neurotic people who "do all the work in the world" they would trouble me greatly, but whilst I entirely agree that these neurotic people are made more neurotic by the noises that go on, yet when you have got a person in that condition are you ever going to be able to keep the streets in great cities so quiet that he will sleep peacefully at night and recover his health? Perhaps you can answer that question with more confidence than I can, but it does seem to me that, the fact of these noises being, as it would appear, almost inseparable from our city life, the conclusion to which you might be led would be rather to take your hospitals somewhere else than to try to stop the noises round about them in the places where they stand to-day.

One thing I do feel very strongly, and that is that we still lack precise knowledge upon this subject, and there is a wide scope for further scientific investigation. Take the question which has been touched upon by one speaker to-day—namely, the noise in industrial establishments. One member of the deputation spoke definitely of serious injury being done to health as a result of that noise. But I venture—though not a medical man—to express some doubt as to whether there is at our disposal precise evidence of any such injury occurring in factories to any great extent. I have been in cotton mills in Yorkshire, and to me, who had never been in such places before, the noise was shattering, but I saw people who were working there, and I was told that the output was by no means diminished on account of the fact that the noise was proceeding. In the opinion of many people the human organization adapts itself to conditions which are going on all the time, and very soon—the time is extremely short in some cases—the conditions cease apparently to have any detrimental effect. I only give you that as the sort of opinion I have

heard expressed on the subject, and not as a positive opinion of my own. But surely this whole complicated subject is one which can be investigated. I believe that experiments are already being carried out by the Industrial Fatigue Research Board, which is looking into the effect of noise upon the nervous constitution, among other things.

I put it to you that it is very easy to express opinions which are, *prima facie*, probable about this question of noise, but this is hardly sufficient, and no really requires something much more reliable, founded upon not merely the opinion of this or that person—because all persons may be fallible on these matters, and even doctors sometimes take different points of view—but upon definite scientific measurements and accumulative data, which would enable us to see what is the damage that may be done, what, for example, is the precise form of noise which causes the most damage, and, therefore, what are the points to which we ought most carefully to direct our attention.

That is all, I think, that I want to say to you in reply. I will, however, assure you that the words you have said to me and the various memoranda that you desire to leave with me will be most carefully studied. I have the greatest sympathy with your general purpose, and I desire, wherever it is possible, to see that preventable noises shall be prevented. I shall have much pleasure in telling my right honourable friend the Home Secretary what this very influential and weighty deputation has said before me.

The deputation then withdrew.

THE ROYAL SOCIETY ANNIVERSARY MEETING

THE anniversary meeting of the Royal Society of London was held as usual on St Andrew's Day, November 30th. The president, Sir ERNEST RUTHERFORD, delivered an address on the present state of experimental knowledge with regard to the production of very high frequency radiations of the x-ray type.

PRESIDENT'S ADDRESS

As usual, the president began his address by referring to the Fellows who had died during the previous year.

Sir David Ferrier

OF Sir David Ferrier, who was a vice-president of the Society in 1906-8, and had been a Fellow for fifty-two years at the time of his death, he said:

We have lost a pioneer investigator of the physiology of the brain whose work laid the experimental foundation of all modern knowledge of the localized functions of the cerebral cortex and thereby opened a new epoch in the medical diagnosis of disease or injury of the brain and in their relief by surgical operation. Ferrier was one of the founders of the Physiological and of the Neurological Society and one of the small group who in 1878 started the journal *Brain* to deal with neurology in its widest experimental and clinical aspects. For many years an honoured and successful physician he preserved to an advanced age an enthusiastic interest in the advance of neurology by the experimental method.

Sir Hugh K Anderson

Sir Hugh K Anderson, the president said, had been a Fellow of the Royal Society since 1907, and was a member of the council at the time of his recent death.

Returning to Cambridge in 1891 on the completion of his medical course in London he devoted himself during the next fourteen years with self-sacrificing zeal and conspicuous success to research and teaching in his chosen subject of physiology. He was one of the investigators who were then unravelling the intricacies of the autonomic system and shaping the conceptions of its function now everywhere accepted. The series of classical papers in which he was associated with the late Professor Langley and his later and independent work on the complex reactions of the pupil of the eye had shown him to the world of science as a coming master in his subject while to every Cambridge man who in that period entered upon research or higher study in physiology Anderson had been lavish in his gift of interest, encouragement and personal help. From 1905 onwards the recog-

nition of his aptitude for business drew him, always diffident and reluctant, away from research into the wider affairs of his College and of his University. As a member of the Royal and Statutory Commissions and in many other capacities he did inestimable service to Cambridge to science, and to education, and earned the honour and affection of a wide circle beyond his University and our Society.

Other Deceased Fellows

The president also referred to the deaths of Professor Noel Paton, who was among the first British physiologists to investigate metabolic problems, and had more recently devoted many years of experimental study to the function of the parathyroid glands, of Sir Charles Tomes, the great pioneer in dental anatomy, who might be said to have founded the science of comparative dental histology, and of Professor Hans Gadon, for many years lecturer and reader in the advanced morphology of vertebrates in the University of Cambridge.

David Ferrier Lecture

He announced that a sum of £1,000 had been presented to the Royal Society for the foundation of a lecture in memory of Sir David Ferrier. The intervals at which the David Ferrier Lecture will be given and the subjects with which it will deal will be determined later.

Foulerton Professorships

Sir Ernest Rutherford mentioned that the late Professor Starling had been elected Foulerton professor in 1922, and had been responsible for a distinguished record of research during his tenure of the chair. The council had recently decided to fill this chair by appointing Dr Edgar Douglas Adrian, lecturer in physiology in the University of Cambridge. The president referred to Dr Adrian's distinguished record in the investigation of the physiology of the nervous system, and said that, during recent years, with the aid of apparatus, using the modern means of electrical amplification, he had been engaged in recording and analysing the minute changes which were transmitted from an excited peripheral sense-organ along the conducting system of the nerves, and which resulted in some form of sensation.

The second Foulerton professor, Dr Archibald Vivian Hill, had been appointed in January, 1926 and had since then conducted an important series of investigations on the energy changes and physico-chemical processes involved in the measurable vital activities of muscle and nerve.

He has measured for instance with specially devised apparatus of extreme delicacy the minute quantity of heat liberated in the passage of a wave of excitation along a nerve and also the different factors concerned in the efficient muscular activity of man as exhibited in the running of trained athletes. It is significant of the wide interest in these researches to which his Foulerton professorship has enabled Dr Hill to devote his whole time, that they have been published largely in our own *Proceedings*, under the names of some sixteen investigators who have come to work with him from seven different countries.

ANNUAL DINNER

The 266th annual dinner of the Royal Society was held in the evening at the Hotel Victoria, with Sir ERNEST RUTHERFORD in the chair. Sir SAMUEL HORSER, proposing the toast of "The Royal Society," mentioned that the first English scientific writer on the possibility of flight was Bishop Wilkins, brother-in-law of Oliver Cromwell, and one of the founders of the Royal Society. The President, replying, referred to the recent celebration of the bicentenary of Captain Cook, whose first voyage resulted from the action of the Royal Society in presenting a petition to the King. Captain Cook's second voyage was followed by his election as a Fellow of the Royal Society. The toast of "The Guests" was proposed by Sir DANIEL HARRIS, and the ARCHBISHOP OF CANTERBURY and Sir BERKELEY MOYNIHAN responded. Sir Berkeley Moynihan said that the further advance of surgery depended entirely upon developments in science, though in many cases it was hardly possible to conceive the achievement of greater success than had now been won.

POOR LAW ADMINISTRATION

ANNUAL REPORT OF THE MINISTRY OF HEALTH

AN extract from the annual report of the Ministry of Health for 1927-28 containing the sections relating to the administration of the Poor Law, together with the reports of the general inspectors of the Ministry, has been issued separately. The full report, which did not contain the general inspectors' reports, was the subject of a notice in the *Journal* of September 8th (p. 453), but the extract which has just been published is of particular interest in its bearing upon the Poor Law reform proposals now before Parliament, and upon the important questions of hospital provision and of co-operation between voluntary and public institutions. The report provides a valuable study of the many problems connected with the administration of relief and vagrancy, but its main feature from the medical point of view is the information it gives upon institutions and institutional treatment.

There is an impression in many quarters that a surplus of accommodation exists in Poor Law institutions generally in order to procure accurate information on this subject a special return of the number of beds occupied and unoccupied, and of additional potential accommodation was obtained only this year at a time when the pressure for accommodation, especially for the sick, was at its highest. Separate returns were obtained for certain classes of special ward and the various establishments were grouped for analysis according to the type to which they belonged. In the first group, consisting of institutions for the sick only (separate infirmaries and sick asylums), there was a total of 37,500 beds of which 32,567 were occupied and 4,933 unoccupied. The margin of unoccupied beds is 12 per cent of the total but more than half this margin consisted of beds in special wards (for example, receiving, isolation, mental, maternity, tuberculosis wards). It is therefore suggested in the report that so far from its being the case that separate infirmaries can be relied upon without extension to meet any shortage of hospital beds they are as a whole dangerously near the limits of the accommodation required. In the establishments commonly known as general mixed workhouses the accommodation for the sick, which is well known to vary widely in suitability, excluding the specialized wards comprised 41,611 occupied beds and 8,265 unoccupied beds, but it cannot be assumed that the entire margin would be suitable for the reception of acute cases. In the infirm wards 21,522 beds were occupied while the unoccupied beds numbered only 2,770, in the maternity wards unoccupied beds numbered 2,666 as compared with 1,384 occupied beds. Among institutions for mental cases excluding those maintained by the Metropolitan Asylums Board and certain others there were 3,524 occupied beds and 193 unoccupied, in the observation and mental wards of separate infirmaries there were 2,060 occupied beds, and in those of the general institutions 12,162 occupied beds, the unoccupied beds numbering 334 and 1,633 respectively.

The reports of the general inspectors emphasize the points which these figures suggest. In East Anglia it is stated, the empty beds are not as a rule in the district where they are wanted, and the margins in certain areas are described as dangerously low. It is also pointed out that each institution must always have a margin, as it cannot refuse any destitute person, and further, that owing to subdivision each department must have a margin so that the total is considerable. At the same time, the general inspector observes that a smaller total margin would suffice if all institutions in each county were managed by one authority. The inspector for the area which includes London states that in the metropolitan area not only is there no margin of available beds in the Poor Law hospitals, but that their existing accommodation is often overstrained. Reference is made to the value of arrangements by which chronic cases and such cases as long standing fractures which the general hospitals cannot retain may be made available in guardians' hospitals for the instruction of medical students. Discussing the question of co-operation between voluntary hospitals and Poor Law institutions, the inspector suggests that such co-operation in any form at present advanced contains at least two fatal defects, an arrangement by which the general hospital took only acute cases, leaving the more chronic cases to the Poor Law hospitals would he believes, lower the standard of these institutions, and would also make it impossible to attract or train nurses. In this connection it is interesting to note that according to the report of the general inspector for the district in Bedfordshire, Berkshire, Buckinghamshire, Northamptonshire and Oxfordshire in the majority of the

unions close co-operation now exists between the Poor Law infirmary and the local voluntary hospital. Where provision is not made in the former for acute or surgical cases they are promptly transferred to the hospital, the cost of treatment there being met in a friendly way by an annual subscription from the guardians, no difficulty on the other hand, arises as a rule in transferring chronic cases from the hospital to the infirmary. The medical staffs, it appears, also co-operate freely.

The provision of increased accommodation is being undertaken in many districts, as is inevitable in view of the situation disclosed in the figures given above and in the more populous areas generally the standard of equipment and staffing in new infirmaries is being steadily raised, while many extensions and alterations are being made to existing institutions. Consultants of the first rank are being employed even more frequently than before, and it seems likely that this tendency will be accelerated by unification of control proposed in the Local Government Bill.

LEAD TETRA-ETHYL IN MOTOR SPIRIT

MEETINGS OF THE COMMITTEE OF INQUIRY RESUMED

THE Departmental Committee which, under Sir Frederick Willis's chairmanship, is investigating the use of lead tetra-ethyl in motor spirit resumed its sittings at the Office of Works on December 3rd. It may be recalled that the Committee was appointed by the Minister of Health on April 2nd, and that, after holding four public sessions, it issued an interim report (Cmd. 3159), in which it was stated that there were no reasons for prohibiting the use of ethyl petrol, so long as certain precautionary measures were maintained. A summary of the report appeared in the *Journal* of August 4th (p. 219).

At the resumed session Dr H. E. ARMSTRONG F.R.S., chemistry professor at the City and Guilds College, South Kensington, gave evidence, and, in reply to Sir Frederick Willis, said that, as a chemist, he had paid special attention to poisoning by lead chiefly in paints. He had acted in defence of the use of lead in paints having proved that no lead was volatilized from paint during drying and that the observed objectionable effect arose from the solvent (turpentine) present in the paint, and from vapours given off during drying owing to the oxidation of the oil. He had also studied the action on living plant tissues of neutral liquids generally slightly soluble in water, a class to which lead tetra-ethyl belonged and had called special attention to the danger attending the use of such liquids as solvents. His views on the subject were summarized in an article he contributed to the *British Medical Journal* on December 17th 1921 (p. 1042). He held, that in view of the policy that had long prevailed in this country especially the action taken by the Home Office to discontinue lead a highly poisonous substance such as lead tetra-ethyl should never have been admitted into general use. Industry should never have regarded the public use of such a substance as legitimate. He also objected to the use of the terms ethyl gasoline and ethyl petrol as misnomers and speciously misleading. Tetra-ethyl was not the only means of improving the quality of low grade petrol and there was a special need for its introduction. The proportion put into ordinary petrol might be small, but large proportions were reported to have been used in motor racing. The tendency of the motor industry was to work at higher pressure ratios, and it was to this possible large future use of the tetra-ethyl that he took special exception.

Professor Armstrong went on to say that he had studied with care the evidence given to the Committee by Dr. Edgar (see *British Medical Journal*, May 5th p. 770) but he believed the evidence from the American experiments to be of little value, because the attention there had been almost entirely directed to the discovery of evidence of lead poisoning. The action of the tetra-ethyl whose primary poisonous effect should be that of a neutral liquid not that of a compound acting through the lead it contained was in no way comparable with that of a lead salt and this aspect had received little, if any attention from the American observers. The question the public needed to have answered was whether it was desirable that the well known but often disregarded danger arising from exhaust gases should in any way be increased in gravity by the addition of lead to the fumes. It was a question of public policy. Why when we were seeking to purify our atmosphere should we add to the air a poisonous dust to serve private ends? He criticized the American experiments on the effects of the use of ethyl gasoline upon human beings on the ground that the evidence sought for was of lead poisoning and the ingestion of lead. It was stated that none of the individuals examined showed injury to health.

resulting in any way from ethyl gasoline. But what symptoms of injury were looked for? If there was no injury to health it meant that the exposure to the fumes was so slight as to be of no account, for petrol vapour was inimical to health when constantly inhaled. A vast amount of trouble seemed to have been taken to carry out experiments proving nothing.

What the precise behaviour of the lead tetraethyl would be was not yet clear. He showed the result of an experiment in which the substance had acted destructively on a leaf like any similar neutral liquid. At first, probably, it would act by disturbing osmotic balance and protoplasmic continuity. When decomposed the first change would probably be into lead triethyl hydroxide, but he did not think this would act specifically as a lead poison, and consequently the symptoms to be sought for were not those of lead poisoning. He commented upon 'a strange neglect' by the medical profession of the poisonous effect of neutral vapours. Owing to the mishaps early in the war to workers applying varnishes to various fabrics, precautions had been taken of late years to avoid this danger, but it was not sufficiently before the public.

Professor Armstrong concluded his main evidence by saying that he was no alarmist, but he had been all his life a student of the remarkable effects on chemical change produced by minute impurities, he knew that these could be very great, and he viewed with consternation the increase in the amount of the metallic poisons in public use, circulated in such a way that they constantly entered into food. Lead was everywhere to day, owing to the use of leaden pipes in conveying soft water. In this respect London suffered less than many places in the provinces, because it was blessed with a hard water supply. Arsenic and copper were creeping in everywhere, owing to their use in agriculture as fungicides and insecticides. Tin came in from canned goods. It might be that the increasing incidence of cancer was connected with metallic poisons. Boric acid, which had never been shown to be harmful to more than a few sensitives, was not allowed, although an invaluable preservative of food. Why should lead tetraethyl definitely very poisonous, be allowed with the object of protecting petrol, a far less worthy object of protection than food? He pleaded for a scientific policy in these matters, either a safe moderation or a uniform prohibition.

Sir GEORGE BUCHANAN, a member of the Committee, remarked that in the matter of lead paint and also of food preservatives, the Government departments concerned had taken a policy to which Professor Armstrong had been rather opposed, here their policy was one with which he might have been expected to agree, and yet he was in opposition again. Would not Professor Armstrong admit that this material had been used for a long time in the States and had been the subject of some painstaking medical investigations?

Professor ARMSTRONG replied that the inquiries conducted in the States had been imperfectly thought out, and in no way afforded the evidence needed to show that even when used in small proportion petrol mixed with lead tetraethyl was a safe fuel if used at all carelessly. In reply to Sir WILLIAM WILCOX, he expressed the opinion that very careful observation should be made during the next few years as to any symptoms of the kind not ordinarily associated with lead poisoning which might arise from the use of this material. He agreed with Dr W E DIXON who put a question to him on the subject, that the lead absorbed through petrol was probably negligible in comparison with the common use of lead in other ways, but it might easily not be so if tetraethyl came largely into use. He was told that in Italian trials the proportion reached 7 per cent, and although these might be said to be controlled conditions, it might happen—in the event of war, for example—that the substance would have to be handled under uncontrolled conditions. Dr DIXON pointed out a fallacy in the witness's analogy from boric acid. A preservative in food had to be eaten with the food, all of it, but there was no such necessary absorption of this liquid into the system, indeed the effort of all concerned was to prevent its absorption.

Sir CHARLES MARTIN thought that the report of the Surgeon General's department in the United States on the health of 350 selected persons employed in garages and in other lead industries, and controlled persons was the result of a very serious examination and one which called for a fine organization to carry out. Each person was examined for two hours by four physicians, and only a portion of the examination was specifically directed to the detection of possible incipient symptoms of lead poisoning.

Professor ARMSTRONG however still maintained that it was lead poisoning for which they sought. People went rabid on the lead boggy. M. Thomas the director of the International Labour Office during the Labour Conference at Geneva in 1921 in which the witness participated, could see nothing but lead for a whole month.

After Professor Armstrong had concluded his evidence the Committee in a private session, received evidence from Dr G Roche Lynch, senior official analyst to the Home Office.

MEDICAL MEMBERS OF LOCAL PUBLIC BODIES

THE following list contains the names of medical practitioners known to be serving as members of local authorities, or subsidiary public bodies, in Great Britain. Units are arranged in the classes to which they belong (county councils, county borough councils, urban district councils, etc.) in alphabetical order, with memberships of special committees containing a co-opted element, as in education and maternity and child welfare committees, shown under the parent body. Where possible, in the case of councillors and aldermen, membership of important committees and joint authorities is indicated. Addresses given are intended merely to identify the individuals concerned, and are not necessarily complete. It will be observed that a considerable proportion of those whose names appear in the list are members of more than one public body, and it is also interesting to note that in a number of the boroughs medical men are serving as mayors, while in Scottish towns several are burgh magistrates. The information embodied in the list has been received in response to a request published in the *Journal* during the past few weeks, it is probably far from complete, but serves to show that medical men and women are participating actively in the administration of about ninety local government bodies in various parts of the country, notably among the more important authorities.

ENGLAND AND WALES

COUNTY COUNCILS

Cambridge—Dr J H C Dalton, Cambridge (Alderman), Dr J W Ellis, Swavesey (Alderman), Dr W H Bunsall, Cambridge, Dr R Ellis, Cottenham. Co-opted members of committees: Dr J R C Canney, Cambridge (Midwives Acts, and Maternity and Child Welfare), Dr E D Adrian, Cambridge (Mental Deficiency), Dr C M Stevenson, Cambridge (Tuberculosis).
Cheshire, Dr H E Bower, Stretton (also Member, Mental Deficiency Acts Committee, Chester Asylum Committee, etc.).
Derbyshire—Dr W W Herbert, Heallys, Llangollen (Chairman, Mental Deficiency Committee).
Derbyshire—Dr G G Macdonald, Matlock (Alderman).
Dorsetshire—Dr C Grey Edwards, Parkstone, and Dr Oswald Rees, Abbotsbury.
Hertfordshire—Co-opted member of the Maternity and Child Welfare Committee: Dr K J Aveling, Watford.
Isle of Wight—Dr A W Harrison, Manoe, March (Member, Education, Public Health, Maternity and Child Welfare, Mental Deficiency, etc., Committees).
Lancashire—Member of the Education Committee, Area No 1: Dr T F Forster, Dalton in Furness.
London—Dr Stella Churchill, Chiswick.
Northumberland—Dr A S Hedley, Rothbury.
North Riding of Yorkshire—Dr A S Robinson, Redcar.
Pembrokeshire—Mr P A Lloyd, F.R.C.S., Haverfordwest.
Warwickshire—Dr E N Nason, Nuneaton (Member, Warwickshire and Coventry Joint Committee for Tuberculosis, Chairman of the Sanatorium Committee).
West Riding of Yorkshire—Dr T D Poole, Lanthwaite, near Huddersfield.
West Sussex—Dr H J M Milbank Smith, Worthing.
Wiltshire—Co-opted members of the Public Health Committee (Maternity and Child Welfare): Dr C E S Fleming, Bradford-on-Avon, and Dr F T Bond, Irowbridge.
Worcestershire—Dr F W J Conker, Bromsgrove (Chairman, Administrative Health Committee).

COUNTY BOROUGH COUNCILS

Birmingham—Dr W B Featherstone, Wyde Green, Dr L L Hadley, Acocks Green. Dr Wilson Hind, 106, Hagley Road, Dr J J Robb, Bourneville.
Blackburn—Member of the Education Committee: Dr Jeffrey Ramsay, 53, Preston New Road (Representative of the Victoria University of Manchester).
Bournemouth—Dr Walter Astlen, Bradley Road (Vice-Chairman Health Committee, Member, Education, Maternity and Child Welfare, Tuberculosis, etc. Committees).
Brighton—Dr Henry Gervis Stanford Avenue (Alderman).
Bristol—Dr E J Ball, Clifton (Member, Health Committee), Dr Lionel Page Tyndall's Park.
Bury—Dr I W Johnson, Red Bank (Chairman, Health Committee, Member, Education Committee).
Coventry—Dr I A B Soden, Queen's Road (Alderman, Chairman Public Health Committee, Member, Education, and Maternity and Child Welfare Committees).

Derby—Co-opted member of the Maternity and Child Welfare Committee Dr C E Potter
Ipswich—Dr J R Staddon (Alderman, Chairman, Mental Deficiency Committee)
Norwich—Dr G S Pope, Heigham Hall (Alderman, Chairman, Health, and Maternity and Child Welfare Committees, etc.)
Oxford—Dr H T Gillett, Dr William Stobie (Sheriff)
 Co-opted members of the Mental Deficiency Committee Dr Edwin Morton and Dr A G Gibson
Portsmouth—Dr P H Green, Mile End, Dr M H Wry, Southsea, Dr A B Wright, Southsea
Preston—Dr T H C Dorham (Alderman, Vice Chairman, Public Health Committee, Member, Maternity and Child Welfare Committee) Dr F W Collinson (Member, Public Health and Maternity and Child Welfare Committees)
South Shields—Dr E H Gibson, Laygate (Alderman)
Stoke on Trent—Member of Education Committee Mr Harold Hartley, F R C S (Representative of the Victoria University of Manchester)
Sunderland—Dr I G Modlin (Mayor)
Walsall—Dr E P Drabble, Bloxwich (Member, Health, and Maternity and Child Welfare Committees) Dr J F O Meara (Member, Health, and Maternity and Child Welfare Committees)
West Ham—Co-opted members of the Maternity and Child Welfare Committee Dr H S Beadles, Romford, and Dr P I Watkin, Camberland Road, E13
Worcester—Dr Arthur Foster, 85, Ombersley Road

NON COUNTY BOROUGH COUNCILS

Bishop's Cleeve—Dr John Adams
Brighouse—Dr James Wood (Member, Brighouse Joint Hospital Board)
Buxton—Dr C W Buckley (Alderman)
Daventry—Dr J C O Raftery (Alderman)
Henley on Thames—Dr W J Susman (Deputy Mayor)
Heywood—Dr George Geddes (Vice Chairman, Education Committee, Member, Health Committee)
Luton—Co-opted member of the Maternity and Child Welfare Committee Dr J W Bone
Nuneaton—Dr L E Price (Mayor, Chairman of the Health, and Maternity and Child Welfare Committees, Member of the Education Committee) Co-opted member of the Education Committee Dr E N Nason
Poole—Dr J R MacMahon, Parkstone (Member, Health Committee) Dr E O Scallion, Parkstone (Member, Health, and Maternity and Child Welfare Committees) Dr Charles Grey Edwards, Parkstone (Member, Health, and Maternity and Child Welfare Committees)
Redcar—Dr A S Robinson, Oulton
Wotford—Dr W P Porter (Chairman, Maternity and Infant Welfare Committee)
Worthing—Co-opted member, Maternity and Child Welfare Subcommittee Dr H J M. Milbank Smith

METROPOLITAN BOROUGH COUNCILS

City of London—Court of Common Council, Colonel R S Blackham
Hampstead—Dr S Monekton Copeman, F R S
Kensington—Dr Henry Robinson (Mayor and Alderman)
Stoke Newington—Dr L M. Ladell Dr H M Churchill

URBAN DISTRICT COUNCILS

Aberystwyth (Monmouthshire)—Member, Maternity and Child Welfare Committee Dr R J S Verity, Garndiffarth.
Beckenham (Kent)—Dr J H Bennett (Vice Chairman, West Kent Joint Hospital Board, Member, West Kent Main Sewerage Board, Higher Education, and Maternity and Child Welfare Committees)
Brentwood (Essex)—Dr A J Gibson, Dr C J L Mansel Bromsgrove (Worcestershire)—Dr F W J Coaker
Brounville (Staffordshire)—Dr James Stewart, Walsall Wood
Castleford (Yorkshire)—Dr L H Butler
Credon (Devon)—Dr George Rice (Chairman, Public Health Committee)
Egham (Surrey)—Dr J W Bird, Egham Hill (Chairman)
Hamley (Yorkshire)—Dr W H Smailes (Vice Chairman, Highways and Sanitary Committee)
Neston and Parkgate (Cheshire)—Dr George Gynn, Neston
Newton in Makerfield (Lancashire)—Dr Walter Latham, Newton le Willows.
Seaford (Sussex)—Dr C B Gervais, Shepway (Chairman)
Wimborne (Dorset)—Dr B R Parmer (Chairman)
Ware (Hertfordshire)—Dr W G Stewart (Chairman)
Windesham (Surrey)—Dr H Athill Crutwell, Bagshot (Chairman)

RURAL DISTRICT COUNCILS

Godstone (Surrey)—Dr A. P. Luff, Limsfield
Hoo (Kent)—Dr J A Shaw
Llandilo Fawr (Carmarthenshire)—Dr Joseph Shubbo, Llandellic.

Wympton (Devon)—Dr Alfred Turner
Solihull (Warwickshire)—Dr C R Lunn, Olton

BOARDS OF GUARDIANS

Bournemouth and Christchurch (Hampshire)—Dr F S. Coleman, Bournemouth
Coruon (Merionethshire)—Dr W W Herbert, Llangollen
Hoo (Kent)—Dr J A Shaw
Llandilo Fawr (Carmarthenshire)—Dr Joseph Shubbo, Llandellic
Plympton (Devon)—Dr Alfred Turner
Rochford (Essex)—Dr R A S Sunderland, Southend
St Vorylchone (London)—Dr Eleanor Lowry, 4, Devonshire Place, W
Solihull (Warwickshire)—Dr C R Lunn, Olton

PARISH COUNCILS

Thorne (Yorkshire)—Dr C Dorwent Walker

SCOTLAND

COUNTY COUNCILS

Bute—Dr J H Paul, Millport.
Clackmannan—Dr E E Dyer, Alloa (Chairman, Tuberculosis Committee)

TOWN COUNCILS

Edinburgh—Dr T G Nasmyth, Morningside (Baillie, Member, Public Health Committee)
Kingswae—Dr Felix Savy (Convener Public Health Committee)
Laurencekirk—Dr J C M Matheson (Convener, Public Health Committee)
Paisley—Dr W H Gibson (Baillie)
Sanguhar—Dr J K. Dnnlop
Tain—Dr E K Mackenzie (Baillie Member, Ross and Cromarty Tuberculosis Committee, and Joint Hospital Committee)

EDUCATION AUTHORITIES

Aberdeenshire—Dr Alexander Hendry, Ballater (Convener, Medical Inspection and Treatment Committee)
Selkirkshire—Dr E M Tyrrell, Galashiels (Chairman)

PARISH COUNCILS

Tom (Ross shire)—Dr E K. Mackenzie.

France.

[FROM OUR OWN CORRESPONDENT]

The Social Insurance Law

It is with a sense of great relief and gratification that the profession at large is given to understand that unity prevails again among us. The old Union of the Medical Syndicates and the young Federation are joining in a single confederation. We earnestly hope for the best, may a true confederal spirit inspire the very important decisions which have to be faced. There is no doubt that there is no more time to be lost in speeches; it is action that is needed. The law organizing compulsory medical insurance has passed through Parliament in such a shape that even its promoters consider it as stillborn. But the principle has been voted, and it tends towards turning nearly every practitioner into a State official, whose hands are bound with red tape. Such a situation has at last been fully realized by the profession, and has done more than anything else to bring them all under the same colours of revolt. A well known politician, speaking in his capacity as a member of the Government, says "I care nothing about the criticisms of the medical syndicates nor of their threats." It is now our duty to act so that he shall care. As a matter of fact, the tendency is to convert the practice of medicine in France into a State monopoly, to do with all forms of education what has been done in the past with tobacco and matches! This is what we are uniting to oppose.

B C G

The present discussions at the Academy of Medicine remind our elders of the heroic times when Pasteur had to fight for his new gospel. On October 23rd Calmette gave evidence in the case of a mining district in Northern France where every child had been vaccinated at birth. The general death rate fell to 3.5 per cent, against 8.8 per cent in the rest of the country. Professors Bernard, Debre, and Lelong have noted the effect of cutaneous reaction in 104 infants vaccinated and separated from all possibility of infection. The reaction proved positive in 50 per cent of

the cases, proving, according to them, the validity and the efficacy of the method of Calmette and Guérin. But M. Lignières, who is a member of the veterinary section of the learned Academy of Medicine, is far from being convinced, and basing the whole of his argument on the case of the young Denise¹ "This child was infected with B.C.G.," says he, "and here is the proof." "No," replies Calmette, "but by Koch's bacillus," and he recalls the 110,000 vaccinations of infants which have proved to be harmless and, as statistics show, efficacious. Dr. Le Lorrain supports the same views, and relies on his experience gathered from the 450 B.C.G. vaccinations carried out in his wards at Hôpital Boucicaut in Paris. Professor Leon Bernard comes to the rescue, quoting the conclusions of the special Commission of the League of Nations. The last word is said by Professor Roux from these investigations we are convinced that great progress is being realized. There is no doubt that the Academy of Medicine is all on the side of Calmette, but amply opposition and discussion are necessary in a question of such immense importance. Dr. Renault, in a most diplomatic sentence, described M. Lignières not as an adversary, but as a 'partisan modéré.' The discussion is to be continued, may it be serene though passionate!

Yellow Fever

At the Académie des Sciences Professor Calmette read an important note concerning the fight against yellow fever. Mr. Roubaud, following the experiments of Bacot, the British member of the Yellow Fever Commission, supports the view that the stegomyia does not lay eggs in pure water. It appears that the process of treating polluted water with chlorine (known in France as *verdunisation*) may prevent the hatching, and therefore this might prove a practical way of destroying the mosquito. It is by these means that the epidemic in Dakar this year was controlled. At the same time typhoid and amoebic dysentery should be checked, and this simple method devised by Colonel Banaoua will prove to be life-saving on a large scale.

Specialists in France

There is a strong movement towards some form of regulation as regards specialization. At the present time any registered practitioner may call himself a specialist in any branch of medicine. The public should be protected and be allowed to judge competence by some other means than the larger fee he has to pay. Our administration is considering the possibility of awarding certificates after special examinations. This is very much against tradition, but seems to protect the interests of the earnest specialist and of the patients. Such regulations exist in Hungary and in Czechoslovakia. In Germany the situation is controlled by the union of practitioners, three or four years of special post-graduate studies are required to make a specialist. Among the larger countries Great Britain and France stand together for perfect and dangerous freedom. The story is told of a French doctor, starting his career as an accoucheur, whose only qualification was having been ploughed seven times in succession at his final in obstetrics.

G. MORON

Union of South Africa.

[FROM OUR CORRESPONDENT IN PRETORIA]

Hookworm Among Rand Miners

ANKYLOSTOMIASIS is becoming a serious problem on the Witwatersrand gold mines, and an agitation has been set on foot for making it a compensatable industrial disease. Recently exaggerated statements have, however, been made by a section of the Labour party in their efforts to attain this object. The position briefly is that the deeper levels of most of the mines, where ideal conditions of warmth, moisture, and darkness obtain, have become infested by the native employees brought from Portuguese territory along the east coast. This region is tropical and is badly infested with hookworm. There are approximately 100,000 of these east coast natives working on the Rand gold mines—that is, they represent about half the total complement of native workers. A large number of faecal

examinations made at random indicated that about 50 per cent of the east coast boys (the generally accepted designation of a native worker) arrive on the mines harbouring the parasite. These boys tend to rid themselves of the infection after arrival on the mines without any treatment. Examinations of untreated east coast boys who had worked on the mines for from four to six months showed that the infection had dropped from 50 per cent to something in the neighbourhood of 15 to 20 per cent. This is readily comprehensible from the history of the worm, if it is assumed that reinfection does not occur. The curious fact, however, is that European miners working under the same conditions underground tend to contract the disease. Since, under similar conditions, the native worker tends to rid himself of the disease and the European worker to acquire it, the only obvious explanation appears to be that the European skin is more penetrable or attractive to larvae than the Bantu skin.

An investigation made by the Union Health Department last year showed that, apart from the Zululand and Natal coasts (in which regions the heavy infestation of the Portuguese east coastal zone tails off), infection is very unlikely to occur anywhere in the Union on the surface. All European mine workers found to be harbouring the parasite may, therefore, be assumed to have become infested underground. In November, 1926, cases were detected among European miners by the Miners' Phthisis Medical Bureau at its routine examination of all European miners, which takes place at intervals not exceeding six months. Since that date and up to the end of last September, 309 cases among Europeans have been detected, either as the result of the periodic examinations by the bureau or by examinations made in the research laboratory of the Rand Mines, Limited. It is improbable under present conditions, with medical officers along the reef and the alert, that many cases among Europeans escape detection. The procedure at the bureau since November, 1926 has been to issue advisory letters to such miners as appeared to be suffering from noticeable anaemia, advising them to consult their own doctors, with the suggestion that the condition might be due to hookworm. The mine chiefly affected is the City Deep, which employs over 1,000 Europeans. Of the 309 cases, 222 were among miners working on this mine at the time their condition was detected.

On October 14th a deputation from the South African Mine Workers' Union to the annual provincial conference of the Labour party in Johannesburg solicited the party's support in the effort being made to have hookworm declared an occupational disease, and so carry compensation. The deputation stated that the scourge of hookworm was sweeping the Rand mines, that on the City Deep above 75 per cent of the white underground workers were affected, and that the cure was worse than the disease. The president of the Mine Workers' Union stated that the cure for the disease had such severe effects on the human system that in 99 per cent of cases some other ailment was left after the cure had been completed, saying that he would rather die than be cured in the way some of these men had been cured, they were left useless physical wrecks, able to do nothing. Another executive officer of the union said that hookworm disease was worse than phthisis. He also affirmed that the cure was far worse than the disease, and was dreaded by the sufferers. The conference undertook to have the matter dealt with by the parliamentary caucus of the Labour party, and appointed a parliamentary deputation to accompany Mine Workers' Union representatives to interview the Minister of Mines and the Minister of Health.

Dr. A. J. Orenstein, superintendent of sanitation, Rand Mines, Limited, in a press interview the following day, denied the allegation that the disease was spreading. In the fifteen months during which they had been combating it the incidence had considerably decreased. To say that the cure was worse than the disease was manifestly incorrect. The cure normally took four weeks, it was unpleasant but it had no ill effects and did not induce any other complaint. The answer to the assertion that it was worse than miners' phthisis was that death from hookworm was a rarity. With regard to the demand that the condition be declared an occupational disease, he said that

¹ See *British Medical Journal*, November 24th 1928 p. 850.

all men laid off with the disease were given *ex gratia* half-pay, as they would if the disease were officially an occupational one. Moreover, to relieve the strain on the benefit societies, all medicine and hospital expenses were paid. All places underground where infection was possible were now being treated with salt. This had caused a great decrease in the incidence of the disease.

The New Union Medical Council

With the publication of the result of the poll the formation of the first Medical Council of the Union of South Africa was completed, and the Council met for the first time on October 22nd in Pretoria. The ten medical members elected by the profession are Dr W Dailey-Hartley, for many years editor of the *South African Medical Record* (who headed the poll), Sir F Spencer Lister, Drs D J Wood, R P MacKenzie, A W Sanders, M R Drennan, C Porter, W T P Davies, A McKenzie, and S M de Kock. Drs A W Watt and J van Niekerk, both resident in the Transvaal, received more votes than Dr de Kock of the Orange Free State, but could not be given seats, as four Transvaal members had already been elected, it is laid down that not more than four medical practitioners who are members of the Council shall be ordinarily resident in any one province of the Union. The distribution of the elected members among the four provinces is as follows: Transvaal 4, Cape 3, Natal 2, Orange Free State 1. Previous to the election an official Association "ticket" had been formed by the Federal Council of the Medical Association of South Africa (B M A) by the simple process of asking every Branch to nominate candidates. The principle of such a ticket was severely criticized by a certain section of the profession. The fifteen names of practitioners nominated by Branches were submitted by the Association for the guidance of the professional electorate. Six of these headed the poll and eight in all were elected to the Council, only two practitioners not on the original ticket succeeding in obtaining election. The dental members of the Council elected by the dental profession in South Africa are Messrs Walter Flord, Clav J Bullis, and B M Hunter. The nursing profession returned as its members Miss Alexander and Mrs Bennie. The two *ex officio* members of the new Council are Dr J A Mitchell, Secretary for Public Health, and Dr J T Dunston, Commissioner for Mental Hygiene. The members nominated by the Minister of Public Health are medical, Dr A J Stals, M L A, and Dr H F Fernandez, dental, Mr J A Stegmann, L D S, lay, Messrs F W Douglass, K C, and W H Rood, M L A. The University of the Witwatersrand is represented by Professor J Watt, and the University of Capetown by Mr E B Fuller, F R C S Ed.

The First Session

The Council was formally inaugurated by the Rev Dr D F Malan, Minister of Public Health, who remarked that he was in a certain sense a member of the medical profession because, as Minister of Public Health, he had assisted at the birth of the Act. Dr Davies later, in warmly thanking him for his encouraging address, remarked that the Minister had honourably maintained the traditions of the profession as accoucheur in this capacity.

No measure, said Dr Malan in his opening address, had ever had a more chequered career in the history of South African legislation, or had encountered more difficulties in its passage through Parliament. It was seven years after Union before any attempt was made at consolidating the medical laws of South Africa, and from 1917 onwards the bill which had now become law had figured on the order paper. The measure had, however, eventually reached the statute-book with practically the unanimous support of all parties in Parliament and the profession and the country generally were to be congratulated. He particularly welcomed the two lay members of the Council. From the beginning of the world the burden of the care of the sick had fallen on the feminine section of humanity and the time had come when men could no longer regard their presence on governing bodies as an encroachment on male prerogatives. Women had come to stay, and he could not visualize any future medical council without women members. Dealing with the delays

in the passage of the reforms introduced by the Act, Dr Malan said these had caused great inconvenience to the Government departments administering public health, as well as injustice to the profession, and had allowed a number of abuses to become so entrenched that it became difficult to eradicate them. But there were corresponding advantages. It enabled the bill to be subjected to a close scrutiny by Parliament, by the professions affected, and by the public, such as few legislative proposals ever received. This resulted in the elimination of defects which might otherwise have escaped notice. Indeed, the Act in its present form was so highly thought of that practically without amendment it would be applied to the mandated territories of South-West Africa by proclamation from January 1st next, while the Government and Parliament of Southern Rhodesia had taken it over with a few minor adjustments to meet local requirements and conditions. While it was true in some respects that the Act was one for the protection of certain professions and callings it would function primarily in the interests of the public generally. It was impossible to maintain the high standard of efficiency, of moral character, and action required of the medical profession unless it was properly protected and had a governing body to exercise discipline. The Medical, Dental, and Pharmacy Act could justly be regarded as the Magna Charta not only of the medical profession, but of the public, for Parliament had thought fit to have the general public represented on the Council by two lay members. He hoped, in conclusion, that they would look on the Act in that light, and that they would be worthy of the great trust imposed on them, and assured them of his deep personal interest in their work. After due acknowledgement of his stimulating address the Minister withdrew. Dr W T Davies was unanimously elected president, and Dr S M de Kock vice-president, of the Council.

Scotland.

Health of Scotland

Dr WILLIAM ROBERTSON, medical officer of health for Edinburgh, on November 28th, gave a popular lecture upon "Some points in public and private health." He said that our forefathers bequeathed to us wretchedly planned communities with narrow streets lined by ill assorted buildings, erected in more or less haphazard fashion. Some two hundred years ago there were no drainage systems, and no water supplies save those provided by wells, which were often so greatly polluted that they disseminated widespread epidemics of enteric fever and cholera, there was no scavenging system worth mentioning, and domestic animals often shared the homes of the citizens, there were no fireplaces in the houses of the poorer classes, and no carpets or linoleums. Straw littered the floors, and became the breeding-places of vermin and the dumping ground of household refuse. We were now trying to erase the blot which had been left behind, and before another century had passed this country would have advanced much further in its fight against disease, dirt, overcrowding, and bad housing conditions. The men, women, and children of two hundred years ago were constantly menaced by the multiplicity of dangers against which the citizens of the present day found themselves surrounded by innumerable safeguards. No one could say that there was not still room for improvement, but preventive medicine could not be forced upon the individual, who must be educated to lend a hand in the all round social uplift now occurring. The glaring physical defects revealed by the critical examination of the manhood of the country which had been rendered necessary by the great war substantiated the arguments of those who insisted that the conditions of living had not been conducive to building up an A1 population. The infantile mortality figures of two hundred years ago showed that 250 to 300 children died out of every 1,000 born, but the figure had now been reduced to 80 per 1,000. Notification of births, armies of health visitors, toddlers playgroves, physiotherapy centres, convalescent homes, and sick children's hospital all functioned in building up healthy children and in

emerging any who developed disease. There were now well-appointed schools with abundance of light and ventilation, there were facilities for recreation which made school life congenial and interesting, and every school had its physical instructors. All these factors were advancing the well-being of the boys and girls who would, in the near future, grow up to be men and women of much higher physical standards than had provided in the past. Those who had laboured at the present day under what might be called ideal conditions of airy workshops with good light, ventilation and welfare supervision might consider themselves fortunate. For the adult population no wanted good wages, good food, and good housing. Efforts must be made to persuade the people of this country that high prices did not necessarily bring the best food values. Headway was being made in this direction, many persons were learning the lesson that heavy feeding was a failure from the standpoint of benefit to health, and that simple fare in moderate quantity and suitably combined would improve health and prevent the onset of disease. Well planned houses surrounded by plots of open space were also contributing to better general health. There were now 15,000 panel practitioners in the country, 18,000,000 persons were insured, and £15,000,000 was being annually spent in connexion with national health insurance. Nevertheless millions of pounds in wages were lost every year on account of minor ailments, the Health Insurance Act provided mainly for diseases after they had begun, and one might feel confident that the next great step forward in preventing ill health would be taken when periodical medical examination was put into operation. This would follow naturally upon the principle of the systematic medical inspection of school children. The lecturer considered that the welfare of the nation was progressing at a satisfactory rate, and that it only remained for the individual to take advantage of all the opportunities available to him.

Scottish Asylums Pathological Scheme

The annual report on the working of the Scottish Asylums Pathological Scheme, which is supported by contributions from twenty institutions, gives an account of the work carried on by the pathologist, Dr F. E. Reynolds, who, in addition to reporting upon 204 specimens sent to the laboratory, has made several visits to mental hospitals for consultation with members of the staffs. As lecturer in neuropathology Dr Reynolds has conducted his usual course of lectures at Edinburgh University for the diploma of psychiatry. In the course of the year a series of investigations into paths of infection of the central nervous system, undertaken in association with Dr Logan Turner, was concluded, important results have already been published from time to time, and the completed work is now being collected into a monograph on the subject. Dr Reynolds is at present engaged, in conjunction with Dr James K. Slater, in a further research on the healing of lesions of the central nervous system. A preliminary study has already been published. The revenue of the scheme during the year amounted to £1,865, including a grant from the Medical Research Council, and a payment from Edinburgh University towards the salary as lecturer, while the expenditure for the year was £1,176.

Phrenology and Criminology

The annual lecture under the William Ramsay Henderson Trust was delivered by Dr Norwood East, medical inspector of H.M. Prisons in Lugdun and Wales, in the anatomy classroom of Edinburgh University, on November 30th, when Dr H. C. Marr presided. The Trust exists for the promotion of phrenology, and the lecture formed part of the celebrations of the centenary of the death of Dr Francis Joseph Gall. The lecturer first dealt with the work of Dr Gall, who was born at Tiefenbrunn, Boden, in 1751, and died in 1828, saying that his centenary was of peculiar interest to the student of criminal problems, as he had been described as the founder of criminal anthropology. It was necessary for the criminologist to distinguish his important anatomical and physiological studies of the brain from the cranioscopic portion of phrenology. The anatomists Reil and Loder, for whom Gall had dissected several brains, had given him unstinted

praise, while Curvier, Flourens, and Geoffroy St Hilaire had paid similar tributes to Gall's anatomical and physiological studies. Sir Henry Head, in our own day, had pointed out that no one was really indebted to Gall for the beginning of the conceptions now held regarding the relation of the various portions of the nervous system to one another. Nevertheless Gall's hypothesis that the so-called organs in the brain could be studied through the impressions they were supposed to make on the shape of the cranium was no longer generally accepted, and the assumption that the development of organs of combitiveness, destructiveness, benevolence, and so on were indicated by the contour of the skull, and that this matter was of service in the diagnosis of criminality, appeared now a fanciful speculation. Gall was physician to the lunatic asylum at Vienna, and had special opportunities for clinical observation. Whenever possible he compared, by post-mortem examination, the relation between the shape and size of the brain and the head. He also experimented on animals to ascertain the effect of the removal of portions of the brain. In 1800 he was joined at Vienna by John Caspar Spurzheim, the two were associated in joint researches, and published important works on the anatomy and physiology of the nervous system. In Edinburgh the brothers George and Andrew Combe were induced by Spurzheim to become advocates of phrenology, and George Combe wrote numerous works on the subject. In 1821 the Edinburgh Phrenological Society was founded, and published a journal from 1823 until 1847, in which several important papers dealing with the diagnosis of criminality had been published. The phrenological explanation of crime was succeeded, Dr East continued, by Lombroso's anthropological investigations, upon which he founded his doctrine that the criminal was an atavistic anomaly presenting definite morbid physical stigmata, and clearly differentiated from those who were not criminals. At the beginning of the present century medical officers of the English Prison Service conducted a series of anthropometrical investigations upon 3,000 convicts; the material was tabulated by Charles Goring, and the publication carried out under the direction of Professor Karl Pearson in 1913. As a result of comparing criminals with each other, and with law-abiding citizens, Goring found no evidence to confirm the view of Lombroso that there was a definite criminal type. The differences in head measurements was found not to be substantial. The decline of phrenological and anthropometrical interpretation of criminal conduct was succeeded by psychological methods of investigation, and it was found that much anti-social conduct had its counterpart among the normal and law-abiding community. It was also found that the criminal might be no mental weakling, but a man of courage, determination, and resource, although a certain number of those who committed crimes were mentally abnormal and suffered from mental deficiency or constitutional inferiority. These were, however, a minority, and the vast majority of crimes were committed by the "man in the street." Medical and sociological investigations had contributed towards a knowledge of character formation, its environmental and inherited influences and emotional disharmonies, and had helped to bring them nearer an understanding of criminal antecedents and purposes.

Milk as a Food

Dealing with the subject of milk as a food in a lecture given recently in Edinburgh, Mrs Chalmers Watson, M.D., said that Nature had endowed the cow with a milk capacity to rear one, or at most two, calves in the course of its lactation, but science and skilled feeding now produced cows which gave as much milk in a lactation period as would rear at least a dozen calves. The amount of milk consumed in this country still fell far short of that obtaining in other places, and yet good milk was, in proportion to its cost, one of the cheapest foods. This subject had special application to the expectant mother, the infant, the growing child, and the sick person. The protein in one quart of milk was equal to that present in seven ounces of salmon steak or three and a half ounces of fowl, and the energy value in the same amount of milk was equal to that of twelve ounces of steak or ten ounces of fowl. As a food for adults milk was restricted only

because of its bulk, but people would enjoy greater physical health and mental vigour if they would substitute a tumblerful of milk for other food. The lecturer particularly recommended that housewives should purchase certified milk for drinking purposes and pasteurized milk for general household use. She added that indications pointed to our being on the threshold of new and important knowledge of the influence of vitamins in food and of sunshine in relation to food. It had long been recognized that milk from cows fed on good pasture had much higher nutritive value than that of stall-fed cows, and we now had the scientific explanation of this fact. Successful attempts had recently been made to impart therapeutic qualities to milk by irradiation with ultra-violet rays. In other directions experience had showed that milk artificially soured on lines laid down by Metchnikoff also possessed valuable properties for the treatment of a large number of diseases. She considered that a full appreciation of the special value of fresh clean milk of high standard was the first essential in the general campaign of preventive medicine, to which attention was now being generally directed.

Inverness District Asylum

The sixty-fourth annual report by the superintendent of the Inverness District Asylum, Dr. T. C. Mackenzie, which has just been issued, shows that on May 15th there were 729 persons on the books of the asylum, of whom 720 were resident and 9 absent on probation. The total number of cases under treatment during the previous year was 858, admissions numbered 135, discharges 73, and deaths 56. Of the patients admitted during the year 41 had been previously under asylum treatment, giving a readmission rate of 30.3 per cent, and 15 were aged 70 or over. With regard to the type of mental disorder, 54 were cases of melancholia, 30 of mania, 32 of secondary dementia, 22 were associated with senile decay, 10 were cases of dementia praecox, 5 of congenital mental deficiency, and 4 of general paralysis. A hereditary predisposition to insanity was found to exist in 56 out of the 135 cases admitted, and in 54 of these there had been at least one previous attack of mental disorder. Senility was among the assigned causes in 34, and alcoholism in 2, of the cases. The 73 patients discharged, after removal on probation, included 47 discharged as recovered, giving a recovery rate on the admissions for the year of 34.8 per cent for both sexes. The 56 deaths gave a death rate of 7.8 per cent, and of these phthisis accounted for 12 and senile decay for 17 cases. The asylum farms continued to supply much produce, and a large number of patients were employed in various ways on the farms and gardens.

Edinburgh Royal Infirmary

At the tenth annual general meeting of the League of Subscribers to the Royal Infirmary of Edinburgh, held on November 27th, Mr. James Campbell, who presided, stated that a provisional order of the town council would, before long, entitle the league to elect two managers to the Infirmary board. The report of the secretary showed that £21,435 had been received in the past financial year from 1,450 groups of subscribers, £16,000 having been collected in the city and the remainder in the surrounding district. Subscriptions from this source had now been stabilized in the neighbourhood of £21,400 for the past four years. Including the league and groups of miners, some 120,000 persons were now contributing regularly and systematically to the funds of the Royal Infirmary. Of the subscribing groups the largest was that of employees in the L. N. E. R. Company, whose contributions amounted to £2,129, as compared with £230 some ten years ago. The employees of the corporation provided £1,090, against £67 in 1913. During the ten years in which the league had been in operation it had collected a total of £180,000, which approximated to half of the original cost of building and equipping the hospital. Sheriff Brown, K.C., in a statement on behalf of the board of managers, said that the number of patients treated in the wards of the Infirmary during the past year was 19,680, an increase of nearly 1,000 over the preceding year. Approximately 8,800 patients came from the city and 9,900 from outside. At the out-patient department 62,085 patients were treated, an increase of 1,530 over those of the previous year. It was

hoped that the Astley-Ainslie Institute would be fully opened for use in the coming spring, and this would be a great source of relief to the Infirmary, because 150 more beds would be at the disposal of the patients and the institution. The ordinary income showed an increase of more than £5,000, and although a larger number of patients had been treated, the ordinary expenditure showed a reduction of £3,708. The waiting list still caused some concern, as its average exceeded 2,000 persons.

The Life and Work of Matthews Duncan

The first meeting of the eighty-eighth session of the Edinburgh Obstetrical Society was held on November 14th, when Dr. Haig Ferguson delivered his presidential address on Matthews Duncan. The choice of subject was of special interest to the Fellows of the Society, since Matthews Duncan became an ordinary Fellow in 1848, was elected a vice-president for the years 1872-73, and became president in 1874. The choice was further enhanced by the fact that Matthews Duncan was personally known to Dr. Haig Ferguson. After a vivid recollection of his personal character Dr. Haig Ferguson dealt with Matthews Duncan's early life, and his outstanding career at Marischal College, Aberdeen, where he carried everything before him. His relation with Sir J. Y. Simpson was then mentioned, and a great point was made of his intimate connexion with the discovery of chloroform—a fact which was not very widely known. An accurate account of his valuable publications and addresses was given, and extracts from his diary were read which helped those present to realize what a great man Matthews Duncan was and how advanced were his ideas. His life in Edinburgh was fully dealt with, and the lecturer commented on the great loss sustained by Edinburgh on his departure to London to take up an appointment at St. Bartholomew's Hospital. In London he had enjoyed a larger sphere of work, and his marvellous gift and pleasure in teaching the younger generation was turned to full advantage. It was interesting to note that however busy he was in London he was never too busy to receive friends from Edinburgh, and to enjoy a "crack" about Edinburgh affairs and his old Edinburgh friends. Dr. Haig Ferguson concluded his address by emphasizing the direct simple nature and the true Christian faith that upheld so great a man, who was not only one of the most famous gynaecologists that there had ever been, but one of the great personalities in medical history.

Ireland.

Free State Medical Registration Council

At the November session of the Irish Free State Medical Registration Council the president, Dr. Denis J. Coffey, said that at that meeting, as the first session of the Council for general business following the establishment of the Register under the Medical Practitioners Act, 1927, it was convenient to refer briefly to the work of the Council from the date of its appointment under the Act. He recalled that the Council had held its first meeting on November 1st, 1927, and he reviewed the steps taken in connexion with the Register, which was duly established on May 26th, 1928. The result, he said, had been that on the date of the establishment 4,068 names were on the Register of Medical Practitioners for Saorstát Éireann, of this number something less than one-half were registered by right of registered address in the Saorstát, and approximately 2,100 of registered address outside Saorstát Éireann by application in accordance with the Act. All these registrations were effected free of charge. Subsequent to establishment—that is, from May 26th, 1928—names might be registered only on payment of the ordinary fees. Since the establishment of the Register several committee meetings had been held, and one meeting of the Council was called for the special purpose of the appointment of three members to act on the Dental Board. Registration was now fully in operation under the Act. The attention of all newly qualified practitioners was therefore directed to the provisions of the Act concerning registration, from which it followed that a medical practitioner who was not registered might not sign any certificate required for the

purpose of any Act in force in Saorstát Éireann, and might not recover fees in any legal proceedings for professional attendance. Registration under the Act was effective only within the jurisdiction of Saorstát Éireann. The powers of the Council under the Act enabled them to remove from the Register any person convicted of a felony or misdemeanour, or proved, to the satisfaction of the Council, to have been guilty of infamous conduct in a professional respect. The Council might, from time to time, send by post to every person a letter inquiring whether he had ceased to practise or had changed his address. If no reply was received within six months the name might be removed from the Register. The agreement embodied in the Act between Saorstát Éireann, Great Britain, and Northern Ireland provided for the co-ordination of the disciplinary powers exercised by the Medical Registration Council and the General Medical Council. In respect of these powers it might be said that they were similar in character to those with which registered medical practitioners were familiar previously in the Medical Acts affecting the General Medical Register. In respect to the Register of Medical Practitioners in Saorstát Éireann similar general provisions, therefore, remained in regard to the maintenance of the Register, and in respect of offences or charges which might arise from the operation of the powers of the Medical Council of Saorstát Éireann. Similarly, in respect of medical examinations and the courses of study leading to the qualification under the licensing bodies in Saorstát Éireann, the Medical Council was charged with obligations of similar character to those of the previous Medical Acts, and for the exercise of all of these functions regulations had been duly made. Under other provisions of the Act occasions might arise for a recognition by the Executive Council of Saorstát Éireann, on the recommendation of the Medical Registration Council, of the extension of reciprocity of foreign countries or Dominions under stated conditions. The periods appointed in the regulations for ordinary meetings of the Council are in November and May. The first printed *Irish Medical Register* will, it is intended, be published early in the coming year. Meanwhile the actual work of registration is conducted at the temporary office, Room 123, Custom House Dublin. Dr Coffey expressed the indebtedness of the Council to the Registrar of the General Medical Council and his staff for their assistance at all times in furnishing information required by the Council in connexion with the establishment and maintenance of the *Irish Register*.

Medical Certification Pool Area in the Free State

General R. Mulcahy, Minister for Local Government and Public Health in the Free State, on November 30th, received the deputation appointed by the Irish Medical Committee to discuss with him the proposal recently made by the National Health Insurance Commission to change the pool area for the distribution of remuneration for medical certification from the dispensary district to the county. The Minister was accompanied by Mr. E. P. McCarron, Secretary of the Department, Sir Joseph Glynn, chairman of the National Health Insurance Commission, and Dr. W. J. Maguire, medical member. The deputation consisted of Dr. T. Hennessy, honorary secretary of the Irish Medical Committee, and Drs. R. J. Rowlette, H. J. Raverty, and J. P. Shanley. Dr. J. Power, chairman, and Mr. C. H. Gick, secretary of the Committee, were unavoidably absent. When the deputation had put before the Minister the reasons which led the Irish Medical Committee to decline to recommend the proposal of the National Health Insurance Commission for acceptance by the certifiers, Sir Joseph Glynn explained the reasons which induced the Commission to formulate the scheme. After a long discussion the Minister agreed to defer any change in the mode of payment until he had had time further to consider the present system as compared with alternatives which might possibly be preferable administratively, and more equitable to the certifiers. He commented on the present cost of distributing the £37,000 for medical certification, referring to the fact that the cost to the State of medical certification was one-tenth of the total inclusive cost to the State of national health insurance and its administration.

England and Wales.

The Hospital Saving Association

The Hospital Saving Association continues to make progress. In July, 1928, there were 764 groups, representing 62,000 contributors, from whose contributions of £22,000 the sum of £17,000 was paid to various hospitals and other institutions. In the year ending July 31st, 1928, over £240,000 was collected from 450,000 contributors in more than 5,000 groups, and the payments for hospital services amounted to £175,000. The annual meeting of the Association on November 28th attracted a very great number of group secretaries, so that the large Kingsway Hall seemed to be completely filled. The chairman, Sir Alan Anderson, said that at the present time the rate of income of the association was over £300,000 per annum, which meant the collection of two million threepences every month. If employers were to add one penny a week to the contributions of each of their workpeople the whole of the charitable contributions to some hospitals towards the maintenance of the association patients would be relieved. While there had been in the past year an increase of 10 per cent in the number of contributors and their dependants treated as in-patients, the fall of 8 per cent in the out-patients showed, said Sir Alan Anderson, that the Association was not abusing hospital treatment to the detriment of general practitioners. Sir Berkeley Moynihan, P.R.C.S., who had succeeded Viscount Cavo as vice-president of the association, described early efforts made in Leeds to establish a working people's hospital fund. He urged also the importance of maintaining the voluntary system, and illustrated the effect of the traditions of hospital training on the doctor's life, with a panegyric on Harvey, Hunter, and Lister. Mr. J. H. Thomas, M.P., combined a good deal of sentiment with a little badinage. He told an affecting story of a domestic servant who collected £50 in coppers for a hospital, and he followed this up with a refusal to be drawn by Sir Berkeley Moynihan into informing the meeting as to the fate of the voluntary hospitals after next June 1.

Gift of £50,000 for Radium for Hospitals in London

An offer from Sir Otto Beit of a gift of a sum of approximately, but not less than, £50,000 for the purchase of radium has been accepted by King Edward's Hospital Fund for London. Sir Otto Beit, in the letter containing the offer, states that recent personal observation has greatly impressed him with the value of radium as a remedial agent, and that, realizing that the hospitals of London are not in general adequately supplied, he has decided to place the sum mentioned at the disposal of the Fund for the purchase of radium. It is his wish that the Distribution Committee of the Fund, assisted, if necessary, by members of the medical profession co-opted *ad hoc*, should decide upon the proportions and manner in which the gift should be applied by way of the loan of radium to hospitals within the area of the Fund. In their selection of hospitals he desires the committee to have regard to competence of the staffing and equipment of the respective radiation departments, to an undertaking by the hospitals to ensure the safe custody of the radium loaned to them, and to insurance to its full value with an approved company. In the conclusion of his letter Sir Otto Beit recalls that he has for many years aimed at encouraging research in science and medicine, and states that he should like the committee to endeavour to secure that the hospitals so provided on loan with radium should be preferably those in which the cure of disease or the alleviation of suffering is associated with a keen interest in the furtherance of knowledge "for the relief of man's estate."

London Mental Hospital Superintendents

Ewell Colony, which since its evacuation by the Ministry of Pensions nearly two years ago has been used by the London County Council for the accommodation of patients certified under the Lunacy Acts, is now definitely to be continued as one of the London county mental hospitals. So long as the temporary arrangement was in force it was

not possible to appoint in a permanent capacity the principal officers, including the medical superintendent, necessary for the administration. It is now proposed to appoint as medical superintendent of the Exall Colony Dr L H Wootton, the deputy medical superintendent of Colney Hatch Mental Hospital, who, during the last two years, has been seconded to act as medical superintendent of the Colony. His salary will be £800 a year (based on pre-war conditions), with unfurnished house (rates, taxes, and water free). With the temporary additions at present in force the salary is £981 a year. Permission has been given for the medical superintendent of Horton Mental Hospital (Dr J R Lord) to hold the honorary appointment of lecturer in clinical psychiatry on the staff of the London School of Medicine for Women for a period of twelve months, subject to the conditions that the appointment shall not interfere with the efficient discharge of his official duties, and that the Council will not be held responsible for views or opinions expressed by him. This follows a request by the Royal Free Hospital, with which the London School of Medicine for Women is associated, for facilities to be given at Horton Mental Hospital for clinical instruction in psychiatry for their medical students, and for the medical superintendent to be allowed to hold an honorary appointment on the school staff.

Correspondence.

RADIUM AND CANCER

SIR,—The letter published in your issue of December 1st (p 1008) from Mr Malcolm Donaldson, and also your annotation, are most opportune, and should be carefully read and digested by every surgeon who proposes to use radium in the treatment of any case of cancer. The wave of enthusiasm of this line of treatment owes much of its origin to the discussions during the recent International Conference on Cancer organized by the British Cancer Campaign, but it should not be forgotten that the results then published were the results of many experts who had used radium for some years and who had slowly evolved a form of treatment from the experience gained in this form of work.

Together with my colleagues at the Cancer Hospital, I have used radium in the treatment of cancer for many years, at first with disappointing results, more recently, however, with improved technique and with the use of small rather than with massive doses, I have obtained many astonishingly good results. I might add that radium was first used for the treatment of patients at the Cancer Hospital as long ago as 1903.

I look upon cancer as a generic term covering many forms of malignant disease which as yet are not differentiated some of these are amenable to radium therapy and some are not, and only the experience of the surgeon seeing many of these cases will decide the question of the suitability of the individual case for this line of treatment. The indiscriminate use of such a remedy in the hands of many will only bring discredit on the work which is being done. It must not be forgotten that radium is a dangerous element. I have seen several cases of severe radium burns, and have had to amputate the thumb of one radium worker for epithelioma caused by it.

There is undoubtedly an urgent need for further supplies of radium in this country, and at the Cancer Hospital we urgently require much more than we possess at present to carry on our work. I would make a plea that treatment of cancer by radium should be encouraged to the full, but let it be in centres which are adapted for that purpose and which have attached to them not only surgeons, radiologists, and pathologists who are familiar with radium work, but also competent physicists to deal with the element.

Much work requires to be done yet before we can hail radium as a cure for cancer and I anticipate many changes with respect to dosage, filtration, etc., will take place before it is put on a sound foundation. Further, we have

yet to learn whether to use the element or its salts, or whether to rely upon radium emanation, and each case must be considered individually.

For the above reasons I do most emphatically agree with Mr Donaldson that we should not lose our sense of proportion and be carried away by the wave of enthusiasm which may lead to reaction and to disappointment, but for the present let the work be carried on in recognized centres suitably equipped, and assisted when possible by additional supplies of radium. Another point arises in connection with this—namely, the overhead charges necessitated by the use of radium are much the same, whether small or large amounts are handled, and therefore the economic value of the use of the element in centres is evident—I am, etc.,

London W 1, Dec 3rd

R H JOCELYN SWAN

SIR,—In the *Times* of November 20th there appeared a leading article on cancer which contained a quite unjustifiable and improper pronouncement. I immediately addressed to the Editor of the *Times* the following letter.

'In your leading article of to-day a issue dealing with cancer it is stated that "It is now universally acknowledged that the treatment by radium is the best possible treatment in cases of cancer of the womb and that surgical operation in this form of cancer is no longer advisable when radium can be obtained." This statement is at present quite unjustifiable for no statistics from British sources are extant to warrant such a sweeping conclusion. The probable truth is that there are certain cases best treated with radium and certain others best treated by operation and our present task is to discriminate between the two classes. A good many years further experience with radium will be required before a decisive answer can be given, for ten years must elapse from the cessation of any particular method of treatment before a patient can be said to be free of all chances of recurrence of the cancer. The pronouncement in your leading article is to be regretted as misleading, and therefore harmful.

Over a week has elapsed, and my letter has not been published, and I am therefore asking you to publish it. I hold the matter to be one of great importance, not merely because the pronouncement is untrue, but because the publishing by lay journals, and particularly a lay journal like the *Times*, of dogmatic statements on matters on which there is no agreement amongst the profession is undesirable and dangerous—I am, etc.,

London W 1 Nov 29th.

VICTOR BONNEY

VOLUNTARY HOSPITAL INCOME

SIR,—In your excellent summary on December 1st (p 1018) of the report of voluntary hospitals in Great Britain (excluding London) for the year 1927, published by the Central Hospital Bureau, there is a citation which, unless given with the full details furnished in the report, may lead to misunderstanding. The summary reads (I give the England figures only, for brevity):

The main sources of income on maintenance account per available bed in 1927 were as follows—Voluntary gifts, £80 75 Receipts for services rendered £29 40 Interest on investments, £18 89 Extraordinary income £18 93

I think any one reading this would suppose that "voluntary gifts" mean subscriptions and donations, or in the words of the Hospital Policy of our Association

'contributions from whatever source to which no such conditions are attached as would involve the obligations of service on the part of the hospital but are charitable contributions to be expended at the discretion of those to whom the management of the hospital is entrusted'

Reference to the original report shows this is not a "Voluntary gifts" includes Subscriptions, £17 32 Donations (including entertainments, etc.), £22 50 Workmen's Contributions, Hospital Saturday Funds, and Contributory Schemes, £36 85 Congregations Collections, £4 08 So that of the "voluntary gifts" nearly one half are contributions for services to be rendered, for there is no doubt that all workmen's contributions of whatever sort are a form of voluntary insurance for hospital treatment, if

and when that may be needed. The report makes this certain, for it reads:

'It will be noticed that where the figures of patients' contributions are high those under the heading of workmen's contributions are low and vice versa. The two columns should be read in conjunction.'

I make no criticism of the manner in which the figures of the report are set out; the text expressly gives the reason for the form of tabulation.

But the distinction I have drawn is of importance in considering the claim of visiting staffs to recognition of their services. Members of staffs discussing the bearing of contributory schemes with their boards should bear in mind that the two sets of figures may be properly presented thus: Subscriptions, donations, congregational collections, £43 90, payments for services rendered or to be rendered, £66 25, and further, that the year 1927 showed an increase under the latter heading, for the figure of the previous year was £60 51.—I am, etc.,

London W 1, Dec. 1st.

N. BISHOP HARMAN.

ETIOLOGY AND TREATMENT OF PAPULAR URTICARIA

SIR,—Referring to my article on urticaria, Dr Burgess (December 1st, p. 1010) takes exception to the following paragraphs:

"Papular urticaria is influenced neither by dieting nor drugs but the patient obtains a respite if he be removed from his own environment."

"There is a curious factor common to all the sufferers: recover immediately they are admitted to hospital, even though no treatment of any description be given. The rash returns after their discharge."

He states that it is likely that others share his disagreement with these statements. This I can readily believe, for at one time I myself imagined that a food protein was the cause of the complaint. I have ventured to forward to Dr Burgess a reprint of a paper published in the *British Journal of Dermatology* (March, 1927), which gives in detail some of the investigations I have made, and on which I base my views. Briefly they are as follows:

In 10 out of my series of 52 cases the eruption commenced whilst the patients were being breast-fed, and weaning did not ameliorate the condition. Two cases were admitted to hospital during an attack, and all their food was brought from their respective homes, nevertheless the eruption disappeared. I have records of over 40 cases admitted during an attack, and in no case did the rash persist, although no treatment was given. Well-known British dermatologists have had the same experience. It has been observed in America (Goldenberg and Rosen, *Archives of Dermatology and Syphilology*, vol. 14, No. 6, p. 698). During this last year 7 cases have been admitted to hospital for the nights only, staying at home during the day, 5 of these were absolutely clear of the rash within one week of this regime, in spite of the fact that they had previously not been free for months. I have records of 6 cases in which the onset of the rash coincided with the patient's removal to a new residence. Finally, Professor Jadassohn of Breslau recently sent me a reprint of an article published in 1902 ('Ueber Prurigo und Neurodermitiden') which draws attention to the fact that in Hebra's prurigo, a chronic eczema closely allied to, and often preceded by, papular urticaria, the rash disappears during the patient's residence in hospital, only to return on their arrival home, and that, in some cases, spending the night only in hospital was sufficient to keep them free of the skin changes.

It is difficult to prove or disprove the theory that the complaint is due to food sensitization, but I submit that there is little scientific evidence in favour of it. The patients eventually acquire a temporary or permanent immunity, yet restriction in diet or an empirical remedy preceding it obtains the credit for the cure.

I do not claim that there is any mythical virtue present in the atmosphere of a hospital, as Dr Burgess supposes, but I believe that an antigen, whether specific or not I do not know, is present in the home of the child and not in the wards of the hospitals in which these experiments have been carried out.—I am, etc.,

Sheffield, Dec. 3rd.

RUPERT HALLAM.

AVULSION OF THE SCALP

SIR,—We should like to congratulate Mr A. Grey Barn's on his exposition in your issue of November 17th (p. 893) of a very successful use of the tubed pedicle flap in the treatment of a case of avulsion of the scalp. We note that all his recent references are taken from the literature of another country. This seems to us rather a pity, seeing that the essential part of the method he employed may be claimed as originating in this country. This means of skin transfer is in regular use by us.

The tubed pedicle was first used in October, 1917, at the Faco and Jaw Hospital, Sidcup, (Gillies, *Plastic Surgery of the Face*, p. 358). On page 379 of Carson's *Modern Operative Surgery* it is stated that "by means of the tubed pedicle, skin may be brought in stages from almost any part of the body to a desired spot." Again, in a paper printed in the *Irish Journal of Medical Science*, February, 1926, one of us wrote, "I have cases in which such a flap has been transferred as far down as the foot and as far up as the crown of the head." Finally, in Ogilvie's *Recent Advances in Surgery* is illustrated a case of avulsion of the scalp in which treatment was commenced on July 25th, 1924, on lines precisely similar to, though more extensive than, those of Mr Barn's case.

Can no good thing come out of Britain?—We are, etc.,

H. D. GILLIES,

T. POMFRET KILNER.

London W 1, Dec. 1st.

HEART SOUNDS

SIR,—Dr G. Arbour Stephens, in his letter on heart sounds of November 17th (p. 916), asks "What authority is there for the suggestion that the thin-walled auricle is capable of producing any sound at all? I have pointed out repeatedly that a muscle when it contracts produces no sound whatever."

The left auricle surely cannot be regarded as a mere contracting muscle, but as the walls of a contracting chamber. Its contents are forced onwards, and if a flow of air can produce a whistle when passing an obstacle, there is no reason why a flow of fluid should not produce a sound.

I cannot understand why Dr Stephens should speak so contemptuously of the thin-walled auricle. Allan Burns pointed out years ago that in a case of calcification of the ventricles the auricle was able to maintain the circulation by itself for a long period of life. The study of cardiology seems to me to have been led into the wilderness by graphic methods for the last twenty years or more, before that time the auricle had a place of importance in the writings of such men as Dickinson, Gardner, Sansom, or Potain.

The thin-walled auricle has the advantage of the stripping David in getting in its throw before the ventricular Goliath starts. The auricle, on contracting, thickens, but—what is of far more importance—its internal area decreases as the square of its diminution in diameter, making the resistance to contraction proportionately less. There consequently comes a point when the auricle can, theoretically, exert a greater pressure on its contents than is ever necessary, and, if resisted, as in mitral stenosis, could overcome the ventricle if it contracted against it, because the intra-ventricular blood pressure is limited in height by the aortic safety valve. In my communication "Dilatation of the heart," in the *British Medical Journal* of February 5th, 1921 (p. 188), I explained this fully.

The "pre-systolic" murmur heard in mitral stenosis is ungravescent in character, and goes up to and into the ventricular systolic time. This is only explicable when it is appreciated that the auricle is physically capable, as it gets smaller, of exerting considerable and increasing pressure on its residual contents. My paper on the pre-systolic murmur, in the *Journal* of January 11th, 1913 (p. 72), dealt with this.

Dr Stephens concludes his letter with a remarkable theory. He writes "I maintain that the normal heart sounds are produced by the movements of this [the pericardial] fluid. If the pericardium be filled with an effusion the movements of the fluid are so restricted that no sound is heard, whilst were the sounds produced by the muscles

or valves of the heart they would be heard all the more plainly, because fluid is such an excellent conductor of sounds."

I do not know where Dr Stophens locates the origin of a vesicular murmur, and breath sounds generally. If he denies that heart sounds originate in the heart because a pericardial effusion causes them to disappear, he must deny that breath sounds originate in the lungs because a pleural effusion also makes them disappear—I am, etc.,

Menton, Nov 21st.

D W SIMMONS

HICKMAN MEMORIAL

SIR,—Your readers will doubtless be familiar with the name of Henry Hill Hickman, the earliest known British experimenter in attempts to produce general anaesthesia by inhalation during surgical operations. Mr C J S Thompson's article in the *British Medical Journal* of April 13th, 1912, deals very fully with Hickman's history, and Dr Dudley Buxton and the Rev Prebendary Joyce have also advocated Hickman's claim to recognition. An Englishman, born at Bromfield in 1800, Hickman practised as a surgeon at Ludlow in his native county of Shropshire, and but for his death at the age of 30 might well have achieved success. His efforts received little or no support, either in England or France. Nevertheless, his experiments in producing anaesthesia, and the idea he pursued with such enthusiasm, fully entitle him to be remembered and recognized.

At the approach of the centenary of his death (April 2nd, 1830) a committee has been formed, with Lord Dawson of Penn as chairman, and Sir StClair Thomson as vice-chairman, to collect funds for the following objects:

1. To renew and suitably inscribe Hickman's tombstone, which is beyond repair.
2. To place a memorial tablet in Bromfield Parish Church.
3. To procure a portrait, to be presented to the Royal Society of Medicine and,
4. If funds permit, to establish a Hickman Prize, or other memorial, for original work in anaesthesia.

The Royal Society of Medicine has given a donation of £10, and members of the Anaesthetic Section (which took the initiative in the matter) have already contributed sixty guineas.

Although Hickman has been recognized, and a "Hickman Meeting" has been held in America, no such honour has yet been paid to his memory by his own countrymen.

Subscriptions, of any amount up to two guineas, may be sent to the Honorary Treasurer, Mr V Warren Low, F.R.C.S., 76, Harley Street, W.1. The envelope should be marked "H. H. H. Memorial."

It is proposed to close this fund by the end of January, when subscribers will be invited to meet and consider the plans submitted by the Organizing Committee, which consists of

Lord Dawson of Penn (Chairman)	Dr H R Spencer
Sir StClair Thomson (Vice-Chairman)	Rev Prebendary W Joyce
The Editor the <i>Lancet</i>	Mr C J S Thompson
The Editor the <i>British Medical Journal</i>	Mr Ashley Daly
Mr V Warren Low	Dr Z Mennell
Dr Dudley Buxton	Dr W J McCaigie (Hon Provincial Sec)
	Dr Cecil Hughes (Hon Sec)

—I am, etc.,

(Signed) **CECIL HUGHES,**
Honorary Secretary

London W.1 Nov 29th

INJECTION TREATMENT OF VARICOCELE

SIR,—Dr Hanschell's excellent letter (November 17th, p 915) on the treatment of varicocele by injection was of great interest. Lest, however, injection treatment be considered a panacea for every type of varicocele (Dr Hanschell does not claim this), a note of warning should be sounded. Varicocele has been treated by injection for some years in France, especially by doctors of the Lyons school. I was surprised, therefore, to find, when attending Siecard's clinic in Paris, that injection treatment for varicocele was not encouraged, and was seldom practised. It was recognized that a certain percentage of cases would yield satisfactory results without excessively painful accom-

paniments, but a number of rather serious and painful ill effects, such as orchitis, hydrocele and extensive inflammation of the spermatic cord, had resulted elsewhere in the experience of those who had treated varicocele extensively by this method, and it was felt, therefore, that the treatment should be advised very conservatively.

That ill results from injection are more liable to occur in this region is only to be expected when one considers the anatomical relations of the injected veins—the pampiniform plexus—and the effects of injection on these veins. The pampiniform plexus lies in a serous sac, and not, as do the veins of the limbs, in the subcutaneous tissue. The veins composing this plexus emerge from the testicle, and with the spermatic plexus of nerves and vas deferens (with all of which the pampiniform plexus is most intimately associated) form the spermatic cord, all being surrounded by serous membrane. Consider what happens to a vein when injected. First the endothelium is inflamed (endothelitis), then all the coats of the vein (venitis), and finally, in a large number of cases, the inflammation spreads to the surrounding tissues (perivenitis). This has been proved experimentally by Jentzer and Askanazy of Geneva, Sicard, and others, as follows. Collargol was added to the sclerosing injection (sodium salicylate), and the mixture was then injected into the veins of several patients, parts of the injected veins were then removed at intervals, varying from an hour to two or three days. The collargol (and therefore the salicylate) was found to have penetrated all the coats of the veins, and even the tissues outside the veins. In the limbs a certain amount of perivenitis is of no serious consequence, since only the skin and subcutaneous tissue are affected, and in the case of haemorrhoids only the mucous and submucous tissue. But when the pampiniform plexus is injected the perivenitis which almost invariably ensues, and which one cannot control, may be a grave matter if excessive, owing to the nature of the perivenous structures—namely, the testicle, serous membrane, and nerves—any or all of which may, and, as reported, not infrequently do, share in the inflammation. Inflammation in the scrotal area makes treatment non-ambulatory. From this it would seem that injection treatment of varicocele should be advocated with more caution than for veins in other areas.

As to the type of varicocele suitable for injection many are of opinion that the selection of any form of radical treatment for this complaint should be governed by symptoms and not by size. If a varicocele does not cause "troublesome" symptoms it is best left alone, a suspensory bandage being worn for support. Should, however, the varicocele be large and make the patient's life uncomfortable, treatment by injection would seem justifiable especially in view of the good results obtained by Dr Hanschell in this type of case. The bad results which have occurred in other hands may have been due to indiscriminate use of injections with perhaps, in many instances, faulty technique. The treatment of any form of varicose condition by injection, whether of the limbs, anal canal, or testicle, is not a simple matter, but requires a skill, both in technique and in selection of suitable cases, which can only be acquired by much practice if consistently good results are to be attained—I am, etc.,

London W.C.1 Nov 24th

P KENNEDY MURPHY M.D.

PREVENTION OF COMPLETE RUPTURE OF THE PERINEUM

SIR,—I have read with interest the article on "The prevention of complete rupture of the perineum," by Dr T Stretthall Wright, on November 24th (p 934). The adoption of prophylactic perineorrhaphy is greatly to be commended, and I have used it with very gratifying results in quite a number of cases. The method I learnt from Professor Blair Bell, who has been teaching it for many years—certainly before the war—but he himself does not claim to have originated the procedure, although he may have done so. In these circumstances I do not think your contributor can claim originality. I may also mention that many lacerations of the perineum can be avoided by adopting Potter's method of "ironing out" the vagina before attempting to deliver with forceps or

perfora version, thus overcoming the muscular spasm and relaxing the perineum

Professor Blain Bell has been in the habit for many years now of measuring the transverse diameter of the pelvic outlet in cases requiring the repair of complete lacerations of the perineum, he has constantly found this to be so narrowed that the head must have been forced further back than normal in the process of delivery and the perineum inevitably and completely lacerated—I am, etc.,

Liverpool Nov. 29th

M. M. DAWSON

PAINLESS LABOURS

SIR.—In view of Dr. Mary DeGaris's article of October 27th (p. 745) the following case is of interest

I was called at 10 a.m. on November 13th to see a woman whom I had undertaken to attend during her confinement. She was aged 36 years, perfectly healthy, and had had two previous confinements.

I found her up and performing her household duties. She said that she had no pains but thought she was in labour as water had been coming in little gushes since 8 o'clock. Vaginal examination revealed that the os was about half dilated and the head well down in the pelvis. I saw her again about 3 p.m., she had had no pains in the interval. She sent for me about midnight, and on my arrival I found the head crowned almost immediately she gave birth to a male child weighing 7½ lb. The placenta followed in five minutes, and there was scarcely any haemorrhage. She had no pain whatever during the day and only three pains as the child was being born. The puerperium has so far been normal, her temperature has never been above 98.4° F.

The history of her first confinement at the age of 24 years is similarly painless. On getting out of bed in the morning there was a gush of water and she felt something was going to happen. She had one pain and the baby was born before the doctor or nurse could be summoned. After second confinement, when 32 years old, lasted eighteen hours and was associated with a good deal of pain, there was difficulty in delivering the placenta—I am, etc.,

W. A. MURPHY, M.B., B.Ch. Dub.

March, Cambs, Nov. 17th.

"THE RIGHT TO PRACTISE"

SIR.—The sentence quoted by Mr. W. L. Hempsen in his letter published in the Journal of December 1st (p. 1011) under the heading of "The right to practise" was spoken in reference to qualified medical practice.

I think it was abundantly clear to my audience that anyone could carry on "unqualified practice," but that the inclusion of the name in the *Medical Register*, and not degrees or diplomas, gave the right to qualified medical practice, and that the Medical Act of 1858 was introduced so that (in the words of the Act) "persons requiring medical aid should be enabled to distinguish qualified from unqualified practitioners."

I am very grateful to Mr. Hempsen for making this point still more clear. It is nice to see that he still takes an interest in medical affairs—I am, etc.,

Hyde Dec. 1st.

J. GORDON MACQUEEN

TETANY INVOLVING THE RECTUS ABDOMINIS

SIR.—I was much interested to read the letter on this subject by Surgeon Commander H. Hill, R.N., in the *British Medical Journal* of November 17th (p. 916). Surely the condition he refers to must be well known to those who put a heavy strain on the rectus abdominis.

Many years ago, when I was training for Henley regatta in one of the senior eights of the London Rowing Club, I was reluctantly obliged to give up my seat in the boat from the above cause, after having gone through most of the training required, this was one of my greatest disappointments in life. I have had a few attacks of this variety of cramp since, but only after riding a pulling horse. During the past seven years I have been in constant attendance in the riding school of the Royal Horse Artillery, and have encountered quite a number of such cases. Sometimes I have been in time to feel the hard lump, sometimes it had subsided before I examined the patient, but the history was generally the same—"Came on after going over the jumps", it was always the rectus

abdominis which was affected, and generally the top part of the muscle.

Of course I have had riders complaining of cramp in other muscles, such as the hamstrings, calves, and adductor magnus, but not at the same time as the rectus. Some years ago Professor William Rose, then professor of surgery at King's College Hospital, gave me this remarkable advice: "Hold a piece of stick sulphur in each hand during the attack, and soon the pain goes and the muscles relax." I have seen this act like magic in severe attacks of cramp and have tried it myself, sometimes it takes longer to act than at other times. Professor Rose gave no explanation how the sulphur acts, but it possibly sets up some kind of electrical action.

I may mention that most of the cases of cramp in the rectus abdominis I have met with have been in recruits learning to ride and in those who ride more by grip than by balance. The hunting men (the officers) never seem to get it—I am, etc.,

B. W. LANCHESTER, Lieut. Colonel R.A.M.C.,

Medical Officer in Charge Royal Horse Artillery
Trenbridge Wilt.

SO-CALLED TITANIUM RAYS

SIR.—In my "Notes on titanium rays" I explained that "titanium rays are obtained from electrodes containing from 1 per cent to 5 per cent of the rare metal titanium and 95 per cent or more of wolfram." I also stated that "for many years I made a special study of tungsten rays and used them exclusively. In the latter part of 1924 I began to observe the effects of titanium rays, and the results led me to adopt them."

This simple statement of fact apparently does not please your correspondent Dr. Heald (November 24th, p. 962). He thinks we should word it differently, and proceeds to give a paraphrase which, in his opinion, correctly expresses "the more generally accepted terms of physics." Unfortunately there happens to be no physical terms in which we can express ourselves about what we at present call "ultra violet rays," because we know nothing about their physical action. At present we only have clinical experience to guide us, and the less we wrap up our ignorance in pseudo-scientific phraseology the more likely we are to get at the truth. We have learned that physical differences exist in the rays according to the manner in which they are produced, and that this involves a difference in technique, thus we can irradiate the whole body with a single mercury-vapour lamp, or, by my method of using titanium rays, with a battery of twelve arcs. We should not use this very expensive method unless the results justified it. We have lately made some experiments on the preventive powers of the rays in question. We used a fresh cow hide 5/16 in thick, this was placed over the lens of the camera, on which the rays were focused at varying distances. The results indicated active penetration, an interesting feature being that there was apparently little difference between two and four minute exposures. We do not know of any experiments with which to compare these, so cannot say that the unexpected penetrative powers were due to the titanium in the electrode—I am, etc.,

Bath Dec. 3rd

ARTHUR ROBERTS, F.R.C.S. Ed.

THE JEWISH PATIENT

SIR.—I have unfortunately not yet read Dr. Hutchison's remarks at the Royal Society of Medicine on October 23rd, concerning the Jewish patient, but I should like to endorse the view expressed by Dr. L. S. Woolf in your issue of November 17th (p. 916).

I have been a resident at the London Jewish Hospital (where about 75 per cent of the patients are Jews), at the Manchester Jewish Hospital (where about 25 per cent of the patients are Jews), in addition to such institutions as the Worcester General Infirmary, where I did not see a single Jewish patient over a period of fifteen months, and thus perhaps I may be considered qualified to speak on the subject.

In my experience the Jewish hospital patient is the most difficult and trying of patients. His lack of control, his

over anxiety, his readiness to fly for half a dozen opinions at the same time, and his occasional insolence are often a source of exasperation to his medical attendant.

But I do consider that only a very small part in the causation of these characteristics is played by the racial factor. In fact, the care bestowed by the Jewish parents on their children (were it only moderated), and the tendency of the Jewish patient to seek the advice of a medical man in the early stages of disease, are a matter for encouragement rather than condemnation. The chief cause is undoubtedly the foreign upbringing, for a very large proportion of the East End Jewish hospital patients are of foreign birth, and their children, even if born in England, are brought up in an essentially foreign home atmosphere. In Manchester, where the foreign element amongst the Jewish patients is not so pronounced, we find the difficulties not nearly so well marked—I am, etc.,

G. GREGORY KAYNE, M.D., M.R.C.P. Lond.

Manchester Nov. 17th.

MEDICAL PRACTICE FOR WOMEN IN PALESTINE

SIR,—In the *Journal* of October 6th (p. 624) there is a report of an address by Dr. Andrew Balfour on the possibilities of the tropical field for medical women, in which he mentions Palestine as one of those countries where medical women should find openings. The following facts give a picture of conditions prevailing at present, and as they will probably remain for a long time to come.

There are in Palestine (the figures are those for January 1st, 1928) 634 doctors licensed to practise of whom 104 are women. The population is roughly 750,000 (excluding about 100,000 nomads who need not here be considered), of whom one may count about 500,000 as living under primitive conditions and not accustomed to consult a doctor except in extreme cases. So much for general practice. As to infant welfare centres, it is true that there are 31 in the country, but of these 20 have been established by Jewish organizations and are fully staffed, only 8 are under Government control.

The reply given by Mr. Amory in the House of Commons, as reported in the *Journal* of May 5th last (p. 778), lamentable though its first part is, is sufficient warning to any woman doctor looking to Palestine to provide openings for practice (outside the medical missionary field). Mr. Amory said "that as yet no Government medical appointments in Palestine were open to women doctors. The special positions for dealing with infant welfare which ordinarily were filled by women doctors were covered in Palestine with a widespread service of nurses and midwives. In the opinion of the Government there was no special opening in Palestine for women doctors in other capacities"—I am, etc.,

Tel Aviv Palestine Oct. 25th.

ANNIE FOXER

BOOKS AS FOMITES

SIR,—The brief statement on this subject in the report of the consultative committee of the Board of Education on books in public schools, to which attention was called on November 24th (p. 951) does not give any details of the recent work on the subject which has been devoted to the recovery of the specific streptococcus from fomites in cases of scarlet fever. Thus Friedemann and Deicher found the scarlet fever streptococcus in the walls, beds, curtains, and other objects in the sick room of scarlet fever patients, and came to the conclusion that then results "underline the necessity of a thorough final disinfection of the sick-room in a case of scarlet fever." Balmain found that in experimentally infected books the *Streptococcus scarlatinae* could survive for eighteen days even in lightly infected books. Feigin confirmed the latter's results. He also investigated books naturally infected with scarlatinal streptococci, and his conclusion was that "books handled by scarlet fever patients harbour the germs and are capable of contributing to the spread of scarlet fever. It is necessary to avoid all contact with these books for at least six weeks, and even after this period it would be best to disinfect them."

¹ *Deut. med. Woch.* 1926 No. 51.

² *Lancet*, 1927 II 1128.

³ *C. R. Soc. de Biologie* 1928.

Again, it was discovered by the Pathological Laboratory of the Ministry of Health* that "in books used by three children out of fifteen who sickened with scarlatina, hemolytic streptococci were found. Books used by twelve children who developed diphtheria were also examined. In one instance virulent diphtheria bacilli were isolated."

It is impossible to prove that fomites spread such an endemic disease as scarlet fever, but at present the safest conclusion would be that stated at the discussion on the subject by the Society of Medical Officers of Health—that in the light of uncertainty definite measures should still be taken to prevent the possibility of the spread of infection by this means.

The legal position of a library which issued books which had been in the possession of scarlet fever patients would be an invidious one, if no precautions had been taken—I am, etc.,

A. H. G. BURTON,

Medical Officer of Health, Borough of Ilford.

November 27th.

"HYPERVITAMINOSIS"

SIR,—The letter of Dr. Leslie J. Harris in your issue of November 24th (p. 964) lays down several conclusions to be drawn from the data available. The weight of authority naturally attached to Dr. Harris's statements by your readers impels us to ask for space to make the following comments on two of his conclusions.

No. 6 states that since various specimens of irradiated ergosterol may vary in antirachitic activity, it is desirable that they should be subjected to physiological assay before being issued. In regard to this statement, we should like to point out that our products containing irradiated ergosterol are subjected to physiological assay before being issued, their activity being expressed in terms of the unit described by Dr. K. H. Coward.

No. 7 states. It is conceivable that different specimens, irradiated by different methods, may contain varying amounts of any toxic by-product the optimum manufacturing procedure needs to be worked out. The British Drug Houses have long since determined the practical optimum manufacturing procedure. The method arrived at has only been obtained after numerous experiments, in which fullest use was made of physiological tests.

—I am, etc.,

CHARLES ALEX. HILL,

London N., Nov. 27th.

Managing Director British Drug Houses Ltd.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons this week read the Local Government (Scotland) Bill a second time after a two days debate. The Consultative Health and Housing Committee arranged to meet on December 5th, under the chairmanship of Dr. Fremantle, to hear Sir Kingsley Wood speak on points raised during last week's debate on the Local Government Bill. The special committee of the British Medical Association has accepted the invitation to discuss medical aspects of the same bill with the Parliamentary Medical Committee on December 11th. Certain medical and other members interested in voluntary health associations are discussing with those associations how, accepting the decision of the House of Commons in favour of the block grant and of the general lines of the bill, amendments can be suggested to protect the interests of voluntary associations.

On December 4th Miss Bondfield introduced a bill to enable local authorities to provide footwear for children in distressed areas. The bill, she said, was brought forward by the seven women members of the House, irrespective of party. The bill was read the first time.

Local Government Bill.

The Local Government Bill was read a second time in the House of Commons on November 28th after an amendment for its rejection had been defeated by 344 to 165. In the debate which preceded—part of which was reported in our last issue—Dr. Fremantle was followed by Colonel Wedgwood, Colonel Ashley, and Miss Susan Lawrence.

Mr. PERCIVAL LAWRENCE said that at present the system was that the Minister of Health increased the grant for maternity and child welfare services only when those services were increased subject to his approval. The bill would encourage local authorities to spend little on these services. To the extent by which a local authority refrained from keeping pace with the country

* Chief Medical Officer's Report 1928.

as a whole it would have more money from the Exchequer grant available in relief of its own rates. It was true that in exceptional cases the Minister had power under Clause 86 to drive hopeless lagging authorities but that would only apply to those which had fallen right out of the ranks.

Dr. VERKOV DAVIES intervened to point out that Clause 86 postulated a reasonable standard of efficiency.

Mr. PRINCE LANREVE said that action was only contemplated where the health of the inhabitants had been, or was likely to be, endangered by the neglect of the council. He contended that the clause was obviously exceptional; he hoped that the Minister would find it possible to take maternity and child welfare services out of the block grant system. He drew attention to the provision in Clause 13 making it obligatory to raise from patients or their relatives the money expended on their behalf in maternity houses. If persons suffered from infectious disease or venereal disease they were, however, to be treated free. Any step which would make it less easy or less advantageous to extend the maternity service, and would make it more difficult for persons to avail themselves of this service, was to be deplored.

Lady ASTOR said she hoped later to move an amendment to keep the maternity and child welfare services on a percentage basis for the first five years and to specify that after that period the Minister ought to consider the adequacy of the maternity services when deciding whether he ought to reduce the block grant to any authority. She remarked that if the block grant were introduced a guarantee was needed that money would be spent on increasing the maternity services. Not the local authorities but the central authority had pressed for them and they should continue to be subject to some stimulus from the central authority. The new infant welfare centres had not cost the country a great deal. Ten years ago the Treasury grant amounted to about £200,000 and ten years had passed before that grant had increased to about £800,000. Since 1915 when the services were started infant mortality had been reduced from 110 per 1,000 to 70 per 1,000 and the reduction was continuing steadily. The tragedy was that maternal mortality had been stationary for the last twenty years. They should have more ante-natal clinics, more maternity homes, more beds in hospitals, and extended midwifery services.

Mr. SIMPLY WEBB said the block grant was to be based on relative needs as measured by obligatory services. Maternity and child welfare were not reckoned as a need. Under this scheme the same grant would go to the district that did practically nothing for maternity and child welfare as to the district that did its duty. Mr. Chamberlain had said that he intended to keep the backward places up to the mark. That sentiment had gained the adhesion of Dr. Fremantle who was so keen on public health but the bill did not say that. Clause 51 on which the Minister relied, limited his right of survey to the area of infectious disease, and left out maternity and child welfare altogether. In Clause 4 the words 'public health' did not include tuberculosis, which was there put in separately. Lawyers would construe from that that public health was something which was independent of maternity and child welfare. Yet the percentage grants had been instituted to encourage these optional services and the report of Sir George Newman, issued a few weeks ago had said that there can be no doubt that the percentage of Exchequer grants in aid of health had been of the highest possible value and incentive during the last fifteen years in getting special medical services in operation and in guiding their direction.

Sir KINGSLEY WOOD protested that the whole of the quotation from the Chief Medical Officer would bear a different construction.

Mr. WEBB said he had not misstated Sir George Newman's strong opinion which was well known to Dr. Fremantle and to other members who took an interest in health services. There was no adequate provision in the bill to prevent positive backwardness in these optional services. These new services were not yet general over the kingdom; there were only 1,695 infant centres in the whole of the kingdom. Could they ask a poor mother to travel more than a mile with an infant for examination and weighing and so forth and to attend regularly? How many of these infant centres would be required to cover the 58,000 square miles of England and Wales?

Mr. CHAMBERLAIN asked whether Mr. Webb contended that maternity and child welfare service was not public health.

Mr. WEBB replied that if the Minister mentioned one term in a series and did not mention others he might be taken deliberately to have omitted the others. The Minister should name the optional services after the words 'public health' in Clause 86 and instead of the words 'reasonable standard of efficiency' should use 'reasonable standard of adequacy and efficiency'. In some backward counties maternity and child welfare schemes were efficient but not adequate. Five years hence the maternity and child welfare service ought to have reached twice its present standard of adequacy but Mr. Chamberlain had taken no steps to secure that. The bill provided in Clause 13 that the 'average daily cost' of maintaining a person in a hospital under the bill could be recoverable from the patient. If the hospital was nearly empty the cost per patient would be enormous. Mr. Chamberlain had just authorized the Metropolitan Asylums Board to equip an expensive ward and to provide it with radiums at an enormous cost for eight women only. The average for each of these per day would be a very large sum. A hospital at Edmonton had just received power to spend £8,000 on radium for a very small ward.

Mr. CHAMBERLAIN intervened to say that the cost of treatment must be separated from the cost of maintenance. The patient would not be charged with the cost of treatment.

Mr. WEBB quoted the clause as saying 'maintenance and treatment'. He remarked that Mr. Chamberlain had been paying regard to the susceptibilities of the voluntary hospitals. He

imagined these were afraid that public health institutions would be so good that people would not want to go to voluntary hospitals. The charge for treatment in public health institutions was to be made in every case except for infectious disease. It had been expressly ordered that 'infectious disease should be granted, as of right to everyone absolutely free'. Women suffering from venereal diseases were treated specially at certain maternity and child welfare centres, and had to be treated free, yet other women were to be charged at these centres.

Mr. J. PALM supported the plea that the percentage grant should be continued for maternity and child welfare services. Bradford had just closed a school for blind children. Six years ago it had a hundred or more in the school. To-day only six required attention. As a result of infant welfare work eliminating ophthalmic neonatorum there was little blindness now. Condemning Clause 13, regarding the charging of costs of patients under the Poor Law, Mr. Palm said that powers similar to those given under Section 132 of the Public Health Act, 1875 and Section 58 of the Bradford Corporation Act 1925 would give local authorities all that was necessary to prevent imposition. The municipal hospital of Bradford cost £100,000 last year, but the total recovered from patients was £6,391. In concluding Mr. Palm said he must pay tribute to the advice received from time to time from the medical men in the service of the Ministry of Health.

Captain GUYSTON said he lived in a village in Gloucestershire and was often asked to get persons into hospital. He invariably found that the hospitals were full and that there was a long waiting list, yet in many Poor Law infirmaries beds were available. The right thing to do was to make these institutions available, and, if necessary, to turn them into specialized hospitals. They had to get the people to look upon these infirmaries as the proper hospitals of the poor of the country and a small charge would be one way of getting rid of the taint of pauperism. He was grateful that the bill dealt with the registration of births, marriages, and deaths a subject on which he had introduced a bill last session.

Mr. LANSHURY quoted from the report of the Chief Medical Officer to show that some definite adjustment would be needed to secure the special health services under a block grant system. The bill Mr. Lansbury remarked would not make a definite allotment for maternity and child welfare services. Mr. Chamberlain had already cut down the assistance to maternity and child welfare centres.

Sir KINGSLEY WOOD said the bill was a most important contribution to local government reform. It would be impossible for any Government to make it mandatory upon the local authorities to break up the Poor Law. As an illustration of that he gave the case of the mental deficient who if the Poor Law were broken up, would go to the local authorities and be treated exactly as others who were similarly circumstanced. It would be impossible to carry that out owing to the great lack of accommodation at present, a lack entailing great capital expenditure which would, he hoped, be minimized by the bill. The present percentage grant system was irrational and unjust especially for the health services. Merthyr Tydvil had rates of 27s. 2d in the £ with 105 children under 5 years of age per 1,000 of population. Southport with about the same population, had rates of 8s. 4d in the £ with 62 children under 5 per 1,000 of the population. Merthyr got £1,500 a year for its grant aided health services and Southport £8,000. Gateshead, with 14,000 children and South Shields, with 13,000 children, each received a grant of £1,600 for maternity and child welfare services. Bournemouth with 5,300 children, and Eastbourne with 2,976 children received £2,900 and £2,700 respectively. The Government was now spending £178,000 on maternity and child welfare services. Clause 86 was designed to give the Minister power to say to a local authority, 'You have got to get on with your maternity and child welfare services'. If they did not then do so within a reasonable time they could be penalized in their grants. There need be no apprehension that people would be confronted with heavy hospital charges under Clause 13, in which the system of the voluntary hospitals was followed.

As stated above, the amendment for rejection was then defeated by 344 to 165 and the bill was read a second time. A financial resolution authorizing the expenditure made necessary by the bill was carried during the following sitting on November 28th. On this resolution Dr. VERKOV DAVIES put a case for the urban district councils. He also pointed out that the British Social Hygiene Council which now received a grant from the State would get none under the bill. They would depend on grants from county councils and local authorities, which had not seemed anxious to spend money in this direction. He hoped the council would be better treated as that would be a great benefit to the health services. He favoured the block grant for health services. The percentage grant had been a stimulus to local authorities to start these services, but the experiment had lasted long enough. All the authorities which were anxious or willing to avail themselves of these services had done so. The block grants would be in the hands of the county councils, through whom a large number of welfare centres were now worked. The county councils would have more money than before and there would be a larger number of welfare centres throughout the country and a good general standard of efficiency.

In moving an amendment challenging the proposed system of block grants, Mr. SCOTT said the Association of Infant Welfare and Maternity Centres had passed a resolution against this proposal as not making adequate allowance for expansion in the next five years. The amendment was defeated by 285 to 122, and the financial resolution was carried by 280 to 132.

In a reply to Dr. Fremantle, on November 28th Sir KINGSLEY WOOD said that wards for the sick and infirm in the separate

infirmaries of London which were ordinarily staffed by trained nurses probationers in various stages of training, and ward maids or attendants contained 16 520 beds. Wards for the sick and infirm included in other Poor Law institutions were usually staffed by trained nurses, assistant nurses, and attendants, and contained some thousands of beds. No precise figures were available of the number of beds in wards served by untrained attendants in the Poor Law institutions of London, nor of the numbers of trained nurses and untrained attendants respectively in these institutions.

On November 28th Sir KINGSLEY WOOD told Lady Astor that it would not be necessary during the next financial year to reduce the grants available for certain local authorities in aid of their expenditure on milk. A reduction of £12,000 made in the current year was purely temporary, to keep the grants paid for the health services within the amount voted by Parliament.

On December 3rd, Sir KINGSLEY WOOD told Viscount Sandon that local authorities would have power, except in cases of infectious disease, to recover from the non-destitute expenses for treatment in their hospitals as well as for maintenance, to the extent of the average daily expenditure of the hospital on treatment, but not by reference to the actual cost of the treatment of the particular patient.

Local Government (Scotland) Bill

On December 3rd, Sir J. GILMOUR moved the second reading of the Local Government (Scotland) Bill, which in the main, seeks to achieve in Scotland similar objects to those aimed at by the Local Government Bill in England. He said that larger units of local government were required, particularly in view of the de-rating proposals. There were glaring inequalities and differences in the burdens which local authorities had to bear, 77 per cent. of the present pauperism in Scotland was in thirty-seven parishes in the larger burghs and 23 per cent. was scattered over 832 parishes. In the larger parishes the cost of administration was about 3 per cent. while in many parishes it was 18 or 20 per cent. of the amount spent in relief. The small authorities were obviously unable of themselves to supply adequate and up-to-date hospital accommodation. The first part of the bill dealt with local government administration. The services affected by the changes proposed included the Poor Law, the major public health services among which were hospitals and town planning. It was proposed to set up new authorities as units of administration consisting of the counties and the boroughs with a population of 20,000 and over. The parish councils would be abolished. The administration of poor relief by far the most important function of the parish councils was to be transferred to the county. For the purposes of the bill the small burghs were those with a population of under 20,000 and certain of their functions would be transferred to the county councils. These functions would include the major health services (including infectious disease and maternity and child welfare) milk and dairies adulteration of food and drugs unsound food and town planning. The total amount of rate loss due to de-rating was estimated in Scotland to amount to £3,200,000 a year. The total cost to the Exchequer in each of the first five years was estimated at £4,125,000. The total extra revenue to local authorities in each of the first five years—new money—was £322,000. The same guarantees were being given in Scotland as in England, and the effect broadly of the guarantees would be that in the first quinquennium only three counties out of the thirty-three would require an additional grant to bring the gain up to 1s. per head to compensate them for the loss of rate and grant. No large burghs would require an additional grant, the amount of the gain in every case being in excess of 1s. per head. The new money being distributed (£322,000) represented a sum of 3s. 9d. per head of the population, and it was estimated to be equal to a rate of 6d. in the £ on the reduced rateable valuation of Scotland. Of the smaller burghs 115 or 84 per cent. would have their rates reduced and of the 869 parishes 585 or 67 per cent., would have their rates reduced. It was calculated that every industrial area would gain and in addition, seven out of every eight persons would gain.

Mr. JONASTON moved the rejection of the bill.

Dr. DRUMMOND SMITH strongly opposed the bill which he said presented great dangers to the public health services in Scotland. The block grant would adversely affect these services, which were rapidly developing. Speaking of the way in which the child welfare scheme had extended he said that in Edinburgh, in 1917, when it was first started the net expenditure was £35,000. In 1920 before the amalgamation with Leith took place the expenditure was up to £85,000 and now in the larger area, the amount was £115,000 of health expenditure as compared with £35,000 only eleven years ago. This development was also only the beginning of a larger service in view of the problems facing local authorities to-day. For instance, the question of the rheumatic child had been tackled by the London County Council and also by Birmingham. Another very important service was that of the treatment of crippled children 75 per cent. of whom could be made self-supporting if they were properly treated in the earlier years. There was the question of mental deficiencies in regard to which public opinion was now being roused. To give special education to mental deficient up to the age of 16 and then to throw them out without any further public supervision, unless in the case of certifiable persons was simply to invite disaster both to them and to the community. Then there was the subject of cancer. Something might be discovered at any moment in connexion with cancer and it was now being realized that supplies of radium which were very expensive were essential in the treatment of this problem. Child welfare and maternity work was ripe for a very big advance and public opinion was ripe

for that advance. There had been a great deal of talk about maternal mortality. Dr. Findlay, the child welfare officer of Edinburgh had pointed out that in 1927 in Edinburgh the figures of the maternal death rate among mothers who had no ante-natal attention were 11.2 per 1,000 conceptions while in the ante-natal clinics they were only 2.4. The total figures were not large enough for the actual scientific determination of these proportions but it was plain as Dr. Findlay said, that the ante-natal clinics very definitely assisted in lessening the maternal death rate. There had not been enough of this work to cover the field either in Edinburgh or elsewhere in this year. This year was the standard year, and it was going to determine the relative proportion of money to be given in the grants for the next five years. Therefore, if the extension of this service was proposed in Edinburgh and other places—there were already schemes for homes and for other things to deal with these cases—the persons responsible for the finances would say, "No, we cannot go on with that now. We have got our grant on the basis of this year's expenditure. We must wait until the fourth year, until the next standard year comes along." That was not a satisfactory position for the health services. It seemed to him that the 6d., which the Secretary for Scotland had said was going to be saved in rates or given as a present by this bill would very soon be wiped out by the inevitable increases in expenditure which would result from the normal development after this year, and which would have to be met on a very narrow rating basis, and would certainly cause an increase in the rate. The same thing applied in regard to venereal disease. At present the State paid 75 per cent. and the local authority 25 per cent. Now the local authority would pay the whole 100 per cent., and while it was likely that large cities like Edinburgh would maintain their service there would be no stimulus to those backward areas which had never provided any efficient venereal disease service, to pass the standard year, and to go forward and impose on their own ratepayers the charge for the necessary extension of those services. The Government had taken a very wrong line in regard to what the Edinburgh authorities put forward for compulsory treatment in venereal disease. They turned that down. At the same time in this bill they had cut out the grant for propaganda. If the voluntary system was to be successful in venereal disease propaganda was absolutely essential and propaganda must be national, because voluntary contributions had been tried before and had been entirely unsuccessful. Such things as films and various items could not be supplied by individual authorities but must be done nationally. This had all been cut out by this bill. Some people had said that they looked forward to this bill as a great help to public health. He wished he could think so. He would be delighted to support it if he thought so. He thought that it was a backward measure, and that it was going to be a terrible danger to public health. The public health service was not going to be maintained, and if it was it would only be by the sacrifice of local authorities in rating their own people rather than let the services suffer.

As to hospitals, he would like certain information on a point which had never been cleared up. Under this bill the town councils were going to take over institutions such as the large hospitals in the cities, which at present were run by the parish councils. There were two hospitals in Edinburgh—Craiglockhart and Craigleith. It was proposed that all the poor people should be taken from Craiglockhart and kept in Craigleith which had been restored to them after the war pensioners had been using it. Craiglockhart ought to be used as an overflow for the Edinburgh Royal Infirmary, which had a waiting list of over 2,000 with many urgent cases wanting to get in. What was to be the position? Was it the case that Edinburgh Town Council would only be able to treat in that hospital necessitous poor, and would Edinburgh be compelled to get back from the relatives of these people so treated any sum expended on their maintenance? That was a very important point. In Aberdeen at present there was a working arrangement and the parish council hospitals had been handed over to the Public Health Committee of the town council, and were being worked by them. In Glasgow there was a working arrangement with Stobhill, one of the finest fitted up hospitals in the country. What was going to be the new position if the present arrangement did not involve any Poor Law system in the working of these hospitals by the public health authorities? Did the new proposals compel the town council to treat the people in those hospitals—if they were intending to use them as general hospitals—differently from the people in the tuberculous hospitals?

Another point of some importance was that one of the advantages of the new proposal was that these new institutions which were taken over were going to be brought up to date. Many of the Poor Law institutions were out of date and badly equipped. Who was going to pay for bringing them up to the proper standard of equipment? Certain people were so keenly wedded to the voluntary system that they would rather see people suffering and deprived of medical assistance than impose on that system at all. He hoped that no considerations of that kind would prevent every facility being given and every accommodation being taken advantage of for the medical services of the people who required it. He thought there would be opposition from those people who believed that a well-equipped and well-run municipal hospital would tend to damage the voluntary hospitals of the district. He believed however that for many years there would be plenty of room for both of them and he hoped that the municipal authorities would be encouraged to use these institutions to the utmost of their capacity. He would like to know, in passing, what was going to happen to the Highlands and Islands Medical Fund. He opposed the bill which instead of being for the Government a lifeboat would prove to be a millstone.

Dr. ELLIOT Under Secretary for Scotland replying to the debate, said the scheme had been fully discussed in Scotland especially by the municipality of Glasgow and there was no

suggestion of party opposition to the measure on the part of the Socialist members of the Glasgow corporation. Proposals were included in the bill to secure that there should be working-class representation on the new bodies to be set up. Committee after committee had reported in favour of the transference of the health services from the education authority to the single health authority. He gave instances of needless duplication of clinics for children under the present authorities in Glasgow. The bill would put the five great semi-national services of Scotland—the roads, health, education, Poor Law and police services—on the widest possible basis.

The amendment was rejected by 319 votes to 150 and the bill read the second time. It was afterwards sent to committee of the whole House instead of to the Standing Committee on Scottish bills.

Sir J. GILMORE stated on December 4th in reply to Mr. E. BROWN that there were 307 public health local authorities in Scotland all of whom had powers under subsection (1) (b) of Section 3 of the Notification of Births (Extension) Act 1915 subject to the approval of the Scottish Board of Health to make arrangements for attending to the health of expectant and nursing mothers, and of children under 5 years of age. The number that had made such provision up to date was 243.

Women Medical Students

Mr. A. M. SAMUEL told Mr. Rhys DAVIES on November 22nd, that he had no information of the number of entries of women medical students in England, Scotland and Wales for the last five years. Returns made to the University Grants Committee showed that the total numbers of full-time women medical students attending university institutions in the past five years were

	1923-24	1924-25	1925-26	1926-27	1927-28
England	1,375	1,197	1,059	930	862
Wales ..	35	32	30	32	30
Scotland ..	610	431	315	274	254
Total ..	2,020	1,660	1,402	1,236	1,146

Admission of Voluntary Boarders to Public Asylums.—In the House of Lords, on December 4th Lord SAVONTER asked if the Government would in the present session introduce legislation to enable voluntary boarders to be received into public asylums. The Earl of Cranbrook urged that such legislation would be in the interests of the medical profession. Doctors would be able to study these cases in their early stages and the treatment of mental disorder would be linked up with general practice in a way not possible at present. The Earl of Onslow said there were difficulties in dealing with the recommendations of the Royal Commission on Lunacy separately. It was impossible to introduce a comprehensive bill this session but the Government hoped to deal with the whole subject of lunacy and mental disorder. Provision for the admission of voluntary boarders into public asylums would find a place in the measure.

Silicosis.—Commodore KIXO, answering Mr. D. Greenfell on November 28th said silicosis was not a notifiable disease. There were no statistics of disablement from the disease but the general evidence was that it was comparatively rare among miners. He had no evidence of an increase in the number of cases. Preventive measures such as improved ventilation and the use of water or of a mechanical dust abstracter were necessary when drilling was done in highly siliceous rock and the Government inspectors were attending to this. On December 4th Mr. REXFORD SMITH asked the Home Secretary when the inquiry of his department into silicosis was likely to conclude and if he proposed to publish a White Paper on the subject. Sir W. JOYNSON HICKS replied that if as he supposed Mr. Smith was referring to the proposed medical inquiry to consider the arrangements for diagnosis of silicosis, that inquiry had only just been set on foot and he could not forecast the time it was likely to take. If however, Mr. Smith was referring to the draft scheme of compensation which he was about to make for silicosis in various industries that would be issued very shortly and laid before Parliament. No other publication was contemplated.

Dangerous Drugs.—Sir VIVIAN HENDERSON, answering Colonel Vaughan Morgan on November 22nd said the alkaloid codeine had not been added to the schedule under the Dangerous Drugs Act. Codeine was not regarded by most authorities as a habit-forming drug and was not included in the International Conventions of The Hague and Geneva. On November 26th Earl WINTERTON told Lieut. Colonel Vaughan Morgan that various alkaloids of opium had been manufactured at the Glaxupur factory from waste products and contraband opium for many years but it was not until about 1924 that they began to find a market in substantial quantities outside India. They were exported to the United Kingdom only where their disposal for strictly medical and scientific purposes was governed by the stringent provisions of the Dangerous Drugs Act. In a reply to Mr. Wellock on November 25th Sir WILLIAM JOYNSON-HICKS said that for the past four years raw opium and crude morphine had been imported into this country from India for manufacturing drugs replacing to a considerable extent opium imported from other countries. He could not give an assurance that there would

not be an increase in the import of medical opium or of alkaloids, as the amount of opium required for medical and scientific purposes fluctuated from year to year. The trade was carefully supervised and there had been a progressive decrease in the amounts imported in recent years.

Immunity against Diphtheria.—Mr. CHAMBERLAIN stated that many of the metropolitan borough councils had undertaken with the sanction of the Ministry of Health, immunization against diphtheria by the Schick test. The London County Council did not directly participate in this work but as local education authority it assisted, when requested, by disseminating information on the subject through the schools.

Maternity Services in Scotland.—Sir J. GILMORE, replying to Mr. Johnston on November 27th said that while in the opinion of the Scottish Board of Health every area in Scotland would benefit by the adoption of a maternity service and child welfare scheme providing as a minimum for the services of a medical officer and a health visitor there were many areas where the provision of a centre was impracticable.

Testing of Samples under the Food and Drugs Act.—On November 26th Sir KINGSLEY WOOD replying to Mr. Verron DAVIES stated that informal testing of samples under the Sale of Food and Drugs Act was designed to obtain information for administrative purposes. The Minister of Health was not satisfied that the publication of statistics combining the results of formal and informal tests would accurately reflect the amount of adulteration in any district. The Minister would, however, consider his suggestion.

Admissions to Mental Institutions.—During the year 1927 the admissions to county and borough mental hospitals in England and Wales numbered 20,474 and there were 1,419 persons admitted to other institutions for the care of the insane or committed to private single care. The total of 21,893 compares with 21,924 in 1926 and 21,784 in 1925.

Tuberculosis in the Army.—Answering questions by Mr. More-Bathia on November 28th Colonel HEADLAM said it was impracticable to set out the new rules and principles governing attributability of tuberculosis cases in the army. The value of working rules of this kind depended on the power to apply the spirit of them to the facts of individual cases as disclosed by the medical evidence. All claims would be considered in the light of the new rules which were much more favourable than the old ones. October 31st had been taken as the date for the introduction of these rules and the Admiralty did not propose to depart from it. The Admiralty could always go back behind a date for medical reasons and any case would be considered when it came up. He could not say whether the rules would again be revised when the Joint Committee of the three services reported. Mr. VERRON DAVIES asked whether a certificate from a medical man which pointed out that a discharged sailor was suffering from tuberculosis attributable to the conditions of service would now be considered if it had previously been rejected by the Admiralty. Colonel HEADLAM said that any new medical evidence which was brought forward would always justify reconsideration of a case. On December 4th Sir L. WORTINGTON FRANKS told Mr. Thurtle that there had been no recent change in the rules laid down to guide medical officers of his department in deciding whether or not cases of tuberculosis which arose during service were attributable to service.

Care of Mentally Disabled Ex-soldiers.—Major TROY told Sir Robert Thomas on November 29th that he could not say how many ex-soldiers were permanently disabled mentally as a result of the war. He hoped that many of the officers and men at present mentally disabled would improve or even recover. In addition to mental hospitals approved under the general lunacy laws, which had been supplemented by two special institutions for certain types of cases, the Ministry provided treatment in institutions for mental trouble short of certifiable insanity or for cases discharged from certificate who needed further institutional care. The provision thus made had been found to be adequate, and no State assistance was given to voluntary institutions providing care and treatment for such cases.

Vermineous Tenements.—Mr. CHAMBERLAIN replying to a question on November 27th said no reports relating specifically to the vermineous condition of tenements had been made by officers of his department. Section 46 of the Public Health Act, 1925, and Section 10 of the London County Council (General Powers) Act 1922 gave ample powers to local sanitary authorities to secure the cleansing of vermineous houses.

Poisoning by Fumes and Workmen's Compensation.—Sir WILLIAM JOYNSON HICKS told Mr. Stephen Mitchell on November 22nd that various forms of poisoning by fumes or gas were already scheduled under the Workmen's Compensation Act. The circumstances of poisoning by gases such as carbon monoxide which took effect rapidly would always be such as to constitute an injury by accident for which compensation could be claimed.

Small-pox.—On November 27th Mr. CHAMBERLAIN informed Mr. Lansbury that the average annual death rate from small-pox during the ten years 1918-27 was for England and Wales 0.0005 for Switzerland 0.0004 and for the Netherlands 0.00006 per 1,000 population. Statistics furnished to Mr. Petrick Lawrence by Mr. Chamberlain on November 28th show that in England and Wales in 1926 the percentage of vaccinations to births was 44.8 in Bedfordshire 12.5 in Gloucestershire 22.2, and in Leicestershire 71. The rate of cases of small-pox notified among civilians per

10 000 of the population in the same year was 2.6 in England and Wales, and nil in Bedfordshire, Gloucestershire and Leicestershire. In 1923 Gloucestershire, with a vaccination percentage of 28.1 had a small pox case rate of 12.8 per 10 000 of the civil population.

Conditions in Distressed Areas.—On December 3rd Mr CHAMBERLAIN, replying to requests by Mr Lansbury and Mr Morgan Jones that the Government should take action to relieve distressed areas said that a fortnight ago he sent a chief inspector to South Wales, accompanied by a competent medical man, to make a thorough investigation on the spot and to go into the homes of the people. The inspector was assisted by people in the district who had taken a special interest in the matter. He (Mr Chamberlain) hoped before long to receive a report which would disclose the situation more accurately than anything he had hitherto been able to get.

Duty on Enamelled Hollow Ware used in Hospitals.—Mr A. M. SAMUEL, on December 4th, replying to Mr A. Alexander, who asked if he was aware that certain enamel hollow ware products mainly used for medical and nursing purposes were being charged with duty, said duty was chargeable on wrought enamelled hollow ware of a description commonly used for domestic purposes. This included articles of the kind commonly used in the home in cases of sickness. Mr ALEXANDER asked if it was the fact that the Treasury promised that a number of the things required for hospitals should be exempted, and that the Surgical and Allied Trades Association now found that promise had not been carried out. Mr SAMUEL said he would look into the matter.

Caseous Lymphadenitis in Imported Mutton.—Sir KINGSLEY WOOD, asked on December 3rd by Mr W. THORNE if he was aware that approximately 10 000 carcasses of imported mutton had been seized and condemned on account of caseous lymphadenitis in an aggravated form that each of the diseased carcasses had individually attached to it a label signed by a veterinary inspector in the country of origin, stating that the meat had been examined at the time of slaughter and found healthy and fit for export and that the character of this disease should show in the majority of these sheep nodules and growths on the offal and viscera of the animal that should have warned the inspector, stated that the Minister of Health was in communication with the Governments of the countries concerned in regard to the matter.

Court of Inquiry on R.A.M.C. Officers.—Earl WINTERTON replying to Sir G. HOLLIER on December 3rd said that in September a court of inquiry was held on the competency of the officers of the Royal Army Medical Corps at Chakrata United Provinces, India. As a result, disciplinary action had been taken. Only telegraphic details were available but the Government of India was sending a full report as soon as possible.

Meals for Accessory Children.—On December 3rd the Duchess of ARTHOLL told Sir R. THOMAS that at present approximately 120 local education authorities were providing meals or other nourishment for accessory children. The authorities in the Welsh coalfields undertaking such provision were Monmouth, Glamorgan, Cardiff, Merthyr Tydfil, Newport, Swansea, Aberdare, Aberllynny, Barry, Pontypool, and Rhondda. Arrangements had been made for securing close co-operation between the education and the Poor Law authorities.

Infant Mortality in Depressed Areas.—Mr CHAMBERLAIN told Mr RHYL Davies on November 22nd that the infant mortality rates in the depressed areas during the present year appeared to show some improvement over those of the preceding year. No useful purpose would be served by publishing figures till statistics were available for the whole year.

Notes in Brief

The London animal quarantine station was approximately full from July 24th to October 26th. South Africa, Southern and Northern Rhodesia, the Irish Free State and Palestine have signified their readiness to accept pedigree stock through the station.

Mr Chamberlain is of opinion that though overcrowding and deficient sanitary accommodation contribute to the spread of certain infectious diseases there appears to be no need for further inquiry on this subject.

The Ministry of Health has not decided on any design of refuse cart as being most generally suitable.

The average annual increase of population in England and Wales between the 1921 census and mid 1927 is estimated at 234 000.

The Minister of Health is advised that local authorities possess powers sufficient to secure any necessary disinfection of premises in which tuberculosis has occurred.

There are no general Government regulations on the storage of benzol.

Lord Eustace Percy believes that education authorities generally appreciate the importance of the prompt provision of spectacles to children with defective eyesight. He will not advise local authorities to give permission to headmasters immediately to purchase glasses for these children.

Lord Eustace Percy is not aware that the provision of a disinfectant mouth wash for use by school children would prevent the spread of infection. He says that in any case it is for the local authorities acting on the advice of their medical officers to consider methods of combating the spread of infectious disease.

Obituary

JAMES WILKIE SMITH, M.D., C.M.,

Late President, North of England Branch, British Medical Association

We regret to record the death of Dr James Wilkie Smith at Ryton-on-Tyne, on November 21st, at the age of 76.

James Wilkie Smith received his medical education at Edinburgh, where he graduated M.B., C.M. in 1873, and proceeded M.D. in 1879. He was pre-eminently a general practitioner, carrying on a very extensive practice until the time of his death. On this sure foundation he built up an active interest in public health, being a Fellow of the Society of Medical Officers of Health, and at one time president of the Northern Branch. He received the degree of D. Hy. Duncelm *honoris causa* in 1921. The deep and sympathetic interest he took in his colleagues and their work rendered him a highly-welcome member of medical societies.

Dr Smith rendered devoted service to the British Medical Association and held many posts. He was a member of the North of England Branch Council from 1906 to 1919, 1924-25, and 1928. He was vice-chairman of the Newcastle-on-Tyne Division in 1907, chairman in 1908, representative from 1909 to 1923, and a member of the Executive Committee in 1926 and 1927. He was president of the North of England Branch in 1918, a member of the Arrangements Committee 1920-21, and a member of the Contract Practice Subcommittee from 1920 to 1922. Dr James Smith was also vice-president of the Section of Medicine at the Annual Meeting at Newcastle-on-Tyne in 1921.

We are indebted to Professor G. GREY TURNER for the following tribute.

By the death of Dr James Wilkie Smith the profession in the North has lost, if not its oldest, certainly one of its best known and most highly respected members. He was the elder of the well-known brothers Smith of Ryton and Whickham respectively, and for well nigh fifty years no medical function of importance in this district was complete without him. It may truthfully be said that he only very rarely missed a medical meeting, and this applies to the social as well as to the academic variety. He personally contributed to every sphere of activity of the British Medical Association and the local medical societies, and he had held office in all of them. The most remarkable feature about the late doctor was his sustained and undiminished interest in everything that concerned the welfare of his profession. Up till the very end he was active in every way, not only in practice, but in other respects, and within the last year or two he had attended post-graduate classes held in Newcastle in connexion with the University of Durham, and had also made a pilgrimage to St Andrews, where he sat at the feet of one of his competers, the late Sir James Mackenzie. Early in life he discovered that the master word in medicine is Work, and to the very end he cheerfully bowed to its dictates, and he died as he lived, in the exercise of his beloved profession. For thirty-three years the writer enjoyed the acquaintance—which early ripened into close friendship—of James Smith, and during all that time he has been recognized as one of the most stimulating personalities, whose main endeavour was to bring out the best in everyone around him.

In the early days of abdominal surgery Smith was closely associated with his old friend and one-time neighbour Rutherford Morrison, and he was a constant visitor to the operating theatre of the old Royal Infirmary. No one could be keener to recognize the great changes which were then coming over practice, and no one readier to grasp the advantages of early operation, especially in the acute abdomen. Discouragements frequently strewed the path in those days, but, with an unswerving faith and absolute loyalty, James Smith persisted in persuading successions of patients to come into hospital and to accept the possible benefits of surgical intervention rather than the risks of the waiting policy, of which he had seen so much in his still earlier days. Probably on looking back James Smith will be longest remembered by that large and loyal band of men

who started their professional life as one of his many assistants, and who got from him, not only a sound and thorough practical training in medicine, but also in those high ideals which were part of his innermost nature, and which by example he radiated to all who came in contact with him. For many years he commanded a large practice in an extensive colliery and country district, which could only be worked with the help of several branches, but he was always, and in every respect, the head of the "firm," and he made it a rule to visit very part of his district several times a week. Though personally never keen on the technical side of surgery, he always encouraged his juniors to do what they could in the smaller houses of the industrial classes, and his Sunday morning clinics were in many respects like the operative session of any general hospital.

His outlook was extremely broad and liberal, and in the ordinary affairs of life he came to be looked upon as a sort of standby to whom younger men could refer in their troubles. He was exceedingly fond of literature, and had a wide knowledge of all that is best in the English language, even in the days of the dog-cart it was usual to see him poring over one of his favourite books when out on his rounds. Poetry was his favourite, and he was himself responsible for one or two productions well worthy of his time and station, none that he is no more one realizes that his poem *The Iud Doctor* is a faithful picture of himself. He loved the country and flowers, and up to his last days he was seldom seen without his inevitable buttonhole.

Though never willing to avoid trouble merely for the sake of the easier path, he was nevertheless of a conciliatory nature, and whoever sought his advice, on whatever subject, could always feel assured of a sympathetic ear, and would always find the doctor the same wise but unobtrusive counsellor and friend. Though injured to family affliction he was not in any way soured, and was ever happy in his family circle, among his very many friends, both professional and otherwise, he had earned a deep affection. Just after the war he was the means of giving to Newcastle its Medical Institute in memory of one of his sons, cut off in early life. His idea was to have a centre of medical activity where all that was best could be brought together, and where medical men of all stations and of all ages could congregate in good fellowship for their mutual well being.

Years ago James Smith told me that he had been re-reading *Don Quixote*, and that mature consideration had shown him that it was full of the profoundest wisdom. During the latter years of his life Smith himself had attained the master work of Wisdom, for he had learnt to grow old without showing it. As Stevenson has it, though slightly paraphrased, "True as a physician, in the widest sense, he was one of the flowers of our civilization, and shared as little as any in the defects of his period and most notably exhibited the virtues of his race." It was indeed a privilege to have known him.

Dr N. H. RAWSON writes

May I, as one of his late assistants, pay a final tribute to that most lovable of men, James Wilkie Smith of Ryton-on-Tyne? Our memories linger fondly on those days when we wandered round the practice with our chief, chatting with the miners and their wives—Smith's friends for many years past—and between the visits quoting Wordsworth or other poets, but chiefly Wordsworth, when not Bobbie Burns. Then those quiet evening chats on medicine—difficult points in our own case, oddities, the masters, past and present—to many of us the first glimpse into the history and philosophy of medicine. But his chief message was the importance of the fellowship of men, of the meeting of colleagues. His constant smile, his ever-ready sympathy, and his keen interest endeared him to all. He of all men knew the value of intercourse, and he joyed to take us to the medical gatherings, whether social functions or scientific meetings. In the hope of providing a place where men might forget their for discourse, as in the Athenian market-place, he gave the profession the institute, which bears the name of a beloved son.

For some years he had been in failing health, but whenever possible he had been as eager as ever, whether as president of the Newcastle-upon-Tyne and Northern

Counties Medical Society, or attending meetings of the British Medical Association, locally and elsewhere, round the beds as a student in the post-graduate class, or dining out. Quite recently it has been my privilege to meet him in his old gay spirit at two such functions—the one at the Bohemian Pen and Palotto Club to welcome an intrepid pioneer in adventures of the air, the other at a monthly dinner of local country practitioners, where he was our honoured guest. Such was his keenness that on the very day he laid his body to rest he was to have joined our table as a fellow member. In the North things live. The Association is at its strongest, and we have given of the noblest to the cause of the profession. Clinical societies and post-graduate courses flourish, while dinners, dances, golf meetings, and other social gatherings meet with a ready response. It is to men such as Smith that the present generation owes this happy heritage. While his body rests in well-earned peace, may his spirit live in the hearts of his successors.

THE MEDICAL SECRETARY writes

I deem it a privilege to be allowed to add a few words of tribute to my old friend. When I was in practice in the North, not far away from Ryton, I learned to regard the Smith brothers first with great respect as men who knew their job and did it, and later—particularly with regard to James Smith—with affection. I have rarely known any man whose judgement I would sooner trust, his knowledge of his profession was wide and sound, and his relations with his patients, with his assistants, and with his medical neighbours were ideal. During the course of my official career, when I have had cause to defend the general practitioner, the ideal I have had in mind has been a blend of John Brown of *Hub and His Friends*, Ian MacLaren's doctor of the old school (William MacLure), James Mackenzie, and James Smith, with the last named pre-empting, because I knew him well in the flesh. James Smith has left behind him a fine legacy in the shape of the Medical Institute in Newcastle, but a still finer in the deep impression he left on the mind of every man with whom he came into close contact. He was a good man in every sense of the term.

WILLIAM SMITH KERR, M.B., C.M., F.R.C.S. ED.,
Honorary Surgeon, Ear, Nose and Throat Department,
Sheffield Royal Infirmary.

We regret to announce the death of Mr W. S. Kerr, F.R.C.S. Ed., which occurred at his home in Sheffield on November 26th.

William Smith Kerr received his medical education at the University of Edinburgh, where he was Thomson Bursar from 1886 to 1890, in which year he graduated M.B., C.M. He was admitted to the Fellowship of the Royal College of Surgeons of Edinburgh in 1903. After holding a resident post at the Dumfries and Galloway Royal Infirmary he became senior house-surgeon in the Royal Infirmary in Sheffield, so commencing an association with the institution and the city in which he ultimately attained a leading place as an aural surgeon. At the time of his death he was honorary surgeon to the ear, nose, and throat department, and consulting aural surgeon to the Sheffield Union Hospital and to the Yorkshire Institute for the Deaf at Doncaster. He was also lecturer on diseases of the ear, nose, and throat in the University of Sheffield.

Mr Kerr was the author of a number of contributions to medical literature, and took a prominent part in professional affairs. In the Sheffield Medico-Chirurgical Society he had held the offices of president, secretary, and librarian, he was a member of the Laryngological Section of the Royal Society of Medicine, and at the annual meeting of the British Medical Association at Exeter in 1908 he acted as secretary of the Section of Laryngology, Otology, and Rhinology. In the Sheffield Division of the Association he was vice-chairman in 1912 and chairman in the following year, and for the past seven years had been a member of the executive committee. He had served in the Territorial Army with the R.A.M.C., and retired a few years ago with the rank of lieutenant-colonel. Mr Kerr is survived by his wife.

GEORGE WILLIAM HILL, M D, F R F P S,
Sargeon for Diseases of the Ear, Nose, and Throat to
St Mary's Hospital

THE news of the death of Dr William Hill at the age of 70, on November 24th, has come as a shock to innumerable members of the medical profession and as a cause of profound grief to the large body who numbered themselves among his friends.

Hill received his medical education at St George's and St Mary's Hospitals, he gained the Senior Entrance Science Scholarship at St Mary's and won many prizes, among which was a scholarship in pathology. It was, indeed, as pathologist that he received his first appointment at the Central London Throat and Ear Hospital, which probably directed him towards the special line of practice of which he was so distinguished an exponent. He graduated M B Lond with honours in 1885, and proceeded M D four years later, in 1923 he obtained the diploma F R F P S Glas. After two years of general practice in Cornwall his native county, he returned to London, and became at St Mary's a teacher of anatomy, then auricular surgeon, and finally surgeon to the combined ear, nose, and throat department.



DR WILLIAM HILL

Endoscopic methods of examining the bronchi and oesophagus attracted Hill when he was at his most receptive stage, and he became an adept in them, extending their scope to the stomach, for which he designed an improved form of gastroscope. He contributed to the literature a valuable monograph, and collaborated with the late Dr Herschell

So also he did with Dr Finzi, when Hill's tubes and other oesophagoscopic apparatus were invented for the purpose of introducing radium with accuracy into malignant strictures of the oesophagus. His official retirement was due just when radium treatment was reaching its present maturity, but the staff and authorities of the Metropolitan Ear and Nose Hospital secured him as endoscopic surgeon, so that up to the last his activity in this "specialty in the specialty" was maintained.

In whatever society he took part he came well to the front. He was vice-president of the Section of Otolaryngology at the Annual Meeting of the British Medical Association in 1890 when it met in Birmingham, and president of the Section of Oto-Rhino-Laryngology at the Annual Meeting at Newcastle-upon-Tyne in 1921. He was a member of the executive committee of the Marlebone Division for 1925-28, deputy representative in the Representative Body for the Marlebone Division in 1927, and a member of the Metropolitan Counties Branch Council in 1927. He was president of the Laryngological Section of the Royal Society of Medicine and of the Harveian Society, and also vice-president of the original Laryngological Society of London. He was a very popular and prominent member of the Masonic body, and held the coveted rank of Past Grand Deacon in the Grand Lodge of England.

Hill's personality was singularly attractive, and not infrequently in mixed gatherings the question was put who "the good looking man with the red beard" was. His humour was exuberant and to some degree boisterous, but the manifest genuineness of his enjoyment of his own sallies

and his delight in amusing his audience made it acceptable even to the most fastidious. He delighted to "set the table in a roar." It might have been felt that one never knew what he would say next, but one knew well what he would never say—namely, that he had inmostentatiously helped many a lame dog with material assistance or sound advice in time of need. His peculiarities were patent, and any faults were all on the surface, the heart was of gold. His scientific information was exceptional, and those who identified him chiefly as the privileged jester scarcely realized what an amount of wisdom and knowledge was to be found under his jolly exterior.

It was the writer's great good fortune to have come into intimate contact with William Hill at a very early period in their careers. Hill was appointed pathologist to the Central London Throat and Ear Hospital when the writer was junior assistant surgeon, and Hill became his clinical assistant at the evening clinic. The co-operation was a happy one, and if it was the starting point in Hill's brilliant career as an otologist, it was a most inspiring and inspiring epoch in the life of the old friend who now mourns his loss. J D G

[The photograph reproduced is by Lizzie Caswall Smith London.]

THE LATE SIR HECTOR CAMERON

Dr J GRANT MILLAR (Leicester) writes

As a former student and house surgeon of the late Sir Hector C. Cameron may I be allowed to add a few words to the many tributes I feel sure you will receive about him? Sir Hector and my father were very old friends, so that I had the privilege of knowing him from a child. As a surgeon at the Western Infirmary what I think impressed me most as a student was his kindness and consideration to all hospital patients, and, perhaps, especially, to all female patients. He was most particular to avoid exposing them unnecessarily, and never allowed students to examine them unduly if there was the smallest chance of the patients suffering therefrom, or if they were unusually sensitive about the matter. In those days—I speak of some thirty years ago—Sir Hector used to receive, among others, many cases of cancer of the breast, sent to him from all over the West of Scotland. Some patients, alas! only reached him when the disease was too far advanced to render operating any use, and I well remember the gentleness with which he would explain it was too late for any operation to be effective. At that time cancer was even a more dreaded disease than now, and many sufferers delayed seeking relief until the breast was a great fungating mass or a dense scirrhous growth with hopelessly widespread glandular enlargement. As a teacher Sir Hector Cameron was direct and graphic. An illustration of this I remember when he was speaking about the dangers of fully emptying a bladder which had been overdistended for some time and in which difficulty had been experienced in passing a catheter. He vividly portrayed the delight of both patient and surgeon when the urine commenced to flow, but warned the students against too complete an evacuation, lest it should be followed by a possibly severe secondary hæmorrhage. It was the graphic manner in which it was done that left an indelible impression. Of his kindness to poorer patients I could tell many stories. Let one suffice. There was a student—not in medicine but in arts—who was suffering from psoas abscess and hip joint disease in an advanced form. His case was brought to Sir Hector's notice, and for two years he attended that young man at the patient's own home, driving out to see him twice or three times a week, and supplying all dressings, appliances, and so on, at his own expense.

Personally Sir Hector Cameron was very genial, a born storyteller, and with a keen sense of humour. He was in great request as a guest for dinner parties. He was a very fine golfer—as befitted a St Andrews man—and was also a good shot. For these recreations he had, of course, little time, but during his active life he made a point of taking a long, summer vacation of some five or six weeks, and no doubt that helped him to keep well and to live to the ripe old age at which he has just passed away.

EDWARD KNIGHT, M R C S, L S A

We are indebted to Sir James Dundas-Grant for the following notes concerning the late Edward Knight.

Edward Knight was for many years teacher of anatomy at, and later sole director of, "Cooke's School of Anatomy." He was exceptionally gifted in carrying on instruction by means of quick question and answer on the

dissected part. Being possessed of a cheerful and rather peculiar disposition in a handsome and somewhat commanding person, he was well adapted to keep the attention of those who were just "learning to learn," while many candidates for higher examinations found it beneficial to be put rapidly through their paces by this energetic and sprightly coach. Knight had mixed eye anatomy at his fingers' ends, and knew Cooke's wonderful tablets through and through. These anatomical "tablets" were by no means "tabloids," but pretty solid doses of anatomy in which the regional and systematic methods were cleverly blended. The extraordinarily systematized and intensive courses allowed of a rapid survey of the unked-eye anatomy of the whole body in the shortest possible space of time. The work for the teacher was extremely hard, and there is every probability that the strain, even on this vigorous man, led to the progressive disease of which, after a considerable number of years of poor health, he died at the age of 69. Many of Knight's pupils have, no doubt, pre-deceased him, but there must be still a number remaining who will remember with gratitude his "clinking" and his "cranking," and will take pleasure in reviving their memory of him.

The Services.

HONORARY PHYSICIANS AND SURGEONS TO THE KING

The following revised regulations governing the appointment of Honorary Physicians and Surgeons to the King have been issued:

Medical officers appointed as such are in future to relinquish their honorary appointments on retirement from the Service. Officers on the retired list at present holding the appointments are to continue to hold them. The officer holding the position of Medical Director General of the Navy is to receive *ex officio*, an appointment as Honorary Physician or Honorary Surgeon to the King.

The total number of Honorary Physicians or Honorary Surgeons to the King is to remain at eight, excluding extra or super-numerary appointments, but the number of these appointments is to be varied at discretion within the total instead of four of each being allowed as hitherto. Officers in order to be eligible for appointments are to be of the rank of surgeon captain or above.

DEATHS IN THE SERVICES

LIEUT. COLONEL JOSEPH PARKER Bombay Medical Service (retired), died on September 12th, aged 75. He was born on April 10th, 1853, the son of Mr. Joseph Parker of Limerick, was educated in Ireland and graduated as M.D. and M.Ch. in the Queen's University, Ireland, in 1875. Entering the I.M.S. as surgeon on September 30th, 1875, he became surgeon lieutenant colonel after twenty years' service, and retired on May 16th, 1901. He served in the Borneo campaign of 1886-87, receiving the frontier medal with two clasps, and in the China war of 1900, when he was present at the relief of Peking and got the medal.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The Raymond Horton Smith prize for the best M.D. thesis during the academic year 1927-28 has been awarded to Hugh Galtsborough M.A., M.B., B.Ch. (Downing). *Proxime accessit* Erle Gordon Holmes M.A., M.B., B.Ch. (Christ's).

UNIVERSITY OF LONDON

THE Paul Philipps Reittlinger prize offered this year for the best essay embodying the result of research work has been awarded to Geoffrey William Rake L.R.C.P., M.R.C.S., a student of Guy's Hospital Medical School, for his essay on achalasia of the cardia. The prize of the value of £30 was founded with funds given to the University by Mr. Albert Reittlinger in memory of his son, a student of Middlesex Hospital Medical School who died on December 3rd, 1911.

Kathleen A. H. Sykes M.D. has been approved at the examination for the diploma in psychological medicine with special knowledge of psychiatry.

UNIVERSITY OF LIVERPOOL

The title of 'Professor Emeritus' has been conferred on Dr. J. W. W. Stephens F.R.S. until lately Alfred Jones Professor of Tropical Medicine in the University.

Medical News.

THE British Medical Association will be represented by Sir Robert Philip at the International Congress of Tropical Medicine and Hygiene, which opens at Cairo on December 15th. Other delegates include Sir George Newman, representing the Ministry of Health, Sir Herbert Waring, the University of London and St. Bartholomew's Hospital Medical College, Sir St. Clair Thomson, the Royal Society of Medicine, and Sir Berkeley Moynihan, who, as President of the Royal College of Surgeons of England, will present the diploma of honorary Fellowship of the College to Dr. Aly Bey Ibrahim in the course of the congress.

A DISCUSSION on alcohol and drug addiction in relation to women and children will be opened by Dr. Catherine Chisholm at the meeting of the Society for the Study of Inebriety at 11, Chandos Street, W.1, on Tuesday, January 8th, 1929, at 4 p.m.

AT a meeting of the Pharmaceutical Society of Great Britain, to be held in the lecture theatre of the society's house at 17, Bloomsbury Square, W.C., at 8 p.m., on Tuesday, December 11th, an address will be given by Miss Katherine H. Coward, D.Sc., biochemist in charge of the vitamin department of the society's pharmacological laboratories, on "Recent research on the vitamins." The lecture will be illustrated by lantern slides. Medical friends of members and student associates will be welcomed.

THE fourth congress of French Dermatologists and Syphiligraphists will be held in Paris, at the St. Louis Hospital, from July 25th to 27th, 1929. Papers will be read on the polymorphic erythemas, prurigo, and the malarial treatment of the nervous complications of syphilis. Further information may be obtained from the general secretary, Dr. Clément Simon, 104, Avenue Malakoff, Paris XVI.

THE Fellowship of Medicine and Post-Graduate Medical Association announces that a lecture will be given on Monday, December 10th, at 5 p.m., by Dr. Bernard E. Schlesinger on "Spasmodic respiratory affections in childhood." In the lecture room of the Medical Society of London, there is no fee for attendance. There will be no further special courses or special lectures and demonstrations until the middle of January. The next series of lectures is entitled "Pitfalls in medicine and surgery," and, as before, the lectures will be given on Mondays, at 5 p.m., at the Medical Society of London, and will be free to all members of the medical profession. From the middle of January until Easter there will be, each week, clinical demonstrations in medicine and in surgery at various hospitals, and also a series on Wednesday, at 4 p.m., at the Wellcome Museum of Medical Science, all are free to members of the medical profession. The first special courses in 1929 commence on January 14th—one in cardiology at the National Heart Hospital, and one in diseases of children at the Queen's Hospital for Children. The general course of work, consisting of attendance at the clinical practice of from forty to fifty London general and special hospitals, continues throughout the year. Tickets may be taken out on any day of any week from now onwards. Copies of all syllabuses and of the general course programme are obtainable from the secretary of the Fellowship, 1, Wimpole Street, W.1.

THE sum of £129 was raised at a sale held on behalf of the Glasgow Branch of the Royal Medical Benevolent Fund Guild on November 20th, at 21, Woodside Place (by kind permission of Mrs. Ingalls Pollock). Four performances, commencing on November 21st, were given by a well-known Glasgow amateur dramatic company, the Albany Players, for the same object, and, while it is not yet possible to state what amount has been secured, the attendance was very good and the financial result should be satisfactory. The play presented was a light comedy, entitled "Healing Waters," by Dr. John Fergus.

DR. H. B. NEWHAM, C.M.G., warden of studies, has been appointed also curator to the museum of the London School of Hygiene and Tropical Medicine. Dr. J. T. C. Haslam, has been appointed Director of Library Services.

READERS who knew Amiens and district during the war will be interested to learn of the approaching publication of the town's official history (1914 to 1918), illustrated with 450 photographs and 30 coloured prints. Since the edition will be limited those desiring further information should communicate without delay with M. le Maire, Hôtel de Ville, Amiens, who will gladly send them a descriptive brochure.

A GIFT of £3,000 has been made to Doncaster Infirmary by Mr. William Nuttall, a confectionery manufacturer, for the purchase of radium for cancer treatment. Mr. Nuttall has also given £3,000 to the Leeds Infirmary Fund and £1,000 to the Yorkshire Cancer Research Fund.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The Editor, British Medical Journal, British Medical Association House, Tavistock Square, W C 1**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

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The address of the Irish Office of the British Medical Association is 16 South Frederick Street, Dublin (telegrams *Barilrus*, Dublin) telephone 62550 (Dublin) and of the Scottish Office 7 Drumshugh Gardens, Edinburgh (telegrams *Associate*, Edinburgh) telephone 24361 (Edinburgh).

LETTERS, NOTES, ETC.

COMBINED HELIO- AND RADIO-THERAPY IN HODGKIN'S DISEASE

DR A. GORDON WATSON (Bath) writes: With reference to radio-therapy in Hodgkin's disease (*Epitome*, November 24th para 411) I have combined x-ray therapy with ultra-violet light therapy in the treatment of Hodgkin's disease on the presumption that ultra-violet rays cured some x-ray burns and the results seem encouraging. I append notes on a case that seemed hopeless. A married woman aged 52, consulted Dr. Kenneth Watson on February 13th 1926, after a complete examination he diagnosed Hodgkin's disease or lymphosarcoma and gave a very grave prognosis with expectancy of life for a few months only. On the next day Dr. Forbes Mackay started x-ray therapy and gave three full doses interrupting the x-ray treatment on February 17th and continuing between the x-ray doses ultra-violet light irradiation of the whole body, and giving a first degree erythema dose to a quarter of the body surface every other day. This was continued until the patient was again exposed to x-rays on March 4th, 5th, 6th, and 8th followed again by ultra-violet irradiation. The whole picture had changed by this time, the weight had increased from 8 st 3 lb to 8 st 9 lb and the glands had almost disappeared. On September 22nd, 1926 the weight was 10 st 8 lb and the patient had long been attending to her duties as usual. X-rays were given again on May 20th and July 28th 1927. In July 1928 she had an attack of fever and general malaise while at the seaside, and on her return in August I found the glands enlarged. She again had x-ray and ultra-violet light treatment and has made a good recovery, she is at present a normal person for her age. Her weight is now 11 st, there is very little anaemia, no debility, and only a feeling of "brawiness" where the glands were largest.

WEIGHT AT BIRTH

DR W. L. HUBBARD (St. Leonards-on-Sea) in a letter thanking Dr. D'Ewart for reprinting (November 24th p. 962) to his inquiry published in the *Journal* of November 10th (p. 878) as to the chances of survival of a child weighing 1 lb at birth writes: The child is now six weeks old in good health and weighs 32½ oz. It is being fed on breast milk from a bottle with one feed daily directly from the breast. The weight at birth was 15 oz.

D. HERBERT SHACKLETON (Bradford) writes: I am sending a card of to-day's weight (24½ lb) of a child born February 27th, 1927, weighing 17 oz. The child was reared on a proprietary food. She is intelligent and bright, and ran about the surgery for us to night.

ANTENATAL CARE IN GENERAL PRACTICE

A COUNTRY DOCTOR'S WIFE writes: I was interested in the discussion on antenatal care in general practice reported in the *Journal* on November 17th (p. 899) and thought the following notes might be of general interest. My husband practises in a very big rural area, the nearest hospital being seventeen miles away. During the course of his practice he has been up against many abnormal maternity cases very worrying to him as well as and from the mothers' point of view. I came to the conclusion that much distress could be avoided and so at my house we have started an antenatal class. Once a month Dr. K., the welfare doctor and tuberculosis officer attends and brings two council nurses, the district nurse is here if available and my husband also. The mothers sit and talk in the dining room

and drink tea and one by one Dr. K. sees them in our surgery, which is convenient and warm. All wives are tested here the same day, and if anything abnormal is found we can be prepared for it and watch the patient approaching term. My husband has so often in the past been called out to a patient he had never seen previously, and by this arrangement a lot of trouble has been saved. Would it not be a good plan if all rural doctors wives did this since it is no trouble, but rather a joy to the mothers to come out to tea, and it is also a great relief to the doctor, who knows what he has to tackle when the time comes?

PIONEERS IN TYPHUS FEVER RESEARCH

DR JAMES MCQUEEN (Halesowen) writes: All your readers will join with you in the pleasure felt in the recent award of the Nobel Prize for Medicine to Dr. Charles Nicolle in recognition of his work on typhus fever, but the pioneer work from the side of epidemiology by Professor Matthew Hay embodied in his report on an outbreak of typhus fever in Aberdeen where the transmission of the disease through body vermin was clearly indicated, deserves more recognition than it has ever received. I am writing away from a library where I could check details, but I believe all the preventive measures against infection and the spread of the disease were clearly outlined by Professor Hay on the basis of a transmission of the disease by body vermin.

ANATOMICAL CONSIDERATIONS IN INTRAMUSCULAR INJECTIONS

MESSES K. G. ZWICK and O. V. BATSON of the department of anatomy in the University of Cincinnati have made an experimental study of the sequelae of intramuscular injections in fresh and preserved cadavers. In the November 9th issue of *Science* they report that whatever way the injecting needle may point the introduced solution travels in the direction of the muscle fibres. In the case of the gluteus maximus the injected fluid made its way among the muscle fibres to the dependent portion laterally in the usual prone position of the cadaver and in the general direction of the trochanter major. As a practical conclusion the authors recommend that intramuscular injections should be made with the shaft of the needle parallel with the general direction of the muscle fibres, and that the point should be directed towards the dependent portion. In the case of such muscles as the deltoid, triceps and gluteus maximus which are usually employed for injections, this recommendation secures anatomically the avoidance of the large vessels and nerves.

THE THERAPEUTIC INJECTION OF INORGANIC SALTS

DR B. A. LEROTT, president of the Russian Medical Association of Great Britain calls our attention to a monograph by Professor S. F. Maykoff on the subject of the action of hypertonic solution of inorganic salts in various conditions. Professor Maykoff, who for many years has been using a mixture devised by Dr. Trnecsek, has in conjunction with Professor Schilloff modified this salt so that the formula reads:

Distilled water	100.0
Sodium chloride	4.92
Sodium phosphate	0.45
Sodium bicarbonate	0.42
Sodium sulphate	0.44
Potassium chloride	0.35

He states that this solution has a neutral reaction, and can be sterilized. It is stored in ampoules of 1, 2 and 25 c.c. The solution is said to act by absorbing calcium deposited in the blood vessels, and may be given by any form of injections or by the mouth or in enemas. Internally one tablespoonful is administered twice daily, after meals, for a period of four months. In enemas 100 c.c., with one or two tablespoonfuls of hypotonic solution, is used every day for ten days, and then every other day until about sixty enemas have been given. After six months time the treatment is repeated the quantity of the enema being half that of the first course. Intramuscularly the dosage is 1/2 to 5 c.c. The best results are said to be obtained by intramuscular injections and the next best from enemas. The treatment has been recommended for such conditions as sclerosis of the brain vessels, neurasthenia, arteriosclerosis, migraine, presbyopia, otosclerosis and other conditions in which calcium deposits are concerned.

A DISCLAIMER

SIR ROBERT ARMSTRONG-JONES M.D. writes: In a Sunday paper recently there purports to be an interview granted by me accompanied with a signed article upon "spiritual healing." May I say that no interview was given nor any signed or unsigned article contributed to this paper. The only intimation I received was the unauthorized appearance of my name and I have communicated with the Medical Defence Union upon the matter.

NATIONAL SUN RAY AND HEALTH CENTRES LTD

DR. PERRY HALL (London, W.) writes: I beg to inform you and to request that you will be good enough to make it known in your columns that I have entirely severed my connexion with the above named company.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges and of vacant resident and other appointments at hospitals will be found at pages 44, 45, 46, 47, 50 and 51 of our advertisement columns and advertisements as to partnerships, assistantships and locum tenencies at pages 48 and 49.

A short summary of vacant posts notified in the advertisement column appears in the *Supplement* at page 255.

Remarks

OF

ACUTE HAEMORRHAGIC NEPHRITIS.*

BY

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In acute haemorrhagic nephritis the outstanding and frequently the sole immediate characteristic is the occurrence of gross renal haemorrhage—often this is directly related to infections in or around the throat. Otherwise there is no marked constant feature.

This condition is somewhat mysterious, and in textbooks of medicine it is practically unmentioned. There is, however, a considerable literature on the subject, mainly, until recently, by Continental and American authors. Hale-White, writing in 1911 under the title "essential renal haematuria," gave references to 120 articles. Among children it has been studied in recent years especially by Paterson, Wyke, Moncrieff, and L. G. Parsons. Many cases in adults pass into oblivion with a diagnosis of "essential haematuria."

The cause of this neglect is partly the fact that the immediate mortality is negligible, and even the remote effects are rarely serious or obvious. Further, the condition presents little, and usually none, of the ordinary features of acute nephritis apart from haematuria. But it is often the cause of much anxiety and of extensive biochemical and surgical investigations, occasionally, though rarely, it runs a serious course. The frequency with which such a course occurs is uncertain, and the progress is always very slow, but it is remarkable that the literature contains practically no examples where such cases have been followed deliberately to their end, the symptoms described, and the pathological changes recorded. This knowledge is still wanting.

The term "acute haemorrhagic nephritis" may be used provisionally to distinguish this condition from what may be referred to as "acute parenchymatous nephritis." As to its frequency, it is certainly not rare, all records from hospital wards show that it is commoner than acute parenchymatous nephritis. Even this underestimates its occurrence, for in an out-patient department one sees patients who attend once or twice and then disappear permanently, no doubt due to the absence of any further symptoms.

Etiology

Age Incidence.—It is impossible to make any definite statements as to age incidence, since the condition has nearly always been studied separately in children and adults. It is certainly most common in children and young adults, but may occur even after the age of 50. The frequency mainly follows that of the predominant predisposing factor. The sexes are equally affected.

Predisposing Factors.—In children there is direct relationship in a high percentage of cases to definite infections in and around the throat, this is obvious in about 75 per cent of cases, and differs from the relationship of acute parenchymatous nephritis to such infections, first in the far higher percentage, and secondly in the more definite nature of the infection, such as frank tonsillitis or marked cervical adenitis. Many cases may occur in epidemics, as in some outbreaks of glandular fever.

There are, however, cases in which no such predisposing factor can be traced, these are less numerous in children than in young adults and adults, and the latter are consequently more often investigated for possible surgical causes. It is noteworthy that scarlet fever is not a special cause of acute haemorrhagic nephritis, the association nowadays is evidently rare. This is referred to by Paterson and Wyke and by Horder. Syphilitic nephritis is not included in the group. An hereditary and familial form has been reported in one or two families and studied especially by Hurst, but it is very rare.

Symptomatology

The characteristic feature is the sudden passage of a large amount of blood in the urine; the colour is often bright red, and on standing there is no gross microscopic sediment. The amount of albumin corresponds approximately to the quantity of blood. In the deposit, after centrifugalizing, red cells are predominant, there is no excess of leucocytes. In the early stages cellular and granular casts may be found, but they are scanty in number and their presence is transient. The deposit is thus very different from that of acute parenchymatous nephritis. The occurrence of oliguria was emphasized by early writers. It is, however, unusual, but, as J. C. Parsons noticed, it may occur and terminate in a sudden polyuria practically free from blood.

Bacteriological examinations are nearly always negative. Occasionally striking cases occur in which the same organism is isolated from the urine and from pus from an abscess in the neck. But cultures are usually sterile even when a definite infection can be recognized in or around the throat.

The haematuria not infrequently occurs one to two weeks after the subsidence of a preliminary tonsillitis or adenitis, in such circumstances there is rarely any general symptom other than some lassitude. This also applies to cases in which there is no obvious predisposing factor, as in many adults. In some instances the haematuria develops before the preliminary infection has subsided. In such cases, as Paterson and Wyke observed, there may be development of, or exacerbation of, headache, pyrexia, and abdominal discomfort.

The classical symptoms of acute parenchymatous nephritis are not found. Oedema is usually entirely absent, when it can be observed it is generally only a slight puffiness of the eyelids, or more often a pallor of the face with puffiness of the forehead. The heart, the blood pressure, the retinae, and biochemical tests show no variation from normal. Cystoscopic examinations show that the bleeding may come from either one or both kidneys.

Cases undoubtedly occur in which, with the onset of renal haemorrhage, as described previously, there is some more generalized oedema with or without a rise in blood pressure. In such instances the diagnosis may be doubtful, but this should not obscure the fact that in the great majority of cases there is a distinct difference in the symptomatology and progress of acute haemorrhagic and acute parenchymatous nephritis.

Course and Prognosis

The haematuria, so far as it can be recognized by the naked eye, disappears rapidly in the great majority of cases—frequently in three or four days. In a few instances it may persist for three or four weeks, and at times, especially in children, cease after tonsillectomy. In a very occasional case it may continue for months.

It is in general the aim of a hospital or those in charge of a patient to keep the case under treatment and observation until all albumin is absent and no red cells are found after centrifugalizing. In a certain number of cases this is impossible owing to the clinical recovery of the patient and the long persistence of a trace of albumin and a few red cells.

An important question is the prognosis in such cases and their ultimate course.

In a series of children the urine at the time of discharge, approximately in 75 per cent of cases, will contain no albumin or red cells, and in these there need be no anxiety as to the future. Of the remaining 25 per cent the clinical condition will be good, and the amount of albumin and red cells will not exceed a trace in 20 per cent, leaving an occasional unsatisfactory case. Such a case will be marked by general ill health and the persistence of definite albumin in the blood, which may be accompanied by a low result of the urea concentration test, occasionally with a slight rise in blood urea.

If such a series be re-examined after the lapse of several years, it may be stated that approximately 50 per cent will be clinically in normal health, and the urine contain no albumin or red cells, while in 50 per cent some albumin and red cells will be present. A death attributable to the disease is rare within three to five years.

* Made in opening a discussion in the Section of Medicine of the Annual Meeting of the British Medical Association Cardiff 1923.

The question arises as to the future progress of the 50 per cent of the patients who are passing albumin and red cells. Several observers have given the results of the clinical condition in series of cases without recorded reference to the mine. Some of these have been after long intervals. It is clear from these that any appreciable ill health is only present in a very occasional case, certainly not approaching 50 or even 25 per cent. It can consequently be assumed that the mere presence of some albumin and red cells in the urine at the time of discharge, or after an interval of several years, has not necessarily a serious import. About half these patients will be in perfect health without any abnormal physical signs, no future progress of nephritis need be anticipated in these. Of the remainder a few will give a record of recurrences of gross haematuria but without other signs of ill health. It does not appear that these have an unfavourable course. In adults this forms a larger group than in children. A few patients appear to be unwell, but without signs of defective renal secretion, this group would, of course, include cases with poor constitutions who would not have been counted healthy in any circumstances.

There will remain a small residuum of cases—say 5 per cent—with definite evidence of progressing renal deficiency. Can this small but serious group be recognized in the early stages? I believe that this is so, and that these progressive cases are those which in the initial attack cause anxiety by the persistence of definite albuminuria and blood with signs of general ill health, and often by defective men concentration tests. Thus from the onset, or shortly after the onset, these cases with a serious prognosis can be recognized, while in the remainder the prognosis is good even in the presence of persistent or recurrent small amounts of albumin and red cells.

The group with advancing renal defect drifts on to a state of chronic nephritis with increasing blood pressure and blood urea, oedema of face, and finally death in uraemia. It may be difficult to say whether a case is to be regarded as chronic parenchymatous or chronic interstitial nephritis, but in recorded cases interstitial changes are prominent.

Pathogenesis

The pathological changes leading to the renal haemorrhage are still uncertain, and difficult to ascertain, possibly the group contains cases of different aetiology, but, in general, it appears to be intermediate between nephritis and a haemorrhagic state. As a rule the patients do not die, and even the fatalities rarely occur until after the lapse of years. A certain amount of information about the pathology is obtainable from kidneys or portions of kidneys which have been removed at operation. Fahn has described the changes in the acute stages as a "diffuse capillaritis of the glomerular loops," but the changes observed amount to little more than the presence of haemorrhage in some of the glomeruli. Here and there may be a few foci of small round cells in the interstitial tissue, but the tubules and the remainder of the kidney are normal, many of the glomeruli are unaffected, and are sufficient to maintain efficiently the necessary renal functions.

In later stages kidney tissue has been removed principally in two groups of cases. In one group there have been repeated gross haemorrhages without clinical signs of renal insufficiency, and in these the kidney structure is often recorded as normal. In the other group there has been more persistent though less marked haemorrhage, together with evidence of renal defects, in these the kidney tissue presents the changes of chronic nephritis, and, though the exact type is variable, interstitial changes are usually recorded.

Returning to the structure in the acute stages, this may be described as a diffuse glomerulitis. The freedom of the tubules and of the passage from the glomeruli may account for the briskness of the haemorrhage. Similar pathological changes are found in the kidneys in subacute bacterial endocarditis, in which cocci are present in the affected glomeruli, and the lesions are accepted as being the result of bacterial emboli. The condition, however, differs from acute haemorrhagic nephritis in which no bacteria are found in the affected glomeruli, and the urine is practically

always sterile, though this is often so also in endocarditis. Further, acute haemorrhagic nephritis is not uncommon in glandular fever or infective mononucleosis, which is certainly not due to any of the ordinary cocci or bacilli. Nor could bacterial emboli account for the hereditary and familial cases of haemorrhagic nephritis which have been studied by Hurst and others. In subacute bacterial endocarditis the haemorrhage is usually microscopic, and in those cases in which it is gross a definite renal infarct is practically always found at necropsy. It may be definitely decided that acute haemorrhagic nephritis is not due to bacterial emboli.

Many cases occur so directly connected with a frank tonsillitis that it cannot be doubted that they are effects of the same cause. But it is impossible to say whether the mode of action is a nephritis or an increased permeability of the capillaries. If the haematuria is due to the latter cause, haemorrhages would be expected to occur from other parts with a certain degree of frequency. This raises a difficult question. Any case of haematuria in which purpura occurred would certainly not be included in this group in any records. With regard to epistaxis, it is so rarely recorded in the literature that one wonders whether the occurrence of it is not overlooked. Thus acute haemorrhagic nephritis occurs not infrequently in glandular fever, and in such cases it is, in my experience, usually associated with definite epistaxis. Some of the cases of acute haemorrhagic nephritis in children which are recorded in association with cervical adenitis are almost certainly instances of glandular fever. I may mention here that I have never seen a case of glandular fever with haematuria in which any ill effects subsequently developed. I have, however, once seen a child with this condition whose sister was in hospital with acute parenchymatous nephritis, which had commenced at the same time.

The close association of the condition with definite tonsillitis and cervical adenitis, which may occur in epidemics, is an argument that it cannot in general be due to a constitutional haemorrhagic diathesis. Some of the instances of repeated gross haemorrhage may, however, be of this nature. Some of these cases have developed anaemia, although not renal insufficiency, and the kidneys on removal for this reason have proved to be normal, possibly these should be regarded as a separate group. Kidd has shown that an occasional case of "essential haematuria" is due to purpura of the bladder.

The small group in which evidence of renal insufficiency develops show definite renal changes, as stated previously, these cases in general appear unusually grave from the first. The renal changes which occur do not appear to be constant, but it is evident that interstitial changes are often predominant.

This group again raises the question whether the renal changes are the result of persistent injury by haemorrhage or constitute a primary nephritis.

In the family affected with "hereditary, familial, congenital haemorrhagic nephritis" studied by Hurst, one branch suffered from what may be accepted as "acute haemorrhagic nephritis," but another branch tended to develop interstitial nephritis with little haematuria. This suggests that acute haemorrhagic nephritis is a true nephritis, and that changes in the glomeruli are the cause and not the result of the haemorrhage, this would appear to be the most probable explanation of the serious cases, but it is doubtful whether all cases are of the same nature.

Diagnosis and Treatment

In children the diagnosis is usually simple. It is not difficult to exclude other forms of nephritis, and a predisposing factor in or around the throat is present in a high percentage. In adults the diagnosis must not be made until the "surgical" causes of haematuria have been excluded.

In the acute stage simple lines of treatment are sufficient. It is traditional, and for the present advisable, that patients should be kept under treatment, if possible, until red cells are absent from the urine, a trace of albumin may be neglected.

Those cases in which unsatisfactory features are present, as indicated previously, should be treated as for other forms of nephritis.

THE ACTION OF VITAMIN D IN PREVENTING THE SPREAD AND PROMOTING THE ARREST OF CARIES IN CHILDREN

BY
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In papers published in 1924 and 1926 respectively^{1,2} we recorded investigations showing that the dietetic factors which control the structure of teeth in puppies also influence the initiation and spread of caries in children. Animal experiments^{3,4} had proved that food substances which contained the antirachitic or calcifying vitamin, now called vitamin D, greatly stimulated the calcification of teeth, while cereals, and especially oatmeal, inhibited perfect calcification of the teeth when this vitamin was deficient in the diet. In the investigations on children referred to above we found that diets favourable to calcification limited the initiation and spread of caries, while diets of lower vitamin content, and containing oatmeal, had no such effect. In many cases also diets rich in vitamin D caused "hardening" of teeth in which caries had started, and thus tended to suppress the active carious process. On the other hand, diets with low calcifying properties had no such retarding influence. In both investigations caries was extensive at the beginning, and an attempt was made to group the children in such a way as to start with approximately equal amounts of caries in each group.

In the first series of cases (1924) we attempted in one group to raise the calcifying properties of the ordinary hospital diet by adding extra milk and eggs and by giving cod liver oil. In another group these extras were omitted and oatmeal was added. It may be stated that all the diets were good, and contained a fair amount of milk and other wholesome foods, in fact, from any nutritional standpoint they were probably much better than those eaten by the average child in this country. Table I gives a summary of the results obtained.

TABLE I

Main differences in diet	No. of patients in group	Average No. of teeth per child showing initiation or spread of caries	Average No. of teeth per child in which caries showed hardening	Average No. of teeth per child in which caries showed softening
A1 Abundant fat soluble vitamins and calcium diminished cereal	9	14	15	00
B1 Much less fat soluble vitamins and calcium than A1, more cereal including oatmeal	19	51	07	04
C1 Intermediate between A1 and B1 as regards fat soluble vitamins and calcium and cereal	13	29	10	01

In the second series of cases (1926) an attempt was made to keep the protein, carbohydrate, and fat intake as constant as possible, and to vary only the extras whose effect was being tested. The total energy of the diets, the calcium and phosphorus intake, and the acid-base ratios were also fairly constant. It was not possible to attain absolute accuracy, but a fair equality in most of these respects was brought about. The main variables in the diets A₂, B₂, and C₂ were (a) the fat-soluble vitamins and (b) the anti-calcifying factor of cereals. Fuller details of the diets can be obtained from the original publication (*British Dental Journal*, October 1st, 1926). Below (Table II) is summarized the effect of these diets as regards caries in the children of the different groups. Column 4, describing the "degree" of caries, requires some explanation. Each carious area was numbered according to its extent at the first and last inspection; the figures thus obtained were, of course, quite arbitrary, but were comparable one with the other.

TABLE II

Main differences in diet	No. of children in group	Average No. of teeth per child showing initiation or spread of caries	Average degree of spread of caries per child	Average No. of teeth per child in which caries showed hardening	Average No. of teeth per child in which caries showed softening
A ₂ Abundant fat soluble vitamins	23	18	2.0	2.0	0.3
B ₂ Much less fat-soluble vitamins than A ₂ oatmeal in place of some of bread of A ₂	24	58	6.7	0.0	0.5
C ₂ Intermediate quantity of fat soluble vitamins no oatmeal	24	30	4.0	1.2	0.1

In the present investigation an attempt has been made to vary only one factor in the diet—namely, the vitamin D intake. In the previous investigations cod-liver oil, egg yolk, and extra milk were added to the diet of one group. Now these substances are rich in both vitamin A and vitamin D. Vitamin D is undoubtedly responsible for promoting normal calcification, whether of the developing teeth or of the secondary dentine in erupted teeth, and therefore it might be expected to play an important role in the arrest of dental caries. On the other hand, it is now probable that vitamin A is an anti-infective agent, so that it might also be expected that this vitamin would tend to inhibit the initiation and spread of the infective carious process. Evidence of the susceptibility of animals fed on diets deficient in vitamin A to infective and progeric processes has recently been given by H. N. Green and I. Mellanby.⁵ They found that young rats brought up on diets containing abundant vitamin D, but deficient in vitamin A, died with infective and progeric lesions including infections of the eye, alimentary tract, renal tract, and broncho-pneumonia, and pus formation in the middle ear, nasal sinuses, base of tongue, and many other positions. The limitation of growth which has usually been regarded as the chief characteristic of vitamin A deficiency they suggest may be due to the development of the above mentioned infective conditions in which case this vitamin should no longer be designated the "growth promoting" vitamin, but rather the "anti-infective" vitamin. It seemed likely, therefore, that in the case of the teeth also vitamin A would play a part in the prevention of caries, which is essentially an infective lesion.

Tests are now being made of adding, on the one hand, extra vitamin A, on the other, vitamin D to the constant diets of children and observing the effect of these vitamins respectively on the initiation, spread, and arrest of dental caries. The results so far suggest that vitamin A has little or no effect on the progress of caries, but as the data are not yet sufficiently complete to allow the statement that this vitamin plays no part in preventing or curing dental caries, they will not be recorded here. The tests with vitamin D, however, have given results sufficiently striking to warrant their preliminary publication, and are given below.

The average daily diet of the 21 children in this series (Group A₂) was roughly as follows:

1½ pints milk	1 lb meat (as purchased)
10 oz bread	1 oz bacon (as purchased)
1 oz butter	5 oz potatoes (as purchased)
½ oz cooking fat	5 oz other vegetables (as purchased)
1 oz sugar (including cooking)	
1 oz jam or syrup (including cooking)	½ oz cocoa
½ oz rice, etc	½ egg
	Fruit (four times a week)

The source of vitamin D used was irradiated ergosterol in the form of radiostol. The majority of children in Group A₂ received 2 c cm, some 1 c cm, and some 4 c cm. The investigation lasted twenty-eight weeks, the average number of carious teeth per child at the beginning was 8.8.

The methods of appraising the results were the same as those used in the previous investigations, details of which can be seen in the earlier publications.^{1,2} The month of each child was charted before the feeding test, the

amount and extent and also the "degree" of hardness or softness of each carious area were noted. The main results are summarized in Table III and are compared with the

TABLE III

	Group A ₁	Groups		
		A ₂	B ₂	C ₂
Number of children in group	21	23	24	24
Number of weeks on diet	28	28	25	28
Average age (years) of children at beginning	5.4	8.7	9.0	8.8
Average number of new carious teeth per child at end	0.2	0.5	2.4	0.6
Average number of teeth per child showing increase of old caries	0.8	1.3	3.4	2.4
Average number of teeth per child showing initiation or spread of caries	1.0	1.8	5.8	3.0
Average degree of increase of caries per child	1.1	2.0	6.7	4.0
Average number of teeth per child in which caries showed hardening	3.9	2.0	less than 0.1	1.2
Average number of teeth per child in which caries showed softening	0.0	0.3	0.5	0.1

figures for the second investigation. It must be noted that the results given in this table are not necessarily strictly comparable, partly because of the difference in the average ages of the groups, in Group A₁ the average age was 5½ years, and in Groups A₂, B₂, and C₂ it was nearly 9 years. Now the arrest of caries might be expected to take place more readily in the deciduous teeth of children under 6 years of age, since there is presumably at this time less interference with the pulp tissue of the teeth by the natural processes of root absorption than is the case in the older children.

It is clear from these results that the addition of this one factor—vitamin D—has had a pronounced effect in (a) preventing the initiation of new carious foci, (b) limiting the spread of caries, and (c) apparently arresting the carious process in many cases. The results at first sight seem, indeed, to be better than those obtained in former tests when cod-liver oil, egg yolk, and extra milk were used as the main sources of vitamin D. This is not necessarily the case, however, for it was not possible to gauge exactly the relative strengths of vitamin D in the cod-liver oil, egg yolk, and extra milk and in the radiostol respectively. Moreover, the average age of the children in the third investigation was less than in the previous two. Evidence which supports the view that the better results procured with irradiated ergosterol than with the natural vitamin D-containing foods may be due partly to the age factor, is obtained if children under 6 years of age be chosen from each of the groups and the effect of the diet on caries be compared. The comparison is made in Table IV.

It will be seen that with an average age of under 6 years the addition of vitamin D to the diet of group A₁ gives a result somewhat similar to, though rather better than, that obtained in Groups A₂ and A₃, which had fat-soluble vitamins in the forms of cod-liver oil, extra eggs, and milk, but, as already mentioned, it is not easy to calculate how much vitamin D was present in the diets of Groups A₁ and A₂ in comparison with Group A₃.

The following reports of individual cases give some indications of the observed effect of vitamin D. The first

two cases reacted especially well to the treatment, whereas in the third case the reaction was very slight. It is to be noted that in the first two instances the children were 3½

TABLE IV

(Average Age of Children under 6 Years)

Main differences in diet	No. of children in group	Average No. of teeth per child showing initiation or increase of caries	Average degree of increase of caries per child	Average amount of hardening or arresting of caries per child
A ₃ Institutional diet plus vitamin D (radiostol)	21	1.0	1.1	3.9
A ₁ and A ₂ Abundant fat soluble vitamins	18	1.4	1.7	3.7
B ₁ and B ₂ Much less fat soluble vitamins than A ₁ and A ₂ oatmeal in place of some of bread of A ₁ and A ₂	19	5.0	6.0	0.2
C ₁ and C ₂ Intermediate quantity of fat-soluble vitamins no oatmeal	20	3.3	4.5	1.2

and 4 years old respectively, whereas in the third instance the child was 7½ years old.

Case 1—K. C., aged 3½ years

At the beginning of the test 17 out of 20 teeth were carious, 11 being in a bad condition. The degree of caries was 52. This child received 4 ccm of radiostol in addition to the ordinary institutional diet. After thirty-five weeks there was no extension of old carious areas and no new carious points. 12 teeth which showed active caries at the beginning were at the end of the period in a state of partial or complete arrest (see Fig. 2). 3 teeth which at the beginning showed a tendency to arrest had completely hardened up and only 2 of the teeth showed no signs of arrest during the period. These may, of course be dead teeth, but there appeared to be no spread of caries in them. After thirty-five weeks of diet one tooth in which arrest was taking place was extracted and divided into three parts. One piece was stained with fuchsin and another with carmine and ground sections were made from both. The surface did not stain as in active decay, but was uneven (Fig. 2). In the pulp



FIG. 1.—Showing active caries in a hypoplastic tooth from a dental clinic patient aged 5 years. Surface soft and deeply stained with carmine. Hile or no pigmentation, no secondary dentine. (This figure and Figs. 2 and 3 are photomicrographs (×25) of carmine-stained ground sections of three children's molars.)

chamber, in a region corresponding to the injury there was a mass of secondary dentine. A decalcified portion was sectioned and stained for organisms, and showed these to be still present in patches.

Case 2—N. S., aged 4 years. At the beginning of the test 13 out of 20 teeth were carious, 9 being in a bad condition. The degree of caries was 46. This child received 2 ccm. of radiostol daily in addition to the ordinary institutional diet. After twenty-eight weeks there were no new carious points. 2 teeth showed apparent spread of caries due to the breaking away of the weakened cusps. Using the criteria adopted in these investigations it was found that in 5 of the 13 carious teeth the caries was completely arrested and in the remaining 8 there were definite signs of arrest.

The following case is mentioned as being the main exception in this series for the reaction to the treatment was distinctly poor. This may be due partly to the greater age of the child and partly to the fact that too little irradiated ergosterol was given to allow the effect to be developed in the period of observation.

Case 3—A. K., aged 7½ years. At the beginning of the test 11 out of 21 teeth were carious, 4 deciduous ones being in a bad condition and 3 out of the 4 permanent ones being also affected. The degree of caries was 23. This child received 1 ccm. of radiostol in addition to the ordinary institutional diet. After twenty-nine weeks fresh new points of caries appeared in 2 teeth and some spread of caries was found in 4 teeth. There were 11 degrees of increased caries. Six teeth showed some hardening.

In the whole series of 21 children to whom irradiated ergosterol was given a large proportion of the total increase

and spread of caries took place in Case 3 (A K), and if this patient is eliminated the results of this treatment on the remaining 20 children are exceptionally good. At the beginning of the investigation the 21 children had 185 carious teeth. In all the children at the end of the investigation there were 4 new points of caries, all very small. Of these 4, 2 were in Case 3. In the 185 carious teeth 16 showed some spread of the infective process on the breaking down of the enamel and of these 4 were found in Case 3. In the majority of the teeth the soft and apparently active caries was in the course of arrest and in many cases had actually been arrested, so far as could be ascertained.

The difficulties of an investigation of this type are obvious, and include that of appraising the amount or degree of caries in any tooth. Thus the apparent spread of caries may sometimes be due to the breaking down of a well portion of the enamel, although such cases are classed as actual spread of the infective process. Again, it is often impossible to tell whether a tooth is already dead as the result of caries before the special feeding has begun, and it is probable that the absence of response to the vitamin in some of the teeth is due to this fact.

The question as to the effect of diet on the prevention and arrest of caries in adults is of great importance, but up to the present time only one patient (22 years of age) has been examined and charted carefully before and after treatment by an independent worker. In this case 2 c.m. of radiostol were added daily to an ordinary diet. At the beginning of the period under review all the teeth were present in the mouth there were no fillings, and the only caries present was in the two upper third molars, which were badly affected, and one lower third molar, in which the caries had started. After six months' treatment the upper molars were seen to be definitely hardening, and there was no visible increase in the carious patch in the lower molar. Other cases are being examined.

The facts observed show that arrest of decay is essentially due to the presence of vitamin D in the diet, and that vitamin A (the anti-infective vitamin) possibly plays little or no part in this arrest. Whether, as seems possible, vitamin A is of importance in the general immunity of some mouths to caries cannot at present be stated. In any case, the arrest of caries involves some post-developmental calcification of the teeth, and is possibly due rather to this defensive agent than to the specific agents controlling resistance to infection in the case of other tissues.

It may be pointed out that in the series of children (A) receiving vitamin D no effort was made to limit the

cereal intake of the diet. It has been shown that cereals specifically interfere with tooth calcification just as vitamin D specifically promotes calcification. It is probable that cereals also interfere with the arresting of caries, and that this effect is antagonized by vitamin D. On this point, however, there is but little direct evidence.

The Process of Arrest of Dental Caries

Since the actual process of arrest of dental caries becomes, in consequence of these investigations, largely a problem of nutrition, it may be well to refer to the main changes that occur in the teeth during this process as illustrated in some of the teeth of the subjects of these investigations.

In active caries the surface of the area attacked is usually more or less soft. In the early stages of arrest it tends to harden and may appear rough, later the irregularities are gradually removed, probably mechanically, and the surface becomes still harder and smoother and

more pigmented until finally it is hard, smooth, polished, and pigmented. Caries may, of course, recur in the arrested area when the conditions are again altered. In response to caries, changes, apart from pigmentation, may take place, not only in the primary dentine (Fig. 2), but also in the pulp, the odontoblasts, in an endeavour to protect the living tissues of the pulp, may lay down new dentine—the so-called secondary dentine—to form a protective barrier. When arrest is about to take place it appears that these

processes are generally exaggerated and much well calcified secondary dentine is formed,^{7,8} and finally the bacterial onslaught is prevented. It is, however, more common for the reaction to caries to be poor, so that there is little or no secondary dentine formed, or that formed is poorly calcified and contains many interglobular spaces, and caries spreads. These facts are illustrated in Figs. 1 to 3 which are photomicrographs of carmine stained ground sections. Unfortunately the photomicrographs do not differentiate between the pigmented and stained areas. Fig. 1 shows a tooth with active caries, the surface is irregular, a large area of the dentine is deeply stained, indicating decalcification, and there is no secondary dentine. In Fig. 2 the carious process is being arrested, as is evidenced by the reduced staining power and the slight brownish pigmentation of the dentine and the amount of well calcified secondary dentine. (Note: The carious surface of this tooth felt hard in most parts when examined with a probe.) Fig. 3 shows almost complete arrest of caries. The dentine is unstained, but somewhat pigmented, and there is much well calcified secondary

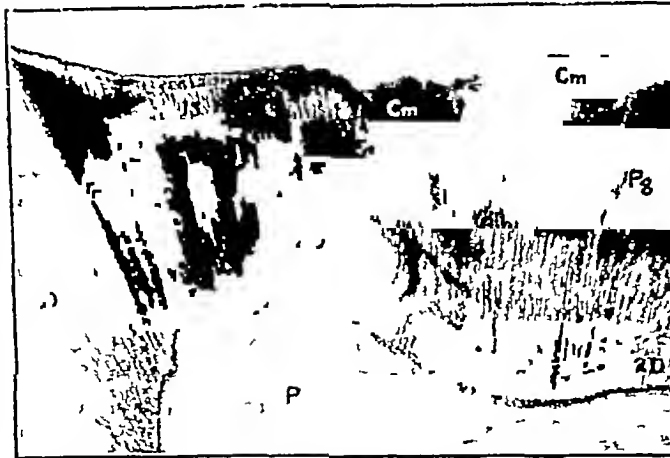


FIG. 2.—Showing arrested caries in a hypoplastic tooth from Case 1 mentioned in the paper. (Vitamin D was added to the hospital diet for thirty-five weeks prior to the extraction of this tooth.) The surface of the tooth was hard when tested with a fairly sharp probe, but was rough in places and had not the polished appearance of long-standing arrest. A few small areas are stained with carmine and there is some general brownish pigmentation. There is much well calcified secondary dentine coinciding with the carious area.

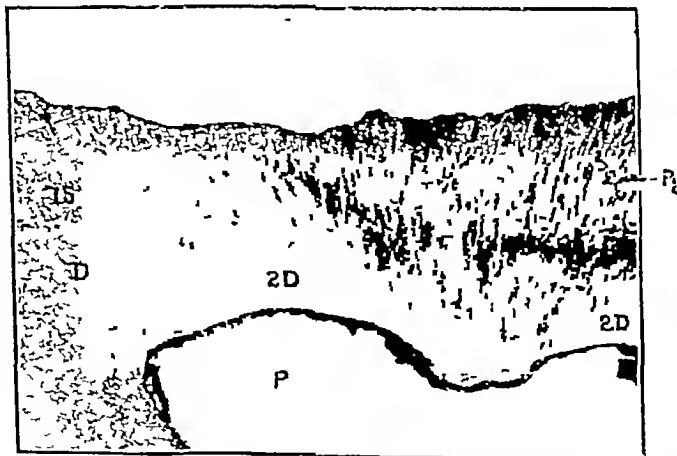


FIG. 3.—Showing arrested caries in a hypoplastic tooth from a hospital patient aged 4 years who had prior to the extraction received cod liver oil for three years. The surface was hard and smooth and appeared partly polished, no staining, slight brownish pigmentation, much well formed secondary dentine. E=Enamel, D=dentine, P=pulp, IS=interglobular spaces, 2D=secondary dentine, Pg=pigmentation, Cm=carmine.

face is irregular, a large area of the dentine is deeply stained, indicating decalcification, and there is no secondary dentine. In Fig. 2 the carious process is being arrested, as is evidenced by the reduced staining power and the slight brownish pigmentation of the dentine and the amount of well calcified secondary dentine. (Note: The carious surface of this tooth felt hard in most parts when examined with a probe.) Fig. 3 shows almost complete arrest of caries. The dentine is unstained, but somewhat pigmented, and there is much well calcified secondary

dentine. It is interesting to note that even in sections of teeth in which caries appears to be completely arrested the dentinal tubules may contain micro-organisms. These, however, are apparently inactive. For instance, some Gram-positive bacteria were found in the dentinal tubules of the teeth ground sections of which are seen in Figs 2 and 3.

The production of secondary dentine in puppies by artificial stimuli has been related to the intake of vitamin D.¹ With an abundance of this vitamin much well calcified secondary dentine is formed as the result of a given stimulus, whereas with little of the vitamin there is little or no reaction. The arrest of caries in children obtained in the present investigation as the result of giving abundant vitamin D in the diet is, therefore, just what would be expected on the basis of the animal experiments.

That other factors play a part in the arrest of caries seems certain but at present little is known concerning these. It has been shown by one of us² that calcifying diets which tend to assist the arrest of caries also result in a high calcium content of saliva, which may be of significance.

Summary

In a batch of 21 children whose average age was about 5½ years the addition of vitamin D in the form of

irradiated ergosterol (radiostol) checked the initiation of new carious points, diminished the spread of old carious points, and arrested the infective process in many carious teeth.

This investigation corroborates those previously made, in which it was found that the carious process in the teeth of children could often be inhibited by increasing the intake of fat-soluble vitamins by the addition to the diet of cod liver oil, egg yolk, and extra milk. The present work shows that vitamin D is a most powerful agent in these inhibitory processes.

Our thanks are due to the Medical Research Council and the Dental Board of the United Kingdom for their financial support of these investigations, and to the British Drug Houses, Ltd. for preparing and supplying the radiostol and the vitamin A oil used.

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THE UTILITY OF STREPTOCOCCAL VACCINES IN THE TREATMENT OF PUERPERAL SEPSIS

By

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THE following paper describes an investigation carried out (1) on clinical lines, (2) by laboratory experiments on animals, to decide the utility of vaccines in the treatment of puerperal sepsis.

Clinical Investigation

It is generally accepted that the *Streptococcus pyogenes haemolyticus* is by far the commonest cause of puerperal septicaemia. The majority of morbid puerperia are also due to this organism. At St Bartholomew's Hospital, London, trust has been placed, during some years past, in the use of *Streptococcus pyogenes* vaccine, both as a prophylactic and for treatment in the severer forms of streptococcal infection, including puerperal fever. Vaccine "sensitized" by suspension in Pasteur Institute anti-streptococcal immunizing serum has been used. The mere fact that there has been constant demand over a long period of years for this vaccine implies a belief in its therapeutic value. But nothing is more difficult than to estimate the worth of a particular method of treatment in an infective disease naturally liable to spontaneous recovery.

The conditions under which the maternity and lying-in practice of St Bartholomew's Hospital extern midwifery district are conducted favoured a large scale inquiry designed to test the value of vaccination as a preventive of morbid complications. Every woman has been delivered in her own home. During the first month of our inquiry each patient received a dose of sensitized killed *Streptococcus pyogenes* vaccine, containing 250 million organisms, on the day of delivery. If the patient's temperature rose, 500 million vaccine was given, followed the next day by 1,000 million vaccine, this latter dose being continued daily till the temperature fell. During the second month no prophylactic dose was given, but pyrexia was treated by 250 million vaccine on the day of onset, 500 million the next day, and then 1,000 million vaccine daily till the temperature fell. During the third month vaccine was not given in any circumstances, so that women confined during this month served as controls to the other cases. The same routine was observed in the following quarter, and so the changes were rung until, in the course of two years, the results of two thousand cases were available for analysis.

The women were visited and treated in their own homes by such means as were available in a district of the poorest class. The only technical refinement has been the consistent use by the midwifery clerks of sterilized rubber gloves and the employment at each case of a "drum" containing the following sterilized dressings, etc.: a sterilized gown, four small towels, two large pieces of wool six small surgical wool swabs, two long strips of folded gauze, 1½ yards in length (for plugging the cervix if required), six gauze eye swabs, this in addition to the fully equipped midwifery bag such as is in universal use.

Such apparatus betokens more than an attempt at surgical cleanliness. It is to be considered an outward and visible sign of inward and spiritual grace, a recognition by the midwifery student even in his novitiate, of the essential need to avoid contamination by employing cleanliness, care, and conservatism in the management of labour. We believe it is to this that the satisfactory results as regards morbidity and fatalities are due.

The vaccines used have been described above as "sensitized." Sensitization implies the conjugation of bacteria with specific antibodies contained in the homologous immunizing serum. It is doubtful whether the streptococcal vaccines used in the inquiry were truly sensitized in this sense. A suspension of pneumococci or typhoid bacilli, in contact with their corresponding antiserum, is agglutinated and precipitated in a conglobulum consisting of bacteria surrounded by a gelatinous capsule, this may be stained and clearly seen under the microscope. Such a vaccine is actively chemotactic, and is rapidly ingested by leucocytes. The *Streptococcus pyogenes* vaccine supplied for use did not behave in this manner, and it is therefore doubtful if it were truly "sensitized." Experiments described by one of us¹ seem to prove that, at least in the case of the pneumococci, sensitized vaccines are less rapid and less efficient antigens than "raw" vaccines. It is probable, therefore, that nothing was lost to treatment by the inoculation of simple vaccine. In any event it must be pointed out that the investigation here described was not so much a progressive and reasoned attempt to establish new treatment as a test of the validity of existing practice and beliefs.

In classifying the cases the British Medical Association standard of "morbidity" has been adopted—namely, a rise of temperature from any cause whatever, not necessarily streptococcal infection, to 100.4° F., on two occasions at least between the second and tenth days of the lying-in period. By "clinically septic" is meant the occurrence of offensive lochia, subinvolution of the uterus and characteristic fever. The temperature shows a rise on the third day, a maximum on the fifth day, and fever persisting for an average of five days. "Septicaemia" indicates the severest form of infection with the demonstration of *Streptococcus pyogenes* in blood culture.

Results

The cases may be grouped as follows, it is to be understood that the category "morbid" also includes all the clinically septic cases and any case of septicaemia.

GROUP A—250 million *S. pyogenes* vaccine on day of delivery in any event followed if a rise of temperature occurred by a further dose of 500 million the next day 1 000 million this dose being continued daily until the temperature fell.

Date	No of Cases	Morbid	Clinically Septic	Septicaemia
July 1925	81	5	3	—
October 1925	74	5	2	1
January 1926	59	4	3	—
May 1926	81	1	1	—
July 1926	75	2	2	—
October 1926	85	5	5	—
January 1927	78	4	3	—
April 1927	63	0	0	—
July 1927	69	1	0	—
Total	668	27	19	1

Percentage Morbid 4.04 Clinically septic 2.8

GROUP B—No prophylactic dose on day of delivery. If a rise of temperature occurred 250 million *S. pyogenes* vaccine was given on the day of onset followed by 500 million the next day and by 1 000 million on each succeeding day till the temperature fell.

Date	No of Cases	Morbid	Clinically Septic	Septicaemia
August 1925	76	6	4	—
November 1925	71	2	1	—
February 1926	79	4	3	—
April 1926	69	2	2	1
August 1926	61	2	2	—
November 1926	60	2	2	—
March 1927	68	2	2	1 death
May 1927	56	3	3	—
August 1927	75	3	2	—
Total	618	26	21	2

Percentage Morbid 4.20 Clinically septic 3.69

GROUP C—No vaccine in any circumstances whether the temperature rose or not.

Date	No of Cases	Morbid	Clinically Septic	Septicaemia
September 1925	72	6	3	—
December 1925	79	2	2	1
March 1926	69	3	2	—
June 1926	69	2	2	—
September 1926	71	1	1	—
December 1926	76	3	1	—
February 1927	67	1	1	—
June 1927	59	3	3	—
September 1927	54	2	1	—
October 1927	53	1	0	—
November 1927	54	4	3	—
Total	721	28	19	1

Percentage Morbid 3.89 Clinically septic 2.6

A comparison of the summaries at the foot of each table makes clear that there is little to choose between the three groups of cases. The morbidity rate is low in each group, and, as it chanced, lowest in the unvaccinated. In fact,

had this all important control group been omitted, it would have been tempting to argue that prophylactic vaccination had proved highly beneficial.

The experience during the whole period may be summarized briefly. In all 2,007 cases were delivered, 81, or 4 per cent, became morbid, and of these 61, or 3 per cent, were recorded as clinically septic also. There were 4 cases of septicaemia, one of which proved fatal. In addition, one fatal case of *ictus gravis gravidarum* and one of pneumococcal peritonitis occurred, making a total of three deaths in all.

Operations and Morbidity

A study of the individual case records, particular details of which there is no space to include, makes the close correlation of morbid temperatures with operations abundantly clear. The following operations were performed:

Replacement of cord	1
Bipolar version	2
Internal version	1
Episiotomy	1
Cesarean	2
Manual removal of placenta	13
Forceps delivery	40
Total	60

The two latter operations were most often associated with morbidity, manual removal in particular.

The total morbidity among the operation cases was 18, or 31 per cent, as compared with a gross morbidity rate of only 4 per cent over the whole series, or, deducting operation cases, a net rate of 3.23 per cent. Operative intervention, therefore, increased the rate of sepsis ten-fold. It will be noted that the forceps rate was only 2 per cent.

The low incidence of cases requiring operation is to be attributed in part to conservative tradition and practice in the district. In the main it must be recognized to be due to careful ante-natal supervision. As a result, cases which would inevitably have proved complicated have been eliminated from among the women treated in their own homes. Thus the conditions perceived and postulated by James Young, of Edinburgh in his admirable survey of the problem of puerperal sepsis, published in the *British Medical Journal* (June 9th, 1928, p. 967), have been to some extent realized. On the one hand there is convincing proof of the close causal interrelationship of morbidity and operative intervention—inevitable, apparently, no matter what patience be exercised in confinement to avoid forceps delivery. On the other hand ante-natal supervision has fulfilled its proper function in segregating cases likely to be complicated, for appropriate institutional treatment in the best possible surroundings.

The day of onset of pyrexia during the puerperium is of interest.

Day of Puerperium	No of Cases	Day of Puerperium	No of Cases
1	6	6	2
2	14	7	3
3	21	8	1
4	13	9	4
5	7	10	0

Thus in one third of the febrile cases a rise of temperature occurred on the third day, and in two thirds from the second to the fourth day inclusive.

A bacteriological study by one of us of the uterine flora day by day after delivery, the results of which are in course of publication, indicates that the uterus becomes invaded very early in the puerperium by bacteria from contiguous surfaces. This growth rapidly increases from the third to the fifth day, after which it diminishes, practically to disappear by the tenth day. The frequency of raised temperature on the third day of the puerperium therefore receives explanation.

Literature

Turning now to results published elsewhere, we are largely indebted to the chapter by Sigwart in the recently published *Biologie und Pathologie des Weibes* (Berlin, 1927, vol. 8, Part 1, p. 719 et seq.) for references to results of the use of streptococcal vaccine in the prevention and treatment of puerperal sepsis. The published observations

fall under two headings (1) large scale experiments (2) treatment of relatively small numbers of women in the wards of lying in hospitals.

In the former category Tolten (1917) inoculated some 1 600 women shortly before labour and found that the larger the dose of vaccine administered the lower the morbidity rate. No control group was studied. Thus

No. of Cases	Dose of Vaccine (millions)	Morbidity (per cent)
819	25.50	16.0
433	100	13.3
300	250	10.6
126	500	7.1

The methods employed by Louros (1923) have served as a model for several investigators. Louros gave 250 million polyvalent streptococcal vaccine twenty days before confinement was to be expected, and a further dose of 500 million vaccine ten days before. The concurrence of a negative phase, following vaccination, with the time of delivery was thus avoided and active immunity was supposedly established. Of a group of 151 women so treated, 33 sustained complications in subsequent childbirth, only in one case did the temperature rise above 104° F. But all the women were carefully watched and treated in the maternity clinic before and during their labours and puerperium, the low incidence of sepsis might as well have been ascribed to this as to the vaccine.

In another series of 3,215 births and abortions 522 cases were immunized, some actively and some both actively by vaccines and passively by administration of anti-streptococcal serum before and during labour. All of these cases were either febrile or, being complicated, were likely to develop fever, 163 actually ran temperatures, 4 of these were cases of septicaemia and 4 deaths occurred from various causes, not necessarily the result of streptococcal infection.

Maroudis (1923) applied Louros's methods in the maternity clinic at Athens. Despite adverse conditions and overcrowding, the results among vaccinated women were better than among the untreated.

Of 1 229 vaccinated women 367 received two doses of vaccine before labour, and 862 received 500 million vaccine and anti-streptococcal serum during labour. Among these women there was no death from streptococcal infection and only 2 had local streptococcal infections. Among 786 untreated women there were 7 deaths and 8 suffered from local infections.

In the second category, treatment of groups of women in hospitals, the published descriptions scarcely merit individual mention, for the results are equally divided for and against vaccination. No results are claimed in highly virulent infection, unhappily, in such cases death invariably supervenes before time has elapsed sufficiently for the dose of vaccine to have established adequate protection. Indeed, a woman surviving long enough to be fully treated by Louros's standard might be expected to recover unaided.

Summary of Clinical Evidence

The clinical evidence, then, in favour of the use of streptococcal vaccine, if not negative, is indefinite, whether the vaccines be used in prophylaxis or for treatment. In making this assertion we do not presume to express an opinion on the efficacy of bacterial vaccines in general. Amongst experienced clinicians the feeling that vaccines are of service is too strong for the subject to be lightly dismissed. Nevertheless, in our opinion, the scale, both clinical and experimental, on which our observations have been carried out justifies our conclusion.

Non-specific Protein Therapy

Against the claim that the alleged protective effects exercised by streptococcal vaccines in puerperal sepsis are specific is the fact that similar results have been obtained by the use of heterologous vaccine such as *B. coli*. In fact Louros himself suggests that the vaccine acts by protein shock.

It is not opportune to discuss here how far non-specific vaccine therapy is of value, whether the reagent be administered in homeopathic doses of a few million organisms or in masses sufficient to produce protein shock. Such

observations as favour vaccine treatment of puerperal sepsis tend rather in the direction of non-specific protein therapy—the larger the dose of foreign protein administered and the more severe the “shock” produced, the greater the apparent effect on the course of the disease. Under the heading of protein therapy, treatment by “colloidal” metals (for example, silver) must undoubtedly be included, as the effect produced must likewise be attributed to the protective colloid rather than to the metal component. The phenomena of shock and recovery are undoubtedly in some way bound up with leucocytic activity.

Experiments with Animals

It is very remarkable that so common an organism as the *Streptococcus pyogenes* should have baffled experimental investigation. At first sight the efficacy of streptococcal vaccines would appear readily ascertainable by experiment with animals, but this is not the case in practice. The susceptibility of laboratory animals—rabbits, rats, and mice—to streptococcal infection is not only low, but varies greatly, furthermore, difficulties constantly arise owing to change and depreciation in the virulence of streptococcus strains.

The method of intradermal inoculation of the shaven back of rabbits, first described by Birkbueg² in 1925, but initiated independently by one of us,³ has proved, within limits, of value in studying antistreptococcal immunity. Unfortunately, considerable doubt has been thrown on much of Birkbueg's work and his results have not been successfully repeated in this country.

Intradermal inoculation of shaven rabbits with a culture of a recently isolated strain of *S. pyogenes*, the virulence of which has been well maintained by animal passage, is followed by the appearance of local lesions proportionate in severity to the size of dose and resistance of the animal. Three doses—1/10 c.c., 1/100 c.c., and 1/1,000 c.c.—of a sixteen-hour broth culture, 1 c.c. of which is fatal to a mouse within twenty-four hours, are inoculated alongside each other. The characteristic lesion is a local erysipeloid patch, sometimes also surrounded by a bright scarlet erythema. Local suppuration usually follows, or actual necrosis of tissue may occur with formation of a deep ulcer.

In resistant animals the lesions may not progress beyond the stage of cellular infiltration. Almost without exception lesions are fully developed by the fifth day, after which recovery sets in and is complete by the tenth day, in the sense that streptococci disappear and active inflammation ceases, although mechanical damage may persist and heal but slowly. It seems reasonable to conclude that, taking a batch of rabbits of about the same weight and age, the severity of the lesions may be accepted as an index of the balance between virulence of infection and vigour of defence.

The experiments were originally planned to determine the prophylactic value of the products of streptococcal growth, “toxins” as well as vaccines. Two rabbits were immunized with each of the prophylactic agents under test, a pair was likewise inoculated with living virulent streptococcus culture, a pair was reserved as blank control. In a long series of experiments three intradermal inoculations of the homologous strain of streptococcus in living culture were administered, as described, at intervals of from five to ten days after completion of the prophylactic course. The degree of immunity possessed by each animal was apparent on comparing the lesions on the third and successive days, a survey of the whole batch enabled a just estimate to be formed of the significance of each experiment.

In general terms, the method failed to differentiate the relative prophylactic efficiency of broth filtrates (toxin) and vaccine, it was often a matter of difficulty to decide whether unprotected animals or those which had received killed vaccines were more susceptible. There was no ambiguity, however, in deciding the merits of living culture, as the animals so protected were completely resistant to subsequent infection in every instance. Laboratory experiments, therefore, support the clinical evidence that streptococcal vaccines are of doubtful value as a safeguard against living virulent streptococci.

Conclusion

Summarizing the position, morbidity in the puerperium is in the main due to a single cause, the *Streptococcus pyogenes*, the failure of vaccines, a specific means of treatment, is, therefore, the more disappointing.

It appears that all but a few of our morbid cases recovered spontaneously. This being so, the conclusion follows that special remedies, such as vaccines, are of subsidiary importance in the prevention of sepsis as compared with conservative and aseptic midwifery. Puerperal sepsis, being a specific disease, must be recognized as a definite clinical process to be treated like any other infections or contagious malady.

We are particularly indebted to Dr. Malcolm Donaldson for assistance and advice throughout the inquiry. The inauguration of the experiment on the extern district and the details of treatment were due in the first instance to him, and were carried out under his direction. To Donaldson also is due the introduction of the systematic use of sterile dressings and towels on the district and insistence on conservative methods in the management of labour, his name in particular must therefore be associated with this paper. The extern midwifery department is grateful to Dr. Mervyn Gordon consulting bacteriologist to the hospital for large supplies of vaccine and for much helpful advice on its application.

Acknowledgement is due to the Medical Research Council for assistance in the conduct of the experimental side of the inquiry.

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OBSERVATIONS ON BREAST-FEEDING

BY

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It is customary in this Branch for the incoming president to deliver an address or read a paper, a task which I, as a general practitioner, have viewed with some dismay. I have chosen, however, a subject which I think is interesting to all general practitioners, and particularly to

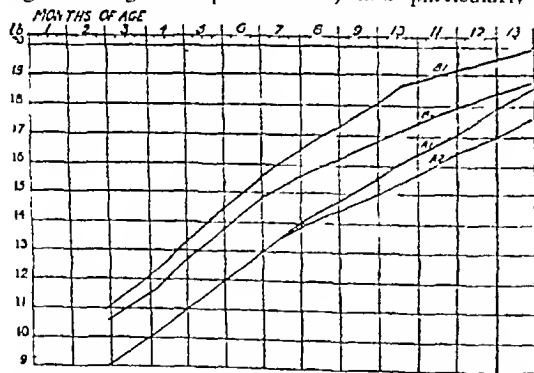


CHART 1.—Showing superiority of breast feeding over artificial feeding in good and bad conditions of home. A1, Breast fed by careful mothers. A2, Breast fed by careless mothers. A3 Artificially fed by careful mothers. A2, Artificially fed by careless mothers.

TABLE I.—Showing the average weights at 1 year of infants grouped according to the income of individual members of the family after rent is paid

	Average weekly income up to—						Over 5s.
	1s.	2s.	3s.	4s.	5s.		
Entirely breast fed to 6 months	1b oz 17 13	1b oz 18 0	1b oz 18 13	1b oz 18 7	1b oz 18 12½	1b oz 20 2½	
Not entirely breast fed to 6 months	15 11	16 6	15 14	16 6½	17 3	17 9	

those who, like myself, have been engaged in the work of infant welfare for many years. To such the question of breast-feeding is paramount, whether we consider it from the point of view of the mortality or well being of the infant, or even from that of the comfort and happiness of its parents. Chart 1 and Table I illustrate this, the type

* Being the presidential address delivered to the Midland Branch on July 13th 1928 (abridged)

of home or of mother, or the wage of the father, makes no difference to the comparative results. Breast-feeding, then, being of prime importance, why is it that so many women do not continue to suckle for the necessary period? I propose to discuss a few of the reasons which so often lead to the abandonment of breast-feeding.

The mammary secretion depends almost wholly on one vital factor—the efficiency of the suction stimulus of the infant, acting probably through the sympathetic system, with a centre in the medulla. As the milk is formed it accumulates in the enlarged galactophorous ducts, and after the tension has reached a certain point further secretion is inhibited. If the ducts are emptied a new secretion begins. The emptying of the ducts seems to constitute the normal physiological stimulus to the gland cells, and any condition in mother or child interfering with this stimulus will cause difficulty in the establishment and maintenance of breast-feeding. In the case of the child interference with suction may be due to

1 *Immaturity or immaturity or some cerebral injury at birth*, often resulting in somnolence. In some of these infants suction is ill controlled and inco-ordinated, or the act of swallowing may be bungled, so that the milk escapes by the mouth or sets up fits of coughing. Apart from actual injury, infants who have suffered severely at birth from the effects of a difficult labour are apt to be inert, lax, and feeble in suction for a few weeks.

2 *Various infective disorders*, such as sepsis neonatorum, icterus, eclampsia, and haemorrhagic disease, which cause loss of appetite and refusal to suck.

3 *Indigestion*, often brought about by injudicious purgation or irregular or too frequent feeds, is usually of a simple type due to too frequent feeding. It has been stated that there may also be a fat indigestion, brought about by the ingestion of excess fat in the frequent small feeds, the child is being fed practically on 'strippings' always carrying a high percentage of fat. I think, however, this is extremely doubtful. Some of the wet-nurses at the Paris Maternité frequently give from 30 to 40 feeds a day, and the infants under their care do not appear to suffer from fat indigestion at all.

4 *Morbid conditions of the child's nose, mouth, and upper air passage*, such as thrush, Bednar's aphthae, nasal catarrh, adenoids, bronchitis, cleft palate, etc.

5 *Constitutional dyspepsia*, a constitutional condition characterized by indigestion from the outset.

6 *A neurotic temperament*.

In the case of the mother there may be

7 *Local conditions*, such as depression, excoriation or cracking of the nipples, and abscess of the breast.

8 *General conditions*, such as malnutrition from deficient nourishment, carious teeth, dyspepsia, etc., and

9 *Psychological causes*, as anxiety, excitement, over-exertion, want of sleep, etc. Budin describes a serious setback to three or four infants in the Paris Maternité due to a violent fit of passion in their wet nurse.

Many of the difficulties I have enumerated can be obviated by simple hygiene of the breasts before or after delivery and other troubles, and their treatment, are matters of everyday experience. I do not propose to dwell further on these, but rather to discuss the more serious conditions which interfere with the establishment and maintenance of lactation, and, incidentally, certain theories and speculations of my own concerning some of them.

CONDITIONS AFFECTING THE MOTHER

Delayed Lactation

In some cases the full supply of milk may not be forthcoming for three or four days after labour, and may even be postponed for three weeks. If there is delay this is one of our most difficult periods, the mother is getting very nervous about her child, and must be encouraged and reassured in every possible way. It is well to avoid any form of artificial feeding. If this is not possible, a little boiled water sweetened with saccharine, or an ounce of whey, may be given for the first three days. We should, however, strictly limit the amount—the child must be kept hungry till lactation is established.

Underfeeding of the Mother

Underfeeding of the nursing mother has, I am sure, some effect, not perhaps on the actual development of lactation, but certainly on its efficiency. I have had the

opportunity of observing a very large number of cases of breast feeding by women distinctly suffering from poverty and underfeeding, and I submit for consideration a chart and figures which are the result of my observations

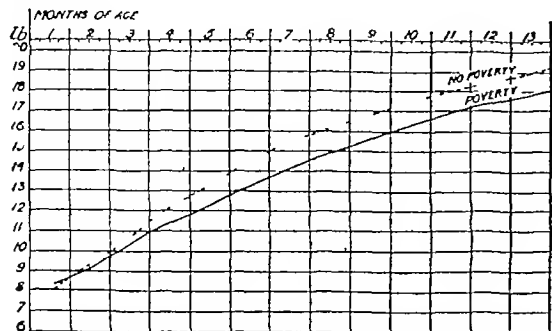


CHART 2.—Showing the average weights of breast fed infants grouped according to the financial position of the parents (a) in poverty, average number in family—5.7 average income per person less rent—2s. 1d. (b) not in poverty, average number in family—3.68 average income per person less rent—4s. 11½d.

TABLE II.—Showing condition of breast fed infants at 1 year grouped according to wage of fathers

	Wage less than £1 weekly	Wage over £1 weekly
Good	53 per cent	79 per cent
Fair	29 "	18 "
Puny	12 "	3 "

It is evident that something has interfered with the normal growth of the breast-fed baby in poverty, and I suggest that it is some deficiency in the quantity or quality, or both, of the mother's milk

In a paper published by Pritchard on "The food requirements of infants," he gives the figures of a large number of observations on test feeds conducted by himself and other English and Continental observers, and, commenting on them, he says

"Making allowance for all sources of error, I find that the average consumption of breast milk by the slum infant is about 33 per cent less than the estimates given by German observers for institutional infants or than the estimates I have myself made in the case of infants in well-to-do families"

Subsequently, in a paper read by me at the National Conference on Infant Mortality in 1914, on "The effect of income on nursing capacity and infant growth," I produced further figures obtained from my own infant welfare centre, and other sources in Birmingham, corroborating this view, and in addition emphasizing the fact that, generally speaking, the gain in weight of the child varied with the amount of milk taken

No doubt, in large measure, as pointed out by Pritchard, the smaller amount of milk given by the consultation or slum mother is an indication of the smaller demands of her child, but may there not be other factors at work? Mental shocks, great emotion, intense anxiety, may not only diminish the milk flow, but absolutely stop it. Budin has reported such a case in his book *The Nursing A*. British Government report prepared by the Intelligence Department in 1918 on "Infant welfare in Germany during the war" states that "in many instances mental distress deprived mothers of the power to feed their infants at the breast"

I have myself seen a case in which the shock caused by the accidental death of her husband completely inhibited a woman's milk production. Is it too much to suppose that, if great emotion can completely inhibit the minor but long-continued worries and anxieties of the working woman may diminish the supply? And if we admit the effect of mental strain, can we exclude, as another factor, the physical strain undergone by a nursing mother who is being constantly underfed?

Evidence as to the improvement in the quality of their milk which followed the proper feeding of nursing mothers is afforded by the observations of Duncan and Elgood Turner, working independently in Birmingham. They analysed numerous samples of milk from poverty-stricken women who were being given one substantial meal five or six days a

week, and they agree that "while the mothers were being fed the percentage of fat in nearly all cases increased, and diminished when the meals were discontinued the baby's weight curve improved as the fat content increased"

In similar circumstances I investigated 23 cases in Birmingham, and found that there was an average improvement of 1.16 oz weekly, as compared with the average gain before dinners were supplied, or something like 3 lb if the improvement was maintained for ten months. A chart illustrating this, in two cases, is shown below, the improvement in the curves while meals were being given to the nursing mothers is evident

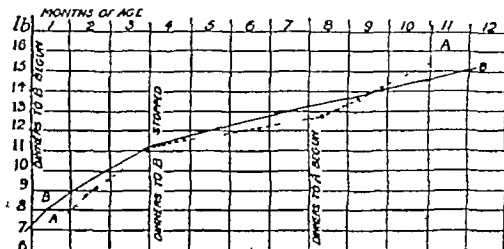


CHART 3.—Effect on infant weight curves of feeding nursing mothers

CONDITIONS AFFECTING THE CHILD

Irregularity or Somnolence from Prematurity, Immaturity, Twin Birth, Toxaemia, etc

Regular three-hourly breast-feeding will probably prove successful in a week or two. In these cases, as in all in which the breast is not completely emptied by the child, the breasts should be emptied by expression, and the resultant milk fed to the infant, to leave milk in the breasts is to cause cessation of function. If this treatment is not successful the weanling may be fed by a foster-mother, while her more robust child is suckled from the poorly yielding breast, or a robust child and the weanling can be fed simultaneously by the mother herself, the suction of the robust infant at one breast will induce an easy flow from the other into the mouth of the weanling. We must avoid artificial feeding. Even mixed feeding will eventually teach the child to shirk the comparatively hard work implied in breast-suction.

For cleft palate a suitable obturator fitting on to the nipple can be obtained. Adenoids should be removed if interfering with suction, and nasal catarrh treated by instillation of warm alkaline lotion (sodium bicarbonate 1 per cent, borax 1 per cent) from an ordinary eye dropper.

Congenital Dyspepsia

In some children indigestion is evident almost from the first, as shown by green stools, colic, vomiting, abdominal rigidity, and flatulence. We are told by the friends that "the milk does not suit," or that it is "too windy." These cases, which I have called "congenital dyspepsia," have been described by Czerny as manifestations of the status lymphaticus, and he says that they occur in two groups—one composed of infants who are weak, puny, and complaining, in whom there may be no growth for weeks, though they are fed at quite proper intervals and there is an ample milk supply. The other group has an entirely different aspect. The child grows rapidly, and becomes fat, flabby, and pasty, it is subject to seborrhoea and other disorders of the skin, and to affections of the mucous membranes, such as nasopharyngeal catarrh, causing nasal obstruction, which, together with the intercurrent dyspepsia, is liable to lead, sooner or later, to artificial feeding. It seems to me somewhat difficult to believe that two such radically different pictures should belong to one and the same diathesis, but the practical point is that both types suffer from this obstinate indigestion, and that all these infants must be kept on the breast for at least three months. No other food is to be thought of.

In the case of the fat, pasty child it is well to limit the amount of milk taken by shortening the time at the breast to eight to ten minutes, and to give from 1 to 2 ounces of barley water before the feed, as advocated by Cameron. We have to bear in mind that the loss of appetite caused

by the indigestion will impair the efficiency of the suction stimulus, with consequent diminution, and possible cessation, of the breast function. The breasts, therefore, should be emptied as completely as possible by pumping or expression after the child has finished its feed.

The Neurotic Child

Of all difficult problems perhaps the most difficult is that of the neurotic child. It has been stated that 50 or 60 per cent of the early failures to obtain breast-feeding are in the case of children of this type. Let me describe a typical case.

The child was the son of a nervous, excitable woman whose only previous son had died in infancy, her youngest daughter was 13 years old. She was intensely anxious to have a son, and to nurse and rear him when he came. From the first things went wrong. Lactation was late in establishment and the mother became almost frantic with anxiety. When I saw the child he was already infected with his mother's excitement; he was restless, sleepless, and constantly crying. His expression was anxious, he was tense and rigid and his fists were clenched. If asleep the least noise would wake him with a start, and the crying would begin afresh. Put to the breast he would suck greedily, almost fiercely, for a minute or two and then relinquish the nipple and begin crying again. The mother became absolutely worn out; the inco-ordinate, inefficient suction was causing rapid diminution of the milk while on the other hand the constant restless movements and consequent heat loss of the child were causing a demand for an increased supply—a vicious circle was established and the milk available was clearly insufficient. With all this there was frequent vomiting of a character to suggest at first sight a pyloric stenosis. About 7 lb at birth, at 2 months old the child weighed 7½ lb. It had been taken off the breast at 4 weeks and many things had been tried since without success. The mother would not consent to a wet nurse. Without my knowledge he was taken to a local children's hospital and there it was suggested that an operation should be performed and the parents were given twenty-four hours in which to think it over. The father saw me and I told him that no operation was necessary and that "all the child wanted was mother's milk." I knew that a wet nurse was available if they were willing to have her. They consented to try it and the child had its first good meal for nearly two months and slept soundly for ten hours. After that he never looked back. He was wet-nursed for three months and at 5 months went on to dried milk without any trouble.

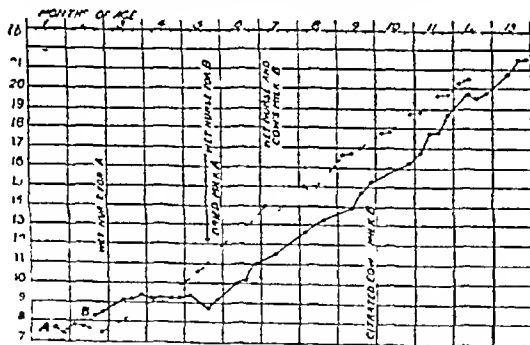


CHART 4

The weight curve of this child is shown on the chart as A. The other curve (B) is that of another similar case.

A wet-nurse, however, should be looked upon as a last resort, for it may be possible to restore the child to its own mother's breast by the method described by Cameron. He says that such children must be isolated from their mothers except at feeding times, since the nervous upset of mother and child is acting and reacting. They should be applied to the breast, on a pillow to avoid disturbance, while quiet and drowsy. If this be impossible, he gives one grain of chloral and one grain of potassium bromide before each feed, in ten minutes the child should be asleep and can then be effectively nursed. Such treatment can be kept up for weeks, if necessary. As further measures he advises hot packs, prolonged hot baths, and a "strait waistcoat," in the shape of a very tight shirt.

Wet nursing

I have made frequent references to the value of wet-nursing in difficult cases, but even this has its own difficulties. The mother is generally very reluctant to consent

to this procedure, it is often difficult to find a suitable wet nurse able and willing to leave her own home and go into the house of a stranger, the necessary physical examination of the proposed nurse takes time, and some times leads to trouble, and, in working-class households, the extra expense is a matter of consequence. Moreover, I know of no place in the provinces to which we can apply for a wet-nurse with much hope of success. Recently, however, I have had a very striking and interesting experience.

I managed to obtain a wet nurse for a baby with severe indigestion the mother having been unable to suckle for reasons into which I need not enter. The weanling was 4 months old, the foster mother's baby was 9 months. I do not regard the difference in age as of much consequence. It was arranged that the foster mother should be sent for at 8 o'clock every morning and leave for home at 8 p.m., any feed required between these hours to be artificial. We found, however, that the weanling would not suck, though there was an ample supply of freely flowing milk from well-formed nipples. However, I taught the women to express the milk and feed it to the baby from a bottle. They were quite successful and obtained 3 ounces for each meal. Soon they began to find that they could express much more than the infant could take and eventually could obtain over 12 ounces from one breast at the first expression about 9 a.m. The foster mother had avoided nursing her own baby from that breast through the night. After consulting me, they arranged to obtain this amount each morning and store it for use during the day, and the wet nurse then went home.

Here was a problem vastly simplified—the problem of how to wet-nurse a baby five miles away without the nurse being away from her own home all day long. I have looked up all the literature in my possession, but cannot find any reference to the maximum amount to be obtained from a woman's breasts at one sitting. Bindin's wet-nurses at the Materne have given from 50 to 74 ounces per diem divided up into thirty-four to forty feeds, but he does not say what was the greatest amount taken at one feed or pumping.

Hachner reports a test feed of 7 ounces (average) during the seventh month, and Forsyth a maximum feed of 6½ ounces, on one occasion, during the seventh week, both of these were private cases and, presumably, the milk was obtained from one breast only. It would appear, therefore, that it should not be difficult at any time to obtain almost a full day's supply from both breasts of a wet-nurse in an early morning expression. Would, however, milk obtained thus in bulk be deficient in fat? I think it quite probable. On the other hand, since the child to be fed in this way is probably a dyspeptic, a slight deficiency in fat might be rather an advantage than otherwise.

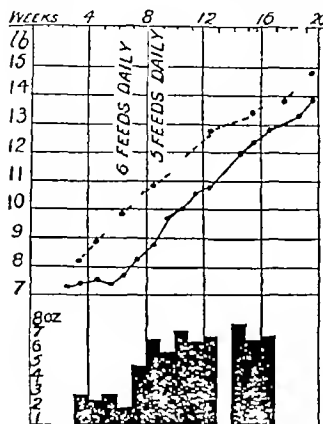
Too Frequent Feeding

Too frequent feeding, especially if irregular, is, I am sure, a frequent cause of failure after the milk has been well established. It might be thought that this is due, partly at any rate, to maternal exhaustion, but Bindin's experiences at the Paris Materne amply disprove any such suggestion. As already pointed out, at this institution wet-nurses can give as many as thirty-five to forty feeds daily and still continue to afford an ample supply. Rather, I think, it is due to loss of appetite in the child and the consequent deficient suction—a loss of appetite caused by indigestion. It is surprising how many infants are still being fed, at least in the first few weeks, two hourly, in spite of all our teaching. In a series of over 500 cases of breast-feeding analysed by me of babies born in the last three years no less than 57 per cent were being fed two-hourly in the first two months, and of these 19 per cent ceased breast-feeding in the first month, as against 7 per cent only of those fed three-hourly. At six weeks 74.5 per cent of the two-hourly group and 87.2 per cent of the three-hourly group were still entirely on the breast.

Leven and Barrett found that in normal infants the evacuation of milk from the stomach, as shown by x-ray photographs, took a minimum of one and three-quarter hours from the time the infant relinquished the nipple, and that in the case of atrophied or dyspeptic infants it might take as much as three hours. Curiously enough, the time taken was about the same for all forms of milk,

and whether diluted or undiluted. They concluded that the minimum interval between feeds must be three hours.

Here is a chart, taken from an article by Dr Harold Waller, which illustrates the effect on milk production of too frequent feeding. The child was an inveterate screamer and was constantly being fed in the hope of achieving quiet. Note the poor weight curve and the



TEST MEALS IN OUNCES
CHART 5

small amount of milk taken, as shown by test feeds, up to the seventh week. During that week the mother was persuaded to limit the feeds to six in twenty-four hours and in a fortnight to five feeds, the child became quiet and contented, and you will note the immediate improvement in the weight curve and in the quantity of milk taken at a meal.

Failures at the Third Week

Why is it that so many failures occur early, say at about the third week? Constantly I am being told, "The milk went

when I got up." The figures I have quoted point to one important cause, but there must be others. The woman—at any rate the working woman—gets up on the tenth day and resumes almost full household responsibilities and anxieties. This in itself is quite sufficient to diminish secretion. With her influx of work and worry there is increased loss of heat, because hitherto she has been lying warm in bed. All this means a largely increased need for food, does she get it? Are we sure that she has had sufficient rest after the mental and physical strain of her confinement? If we could keep the working-class women a few days longer in bed (and in this respect the provision of "home helps" might be useful) might we not be doing something towards the prolongation of breast-feeding? Another point at or about the tenth day, as has been pointed out to me, there is often a slight loss of blood from the uterus, we know that if a menstrual flow occurs during lactation the milk is often altered in quality and diminished in quantity. Is it not possible, therefore, that if this slight loss occurs at or about the tenth day there may be such an interference with the milk production as to add one more factor to those already mentioned?

Then, too, the baby is undergoing new experiences, he is being introduced to a larger world, his mentality is disturbed possibly he is now in a cot instead of lying warmly in bed beside his mother. Is he kept as warm as he was? Are all this the effect of too hourly feeds, and quite possibly of too frequent night feeding (for it is surprising how often in investigating a case of indigestion we find by close questioning that even babies fed quite properly in the day are fed too often at night), and we arrive at a sum which may account, in many instances, for the failure which undoubtedly does occur at about the end of the first fortnight—in many instances, but not in all, for I have met with more than a few cases in which careful inquiry on the lines I have suggested has failed to account for the failure. Is it a failure common to all grades of society, and, if so, is it a stage in a greater affliction, the inability to suckle at all? Are there any women so constituted? Budin states that there are, and gives an example in his book *The Nursing*. I have never, in my private practice, met with such a case in a woman with normal breasts and nipples, but in my work as medical officer to infant welfare centres I have come across so many women who have solemnly assured me that they have never been able to suckle a child from the first day onwards that I am constrained to believe that there may be a very few cases of this type, in many of these, however, it might be found that the suction of an older and more robust child would be a solution even of this difficulty, and it is significant to note that in the

case described by Budin he states that the nipples were "unhiliated," a physical condition rendering it almost impossible to apply efficiently the necessary suction stimulus.

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THE RELATION BETWEEN TRAUMA AND TUBERCULOSIS

FROM THE PHYSICIAN'S POINT OF VIEW.

BY

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IN discussing the relationship of trauma and tuberculosis from the point of view of the physician I intend to confine my remarks almost exclusively to pulmonary tuberculosis, but there are two other types of tuberculosis associated with injury which may first be briefly mentioned.

1 *Inoculation tuberculosis*.—This is probably the only true form of traumatic tuberculosis, and includes such conditions as butchers' and pathologists' warts, also those cases in which a tuberculous condition follows a cut by a broken sputum flask or other infected agent. Such cases are uncommon, but at one time examples of traumatic tuberculosis, as they involve injury to the skin and the introduction of the tubercle bacillus from without. Their pathogenesis is so straightforward that they should not lead to any difficulty from the accident insurance standpoint.

2 *Acute military tuberculosis*.—This may occur as an immediate sequel to such injuries as a blow on a tuberculous testis, forcible movement of an old tuberculous joint, or operative measures on tuberculous glands, etc. In such cases it is obvious that the trauma has caused rupture into the blood stream of a tuberculous focus, and in spite of the necessary presence of the tubercle bacillus in such a lesion the trauma is still the essentially responsible factor in the ensuing train of events.

Passing to the relationship between pulmonary tuberculosis and traumatism, the first question which arises is the frequency of such occurrence. I have recently surveyed the histories of 300 consecutive cases of definitely diagnosed pulmonary tuberculosis, and find that whilst injury was suggested as a cause in six cases, there were four in which the evidence clearly linked up the onset of symptoms and the fact of injury. Small though this figure may appear, considerable sums of money may be involved owing to the liability of employers under the Compensation Acts, and it is important, therefore, that we should hold definite opinions as to the part played by trauma in such cases.

Dr Parkes Weber, writing on this subject in 1910, grouped the cases into

- Those cases in which no tuberculosis was known or suspected to exist prior to the injury.
- Those cases in which tuberculosis was known to be present before the injury.

This grouping may conveniently be followed, and may be compared with the classification of "duo to" and

* Read in opening a discussion in the Section of Tuberculosis of the Annual Meeting of the British Medical Association Cardiff 1928.

"aggravated by" service which are so familiar in the phraseology of the Ministry of Pensions.

The two following are examples recently under my notice, of injury to presumably healthy persons.

1. A finely built man, aged 42, with an excellent health record, received a severe blow in the left axilla from the mudguard of a motor car. He returned to work in three days but a fortnight later had cough and persistent pain in the side. Four weeks after the accident he left work feeling weak and ill. I saw him the following week and found hardly any signs except fine crepitations in the axilla. A radiogram showed a mottled fan-shaped opacity extending from the root to the periphery. The sputum was positive, and after an acute course he died in six months. There was no haemoptysis at the time of the accident or later.

2. An ex-sergeant aged 36 playing Rugby football regularly and in full training, during a game in December 1926 was heavily tackled another player falling with his knee on the back of the patient's right shoulder. After temporary attention he finished the game but the same evening had slight haemoptysis. He had slight cough and sputum for the rest of the winter and never felt fit enough to play football again. The cough disappeared in the summer but returned in September 1927. Finding his wind was poor he did not resume football last winter. In January 1928 (thirteen months after the injury), he had severe haemoptysis and I saw him for the first time. There were marked signs in the right lung, slight on the left and a positive sputum. He is still in a sanatorium, doing very well, the disease being of a chronic fibrotic type.

Note the very acute course of the first case and the slow development of the second. In each case symptoms started very soon after an injury and formed a continuous chain of evidence up to the time of diagnosis.

The question to be answered is whether the accident has (1) *localized* a tuberculous lesion at the site of injury, or (2) *mobilized* and activated an old tuberculous focus.

It has frequently been stated that injury produces in the tissues a state of lowered resistance on which is implanted a tuberculous infection, the tubercle bacilli being carried by the blood or lymph stream from some distant and possibly quiescent focus. There is, however, very little evidence that this ever occurs. Animal experiments on this point have only in rare instances produced positive results, nor does clinical evidence support this theory, as is instanced by the fact that accidental or operation wounds in tuberculous subjects heal quite readily.

Recent work by Opie and others shows that tubercle bacilli can be isolated from lung tissue or glands which show no naked-eye evidence of tuberculosis. If apparently healthy tissues so frequently harbour tubercle bacilli this theory of diminished local resistance can hardly be supported, as otherwise local traumatic tuberculosis would be much more frequent than is actually the case. It would appear, therefore, that in cases such as those quoted the injury has directly or indirectly affected an existing focus of disease. Probably in the acute case a caseous root gland ruptured directly into a bronchus and in the latter a latent apical focus was compromised or torn, disseminating the previously localized infection and leading to slow progression of a previously dormant lesion.

If this be true the difference between injury to the presumed healthy and the known tuberculous subject largely disappears and becomes one of degree only. Further, we know that *post-mortem* statistics yield evidence of latent or healed tuberculosis in 33 to 97 per cent of cases, and this might well become 100 per cent if recourse were made to animal inoculation. One German writer laconically observes "after all, everyone is a little tuberculous."

When injury affects the known tuberculous subject our knowledge is more exact. Rest is still the bed rock of treatment, and evidence of aggravation by undue exertion is frequent. Tuberculous disease produces physical changes in the chest which favour the transmission of external impulses to the affected area. Injuries—especially those involving compression, and which normally are resisted by the elasticity of the chest wall and contents—will be focused and will exert their greatest influence at that spot where adhesions or loss of elasticity of lung interfere with the normal mechanism of safety.

A point of some importance is that the *post-mortem* findings prove that after severe injuries the lung opposite to the side receiving the impact may show extensive damage to and even tearing of, healthy lung. Thus an impulse applied to one side may readily aggravate disease in the

other lung especially when adhesions, etc., favour the concentration of the stimulus at the affected spot. It is obvious therefore, that injury to the chest of a tuberculous subject may readily result in active manifestations of any form of pleural or pulmonary tuberculosis.

Nature of Injury

Most of the recorded cases of traumatic pulmonary tuberculosis have followed injuries involving compression, such as crushing by falls of coal, etc., or the impact of a large object against a considerable area of chest wall.

The infrequency of pulmonary tuberculosis after war wounds has been recorded by many observers. This may in part be due to the subjects being picked healthy men, but the fact that the passage of a high-velocity bullet through the chest will not produce the diffuse impulse of a crush may be an important factor. The intensity of the injury is probably less significant than its nature, especially as regards the element of pressure.

Injury to distant parts of the body may, through sepsis, etc., so debilitate a patient as to favour the lighting up of a previously latent lesion.

Clinical Aspects

The course of disease subsequent to injury may be acute, subacute or chronic.

Haemoptysis and pleurisy are symptoms of great importance, though neither is essential in establishing a claim for compensation. Their importance lies in the fact that they will assist in fixing a date of onset of symptoms, will usually lead to the seeking of medical advice, and haemoptysis in particular, will not only impress the patient, but, if observed by others, may be valuable corroborative evidence.

In every case most careful history taking is essential, as in the absence of dramatic symptoms the establishment of a claim to compensation may rest entirely on slight but persistent evidence of ill health which bridged the interval between injury and diagnosis. Bridge symptoms of this kind were well shown in the case of the footballer already quoted.

X-ray evidence may be valuable in demonstrating an old and possibly calcified lesion with evidence of recent acute spread. In several acute cases I have observed a fan-shaped area extending outwards from the root, suggesting the rupture of a caseous lung or root-gland focus into a bronchus, with acute bronchio-pneumonic spread.

How shall we assess the particular part played by injury in cases of traumatic tuberculosis?

In most cases it cannot be proved that, apart from the injury the patient would later on have suffered from tuberculosis, but if the evidence convinces us that trauma adversely affected the existing condition, it must be considered the materially effective cause of the present ill health.

The German accident insurance law allows a patient two years' grace in which to assert his claims and for "aggravation" of lung tuberculosis, six months, which may be increased in special circumstances. This appears to be a reasonable allowance.

The fact that the patient was "fit to work until the accident" may be claimed as proof of his perfect health, this is a fallacy which is daily disproved in the experience of most of us.

The consideration of the following questions in every case is suggested as an aid to arriving at a decision.

1. Was the patient actively or passively tuberculous before the accident, and if the former, what was his expectation of life?

2. Is the fact of injury definitely established, and was it of such a nature as to be likely to damage an active or quiescent lung focus?

3. What period of time elapsed between the injury and the diagnosis, and was this period covered by "bridge" symptoms?

4. Is the present condition of the patient and the course of the disease such as might be expected if the injury had reawakened or aggravated an existing latent or active focus of disease?

THE RELATION BETWEEN TRAUMA AND TUBERCULOSIS

FROM THE POINT OF VIEW OF ACCIDENT
INSURANCE *

BY

OTTO MAY, M D CAMB,

Medical Officer to the Prudential Assurance Company

I ASSUME that the opener of this discussion will have dealt with what I may call the theoretical aspects of the subject, so I propose to limit my remarks to its practical points in connexion with the Workmen's Compensation Acts. It is, I think, obvious that in the large majority of the cases in which tuberculosis has been said to supervene upon an injury the relation, if any, must be an indirect one, not one of direct infection by tuberculous material, such as is said to occur in the case of butchers' warts and allied conditions. By indirect I mean that there is no suggestion that the accident forming the basis of the claim resulted in the introduction of tubercle bacilli into the body of the workman, the assumption is that in some way the trauma activated some focus of tuberculous infection, the existence of which it is now customary to postulate in the majority of the population.

The possible cases of "traumatic tuberculosis" that may arise in this indirect manner may be classified into the following groups

A Those in which there is a history of previous clinical tuberculosis in the worker. These may be subdivided into

(1) Cases of alleged recrudescence of the disease at its original site, as a result of injury at that site

(2) Cases in which the injury is said to have generalized the original disease (quiescent or otherwise), resulting in military tuberculosis

B Those without a previous history of clinical tuberculosis. These may be subdivided into

(3) Cases in which tuberculous disease ensues at the site of an injury

(4) Cases in which pulmonary (or military) tuberculosis arises after an injury in some part other than the chest

Before dealing further with these four groups I think it well to emphasize the legal aspect as to the points on which it is necessary for an applicant under the Workmen's Compensation Acts to satisfy the court in order to obtain an award. He has to show that there is some incapacity—partial or complete—for work, and that this incapacity has followed an accident (or disease) arising out of and in the course of his employment. But it is not necessary for him to show that his incapacity is *entirely* due to the accident, it is sufficient for him to establish that the injury is a link in the chain leading up to his incapacity, even though it is only the last link in a long chain of causal factors. From this point of view liability under the Workmen's Compensation Act is entirely different from that under the ordinary accident insurance policy, in which the company accepts liability only when the incapacity is due "solely and directly to violence occasioned accidentally by external and visible means." From this aspect it is doubtful whether any cases of "indirect" tuberculosis would constitute a tenable claim under an accident policy, since it is difficult to imagine such a condition as having arisen "solely and directly" from an accident as defined

1 Recrudescence of a Pre-existing Focal Tuberculous Lesion

In my experience claims of this type are not so common as might be expected. Unfortunately I have no records of the cases that have come under my notice, and the following is the only one of this group that I can recall.

A female domestic had suffered from a tuberculous hip in early childhood which had healed after operative treatment leaving an ankylosed hip with some shortening. In the course of her work she slipped and fell on the injured hip. It was not a particularly severe fall, and did not incapacitate her at the time. A week or two later the hip which had given no trouble for several years began to be painful and the trouble gradually increased.

Read in a discussion in the Section of Tuberculosis at the Annual Meeting of the British Medical Association Cardiff 1928

until she had to give up work, and was found to be suffering from active tuberculosis with a breakdown of the old sinus, necessitating further operative treatment.

Needless to say, this case caused no difficulty from the medico-legal standpoint, it was a clear case for liability under the Act. One can, of course, imagine a case on these lines in which a longer interval occurs between the accident and the recurrence of the disease, in such an event it might well be argued that the recurrence was not the result of the trauma. I will return to the importance of the "time factor" in my comments on Group 3.

2 Military Tuberculosis Following Trauma at the Site of a Tuberculous Focus of Disease

In 1910 Dr F. Parkes Weber read to the Life Assurance Medical Officers' Association an excellent paper dealing with traumatic tuberculosis. In it he quoted a striking example of this group of cases.

A man aged 33 received a blow on the left testicle, followed by local and general symptoms. Eight days later he had a rigor and seventeen days after this he died of military tuberculosis. Necropsy showed that the left epididymis contained a softened caseous nodule smaller than a small cherry. Both lungs were full of military tubercles but no other tubercles were found except a few in the renal cortex.

There seems little room for doubt that the blow on the testicle led to the dissemination of the infection from the old caseous focus at that site. A good many similar cases have been recorded in surgical literature—of military tuberculosis as a sequel to operations on tuberculous bone or glands, or the forcible manipulation of a tuberculous joint. In a case of this type the relation of the trauma to the fatal issue is so clear that it will present no difficulty should the question of the liability of an employer under the Workmen's Compensation Act arise.

3 Cases of Tuberculosis Arising at the Site of an Injury, without History of Previous Tuberculous Disease

Cases of this nature are common, and frequently constitute a difficult problem for the conscientious practitioner who is called upon to offer an opinion as to the relation between the injury and the ensuing disease. A typical example of this sort of case would be as follows. A worker, in the course of his work, slips and twists the knee, with the result that it swells, a synovial effusion is diagnosed, and the worker lies up for a time, while the effusion is gradually absorbed. In due course he returns to his job, apparently well. But either at once, or weeks or months later, the joint gradually becomes painful, and ultimately is diagnosed as tuberculous. In such a case a claim is frequently entered against the employer for the resulting disability, and the medical man is called upon for an opinion as to how far, if at all, the accident is a causal factor. It is, I think, obvious that there is little scope in a case of this sort for a dogmatic "Yes" or "No", the opinion must be reached by a consideration of the probabilities for and against a causal relation. On the one hand there is the undoubted fact that many, if not most, cases of tuberculous arthritis develop without any history of trauma. On the other hand, there is a considerable *a priori* plausibility in the argument that trauma, by injuring the tissues, renders them more liable to become the seat of infection, and it is, in fact, the current teaching in most textbooks of surgery that slight injuries do predispose to tuberculous arthritis. It is, indeed, hardly a matter for surprise that the medical evidence in these cases is apt to prove puzzling to the county court judge, especially if he should be sitting without the help of a medical referee.

Is there any working rule that the harassed practitioner may take for his guidance in such a case of "traumatic tuberculous arthritis"? I can only define my own line of procedure when called upon to decide whether a particular patient should be encouraged to enter a claim. I refrain from dogmatizing, but state in my report that it must remain a question of probabilities, if there is a history of the injured part never having quite recovered, but of having gradually drifted into a state of disease, then I am willing to testify as strongly as possible in favour of the workman. If, on the other hand, there is a history of a clear interval of apparently full recovery between the

injury and the onset of disease, I always take the line that the doubt is too great to permit me to uphold a causal connexion between the two conditions. One may, of course, be doing an injustice to the workman in taking this attitude, but if, as I read the law, the onus is on him to establish his case—that is, to convince the court that the balance of probability is definitely in favour of his plea—I cannot see on what grounds one can support his claim except to agree as to the possibility of its being correct. I willingly admit that there is little logic, and less science, in this arbitrary rule, but, provided it does not assume the pose of pontifical infallibility, a touch of dogma is of more practical help in the dispensation of justice than the cleverest exposition of scientific agnosticism.

4 Cases in which Pulmonary Tuberculosis Arises after an Injury to Some Other Part of the Body

These are perhaps the most difficult cases of all in which to try and hold evenly the scales of justice between the workman and the employer. In none is there greater need to bear in mind the fallacy of *post hoc, ergo propter hoc*. The Pensions Boards have had, as is well known, a difficult task in dealing with the large numbers of cases of pulmonary tuberculosis alleged to be caused, or aggravated, by military service. The problem is similar in workmen's compensation claims. How far, if at all, is the development of pulmonary tuberculosis in an injured workman attributable to the effects of the precedent accident? The comments made above under Group 3 apply, in principle, here. If the injury is one which produces "constitutional disturbances" to a severe degree, leading to severe debility, and the pulmonary tuberculosis gradually supervenes without any return to normal health, then I think that the balance of probabilities is strongly in favour of the injury having been a causal factor in the development of the disease. The following case may be cited as an example.

The workman was a lad of 18 of good personal history, employed as an electrician's mate.

Family History.—Father, mother, and sister were strong and healthy. One brother developed palsy in June 1924, he was sent to a sanatorium for six months and made a good recovery. No relative had ever had consumption.

On March 17th 1923, while working at an electric light fitting in a meat-shop he fell being unpaired on a meat hook which penetrated deeply into his left buttock. This caused profuse bleeding and he was taken to St Bartholomew's Hospital where he was an inpatient till June 21st 1923. The wound became septic necessitating irrigation by the Carrel Dakin method. An x-ray photograph on May 10th showed considerable bony destruction of tuber ischi. Up to this time the boy was seriously ill with high fever.

On May 15th sequestrectomy was performed. After this the cavity gradually healed the temperature settled to normal and he was sent to a convalescent home on June 21st.

He returned to work on August 13th but had to give up after fourteen days as the wound broke down superficially.

On October 8th he started work again and remained at work till May 1924, when he had to give up as he felt too ill to continue. During all this period he felt weak and seemed to get thin and in the latter part he fainted twice when at work.

In June 1924 he was certified by his panel doctor to be suffering from early pulmonary tuberculosis and in July he was admitted to the King George V Sanatorium. His condition became worse and he was discharged—taken home by ambulance—on November 7th 1924.

He died of pulmonary tuberculosis and tuberculous enteritis on August 11th 1925. There was no post mortem examination.

In this case I felt justified in giving the opinion that the prolonged septic illness resulting from the accident was at least a contributory factor in the evolution of the phthisis. Proceedings were accordingly taken against the employer, and, after the usual "conflict of medical evidence," judgement was given in favour of the applicant (who died two or three weeks after the hearing).

In contrast to the above, I should like to summarize another case, in which I was not directly concerned. It was that of a man who, in the course of his work, received a small piece of metal in his eye. It set up a traumatic cataract in the eye, which kept the man from work for over a year. As a result he had a good deal of mental worry, and perhaps some actual privation from reduction of income. Two years later he was diagnosed as suffering from phthisis. In this case also it was adjudged that the injury to the eye played an effective part in the develop-

ment of the phthisis, and he was awarded compensation under the Act. Personally I disagree with this decision. I do not think that one could go further than to admit the possibility of it having played such a part to assume, as the judgement implied, that there was a strong probability that, without the accident, the man would not have developed phthisis, seems to me unjustifiable and to be a loading of the scales against the employer to an unwarrantable extent.

In conclusion, I would again emphasize that the whole problem for the medical practitioner confronted with the duty of giving an opinion on the relation of trauma to ensuing tuberculosis is in his estimating the probabilities of a causal relation. If he is satisfied, from a review of the whole case, that the balance is definitely in favour of the view that without the trauma, the ensuing tuberculous disease would not have developed when it did, then, and only then is he justified in supporting a claim under the Workmen's Compensation Act. If, on the other hand, he comes to the conclusion that the causal relation, while possible, is not definitely probable, then he should say so, and refuse to support the claim.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

AN UNUSUAL CASE OF OBSTRUCTION OF THE SMALL INTESTINE

The following case, in view of the rarity of the condition, appears to be worth recording.

A carrier aged 36 was admitted to a medical ward of the Royal Alexandra Infirmary, Paisley under Dr William Clow with the complaint of periodical attacks of abdominal pain of two years' duration. The pain began to the left of the umbilicus and appeared to pass to the right side somewhat lower down. This pain was not associated with the taking of food but on two occasions about the time of his admission to hospital it was relieved by vomiting. Latterly on two or three occasions visible peristalsis was seen to begin in the left hypochondriac region and to travel in a ladder-like pattern to the right iliac region. The bowels were regular there was no distension or rigidity, but some deep tenderness was present to the left of the umbilicus. The patient had a small epigastric hernia and pressure on this with reduction seemed to give ease and on one occasion completely abolished peristalsis. For this reason the hernia was cured by a minor operation but this gave no relief to his symptoms. A barium meal followed by an x-ray examination did not reveal anything abnormal. An exploratory operation was now performed and a tight annular stricture was found on the small intestine towards the lower end of the jejunum. Higher up there was a band probably the result of old tuberculosis of the mesenteric glands and this was divided. The area bearing the stricture and two nodules in the mesentery were excised and an end-to-end anastomosis was done. The patient's recovery was uneventful.

Dr Mary Burd Hannay, pathologist to the hospital, reported on the specimen as follows:

The specimen after fixation measures about 3½ inches in length. There is a constriction 1½ inches from the wider end. The lumen at the cut surface of the narrower end of the bowel is ¼ inches in diameter and at the wider end 2 inches. The constricted area shows some puckering and measures about 1 inch in transverse diameter and about 1/8 inch in longitudinal section. There is an acute angle at the constriction on the anti-mesenteric border. Opened along the mesenteric border the specimen shows a slightly irregular ulcer completely surrounding the bowel opposite the constriction and measuring 1/2 to 3/4 inch in width. The lumen towards the narrow end of the bowel would admit a large probe that towards the wider end would admit the little finger. At the constriction the bowel wall is 1/4 to 3/8 inch thick. The muscular coat of the wider piece of bowel is 1/8 inch thick and that of the narrower 1/16 inch.

Microscopically a section through the constriction shows an irregular glandular growth on the mucous surface infiltrating the muscle and almost reaching the peritoneum. It has the characters of a glandular carcinoma. One of the nodules from the mesentery is a lymphatic gland and shows secondary tumour growth both inside the gland and outside the capsule. The other nodule is new growth but is apparently not in a lymphatic gland.

The pathological condition in the small bowel appeared to be the primary focus, and no other areas were found to be diseased.

GEORGE MILLAN M.B., F.R.C.S.
A Assistant Surgeon Royal Alexandra Infirmary
Paisley

TREATMENT OF PAPILOEDEMA WITH INCREASED INTRACRANIAL TENSION,

THE two cases here recorded may be of interest in connexion with Dr C O Hawthorne's article on recovery from symptoms of intracranial tumour, which was published in the *British Medical Journal* of October 20th (p 689). They illustrate particularly two points (1) that, though more than one feature suggests cerebral syphilis, the Wassermann reaction in the cerebro-spinal fluid of both was negative, (2) that early decompression may save the patient's vision. They further suggest that, since complete resolution of papilloedema does happen spontaneously, it is much more likely to occur if embarrassment of the cerebral circulation is relieved by trephining.

CASE I

An unmarried seamstress, aged 28, complained on November 7th, 1927, that for two or three weeks she had had misty vision and difficulty with her work. She had severe headache during one week, and vomited twice during that time without obvious cause. On examination the vision in the right eye was found to be 6/18, improved to 6/10 by a +1 sphere. The vision of the left eye was 6/18, unimproved by correction. There was concentric contraction of both fields and a central scotoma for red and green in both eyes. Marked papilloedema was present, the swelling being +3 dioptres for the right eye and +5 for the left. The cerebro-spinal fluid obtained by lumbar puncture was clear, but under considerable tension. The Wassermann reaction was negative, and there was no evidence of neuro-syphilis. The family and personal histories were negative, except that six years previously her sister had proptosis of the right eye with diplopia, this was remedied by mercury and iodide treatment.

The present patient was given mercury and iodides internally and injections of mercury. She rapidly improved, and on November 22nd 1927 the vision in both eyes was 6/10, there was no scotoma for red and green and the peripheral scotoma had diminished. The patient stopped her treatment—contrary to instructions—and did not report for two months. She then returned and it was found that the vision in both eyes was 6/24 and that the papilloedema and scotoma had returned. She was admitted to hospital as an inpatient, no definite diagnosis was made, and she was finally discharged relieved of all symptoms apart from optic atrophy. At the present date—a year after the onset—she is apparently quite well but the vision in the right eye is 6/36, and in the left eye only perception of light. She has been given mercury and iodides continually.

In this case the diagnosis is uncertain, but a syphilitic cause is suggested by the therapeutic test and the family history. Had she been trephined in the early stage she would probably have retained her vision.

CASE II

The second patient was a married quarryman, aged 55, who had had six children. There had been no miscarriages and there was no personal or family history of syphilis. At the beginning of last July he was struck on the head by a falling rock, no injury beyond a superficial scalp wound was detected at the time. A week later distressing headaches started and continued with increasing severity for three weeks for the last ten days of this period there was frequent vomiting.

When examined a month after the injury I found him drowsy, he yawned frequently, was difficult to rouse and his speech was slurred. The pulse was 50, the pupils were equal and reacted to light. Both knee-jerks were increased and the Babinski reflex was extensor on both sides. The left fundus showed a definite early papilloedema, with haemorrhage. In the right eye the edges of the disc were obscured and the veins were distended. The Wassermann reaction of the blood was positive, the cerebro-spinal fluid was not under tension and showed no evidence of neuro-syphilis.

Until August 11th the condition steadily advanced with increase in the papilloedema, vomiting was pronounced and rendered feeding impossible. Decompression became an urgent necessity. The only localizing signs were papilloedema more marked on the left side, the Babinski reaction more pronounced on the right, and the headache was worse in the left fronto-parietal region, about the site of the injury. Subtemporal decompression revealed intensely congested brain, pulsation was not perceptible, the dura was not thickened and no induration was felt on probing. Two months later there was no trace of papilloedema, restoration of sight was complete and he was quite well except for slight slurring of speech and somewhat lowered mentality. The abdominal and cremasteric reflexes were not obtained, other reflexes were normal. There was a small hernia cerebri which had not increased in size since the operation. He was able to go about, but felt too weak to recommence work.

Here again the diagnosis is uncertain and the complete absence of changes in the cerebro-spinal fluid is noteworthy. The facts that the serum Wassermann reaction was positive on two occasions and also that the patient improved after decompression combined with the administration of mercury and iodide suggest the existence of vascular cerebral syphilis, which his general appearance supports. In any

case the decompression, which was performed to save his life, has also preserved his sight.

Griffith Evans, B M Oxon, F R C S Eng,
D O M S,
Honorary Ophthalmic Surgeon, Carnarvon
and Anglesey Infirmary.

PERIOSTITIS OF TIBIA FOLLOWING AMOEBIC HEPATITIS

THE following notes of a case of amoebic infection of the liver seem to merit publication for several reasons. In the first place the clinical evidence suggested a large degree of abscess formation in the liver, and this was supported by an x-ray examination and the leucocyte count, yet all the symptoms cleared up rapidly with emetine injections. Next, it is rare to find this condition present in women, so far as I am aware. Thirdly, a remarkably long period elapsed between the time when the patient left India and the onset of the symptoms. Lastly, an interesting point is that the infective periostitis of the tibia yielded pus exactly similar to that produced in amoebic abscess of the liver.

A woman, aged 46, had lived in India from 1896 to 1922. There was no history of dysentery or malaria, but in Bombay, in 1921, she had had inflammation of the liver, which was cured with emetine injections. Since leaving India in 1922, she had had persistently poor health though there were no definite signs but only occasional looseness of the stools and general abdominal discomfort. She had feverish attacks in April and May 1928 which were described as gastric influenza. The temperature was 103° for one week but then subsided.

In June 1928 she was complaining of chronic indigestion and was afraid to eat anything. There was general abdominal discomfort with pallor and emaciation and tenderness over the right hypochondrium. Some dullness was found at the base of the right lung with diminished vocal resonance and loss of breath sounds. The only other signs were intermittent pyrexia and rigors. A blood count showed a moderate polymorphonuclear leucocytosis with a haemoglobin percentage of 40. An x-ray examination on July 17th revealed that the diaphragm was raised up to the fourth rib by a rounded enlargement of the right lobe of the liver.

Starting on July 20th injections of 2 grains of emetine were given daily for twelve days. There followed a rapid fall in the temperature and subsidence of all the symptoms. The appetite returned and the indigestion vanished. On August 1st a redness appeared over the area of the left tibia suggesting at first erythema nodosum. The temperature at night rose to 100° the pain increased and fluctuation was present. An x-ray examination showed a diffuse periostitis. Incisions released very thick reddish brown pus which was sterile, no organisms were seen. Convalescence followed the ordinary surgical treatment which included the removal of small necrosed bony fragments along the middle two-thirds of the tibial shaft.

Southsea

R HAMER HODGES, M B

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS

GUILDFORD DIVISION

Local and Regional Anaesthesia

At the annual meeting of the Guildford Division of the British Medical Association held on October 10th, Mr H S SOUTTAR delivered an address on the subject of local and general anaesthesia.

Local anaesthesia, said Mr Souttar, had until recently been somewhat neglected in English surgery. On the Continent it was the usual method of choice for operations of any description, and its application had become one of the most highly developed branches of surgical art. The greater attention paid to general anaesthesia in England and America and the high degree of skill developed by those who specialized in this work were no doubt responsible for this. But there could be no question that in local anaesthesia we had a very powerful method of great advantage to the patient, whether we used it alone or in combination with general anaesthesia, and there were few practitioners in any branch of surgery who would not find it of great utility in their work. By its means small operations could be carried out with facility and economy, and the general practitioner would find it one of his best allies. On the other hand, the use of local anaesthesia in major surgery enabled us to carry out with complete safety operations which under other methods involved grave risks.

In cranial surgery its introduction had revolutionized the whole of our technique, and by its means the heavy primary operative mortality of these operations could be almost abolished, whilst in extensive gastric operations its effects might be almost as striking. In these large operations the advantage of local anaesthesia was the abolition of shock, which resulted from the complete elimination of all afferent impulses. We were rather apt to forget that general anaesthesia, although it rendered the patient unconscious, only protected him in a variable degree from violent disturbances of those lower centres upon which in fact his life depended.

For operations of any magnitude, said Mr. Souttar, the combination of local with general anaesthesia was ideal. The equipment required was very simple, and consisted chiefly of a first-class syringe with fine needles of varying length. For most operations a 10 cm. Record syringe with needles up to 5 cm. in length would be sufficient, but for larger operations a powerful metal syringe capable of holding 50 c.c. and with convenient finger grips was essential, whilst needles as long as 12 cm. would be found a great convenience. The solution most generally useful was 1/2 per cent. novocain to which a few drops of adrenaline had been added immediately before use. It was essential that the solution should be absolutely fresh and sterile, and the most convenient method for its preparation was to pour boiling water on tablets of novocain and adrenaline: a stale solution was perfectly useless. Such a solution might be injected in very large quantities, and even 200 c.c. or 300 c.c. might be injected with impunity. Where a rapid action was required it might be used in a strength of 1 per cent. whilst for local application in the urethra a 4 per cent. solution would be required. Local anaesthesia might be produced by several distinct methods of which the most important were local application, local infiltration, and nerve blocking or regional anaesthesia. The first of these could only be used on mucous membranes and raw surfaces since none of the available drugs would penetrate the skin. It was thus restricted to the nose, the eye, and the urethra. The nose might be plugged with strips of gauze soaked in a 20 per cent. solution of cocaine, but if adrenaline were added a 5 per cent. solution would be found to be equally effective and much more economical whilst the haemostasis was superior. In the eye from 1 to 4 per cent. solutions might be used with a trace of adrenaline. In the urethra cocaine was on no account to be used since it was rapidly absorbed and severe toxic symptoms might be produced. A 4 per cent. solution of novocain would as a rule give all the anaesthesia that was necessary. Local infiltration was the method most generally useful and was all that was required for minor surgical procedures. The solution commonly used was 1/2 per cent. novocain to which a few drops of adrenaline had been added and practically any quantity required might be injected with perfect safety. The addition of the adrenaline was essential, since by constricting the vessels it not only prevented bleeding but limited the anaesthetic to the region required, increasing its local effect and preventing its rapid absorption into the circulation and the toxic symptoms which would necessarily result. In making the injection one of two methods was adopted—*injection into the dermis or into the deep tissues*. The former was essential along the line of incision, and should result in the raising of small swellings as the injection was made. Each swelling was itself anaesthetic and might be used as the starting-point for further injections. But if the deep tissues were to be entered these too, had to be infiltrated, and in an extensive operation it would be better to carry this out as the various structures were exposed. In this way any superficial tumour could be removed, and even very extensive procedures carried out with no shock and little or no haemorrhage. An important application of this method was in fractures and dislocations. Deep injections were made around the displaced ends of the bone, the tissues around both surfaces being thoroughly infiltrated. In a few minutes all pain would have ceased, the reflex spasm of the muscles would have disappeared, and the bones might be reduced to their normal relations with great ease. Regional anaesthesia was produced by the

blocking of a nerve with novocain, the injection being made either into the trunk or around it. In the latter case the solutions should be twice as strong, and only small nerves should be dealt with. For large trunks endoneurial injection was essential.

In most cases, said Mr. Souttar, the combination of local infiltration and regional anaesthesia would be found most satisfactory. As an example, he cited the resection of a rib for empyema. The solution was first injected along the line of incision over the rib, a row of little weals being raised as had been described. The needle was now inserted more deeply, and the tissues around the rib were themselves infiltrated with the solution of novocain and adrenaline. With a delay of ten minutes this might be all that was required, but if one wished to obtain perfect anaesthesia one had to block the intercostal nerves, reaching them either in the posterior end of the wound, or from the back at the point where they were lying just below the necks of the ribs. One per cent. novocain should be used, and the nerves both above and below the rib in question should be injected as well as the nerve belonging to the rib itself. In this was absolute anaesthesia, both of the rib and of the pleura, would be obtained and the operation could be carried out without any pain whatever. Regional anaesthesia could be applied to the fingers. A fine hypodermic needle was inserted at the base of the finger from behind, and 5 c.c. of 1 per cent. novocain was injected on each side, blocking the digital nerves. Five minutes later the finger would be found to be completely anaesthetic, and any operation required might be easily performed. The method might be used in the treatment of whitlow, provided that the injection could be made at a distance from the septic focus, although experience showed that there was less pain afterwards when these operations were carried out under gas. Any portion of the scalp might be readily anaesthetized by direct infiltration, or by simply surrounding it with a line of infiltration. Indeed, the whole scalp and cranium could be totally anaesthetized by a zone of infiltration encircling the head, since all the sensory nerves passed upwards in the subcutaneous tissues. By this simple method the suture of scalp wounds or the removal of small tumours might be greatly facilitated, whilst even the most extensive operations on the cranium and its contents could be carried out painlessly and with incomparable safety. The application of local anaesthesia to the teeth was now widely used. Apart from injection into the tooth sockets themselves, anaesthesia of the upper teeth was easily obtained by injections beneath the mucous membrane covering the outer surface of the superior maxilla, since the bone was there so thin that the anaesthetic readily penetrated to the dental nerves which traversed it. In the lower jaw the most perfect regional anaesthesia was obtained by injection of the inferior dental nerve, readily reached as it passed downwards on the inner aspect of the ascending ramus of the mandible. This method might even be used in the presence of sepsis, where local injections were on no account to be used lest they produced osteomyelitis of the jaw. For extensive chest operations, such as thoracoplasty, complete anaesthesia of the chest wall could be obtained by blocking each of the intercostal nerves where it was lying just beneath the neck of the rib. The skin of the back was first anaesthetized by infiltration in a vertical line over the transverse processes of the vertebrae, and through this anaesthetic area the needle was inserted just below each transverse process, and 5 c.c. of 1 per cent. novocain was injected at each point. By this method the patient was saved the annoyance of feeling repeated pricks, whilst complete anaesthesia of the whole of one side of the chest was rapidly obtained. As thoracoplasty was usually required in pulmonary conditions, such as tuberculosis, where a general anaesthetic was most undesirable, the regional method of anaesthesia was of peculiar value.

The abdomen, continued Mr. Souttar, had hitherto been almost monopolized by the general anaesthetist, but there were now methods at our disposal by which the most extensive abdominal operations could be carried out under local anaesthesia. For an operation on the stomach the skin of the middle line was first anaesthetized from the

osiform cartilage to the umbilicus, and, using the anaesthetized skin as a basis for operation, the rectus muscle on each side was freely infiltrated with 1/2 per cent novocain. The abdomen was now opened in the usual way, and the extraperitoneal tissues were infiltrated by injections made through the peritoneum from inside, ensuring absolute anaesthesia of that portion of the abdominal wall with which the surgeon came in contact. The liver was now drawn upwards, and the stomach downwards with extreme gentleness, and the left forefinger placed on the spine to the right of the aorta so as to push aside the v. cava. Guided by the finger, a long hypodermic needle was inserted into the retroperitoneal tissues on the front of the first lumbar vertebra, just below the liver, and 70 ccm of 1/2 per cent novocain were injected at this point. The result was a complete block of the splanchnic nerves. By this method excellent relaxation was obtained, and operations of the greatest magnitude could be carried out on the stomach and the upper intestine with entire absence of shock. Mr. SOUTTAR said he regarded this method of producing splanchnic block as one of the greatest of recent advances in the art of anaesthesia. The surgeon operated under ideal conditions, with a degree of relaxation unobtainable by ordinary methods, whilst the condition of the patient at the end of a long and difficult gastroectomy, such as might be required in the treatment of a jejunal ulcer, afforded very positive evidence of the elimination of shock. The only precaution required was to make sure by a slight withdrawal of the piston of the syringe that the needle had not entered one of the larger veins. In his experience the method had been devoid of complications, and he invariably used it in all operations on the upper abdomen, either alone or combined with a slight general anaesthesia.

The applications of local anaesthesia were limited only by the anatomical knowledge and ingenuity of the surgeon, for there was no operation which could not be carried out successfully by its means. The method, however, had to be carried out with extreme caution in the presence of sepsis, for it was obvious that the infiltration of septic tissues might assist the spread of the infection. A little ingenuity would often avoid this risk, which did not really detract from the great general value of the method.

Reports of Societies.

MENINGITIS

A WHOLE morning was occupied by the Section of Otolaryngology, Royal Society of Medicine, on December 7th, with a discussion on meningitis. Mr. SOMERVILLE HASTINGS presided.

Mr. G. J. JENKINS, in the opening speech, said that the principles which he had laid down as rapporteur on the subject at the International Otolaryngological Congress in Paris in 1922 had been verified by his further clinical experience. He had on that occasion explained the importance of distinguishing two groups of cases, in one the infection was primarily of a trabeculated part of the subarachnoid space, and in the other the infection was primarily of the cisterna pontis. In some cases of meningitis, even with micro-organisms present in the cerebro-spinal fluid, the patients had been known to recover with one or two lumbar punctures. This seemed to him to indicate, not that this procedure was a form of treatment, but rather that if the surgeon could help in some degree the cerebro-spinal fluid would overcome the inflammation, and without such help would fail. In many cases of meningitis the organisms had not reached the subarachnoid space, and the condition was due to infection in close relation to the outer surface of the dura—the *méningite de voisinage* of the French. Here the complete removal of the external inflammation would effect a good result. The difficulty was to know when the organism had not reached the space, and his impression was that it was only in very early cases that this procedure could be followed. Lumbar puncture should be regarded as a serious step, and not left to anyone to perform, it should only be employed for the purpose of

obtaining information as to the state of the meninges so as to help in deciding the line of treatment. The fluid should be removed very slowly, and not more than 6 ccm at a time, lumbar puncture should not be used for diagnostic purposes when septic meningitis was suspected. The changes in the cerebro-spinal fluid could be estimated only in relation with the clinical features. The clinical, and the cerebro-spinal fluid examinations would enable one to recognize very early and very advanced infections, but there was a wide doubtful group between these two extremes, and the speaker's inclination was to treat this group as probably infections of the subarachnoid space. He believed that if meticulous care were taken in cleansing after completing the external operation and before opening the subarachnoid, the risk from surgical intervention was much less than that of leaving things as they were. Dr. JENKINS proceeded to describe a method of washing out the subarachnoid space which had been used at King's College Hospital for many years in cases of septic meningitis which appeared to require drainage. He gave careful details of this intricate operation, which involved opening up the internal auditory meatus. It seemed to him that it followed the general principles of treatment of a septic focus, and was more likely to meet with success than simple drainage or lumbar puncture alone.

Mr. T. B. LAYTON offered some observations on otitic meningism—the name first applied by Dupré to a group of symptoms indicating meningitis, but showing normal fluid on lumbar puncture. Mr. Layton maintained that meningism did not occur with a local infection in anatomical relation with the meninges, or, if it did, that it must be considered as early meningitis. The only symptom of any importance to the ear surgeon was the rigidity of the neck, by the time there were symptoms connected with other reflexes a stage had been reached at which the chance of recovery was very small. Every case which showed rigidity of the neck, where there was any inflammation of the ear, should be called, not meningism, but meningitis, and lumbar puncture should not be performed, since such organisms as had got through the meninges would thus be sucked down from the ear to the region of the foramen magnum. He thought the better procedure was to open the mastoid, even though the local symptoms were only those of otitis media. The operation could be described as post-aural drainage rather than as an attempt to eradicate diseased bone. It might at times be a mistake to refrain from performing lumbar puncture, he described one case in which, after a mastoid operation on a child who had a rigid neck and an acute otitis media, miliary tuberculosis was found with a tuberculoma in the parietal region on the same side as the affected ear, but in general he thought there were good theoretical arguments against the use of lumbar puncture.

Mr. E. D. DAVIS dealt chiefly with the morbid anatomy of otitic meningitis, describing the paths of infection in such cases, the vulnerable points in the dura mater where it was pierced by nerves and vessels, and along the lines of sutures, also the methods of drainage considered from an anatomical point of view. He spoke of clinical types of infections of the ears which had produced meningitis. Persistent headache and pyrexia, and paralysis of the sixth nerve, afforded a serious warning of the spread of infection. Records of cases of meningitis which had followed chronic suppuration, reported by Logan Turner and others, showed that symptoms and signs of labyrinthitis were present in a large proportion. Such signs and symptoms, however, might occasionally be more or less absent, and changes in the cerebro-spinal fluid be the only indication. The fluid should always be examined when the slightest suspicion of an intracranial complication arose. He had never experienced any difficulty in connexion with lumbar puncture.

Mr. ERIC WILSON-WILLIAMS had been most impressed by the element of urgency in these cases of otitic meningitis. To do any good at all the diagnosis had to be made and the treatment started at once. It was not possible to await any elaborate investigation even a few hours would turn the scale. Moreover, in his experience such cases seemed to choose some such time as 1 a.m. on a Sunday to develop. Looking through his notes for the past three years he saw that he had operated in seven cases of

meningitis, and in one that he classified as meningeal reaction. His feeling was that lumbar puncture was of great assistance in deciding, not merely the diagnosis—for this might remain obscure even after lumbar puncture had been done—but the line of treatment. In these seven cases of definite meningitis he had had three recoveries and four deaths. The four fatal cases were not really germane to the present discussion, for they were not cases of otitis media so far as could be ascertained, three of them were pneumococcal meningitis and one was tuberculous meningitis. The three cases in which recovery followed were definitely otitic meningitis. One case which he had previously shown to the Section was that of a woman who was admitted to hospital with high temperature, neck rigidity, severe headache, and mental confusion. The cerebro-spinal fluid was quite turbid, not milky, but definitely more than opalescent, and was reported to contain many pus cells. There was a dead labyrinth. He performed a complete labyrinthectomy, and drained the meninges through the internal auditory meatus. After some improvement the cerebral symptoms returned, and he thereupon passed the curette down the internal auditory meatus, scraped out some debris, and re-established a drain of cerebro-spinal fluid; the woman got perfectly well. The cerebro-spinal fluid appeared to have some influence in limiting the spread of infection though not enough was known about it to enable one to say what made it better—as it probably was—than an artificial fluid. The protein content was possibly responsible for some bactericidal action. He did not himself see how the subarachnoid space would be disinfected by the introduction of disinfectants. He was always very sceptical about the value of disinfectants in contact with living tissues, because a disinfectant which was sufficiently powerful to kill off streptococci was likely to destroy the living cells long before the streptococci were affected. Perhaps in a late case which was not doing well he would employ the method of washing out, but he had had one or two successes with the drainage method, and in general he felt inclined to retain it. The urgency of the whole matter must dictate the procedure. When there was meningitis and any indication of aural trouble, it was necessary to open the ear and to decide on the findings at operation rather than to make the decision beforehand. In that way he thought a good many cases of meningitis would be treated early enough to avert a general infection.

Mr. HOLT DICKE raised the question whether the results of the treatment of meningitis were any better to-day than they were fifteen years ago, and if so, whether the improvement was due to earlier diagnosis. Patients were certainly received at a much earlier stage. The only two cases he had on record of recovery from meningitis when there were organisms in the cells had been treated by repeated lumbar puncture. He had tried all types of drainage of the basal cisternae with no results to his credit. Mr. Jenkins, in the method he had just described, washed from below upwards, that method might be supposed to diffuse the infection which originally was localized to one cisterna, and he had himself washed the other way—from the lateral ventricle to the lumbar puncture route—but even so he had had no recoveries. In spite of these more scientific methods were the results improved? To take an analogous example from the abdomen, where the method of washing out had had a vogue and had been given up, in an established case of diffuse peritonitis such hope as there was depended upon drainage at several points, was it not possible that in the ear better results might follow repeated lumbar puncture? He believed that the hope in the treatment of meningitis depended still on early diagnosis and repeated lumbar punctures, and that without a lumbar puncture there were no means of assessing the extent of the disease or deciding the line of treatment.

Dr. DAVID MCKENZIE described a case, supposed to have been meningitis, an operation was performed, but the condition proved to be encephalitic lethargia. In these cases it was necessary to make a lightning diagnosis, there was not time to await the microscopical examination of the cerebro-spinal fluid. As for the results of drainage, these were curiously varied. A line of successes might alternate

with a list of failures. With drainage the clinical picture was modified profoundly, the patient remained conscious until the end, but still suffered from pain and headache, and the speaker questioned whether his state was really bettered after drainage. Certainly surgeons by no means possessed in drainage a treatment on which they could rely for the cure of meningitis.

Mr. M. J. VLASTO thought that sufficient account was not taken of the type of labyrinthitis in connexion with meningitis. It was an important matter to distinguish the type of labyrinth with which one was dealing, and he thought that in a case in close relation to labyrinth infection he would be inclined to treat the focal cause as widely and efficiently as possible and let the labyrinth deal with itself.

Mr. JAMES HARRIS said that the question of operative intervention in meningitis had given him a good deal of anxiety. In many cases of meningitis one was conscious of the borderline, and was afraid to interfere with the meninges. This year he and his colleagues in Glasgow had had to deal with 14 cases of meningitis, of which 7 had recovered as a consequence of clearing out the local infection in the ear. In the 7 fatal cases he did not think any form of washing out or drainage would have had effect, 3 of the patients when admitted to hospital were unconscious. Lumbar puncture was always tried, and he had never found any great harm come from it. In the cases which eventually recovered no micro-organisms were found in the cerebro-spinal fluid, except in one in which the streptococcus was found on direct examination but could not be cultured. In all the fatal cases micro-organisms were found and cultured. He believed that there were two stages in the same type of meningitis, one recoverable, the other with the chances of recovery remote.

Mr. BROUGHTON BAILES had had only two recoveries in cases with definitely infected cerebro-spinal fluid. Both patients had also infection of the brain, and in one there was a cerebellar abscess. He confined himself to the brain condition, and both patients survived. It was necessary to be very much alive to any brain infection, and in the presence of such no washing out or drainage operation should be performed, but the brain only should be dealt with.

Mr. SIDNEY SCOTT said that it was quite clear from the discussion that the last word on this subject had not been spoken. The consensus of opinion seemed to be that the local infection should be dealt with first, and from this it might be inferred that a radical operation ought to be performed in all these cases. He mentioned a case in which the patient had all the signs of early meningitis, including rigid neck, intense headache, and fixed pupils, a lumbar puncture showed streptococci in the cerebro-spinal fluid. On opening the mastoid the cells were found absolutely normal. The mastoid was drained, but lumbar punctures were also repeated, and to this latter procedure he attributed the complete recovery of the patient. With regard to the labyrinth mentioned by Mr. Vlasto, under an anaesthetic one could determine whether a labyrinth was alive simply by spraying ethyl chloride.

Mr. MUSGRAVE WOODMAN thought there was a *via media* between the two distinct schools of opinion as to lumbar puncture, surely a lumbar puncture was of value in certain cases. There was all the difference between draining off a large quantity of fluid by lumbar puncture for the purpose of treatment and drawing off 1 c.c.m. for diagnostic purposes, the latter would obviate a false diagnosis in a case of encephalitis lethargica. Was there any serious objection to taking a very limited quantity for that specific object?

Mr. H. V. FORSTER said that the surgeon was continually confronted with the opposite dangers of doing too much and of doing too little. One difficulty was to determine when the labyrinth was dead, and Mr. Scott's suggestion was useful. He described one or two cases in his own practice, and a technique for dealing with brain abscess.

Sir J. DUNDAS GRAY referred to a Contuental treatment in which intravenous injections of antiseptic fluid were given, and Mr. E. WATSON-WILLIAMS said that he had tried this method in cases of suppurative labyrinthitis, injecting 1 c.c.m. of colloidal silver into the vein. The

injection was followed half an hour later by lumbar puncture, and the patient made a good recovery. Questions on detailed points in Mr Jenkins's technique for washing out the subarachnoid space were asked by Mr WATKYN THOMAS, Mr T B DOBSON, and the PRESIDENT, in reply to which Mr JENKINS gave some further information, and on the general principle added that, in view of the large number of cases of meningitis which terminated fatally, and for which nothing could be done, it seemed to him very undesirable that because with a minor procedure a few recoveries were obtained surgeons should rest there, and do nothing further. Ought not surgeons to try to improve their methods of treatment in dealing with these cases? The method he had described as followed at King's College Hospital was admittedly a dangerous procedure if not performed with meticulous care, but he held that it was in a line with surgical attack upon this disease.

Mr T B LAYTON, also in reply, said that the Section had been told of a number of cases which got well, although to all appearance they should have died. He himself had never been a "lucky surgeon," and such cases had never come his way. He had tried lumbar punctures, but he felt that in the early case better results followed the least intervention. Dr Dan McKenzie had laid down the proper principle when he said that the thing to do in treating these early cases was to deal with the local infection and to leave the meninges alone, not even a lumbar puncture should be performed. He had never yet had a case recover in which organisms were found in the cerebro spinal fluid, either on direct examination or subsequent culture by the bacteriologist. Mr E D D DAVIS expressed agreement with Mr Jenkins that something ought to be done in these cases. He himself always performed lumbar puncture, removing 5 c.c. in a test tube, lumbar puncture, in his experience, had never resulted in harm.

PRELIMINARY MEDICATION FOR ANAESTHESIA

At a meeting of the Anaesthetic Section of the Royal Society of Medicine, held on December 7th, Mr STANLEY ROWBOTHAM read a paper on preliminary medication in anaesthetics.

Mr Rowbotham stated that the subject had not generally received the attention that was its due, and acknowledged his debt to Gwathuoy as pioneer in this field. A nervous and apprehensive patient needed soothing, and for this purpose morphine alone was not sufficient. That such soothing might be possible was suggested by several facts. It occurred in cases of rectal ether anaesthesia, the more a patient reacted to preliminary medication the less anaesthetic he required at the time of operation, with lighter anaesthesia he passed more quickly out of the influence of the anaesthetic, but remained under the influence of the preliminary medication, thus suffering less after-pain and being unconscious of sickness and discomfort. He found paraldehyde, either alone or in combination with morphine, heroin, hyosine, chloroform, etc., to be specially effective. The paraldehyde was given per rectum with or without chloroform, the other drugs being given hypodermically. It had been found that a combination of drugs acted more powerfully and for longer periods than either drug alone. Preliminary narcotic drugs reinforced each other, but anaesthesia following was considerably reinforced. After such drugs had been given abdominal relaxation could be completed with nitrous oxide and oxygen or ethylene. Cocainization of the larynx made it possible to pass intratracheal tubes after the administration of nitrous oxide and oxygen. Ether became a very powerful anaesthetic, and chloroform might become positively dangerous. The depression of the blood pressure and respiration was comparable with that produced by morphine or heroin alone, and the author had never experienced trouble from an unusual fall of blood pressure. For the purposes of administration four groups of patients were recognized. In the first group were children under 7 and the sick and puny over that age, very old and feeble adults and those with low blood pressure, toxic and shocked patients and those anaemic from haemorrhage, and patients who had suffered from long-standing pyrexia. In the

second group were normal children over 7 and normal adults. In the third group were alcoholics and very nervous patients and athletes over 25. The fourth group comprised only patients suffering from Graves's disease. To patients of the first group paraldehyde, 1 drachm per stone of body weight, was given per rectum one hour before operation, and at the same time a hypodermic injection of atropine gr 1/200 to 1/100. The paraldehyde alone was sufficient to cause unconsciousness. To the second group paraldehyde was given in a similar manner, but reinforced by heroin gr 1/60 per stone of body weight, one and a half hours before operation. The third group was treated as the second, but in addition a further hypodermic injection of a quarter to half the original dose of heroin was given three-quarters of an hour before operation. Another method applicable to this group was to give paraldehyde as before, and, in addition to heroin or omnopon, etc., to inject hyosine hydrobromide gr 1/200 to 1/100 one and a quarter hours before operation. The hyosine produced sleep in most cases, but occasionally induced delirium, so that it was necessary to administer trial doses a day or two before operation to ascertain the patient's reaction. The cases in the fourth group were notoriously difficult to deal with. When the operation was carried out under local anaesthesia quiet and repose were essential. A trial dose of hyosine was required. Potassium bromide and chloral were given the night before the operation, and heroin or omnopon or morphine one and a half hours before operation in combination with hyosine, unless this had been found unsuitable, and a chloroform suppository was placed in the rectum. One and a quarter hours before operation paraldehyde in olive oil was given per rectum in the proportion of 1 drachm per stone of patient's weight to half an ounce of oil per drachm of paraldehyde. For very obese patients the full dosage might be reduced 20 per cent. If the patient was still awake three-quarters of an hour before operation one-half to two ounces of a mixture of ether and olive oil in equal parts might be added to the paraldehyde already in the rectum. In cases other than Graves's disease the paraldehyde was dissolved in saline in the proportion of 10 to 1. This solution has to be administered at blood heat. The colon was emptied by a soap enema the day before operation unless the bowel had been well emptied by aperients. A saline wash-out was given not less than three hours before operation, no attempt being made to cleanse the bowel thoroughly, as this would exhaust the patient. As a rule the patient anaesthetized by these methods was asleep in fifteen minutes, often in less. Sleep usually deepened, and in twenty to forty-five minutes the patient could not be roused. The conjunctival reflex was often lost, but the corneal remained. The muscles were flaccid, but sensibility to pain persisted. This was unfortunate, as sometimes great difficulty was experienced in administering a spinal anaesthetic, though local infiltration of the skin with novocain might obviate this difficulty. Unconsciousness persisted for variable times. The average case would sleep for twelve hours after nitrous oxide and oxygen, and remain drowsy for another eight hours or so after paraldehyde. After operation the paraldehyde might be left in the rectum, or it might be removed by a rectal tube, or a further dose of paraldehyde might be given as the patient returned to consciousness. A patient could be kept quiet for two and a half days by repeated doses. After-effects were slight, and consisted of headaches and confusion. Nausea and sickness were seldom met with. Toxic cases remained unconscious longer, and required smaller doses than the normal. The chief contraindications to the method were diseases of the bowel, such as piles, fissure, and operations on the lower bowel, and cases in which a spinal anaesthetic was to be given. In the latter cases the subsequent flaccidity of the muscles might cause the paraldehyde solution to be evacuated. The speaker stated in conclusion that, while the method was not perfect, it had served him in his practice. Possibly better results might be achieved with avertin, but for the time being this drug could not be tested, as supplies were unobtainable in this country.

Dr J. BLOMFIELD criticized the adoption of the method as a routine. He asked whether there was not danger of

inefficient ventilation of the lungs and so of lung congestion later? Was there not danger also of blood trickling down the throat? Dr I MACILL said he had had favourable experience of the method in selected cases. Admixture of paraldehyde with olive oil rendered the use of chloroform unnecessary. The disadvantages of the method were the necessity of a preliminary visit to the patient and the administration of a drug per rectum. Owing to the lowered blood pressure bleeding was less than under ether, especially in throat cases. The method was contraindicated in chest operations such as for thoracoplasty. Three of his cases had exhibited complications after the use of the method. In two there had been persistent vomiting on the following day, but both responded to calomel. Another case showed remarkable idiosyncrasy to a small dose. Dr I T LAVIS mentioned a case in which a child became maniacal after the use of the method.

Dr RAMSEY PHILLIPS described the case of an athlete in whom, despite the method, he had had the utmost difficulty in inducing anaesthesia although the patient was apparently asleep. At the third attempt anaesthesia resulted, but was followed by great difficulties when the operation commenced owing to the slowness of the heart beat. This was remedied by administration of small doses of carbon dioxide. The patient eventually recovered sufficiently for the operation to be completed. The doses of paraldehyde given were small. Dr Z MERVILL objected to leaving his own end of the patient and working at the other, moreover, paraldehyde was not safe. Before the war when paraldehyde was given intravenously for anaesthetic purposes two deaths occurred. There was a distinct danger of idiosyncrasy to paraldehyde, and once given per rectum it was irrecoverable. He objected to it in cases of tonsils and adenoids. Its chief object was to get the patient on the table without his being aware of it, but surely twilight sleep was equally efficacious. Was there not also a distinct danger of rectal complications following the administration of paraldehyde? Further objections were the tremendous amount of extra work thrown on the hospital staff and the difficulty of timing the complicated injections when a series of cases had to be operated upon. Dr C H HUGHES firmly believed that premedication was very important in a percentage of cases. Dr HUGH PHILLIPS agreed that the lengthy sleep following the method greatly perturbed the nursing staff. It was invaluable, however, for use in children, especially in orthopaedic cases where great pain followed operation. He had been able to use it successfully in a patient aged 14 months. He agreed that paraldehyde was very useful, but that it should be used only in selected cases. Dr H A RICHARDS said that the question was whether the patient's feelings should be considered of more importance than the patient's safety. The method could not be considered a safe one, and was not to be employed indiscriminately. Dr ASHLEY DALY drew attention to the danger of chest complications, especially following operations on the upper abdomen. The nursing difficulties were very real, for instance, the timing of injections in hospital practice. There was also, in private practice, the question of cost. The prolonged sleep might necessitate the employment of two special nurses for two or three days.

CONVULSIONS IN CHILDREN

A MEETING of the Manchester Medical Society was held in the Medical Library of the Manchester University on November 7th, with the president, Dr R W ALKSDEN, in the chair. Dr C PIGER LAROC read a paper on convulsions in children.

Dr Lapage defined the following three classes of such convulsions. In the first he placed those associated with acute infections, such as encephalitis, encephalitis lethargica, and meningitis, etc. He also included convulsions of mechanical origin, as, for example, following birth injury, or haemorrhage with hemiplegia or diplegia, or malformations such as porencephaly, microcephaly, or brain tumours, abscesses, injury, or whooping-cough with haemorrhage. The second class comprised convulsions of metabolic and toxic origin, where the nerve endowment might be normal or abnormal. Examples of this class were the convulsions

of rickets with peripheral irritation or additional metabolic upset, of tetany and spasmodophilia with calcium deficiency, of simple overfeeding, or such severe metabolic upsets as uraemia, hypoglycaemia, naphthylaxis, and the onset of acute illness, etc. The third class contained the convulsions due to epilepsy, whether idiopathic or accidental. Dr Lapage said that if convulsions were correctly classified under these headings the prognosis and treatment were very much simplified. The importance of the signs of spasmodophilia, especially Chvostek's sign, was great, because if they were present there was considerable hope that the cause was not one of the less tractable conditions, spasmodophilia being due to some alteration of metabolism which was usually amenable to treatment. Continued fits in children were often due to an attack of post-encephalitis which left an irritable area in the brain. As the result of increasing experience, he had come to believe that many cases, which would formerly have been put in the class "epilepsy," should really be classified as "organic convulsions caused by some brain lesion." Post-encephalitis was much more common than is usually supposed. Attacks of stimulating petit mal should be distinguished from petit mal, a condition in which the prognosis was quite good and in which there were very large numbers of small "absences," but never real fits. They must also be distinguished from attacks like petit mal which occurred in cerebral lesions, especially cerebral or cerebellar tumours. Precursors of Jacksonian epilepsy might appear as sudden momentary attacks which caused the child to fall down, either backwards or forwards. Cerebral surgery in these cases was often disappointing, but it must always be remembered that hydrocephalus of the brain even in young children was not unknown. The possibility of a syphilitic origin must also be remembered and a Wassermann test be performed. In the treatment of epilepsy, Dr Lapage emphasized the value of luminal, the need for careful supervision of the diet and the daily habits. He reported a case of successful control of fits by a ketonic diet.

ABERDEEN MEDICO-CHIRURGICAL SOCIETY

A CLINICAL meeting of the Aberdeen Medico-Chirurgical Society was held in the Aberdeen Royal Infirmary on December 6th with Professor ALEXANDER LOW, the president, in the chair. Mr F K SMITH demonstrated by cystoscopy and under spinal anaesthesia a sessile tumour of the fundus of the bladder, and discussed the diagnosis and classification of tumours in this region. The most satisfactory line of treatment in the type of case demonstrated was excision of the tumour and the whole thickness of the bladder wall, with possibly the later implantation of radium. Mr Smith then showed two cases of Banti's disease which had been under observation for several years. In the first case splenectomy had not been performed, and in the second case the spleen, which had been removed eighteen months previously, showed the typical changes associated with Banti's disease. The patient had an interval of good health, but intestinal haemorrhage had recurred. The cases of Banti's disease were discussed by Dr A GREIG ANDERSON, who pointed out that there was no definite consensus of opinion upon the time relation between the onset of cirrhosis of the liver and spleen in this condition. Mr ANDREW FOWLER reported a case of diastasis of the lower end of the femur in a boy aged 12 years, the accident had happened four weeks before admission. There was distinct hollowing above the patella and a hard bony projection was easily felt behind and to the inner side of the hamstring tendons. There was very little effusion into the knee joint. The chief interest in the case was from the point of view of treatment. Should replacement of the epiphysis by manipulation be attempted? Was open operation advisable, and, if so, what method of approach would give the easiest access? Should the condition be left and osteotomy be performed at a later date? Mr ALEXANDER MITCHELL thought that an open operation was indicated, in his experience it had given excellent results. Dr GEORGE SWAPP demonstrated a case of malignant ulceration of the breast of long standing. Healing of the ulcer had occurred with x-ray therapy and the application of brilliant green. Metastatic nodules had, however, appeared in the subcutaneous tissues of the chest. Dr Swapp also reported a case of acute ileocolitis where caecostomy had been necessary on account of acute abdominal distension and paralytic ileus. Recovery had been satisfactory and was, in Dr Swapp's opinion, due to the administration of intravenous hypertonic saline with anti-gangrene serum.

Rebels.

SURGERY OF THE STOMACH

PROFESSOR HARTMANN is known to all as one of the most distinguished surgeons that France has produced. He is a general surgeon in the present day acceptance of that term—that is, he is essentially an abdominal specialist with some leanings towards urology. It is impossible not to be impressed by the judicial nature of his writings. He looks back now over a career not easily matched in distinction and length; he sifts his great material and comes logically to the inevitable conclusions.

In the present volumes, the sixth and seventh of his series of surgical monographs,¹ he calls in the aid of his assistants, as on previous occasions. It will be remembered for example, that Okmezen, in the third volume of these *Traité de Chirurgie Anatomique-clinique*, contributed his memorable work on the surgery of the colon, without, however, studying closely its lymphatic drainage. The omission was shortly afterwards made good, happily in this country, by Jamieson and Dobson, and the two papers have done much to direct the course which colonic surgery has taken since. In the present volumes Professor Hartmann's assistants again fill in gaps by contributing special studies. They have provided, for example, chapters on gastroscopy, on experimental pyloric stenosis, on valvulus of the stomach, on duodenal compression and occlusion, and on duodenal anomalies. Some of these sections are very good indeed and a joint paper on the chemistry of the stomach after operation is instructive.

Hartmann's own contributions are concerned chiefly with ulcer and cancer of the stomach and duodenum, with important chapters on perforation of simple ulcers and malignant growths, jejunal ulceration, the non-malignant growths of the stomach, and the results of various operations. It is because he has followed his cases so well that his work is so important. He is impressed by the sclerosing gastritis which spreads wide from the crater of the chronic gastric ulcer. He is one of those who believe that this is not a mere secondary defensive fibroblastic proliferation, but an essential part of the disease, which he would prefer to call "gastritis sclero-ulcéreuse." The disappearance of the muscle bundles is the outstanding histological feature, as is now widely recognized—an important fact in the solution of the problem of ulcer-cancer. As for the malignant ulcer, Hartmann thinks that it is uncommon and is generally an ulcer malignant from the outset and not a transmutation. He compares it with the rodent ulcer of the skin. Hartmann remarks that Parisian surgery seems to have accepted the "cancerisation de l'ulcère" as a process so natural as to be indisputable; his own figures are strongly against such a view. In an analysis of 201 ulcers of the lesser curvature he gives the results of the various surgical methods which he has employed. Of seventy gastro-enterostomy patients, two afterwards died of cancer. These two were aged 51 and 57 respectively, with a two-year history of dyspepsia. The one died fifteen months after gastro-enterostomy, the other five years later. Both of these cases he thinks were malignant from the start. Resection of the ulcer as a routine does not necessarily save the patient from death later if the ulcer is really malignant, for in forty-four gastrectomies the ulcer turned out to be malignant on section three times, and all these patients died later. For hour-glass stomach he has done a variety of operations, and remarks that these cases never become malignant. In thirty-three cases he resected the lesser curvature by his own method. He had, he admits, gradually come to assume that removal of the ulcer gave better life results than gastro-enterostomy, but looking over the cases now he finds that this was not really so. One of the surprises of his review of his cases has been this fact. Peptic ulcer of the jejunum he finds much more often in males of his six personal observations there were five men and one woman. This number is small perhaps all

of us are only just beginning to realize how much commoner this complication is than we have believed in the past.

Reading through the synopsis of the after-histories of Hartmann's gastro-enterostomies we may now and again find suggestive symptoms the correct interpretation of which is open to comment. These symptoms in many cases eventually subsided, and it seems to be fairly certain that secondary ulceration may finally be recovered from without the complications which at times overtake others. It is heartening to find that in a series of 100 gastrectomies for cancer of the stomach 30 per cent of the patients were alive three years and more after the operation. Seventeen were alive five years and more later, and seven ten years and more up to twenty-one years.

Such careful work as will be found in these volumes needs no special recommendation to the reader, for all who take their work seriously will turn to them naturally.

CUSHNY'S "PHARMACOLOGY"

We are glad to learn that the late Professor CUSHNY'S *Text Book of Pharmacology and Therapeutics*² is being continued, and we welcome the ninth edition that has been prepared by Professors JAMIESON and GUNN. The production of this textbook was one of the outstanding services rendered to medical science by the author. He devoted much time to the revision of its numerous editions, and maintained a standard of critical accuracy that was exceptional even amongst first-class textbooks. His book, therefore, was a standard work of quite exceptional authority, and it is fortunate that the task of maintaining this high standard has fallen into such competent hands.

The editors have divided the book into sections, and each has revised about half the book. As was natural when dealing with a work of such excellence, the editors have made as few changes as possible, and the general form and scope of the volume have not been altered. The materia medica has been revised throughout to bring it into line with the tenth edition of the *United States Pharmacopoeia*. The new volume also includes notices of all the more important new drugs that have been introduced since 1924. Examples of such new substances are hexylresorcinol, carbon tetrachloride, ethylene, parathyroid extract, sulpharsphonamine, and triparanide. The chapters on endocrines have been largely rewritten, various improvements in arrangement have been effected, and the volume has been increased in size by about forty pages.

We feel grateful to the editors for having made no drastic changes in the well known volume that was an expression of the personality of its author. This book was written in 1899, and for a quarter of a century it was revised by Professor Cushny. The appearance of this new edition, the work of other hands, lends a sad significance to the last lines of the preface to the previous edition.

And here I cease to write but will not cease
To wish you live in health and die in peace
And let our Physicke rules that friendly read
God grant that Physicke you may never need

HUMAN HEREDITY

The substance of the book entitled *Observations on Human Heredity*³ earned for its author the Sir Charles Hastings Prize of the British Medical Association in 1927. Dr J. S. MANSON spent his prize money in printing this book. To win such a prize is no mean feat for a busy general practitioner to make such use of a prize is to demonstrate that the recipient is more than merely able and industrious—he is endowed with the qualities of generosity and sympathetic helpfulness. The prize was well awarded.

The family histories recorded were personally investigated by the author, they afford evidence that the hereditary constitution may not only yield a morbid diathesis, but also determine the actual location of defect and derangement. The part played by organic inheritance in the incidence of

¹ *Text Book of Pharmacology and Therapeutics*. By Arthur R. Cushny, M.D., LL.D., F.R.S. Ninth edition thoroughly revised by G. W. Edmunds, M.D., and J. A. Gunn, M.D., Sc.D. London J. & A. Churchill, 1928. (6 x 9 1/2 pp. x + 735 figures. 2s. 6d.)
² *Observations on Human Heredity*. By J. S. Manson, M.D., D.P.H. Manch. London H. K. Lewis and Co. Ltd. 1928. (Demy 8vo pp. x + 84. 19 figures. 8 plates. 6s. net.)

³ *Traité de Chirurgie Anatomique-clinique*. Sixième et Septième Series. *Chirurgie de l'Estomac et du Duodénum* (par A. M. Jamieson). *Chirurgie de l'Estomac et du Duodénum* (par H. K. Gunn). Paris: Masson et Cie. (Imp. Soc. Éditions). Sixième Serie. 115. 336. 115 figures. Septième Serie. pp. 350. 142 figures.)

in oplo-mis has been demonstrated by animal experiments, and there is much statistical data to suggest the occurrence of a familial incidence in man. Dr. Maunon records the history of a family in which a highly malignant sarcoma recurred in several generations, and always in the same situation. Other cases recorded include humeral cataract, spastic paraplegia with ataxia and mental defect, epicanthus and ptosis, deaf mutism, hereditary icterus, albumin, and several examples of digital malformations.

The last chapter is devoted to a discussion of the significance and mechanism of the hereditary element in disease. The conclusion is that "the study of human genetics should become part of the work of State medicine." There can be no doubt whatsoever that properly recorded pedigrees, supported by accurate post-mortem examinations would help enormously in diagnosis and prognosis. The danger of an over-enthusiastic interest in human genetics is that, having recognized that the hereditary constitution plays an exceedingly important part in the incidence and distribution of defects, one is tempted to advocate the eradication of disease through the eradication of defective germ plasma. Thus, though theoretically quite sound as a policy, it is impossible in practice. Humanity is loaded with hidden undesirable recessives, and the problem which cannot be solved by the application of genetic methods to mankind is the identification of the carrier.

Would that there were more general practitioners of medicine like the author of this book! We know so little about human heredity for the simple reason that the practitioners have known so little about the science of genetics. Material which would have provided most valuable knowledge concerning the mechanism of heredity and variation in man has been passed by unnoticed. This book, written by one general practitioner for his fellows, will benefit them not only intellectually, but also professionally.

THE CHILD IN PRIMITIVE SOCIETY

A reasonable scepticism is desirable in the ordinary reader of most books on folklore, anthropology, and pre-history. This is true, neither in greater nor less degree than the average, in respect of Dr. NATHAN MILLER's volume in the Library of Educational Psychology entitled *The Child in Primitive Society*.¹ Dr. Miller supplies the reader with a multitude of facts concerning many aspects of child life under savage or primitive conditions, but he is himself careful to warn his readers of the necessity for distinguishing between the objective facts and the views, opinions, rationalizations, and beliefs of primitive peoples as to the worth and meaning of these facts. It seems equally desirable to distinguish from the facts and from the primitive views and beliefs about them, the explanations given by modern writers about both, and such theories as are built upon these explanations. It is so easy to invent certain aspects of the past and to credit primitive man with a powerful and prolific imagination and an amazing gift of intuition or observational inference from the phenomena of nature of which there is but little real evidence in the average members of the under sections even of modern societies, with some six thousand years of civilization behind them. Contradictory explanations can, of course, often be given of the same belief—instances will easily be found in Dr. Miller's book—but it is unlikely that they can all be true of the same belief in the same society. The contradictions of some more generalized statements are equally disconcerting. It is said that the social forces in primitive society are as yet so scanty and poor and insignificant that the child does not gain much survival-value from them, and again, that they are impressed upon the child so definitely and strongly that it is almost impossible for him to escape them or continue to survive if he departs from them. Later it is stated that the suggestive social contacts and influences of modern life are so numerous with the civilized child, especially during his formal education, that he can scarcely escape being stereotyped in one mould, and again, that it is the absence of these same numerous influences which places the primi-

tive child at a disadvantage in regard to individual development and differentiation. From Dr. Nathan Miller's book, then, as with other books of a similar type, it is difficult to gather any consistent or practically valuable conclusion. Nevertheless, it is an interesting and very able study of the place of the child in the history of society. It is a singularly complete survey of its subject in logical order. It traces the gradual fashioning of the child's social existence by primitive forces, customs, and methods, many of which are shown to have survived in some degree as parts of our modern educational systems and it contains many incidental observations and suggestions which may well bear fruit in the minds of teachers, sociologists, and others who will be glad to read it.

SYMPTOMATOLOGY

When a book has been through a number of editions it may safely be assumed that not only does it supply a popular want, but that it fulfils that role adequately. Of such a select company is *The Use of Symptoms in the Diagnosis of Disease*, by Dr. HOBART AMORY HARE, the ninth edition of which has recently been published. It is not difficult to discern why such a treatise should prove so obviously acceptable, as the author explains that the book is written upon the plan which is actually followed in practice—namely, the building up of a diagnosis by grouping the symptoms. A very extensive index with many cross-references in itself often gives the clue to the diagnosis without the necessity of turning up the text. Not that there is the slightest suspicion of the cram book about this volume, or of any such catchpenny claims as diagnosis made easy. On the contrary, the why and the wherefore are described and discussed with sufficient breadth and clearness to be of real scientific help in arriving at the truth in any difficult and obscure case. The chapters are well written and the text bears the stamp of the experienced physician who is keen to restore once more the clinical worker to his proper position as one self-reliant and confident in his own powers of observation, and not dependent every time for a ready-made diagnosis from the laboratory, though at all times willing to profit by laboratory assistance, as every good physician must be. Dr. Hare gives some shrewd advice upon the management of the patient, and what is perhaps of still greater importance, the skilful handling of the relatives and friends. This edition of a popular book should prove as successful as its predecessors have been.

NOTES ON BOOKS

The Medical Directory for 1929² exceeds the size of its immediate predecessor by nearly fifty pages, this is largely due, no doubt, to the fact indicated in a table near the beginning, that the numbers of the medical profession have increased from 53,289 last year to 54,146 in the present edition. Small reductions occurred in Scotland, Ireland, and the Services, but these were more than balanced by a large increase in the Provinces and a smaller increase in London. The present addition of 857 names compares with 731 in the previous year. In each of the four preceding years the increase was over 1,200 reaching a peak in 1926, when it was 1,802. The general contents of the *Medical Directory* are arranged on the familiar lines. Dr. Fortescue Fox again contributes a description of the spas and climatic health resorts of Great Britain, Ireland, and New Zealand, this has been increased in length by a few pages, and is well illustrated. A section on marine health resorts includes a chart of the average sea temperatures during the summer months at certain places. This valuable book of reference (now in its eighth fifth edition) remains as indispensable as ever.

The monograph on genital glands, sexuality, and the central nervous system³ by Dr. OTTO KAUDERS, who is assistant in the psychiatric clinic of Vienna University, forms part of a series devoted to neurology, psychiatry, psychology, and allied subjects. The work is divided into six chapters, dealing

¹ *The Child in Primitive Society*. By Nathan Miller. Library of Educational Psychology. London. Kegan Paul, Trench, Trubner and Co. Ltd. 1928. (D.M.S. 8/6 pp. v + 307. 12s. 6d. net.)

² *The Use of Symptoms in the Diagnosis of Disease*. By Hobart Amory Hare, D.Sc. M.D. LL.D. Ninth edition thoroughly revised. London. H. Kimpton. 1928. (6 x 9½ pp. xli + 528. 12s. 4 plates. 4s. net.)
³ *Medizinische Sexualität und Zentralnervensystem*. Von Dr. Otto Kauders. Berlin. S. Karger. 1928. (Sup. 8vo. 8vo pp. 194. 6 figures. 3.10.83.)

respectively with the internal secretion of the genital glands, experimental sexual biology, relations between the function of the sexual glands and the sexual impulse, the clinical results of experimental sexual biology, the biological principles of the influence of the central nervous system on the genital function and sexual impulse, and the psychical structure of the sexual instinct. A voluminous bibliography is appended.

The *Transactions of the Ninth Quinquennial International Homoeopathic Congress*,¹ held in London last year, has been issued in two paper covered volumes. The first contains public addresses, correspondence and reports. The second (no fewer than 832 pages in length) gives the full text of original communications and discussions.

Dr C. ENDERLE has made an Italian translation of Economio's excellent book on the cell structure of the cerebral cortex of man, of which the French translation was reviewed in the *British Medical Journal* of October 6th (p. 616).

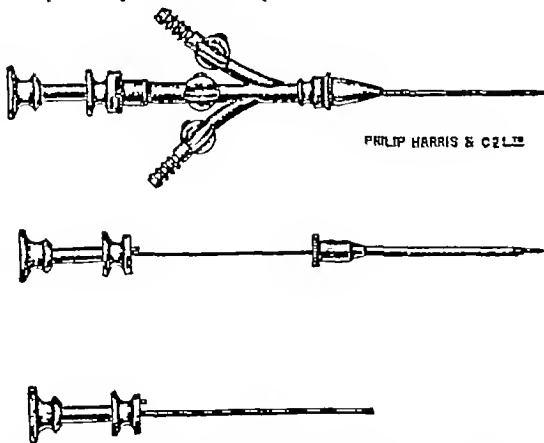
Transactions of the Ninth Quinquennial International Homoeopathic Congress. London: J. Bale, Sons, and Danielsson Ltd. 1928. (64 x 101 illustrated. 31s. 6d. net for the two volumes.)

* *La Citochimica della Corteccia Cerebrale Umana*. Da Costantino Economio. Edizione Italiana curata dal Dott. C. Enderle. Con prefazione del Professore G. Mingazzini. Bologna: L. Cappelli 1928. (Sup. cov. 8vo pp. 192. 61 figures. L. 30.)

PREPARATIONS AND APPLIANCES

A NEEDLE FOR USE IN GAS REPLACEMENT

Dr ALFRED G. CAMPBELL (Birmingham) describes a simplified technique of replacing pleural effusions with gas involving the use of a needle he has specially designed for the purpose. He writes: "The needle consists of a central stem about 2½ inches long, having a packing box in its upper end and terminating in a male screw end to which may be attached any size of hollow needle or cannula that one desires to use. From this two laterals branch off—one on either side and set at the most acute angle consistent with strength and efficiency to the central stem. Both the laterals and central stem are controlled by stopcocks. When a cannula is employed I have found it useful to have the top of the trocar made about 1½ inches longer than necessary and with a button end. This lies in the palm of the hand and gives the operator better control of the instrument when puncturing the chest wall. For this reason when a hollow needle is preferred I recommend a short plug in with a top similar to that of the trocar to be fitted into the upper part of the central stem. Once the pleura has been punctured it is advisable to withdraw the trocar or plug in completely and to close its stopcock. The lateral whose junction to the central stem is nearer the needle point is joined to the aspirator by means of a rubber tube.



the other lateral is joined by a rubber tube to the stem of a Y-shaped metal junction the branches both of which have stopcocks are connected by means of rubber tubing, the one to the gas bottle the other to the manometer. When performing the operation I have found it of great advantage to have the two laterals lying in a vertical plane the one carrying off the fluid being the lower. While the fluid is being withdrawn it is essential that the stopcocks controlling this channel should be the only ones open. Similarly when gas is needed to replace the fluid the stopcocks controlling this channel should be the only ones open and they should be opened only after the others have been closed. The operator can find out if the fluid has fallen to the level of the needle by closing all the stopcocks and then opening only those which control the way between the pleural cavity and manometer. When this fall has occurred the manometer responds in the usual way and a pleural pressure can be obtained. In brief there should be only one avenue communicating with the pleural cavity at any given time during the operation. The chief advantages of the instrument are that a replacement can be carried out by means of one needle and the operator has complete control over the parts leading to the aspirator gas bottle and manometer. The needle has been made for me by Messrs Philip Harris and Co. Birmingham.

PREVENTION OF CANINE DISTEMPER.

THE study of canine distemper initiated jointly five years ago by the Medical Research Council and the Field Distemper Fund is by no means completed, but Dr P. P. Laidlaw, F.R.S., and Mr G. W. Dunkin, M.R.C.V.S., the investigators, in a report issued on November 29th,¹ show that not only have considerable advances been made in our knowledge of the causes of this disease, but that it is now possible safely and effectively to protect dogs against its ravages.

Breeding Susceptible Stock

When the Scientific Committee of the Field Distemper Fund commenced its work there were two views of the pathogenesis of distemper demanding special investigation: one that it was due to infection by the *B. bronchisepticus*, isolated from the majority of distemper dogs by McGowan, the other, suggested by Caird, that the infecting agent was an ultra-microscopic filter-passing virus. Unfortunately, the early research workers never knew for certain whether the dogs used for their tests were actually susceptible to the disease, or whether they had at some time suffered from a mild attack of distemper, recovered, and become immune. This an experiment in which no typical result followed the inoculation of an alleged causative organism could be explained away by supposing that the animal was immune from the first, leaving only the successes to be considered. Moreover, the mode of spread was so little understood that it was difficult to guard against accidental infections during the course of crucial experiments. Dr Laidlaw and Mr Dunkin decided, therefore, that for accurate research it was important to breed experimental animals under conditions that would guarantee that they had never come in contact with distemper infection. In their report they describe how they bred dogs within a ring fence in the strictest isolation, how they removed the parents from the ring as soon as practicable, and did everything possible to prevent infection from gaining access to the susceptible stock. A ritual of disinfecting, bathing, and donning sterile clothing had to be performed by everyone entering the isolated compound in which the dogs were bred, and the number of persons allowed to enter was strictly controlled. A small hatchway was the only means of communication between the building containing the sterilizing room and a storehouse for food, and the interior of the compound, and, apart from the rodenticide oil ration, all food was boiled or autoclaved before being passed through the hatchway. In this way a clean stock of dogs has been maintained for four years without distemper appearing, a fact which may be taken to show that the disease does not arise spontaneously, but that probably all cases are due to transference of infection from one animal to another.

The Arrangements for Experiments with Dogs

In the investigation of such an infectious disease it was necessary to exclude all possibility of accidental infection occurring in the experimental animals. A fly-proof dog hospital was constructed, with arrangements for preventing the conveyance of infection from dog to dog by persons engaged in the experiments. Entrance to the hospital was possible only through a corridor, the floor of which contained constantly three inches of disinfectant solution, and special means were taken to sterilize the hands and clothing of persons entering the building or passing from cubicle to cubicle. By itself, however, this method of preventing accidental spread of infection to healthy controls proved inadequate, probably on account of air-borne infection from cubicle to cubicle. A series of kennels were therefore constructed around the laboratory buildings each surrounded by fencing and about fifteen or twenty yards from its nearest neighbour. In this way it proved possible to keep a susceptible dog for months in one kennel while experiments were carried on in adjacent kennels.

Experimental Distemper in Dogs

Notwithstanding the protean nature and variable severity of the symptoms of distemper, the experimental work has

¹ *The Field*, November 29th 1928, p. 655-658.

indicated that the disease is a single entity, a dog immune to one strain of virus being immune to strains from other sources. The variable symptoms are due in part to secondary infections, which are responsible for much of the sum total of the disease. Broncho pneumonia for example, is not an essential part of the distemper picture, but is due to the invasion of damaged lung tissue by a secondary organism. But under experimental conditions, in which the operation of secondary infecting agents is excluded, distemper develops in its simplest form and runs an uncomplicated course. Such experimental distemper is an acute infectious fever, characterized by an incubation period of four days, a corvina at the outset of the disease, a bi-phasic temperature curve, severe gastro-intestinal disturbance, inflammation of the respiratory tract, and occasionally by the development of encephalitis. It is a disease with a comparatively low mortality rate. The report gives no information as to the late results in the encephalitic cases, since whenever fits were observed the affected animal was destroyed.

Infection and its Spread

The experiments showed that distemper is infective in its first febrile phase, even before symptoms are manifest, that the nasal discharge and the blood are uniformly infective at first, though uncertainly so later and that airborne infection occurs over short distances in confined cases. It is clear that the isolation of infected animals at the earliest possible stage would probably do much to stop the spread of infection. Moreover, since it is exceedingly probable that the crowding together of dogs is responsible for the spread of fatal secondary infections, ample space for animals must be strongly recommended to dog owners.

Distemper in Ferrets

When the investigation was being planned it was deemed desirable to employ some animal other than the dog for certain phases of the work, and for various reasons Dr. Laidlaw and Mr. Dunkin selected the ferret. The ferret is exceedingly susceptible to infection and nearly always dies of the disease, it is therefore unusual to find a resistant animal in a hatch bought in the open market. Furthermore the ferret breeds rapidly and thrives in the rigorous confinement necessarily imposed on experimental animals and controls in the study of such an infectious disease as distemper. And finally owing to the rarity of mild cases of distemper in the ferret, it is a useful test animal in those cases where the diagnosis in dogs remains doubtful. It was found that ferrets which did recover from an attack of distemper proved to be immune to infection not only by the strain of virus which caused the original disease, but also to all other obtainable strains of distemper.

The Nature of the Infecting Agent

Quite early in the course of the experimental work it was clear that the weight of evidence was in favour of Caine's view that the infective agent was an ultramicroscopic organism. The disease can be transmitted to a healthy dog by injecting into it a minute amount of blood or tissue from a diseased animal yet in the great majority of cultural experiments the infecting blood and tissue proved to be sterile. Moreover, infective filtrates were secured when employing filters known to retain all visible bacteria. The data available indicate that the organism is of the same order of size as the organism causing pleuro-pneumonia of cattle. Every effort to secure cultures of the infecting agent has failed, and though efforts to this end are still being made, Dr. Laidlaw and Mr. Dunkin believe it is now doubtful if any satisfactory result can be achieved.

The Immunization of Ferrets

The first experiments in immunization were conducted on ferrets. It was considered probable that any method which proved successful in their case would also be applicable with minor modifications, to the dog. The difficulty was to prepare standard vaccines in the absence of a technique of artificial cultivation of the virus. Experiments showed however that at the height of the disease the spleen of distemper ferrets contained sufficient

infecting agent to make a vaccine which, though of variable and indefinite potency, was in practice effective. The method now adopted is to apply a patency test to a small quantity of filtrate from a 20 per cent suspension of distemper spleen pulp in saline, sufficient formaldehyde being added to the main bulk to yield a final concentration of 0.1 per cent. This formalized spleen suspension is tested for sterility, made non-irritant by the addition of enough ammonium to give a pH of 8.0 to 8.2, and used as a vaccine. It has been found that ferrets can be completely immunized to all strains of distemper virus by a subcutaneous injection of two cubic centimetres of vaccine, followed a fortnight later by an intradermal or subcutaneous injection of 1/4 c.c. of living virus—that is, of approximately 100 fatal doses for an unvaccinated animal. Vaccination with formalized material alone is inadequate to ensure solid and lasting immunity.

Immunization of Dogs

The use of ferret vaccine on dogs proved on the whole to be unsatisfactory. The amount of vaccine obtainable from a small animal like the ferret is not great, and more than a month was required to produce immunization. Efforts were therefore made to produce vaccine from the tissue of distemper dogs. While admitting that the conditions for the manufacture of vaccine of uniform quality were still inadequately defined, and that much has yet to be learned about the optimum time for the collection of the virus tissues to be worked up into a batch of vaccine, Dr. Laidlaw and Mr. Dunkin state that experience of a number of successes and failures makes it possible to form a good idea as to which tissues should be used for the preparation of vaccine in any given case. The results with a good batch of vaccine made from distemper dog tissue are most remarkable. A single dose of 5 c.c. of vaccine administered subcutaneously will induce such a degree of resistance in the recipient that a large dose of virulent virus injected after one week produces very little effect. Moreover, dogs which have been immunized by vaccines followed by living virus resist large doses not only of one strain, but of all strains of distemper. They may be placed in contact with acute cases of the naturally occurring disease and remain uninfected. The results seemed so good that work with privately owned hounds and dogs was undertaken, with uniformly good results. 325 couple of hounds belonging to fifteen different packs were treated, untreated hounds of the same stock and age running with the immunes, acting as controls. On several occasions distemper has broken out in the kennels and attacked the unvaccinated hounds, but none of the treated hounds have developed the disease.

Both for ferrets and for dogs the homologous vaccine has proved superior to the heterologous, a fact not without considerable theoretical interest. It may serve to prevent undue optimism regarding the use of complex vaccines of this kind under discussion. These may prove to be efficient with one species of animal, but it does not follow that they will be as efficient with other species.

The Future

The complete conquest of distemper is bound up with the successful cultivation of the virus apart from the living animal. Meanwhile it is desirable that the present vaccination method should be made as perfect as possible and as generally available as can be arranged. Quite recently a serum with valuable protective properties has been secured by the injection into the recovered animal of some millions of infective doses on one or more occasions. This serum may prove to be of practical value either in the treatment of disease or in the development of a technique of prophylactic serum virus inoculation. These two lines of investigation—virus cultivation and serum manufacture—have as their primary objective the benefit of the canine population. They may however, shed light on the general problems of acute infectious fevers, and show a way to their correct method of study and to their prevention and control in other animals and in man.

[Questions on this subject were asked in the House of Commons this week, as may be seen by turning to our Medical Notes in Parliament (p. 1118).]

British Medical Journal.

SATURDAY, DECEMBER 15TH, 1923.

BREAST-FEEDING

REFORM in medical thought and practice during the past thirty years is nowhere more plainly seen than in the supervision of childhood, infancy, and the pre-natal state, or, to take a specific instance, in the matter of infant feeding. At the beginning of the century little heed was paid, as a rule, to breast feeding. The slightest difficulty in carrying it out, or even opposition by the mother, resulted more often than not in a prompt resort to artificial feeding. It was the time of the vogue of prescriptions in percentages of protein, fat, and sugar, designed by their authors to suit the digestion and idiosyncrasy of each particular infant. Every now and then a solitary voice was heard in protest, but no leader arose to convince our world of its error, and the path that led to the study of natural feeding was found by one here and one there until the track became worn and clear to all. Now the criterion of success at an infant welfare centre is no longer the number and variety of substitutes for human milk doled out to the mothers, but the low percentage of failures to secure full breast feeding. The progress made during the past decade or so has been clearly indicated by an American observer, Dr F. H. Richardson of New York, whose words may be quoted again in these columns. There has been a steadily increasing tendency on the part of students of infant health and nutrition to concern themselves with some of the multifarious problems connected with the natural feeding of children, as compared with an earlier (and still altogether too prevalent) tendency to experiment with artificial methods of nourishing babies."

The most obvious reform in the ideals of medical practice arises from a general recognition that the chief purpose of Medicine is the preservation of normal function by the removal of disturbing causes, and with this has come a wider realization of the part played by mental stress and adverse social conditions in the production of disordered function and disease. A paper that appears elsewhere in this issue of the *British Medical Journal* not only provides an excellent illustration of these ideals, but by its concentration on the physiological aspect, on the removal of inhibitory factors, on the effect of social environment, and on the disordered function that may arise from psychological causes even in the nursing it shows how the ideals may be translated into everyday practice. Dr Pooler, in his 'Observations on breast feeding,' emphasizes certain points in the physiology of lactation that are of vital moment in practice, especially the value of suction by a healthy infant as a stimulus to adequate lactation, and the importance of securing complete emptying of the breast, with the corollary that additional feeding must tend to lessen secretion. He discusses the inhibitory effect of mental strain, and describes a case of difficulty with a 'neurotic' infant of the type made familiar to us by Dr H. C. Cameron in which an operation for pyloric stenosis was averted by entrusting for three months the services of a foster mother. The reluctance of the mother to hand her child over to a stranger to nurse recalls an incident recorded in *The Cloister and the Heart*!

Charles Reade tells us there how the infant, afterwards known as Erasmus, began to peak and pine when his mother, Margaret, torn with anxiety at the lack of news from her husband, was unable to provide enough milk from her breast. Margaret was as refractory as Dr Pooler's patient at the thought of handing her son over to a foster mother, until she realized that there was no alternative, but she could not bear to 'witness the intolerable sight of another nursing her Gerald, and Gerard drawing no distinction between this new mother and her, the banished one.'

Other common causes of failure are considered by Dr Pooler. Too frequent feeding, by producing loss of appetite and indigestion, results in weaker suction and less stimulation. This sequence is common in the screaming child that is fed irregularly in the hope of obtaining quiet. Another trouble arises when the mother's milk 'goes' after too brief a lying in time, probably due to worry and anxiety following the resumption of household duties, and to the less regular and more frequent feeding of the infant, particularly at night. Increased physical strain, especially if the extra food this calls for is not forthcoming, is mentioned by the author as a possible contributory cause, and underfeeding of the mother is taken up at some length in order to show that this has "some effect, not perhaps on the actual development of lactation, but certainly on its efficiency." So many factors may, however, come in to interfere with the progress of a breast fed child that it is difficult to disentangle from all the others the single factor of under-nourishment of the mother.

Dr Pooler's paper should make a special appeal to all who are engaged in general medical practice, not merely because he is himself one of them, though with special experience in child welfare, but because he presents the clinical aspects of a subject of prime importance in family practice with the intimate knowledge of one who knows the difficulties and how they may be met. His contribution strengthens the argument for the general practitioner taking a prominent place in the service of public child welfare centres.

THE PREVENTION OF DENTAL CARIES

MOST of our readers will be aware of the long series of researches that Mrs. Mellanby has conducted with the object of determining the influence of the anti-rachitic vitamin (vitamin D) on dentition. Ten years ago the Mellanbys noted that puppies in which rickets had been induced by deprivation of fat soluble vitamins showed very imperfect dentition. The teeth of such animals were small and irregular, and frequently discoloured, while histological examination showed that the development of both dentine and enamel was defective. Further research established the fact that this imperfect dentition in puppies was due to lack of the antirachitic factor (vitamin D). In a series of researches Mrs. Mellanby showed that it was possible to produce in dogs dentitions of almost any degree of imperfection desired, simply by varying the vitamin content of the diet. A comparison between the histological characters of these abnormal teeth produced by vitamin lack in dogs, and the structure generally accepted as normal for the human tooth, showed that there was a remarkable similarity between the two. This resemblance naturally suggested that a partial deficiency in vitamin D might be a cause for the dental imperfections that are almost universal in civilized communities. This conclusion was

supported by examination of the deciduous teeth of children. No fewer than 1,036 of such teeth were examined histologically. The general belief has been that the majority of deciduous teeth are normal, but Mrs Mellanby showed that by far the greater number of these present signs of defective development of dentine. Moreover, the teeth obtained from dental clinics were more defective than teeth from children of middle class families. This fact supported the view that defective dentition was due to a dietary deficient in fat soluble vitamins for one of the chief faults in the diet of the poorer classes is the inadequate supply of animal fats.

During recent years Mrs Mellanby has tried to obtain direct evidence as to the influence of vitamin D on the dentition of children. A general summary of her work has appeared in a recent number of *Physiological Reviews*,¹ and the paper written by her and Dr Lee Patterson published in our present issue at page 1079, contains an account of the most recent work on this subject. Previous work had shown that, when children were given cod liver oil, dental caries did not spread in their teeth as rapidly as it did in the teeth of control groups which did not receive the oil. Cod liver oil contains, however, the two fat soluble vitamins A and D, and recent work has indicated that vitamin A plays an important part in maintaining the resistance of the body against infection. This made it important to determine which of the two vitamins played the chief part in preventing caries in the human subject.

In the work reported in the *British Medical Journal* this week only one vitamin was administered—namely vitamin D in the form of irradiated ergosterol. The authors conclude that the addition of this vitamin has a definite effect in checking the initiation of new carious points and in diminishing the spread of old carious points. It may be objected that the number of children under observation was small, and the authors themselves draw attention to the difficulty in obtaining any quantitative measure of the spread of caries. The difficulty of obtaining conclusive evidence in such a problem is, indeed, obvious. Even those who do not accept Mrs Mellanby's results on children as conclusive proof must at least admit that her series of researches on dogs and children considered as a whole establish a very strong probability that the progress of dental caries is largely determined by deficiency of vitamin D in the diet. This alone must be looked upon as an achievement of great promise because it is the first suggestion of any effective means for preventing this complaint. The potential importance to public health of such a discovery can best be realized by considering the total amount of ill health in the community that is at present caused by dental caries.

PAINFUL SHOULDER

A discussion on this subject by the Orthopaedic Section of the Royal Society of Medicine on December 4th brought to the front a very important question. Mr George Perkins opened with an admirably clear exposition of certain forms of painful shoulder following injury, which, in his opinion, might be taken as outstanding types. Briefly stated these were (1) the all too common case of adhesions after sprain, curable by manipulative surgery, (2) a condition which the speaker called by the very doubtful name of "tendinitis," but which has been also described as

"subdeltoid bursitis," curable by incision, (3) a type due to osteoarthritis, which manipulative surgery was unable to relieve, but which generally yielded to heat in any form, graduated faradism of muscles, and sometimes ionization, and (4) a type which was due to a subacute arthritis, with the common symptoms of that affection. The usual local and general treatment for arthritis was more or less efficacious here as elsewhere. All these four varieties might occur after comparatively slight trauma, such as a fall from a few feet on to the shoulder or hand, but they might be disastrously crippling, especially to those who earned their bread by manual labour. The second type attributed by Codman to subdeltoid bursitis, was sometimes accompanied by excruciating pain comparable in severity to that of biliary colic. Its diagnosis was easy, because pain on movement was only felt through a small arc of abduction about the middle of the range. This symptom Mr Perkins explained by the supposition that the inflamed insertion of the tendon of the supraspinatus muscle was squeezed against the acromion during this phase of movement only. The symptoms disappeared in time, so that any prolonged treatment generally proved in cure. As so often happens in such debates, the subsequent speakers did not strictly adhere to the basis of discussion laid down by the opener. Mr McEneaney, indeed, criticized from a philological point of view the introduction of the word "tendinitis" and frankly confessed his inability to discuss the osteoarthritic variety of shoulder pain, because he did not know what was meant by osteoarthritis of the shoulder. Other speakers were inclined to follow their own predilections into the consideration of those conditions which had most interested them, so that Mr Perkins had no hard task in replying to his critics. All the speakers were, however, agreed as to the importance industrially of apparently slight injuries of the shoulder and of the generally unsatisfactory results of outpatient treatment. Dr Alexander Mercer, drawing on his wide experience as medical referee of a large insurance company, impressed the meeting greatly by the statement that of over eight hundred cases of minor injury of the shoulder referred to him, 45 per cent were admitted to be totally disabled temporarily and 11 per cent permanently. It must be remembered that, as Dr Mercer explained, these percentages belong, not to the whole number of cases primarily injured, but to the number of cases which did not recover at once, and were therefore referred to him. The general consensus of speakers strongly supported the opinion expressed by Mr Alan Todd some time ago, and repeated in this discussion, that all shoulder injuries, including dislocations, should be treated in the abducted position, in which the inner bag of the capsula of the joint is kept stretched and prevented from falling together in folds and becoming contracted, especially when it had been torn or bruised. His comparative figures of the duration of treatment by abduction and other methods were strikingly favourable to the former. It is clearly necessary that apparently slight injuries of the shoulder should be more seriously and thoroughly treated but the adequate provision of such treatment is impossible in the overtaxed wards of a general hospital. As in the case of the treatment of fractures, it is to the Poor Law hospitals that we must look for satisfactory treatment when their staffs have been made adequate in numbers and their equipment and the training of their personnel have been brought up to date. A big male adult whose arm is fixed in the "straphanger" position by a plaster splint is apt to be an awkward inmate of any household, and is an impossible denizen in a workman's cottage or flat. The "stitch-in-time" week spent as in-patient may save nine or more as an out-patient, and be an economy to all concerned.

HEALTH OF THE NAVY

THAT the Admiralty is making a praiseworthy effort to bring its medical statistical reports up to date is shown by the fact that the report for 1926¹ has appeared less than a year after that for 1925. We still think that the first part of these reports might be considerably reduced in bulk, since it mainly gives in words what is later found in statistical tables. A brief commentary on the several diseases and injuries would be more useful, and certainly more interesting, than the present repetition of figures. The report for 1926 deals with a total strength of 90,650, representing an increase of 700, and the rate of admission was 459.86 per 1,000, a decrease of 4.92 as compared with the previous year. The average number of men sick daily was 20.45 per 1,000, a decrease of 1, the death rate was 3.18 per 1,000, an increase of 0.36, and the number finally invalided, 1,643, a ratio of 18.12, shows an increase of 2.43. As in previous years, the chief causes of admission to the sick list were injuries (6,967 cases), catarrh (5,636), gonorrhoea (3,975), and tonsillitis (2,959). Over 21,000 vaccinations against small-pox were carried out, and only one case of small-pox, on the China Station, is reported, the man had been successfully revaccinated four years previously. Influenza was of a mild type, and there were no deaths from it. There were decreases in the incidence of pneumococcal infections and rheumatic fever. One case of cholera occurred on the China Station, and was successfully treated with Tomb's essential oil mixture. The cases of tuberculosis, also showing a decrease in 1926, are now divided into two classes—pulmonary and non-pulmonary. The Africa Station shows the highest rate and the East Indies Station the lowest, but nothing can be deduced from this fact because of the small numbers on these foreign stations, last year the East Indies Station showed the highest rate. The ratings mostly affected were writers, marines, cooks, and supply staff—an entirely different incidence compared with 1925, but still pointing to the susceptibility of those working between decks. A new feature is the tabulation of cases of pulmonary tuberculosis according to the type of ship or establishment in which they occurred, and also according to age, and it is probable that useful information will in time be derived from the former table. Venereal diseases again show a decrease, the anti-venereal pocket outfit now consists of calomel cream and mercurio iodido soap. Diseases of the respiratory and digestive systems show a decline. General injuries account for 279 cases, with 2 invalidings and 120 deaths, of which 84 were occasioned through the loss of H. M. S. *Valerian*. Local injuries also show a decrease. Twenty-eight cases of wounds in action, with 7 deaths, are recorded, 25 of these occurred during troubled conditions in China. There were 12 cases of suicide and 34 of alcoholism. Dental work in the navy continues to be performed with very satisfactory results. The total number of deaths in the navy was 289, the chief causes being suffocation by drowning (104), injuries (36), and diseases of the intestines (15). The chief causes of invaliding were diseases of the eye (370), diseases of the ear (242), tuberculosis (195), deformities of limbs (84), injuries (83), diseases of the heart (78), and neurasthenia (70). Only 43 men were invalided on account of venereal diseases. An interesting table comparing the health of the two training establishments for boys, *Impregnable* (hulk) and *Ganges* (shore building), shows that in the former there was less infectious disease, less rheumatism, and less digestive trouble, but more pneumonia and more respiratory disease in general. The incidence of tuberculosis was, however, approximately the same in both.

¹ Statistical Report of the Health of the Navy for the Year 1926. London: H.M. Stationery Office, 1928. 4s. 6d. net.

HERBALS IN ANTIQUITY

As is his wont, Dr Charles Singer has contributed a most instructive and beautifully illustrated article in dealing with "The herbal in antiquity and its transmission to later ages." It begins with the iconoclastic statement that most herbals are devoid of any rational basis, and that their authors, being incapable of treating evidence on scientific lines, make a direct attack on disease without any "nonsense about theories," the aim of such treatment being exclusively *practical*—"a vague and foolish word with which, from the days of Plato to our own, men have sought to conceal from themselves and from others their destitution of anything in the nature of general ideas." Discussing the relation of herbals to pharmacopoeias, Dr Singer points out that originally the latter word meant a drug compendium, and not a drug list, the modern usage in England dating from the seventeenth century. Professor Ralph Stockman, however, writing thirty years ago on "The literary sources of our pharmacopoeia,"² stated that the word first appears in 1561, when it occurs twice—in the *Compendium Pharmacopoeae Joannis Placotomi*, Lyons, 1561, and in Anutius Foesius's *Pharmacopoea medicamentorum omnium, quae hodie in officinis exstant*, etc., Basel, 1561. But Dr Singer's subject is herbals in early times, and he passes in review the earliest Greek herbal known, that of Diokles of Karystos (circa 350 B.C.), that of Theophrastus (circa 372-287 B.C.), Herophilus of Alexandria (300 B.C.), Nikander (200 B.C.), Krates the rhizotomist, who was both physician to Mithridates VI Eupator (120-63 B.C.), poisoner and compounder of antidotes. Krates (circa 75 B.C.) was the first to illustrate his herbals, and thus exerted great influence, not only on the development of the herbal, but also on the course of scientific botany. "The most influential herbal ever written" is that of the army surgeon Pedanios Dioskurides of Anazarba (circa A.D. 50), which, like those of Galen and Oribasius (A.D. 400), was subsequently translated from the Greek into Latin. Of the numerous manuscripts derived from the herbal of Dioskurides, the earliest and most notable is the *Juhana Amica*, about which Dr Singer gives much scholarly information. The Johnson papyrus, discovered in Egypt in 1904, and probably dating back to the fourth century, was derived from the same or a similar Greek original as the herbal commonly ascribed to Apuleius Platonius, which is the most important of the Latin series. There are many manuscripts of the Apuleian herbal, and their influence, as shown by the illustrations, can be traced through Anglo-Saxon productions into modern times.

DISEASES OF THE JEWS

In delivering the first series of the William Sydney Thayer and Susan Read Thayer Lectures in clinical medicine³ at the Johns Hopkins Hospital last summer, Sir Humphry Rolleston dealt in his first lecture with the hereditary factor in some diseases of the haemopoietic system. In the second lecture he continued his examination of heredity by describing some diseases to which the Jewish race is especially susceptible. Some of these diseases, such as amaurotic familial idiocy and thrombo-angitis obliterans, are chiefly seen in, though not absolutely confined to, Jews, they appear later in life and less severely in Gentiles, thus suggesting that the inborn tendency is more powerful in those with a Hebrew heritage. In other diseases, such as obesity and diabetes mellitus, the influence of heredity is masked by other possible factors. Thus it has been suggested that there is a form of obesity which is due to

¹ Singer C. *Journal Hellenic Studies* xlvii.

² Stockman R. *British Medical Journal* 1898 ii, 627.

³ Reprinted from the *Bulletin of the Johns Hopkins Hospital* Baltimore 1928 vol. xliii, pp. 61-69, 117-133.

familial tendencies, in which diabetes is not likely to supervene, but that diabetes is prone to occur in cases of obesity due to excessive and unsuitable food or to endocrine disorder. The lecturer recalled that Joslin has stated emphatically that a Jew becomes diabetic, not in virtue of his race, but because he is a fat Jew. At the same time, Joslin's statistics lend some support to the hereditary or familial factor in diabetes in Jews. Whether the frequency of obesity, and so of diabetes, in the Hebrew race is entirely acquired and due to wealth and luxury, or whether it is, in part at least, hereditary and constitutional, is still a matter of doubt. Acromegaly has been thought to be more common in Jews, but in this case the observation itself seems open to doubt, although Sir Humphry Rolleston is under the impression that there is a decided tendency to some excess of anterior lobe pituitarism in the Jewish race. At the end of the lecture brief reference was made to malignant disease, tuberculosis, and alcoholism in Jews. It was noted that uterine cancer, especially of the cervix, was rare in Jewesses, though malignant growths in other regions were as frequent as in Gentiles, perhaps more so. The comparative resistance of Jews to tuberculosis has been ascribed to acquired racial immunity, to more careful inspection of food, to greater sobriety, to comparative freedom from syphilis, and to care of the children. In the opinion of the lecturer the sobriety of the Jews, and the resulting freedom from alcoholic diseases, did not depend on an inborn trait, but were the result of moral and social influences. Abstemiousness is, however, said to be a noticeable trait among Jews who are not subject to the moral and social influences of their race and religion. The general impressions to be gathered from the lecture are that there is still much observation and statistical investigation to be made in those diseases to which the Jewish race is susceptible, and that medical nomenclature is becoming burdened with some horrible expressions, such as the Laurence-Moon-Biedl syndrome and lipid-celled spleno-hepato-megaly. Perhaps, however, such names may help to deter the careless from excess, and heavy smokers, especially of cigarettes, may take warning that their habit, particularly if they are Jews, may make them victims of thrombo-angitis obliterans.

THE ABC OF HOSPITAL ACCOUNTING

MEMBERS of boards of management and of the administrative staffs of hospitals in all parts of Great Britain owe a debt of gratitude to the King Edward's Hospital Fund for London for the light thrown by various publications of the Fund upon problems which are their particular concern. An account was given in the *Journal* of October 27th (p. 771) of the annual statistical report of the Fund's Hospital Economy Committee, which presents not only a general survey of the financial position of the London hospitals, but detailed analyses of their income and expenditure, affording valuable material for the enlightenment of those engaged in "making ends meet." The prerequisite of the report is, of course, the employment by all the institutions concerned of the Fund's "Revised Uniform System of Hospital Accounts"—a title which is self-explanatory. This system is in use, as recommended by the Voluntary Hospitals Commission, in many hospitals outside London. It has been recognized, however, that the adoption of the full system may be impracticable in the smaller hospitals, and the Fund has therefore now published, in pamphlet form, *Accounts for Small Hospitals*, containing an explanation of a simplified form of the "Revised System." It has been prepared by a subcommittee under the chairmanship of Sir Basil Mayhew, and gives with the utmost clarity a concise summary of the basic methods of hospital accounting, with

a reasoned statement of the case for uniformity of practice. The intention has been, in particular, to meet the needs of honorary officials engaged in hospital administration without clerical assistance who have neither the time to study the details of the "Revised Uniform System" nor the knowledge of accountancy necessary to profit thereby. To such persons, and to those also who may have a specialized knowledge of accounts, but who are at present employing systems not based on any accepted model, the Fund's pamphlet should prove invaluable. It may be commended, further, to those who are interested in any way in the hospitals, and who desire to gain a knowledge of finance sufficient to enable them to read accounts intelligently and to appreciate the problems associated with management. The general adoption of this system would, it is clear, facilitate accurate comparison between one institution and another, and make it possible to secure exact statistics for the hospital work of the country as a whole. The pamphlet may be obtained from the offices of the King Edward's Fund, 7, Wallbrook 1 C 4, price 2s. 2d. post free.

ERNST BRÜCKE

THE names of men famous in the history of medicine are too often regarded as mere labels marking successive steps in the progress of the science, while the discoverer in his human aspect, and as something more than a mere instrument of discovery or piece of laboratory apparatus, falls into the background. Much is to be learnt, however, from a study of the character and mentality of those to whom science is indebted for its progress. Numerous instances could be given of important discoveries made through the observation of simple, uncomplicated facts, involving, as it would appear, no special mental qualifications, and depending, apparently, on the discoverer's manner of outlook on things and his mental habits and interests generally. The study of these characteristics should prove as profitable as an impersonal study of the principles of research. Accounts of the private life of famous men, such as that of Brücke¹ recently published by his grandson, are therefore welcome. Brücke lived in the days when specialization was hardly known, although essentially a physiologist, the diversity of his interests was remarkable even in those days, and he may almost be regarded as a reflex of the encyclopaedists of the eighteenth century. Yet the diverse subjects on which he worked were, as his biography shows, connected by simple and natural links. His early interest in optics he probably gained from his friend Helmholtz, leading to researches on the tapetum of the vertebrate eye and the action of the ciliary muscle; he subsequently studied the absorption of various rays by the transparent media of the eye, and the phenomena of colour sensation. Investigation followed on the colours of opaque media and on the colour changes in chameleons and cephalopods; this naturally led to the examination of pigment cells, of the mechanism of movements in plants, and of muscular contraction, especially in reference to the influence of the duration of the stimulus. His studies of cells inspired him to elaborate a new scheme of cellular structure in opposition to the prevailing scheme of Schwann, while his interest in colour was extended even into industrial matters, and he laid down the principles of colour combination for the guidance of workers in fabrics. It was but a short step from colour to artistic form, and one of the last of his researches was the enunciation of the underlying principles of the beautiful in art. Brücke was, withal, a man of sound common sense, and peaceable in his relations with all his colleagues save Hyrtl, his advice was sought and valued in collegiate and municipal affairs.

¹ Ernst Brücke. Von E. Th. Brücke. Wien J. Springer 1928. (64 x 84 pp. 196 1 portrait. R. 3760 J)

LEAGUE OF NATIONS HEALTH COMMITTEE

Among the matters to be considered by the Council of the League of Nations at its meeting at Lugano, which opened this week, is the report on the last session of the Health Committee. A summary of the agenda for this session was published in the *Journal* of October 27th (p. 761) from which it will be seen that the Committee's deliberations covered a very wide field. Reports were received from various commissions and conferences, including those engaged in inquiries relating to infant mortality, malaria, and B.C.G., to which frequent reference has already been made in these columns. The Health Committee endorsed the view of the commission on small-pox and vaccination that the occurrence of cases of post-vaccinal encephalitis is so rare that "they afford no reason to contemplate any restriction of the use of vaccination, which remains the most powerful weapon against small-pox." It appeared to the commission that the occurrence of this complication did not depend upon the use of any particular method of vaccination or of any particular vaccine. The cancer commission reported that an exhaustive inquiry into the methods and efficacy of the radiological treatment of cancer of the cervix of the uterus is being carried out at the Fondation Curie in Paris, the Universitäts-Frauenklinik in Munich, and the Radiumhemmet in Stockholm. It is expected that the report will be ready early next year. The Italian members of the commission are making a study of the relationship between cancer and the bodily constitution, and an inquiry into occupational cancer is being undertaken in conjunction with the International Labour Office. Arrangements for the prosecution of research into the problems of leprosy are in progress, and in this connection, as in other fields of effort, close relations have been established between the League Health Organization and the health services of Latin America. The Committee has approved the programme of interchanges and study tours for public health officials for 1929, interchanges will relate to rural hygiene, the study of sanitary engineering, certain aspects of housing, industrial hygiene, and milk supply. Other matters dealt with by the Committee included the organization of epidemiological intelligence, which is making satisfactory progress, the application of the Geneva Opium Convention, inquiries into the serodiagnosis of syphilis, and education in hygiene and preventive medicine. The general lines of work for 1929 for the Health Organization were defined.

SILICOSIS

The Home Secretary has appointed a committee to advise as to the medical arrangements which could be made for the diagnosis of silicosis (including silicosis accompanied by tuberculosis) in cases of claims arising under the Workmen's Compensation Act, and for carrying out any periodic or other medical examinations of workers which may be prescribed for any industry or process involving risk of silicosis under the Factory and Workshop Act, 1901, or any other enactment. The members of the committee are Mr. J. C. Bridge, F.R.C.S. (chairman), Dr. F. J. H. Contts, C.B., and Professor Arthur Hall, M.D., F.R.C.P. The secretary of the committee is Mr. E. Field, of the Home Office, to whom all communications on the subject should be addressed.

We regret to announce the death, on December 8th, at the age of 73, of Sir John Phillips, M.D., F.R.C.P., honorary physician to the Queen and consulting physician to King's College Hospital.

Owing to the Christmas holidays our issue dated December 22nd will go to press on Tuesday, December 18th, and that dated December 29th on Monday, December 24th.

THE KING'S ILLNESS

ANOTHER week of tense anxiety has gone by since we were able to publish an authoritative review of the course of His Majesty's illness up to the evening of Wednesday, December 5th. The medical bulletins posted twice or three daily at Buckingham Palace have kept the public informed, with most commendable frankness, regarding the local signs in the chest, the general symptoms, and the patient's reaction to the strain of a very severe and exhausting infection.

We need not recapitulate here the bulletins, which have been published in every daily newspaper, displayed at post offices, and broadcast by wireless. They have recorded the fluctuations of an extremely virulent malady which would have taxed the strength of a man of powerful physique in early life. The following statement, which has been authorized for communication to the medical profession, gives an account of the situation up to 3 o'clock on the afternoon of Wednesday, December 12th. The operation of drainage referred to in the second paragraph of this statement was performed by Sir Hugh Rigby shortly after 7 o'clock that evening under general anaesthesia.

"To make clear the nature of this long and exhausting illness, it is necessary to state that a general blood infection and toxæmia were in the first two weeks prominent features and caused at one time grave anxiety. Moreover, the case has not presented the characteristics of a typical pleuro-pneumonia. Seven days ago the evidences of general infection had become less prominent and the blood cultures were sterile, though all medical men will know that sterility of blood cultures is not conclusive evidence that general infection has ceased.

"During the last five days the temperature has again risen to a higher level, yet the pneumonic and pleural signs became at the same time less marked and neither pleural puncture nor study of new and excellent radiograms disclosed any appreciable effusion. Seeing, however, that the original pleurisy had involved the diaphragm, a careful watch has been kept for the formation of fluid between the lung and the diaphragm and its extension to the posterior pulmonary surface. This morning there were signs of this development accompanied by an increased leucocytosis. By exploratory puncture at the extreme right posterior base purulent fluid was obtained which contains organisms morphologically resembling those previously found in the blood stream. Drainage will now be performed. Though this pleural localization of the infection, so anxiously anticipated and looked for, makes the direction of advance more defined and hopeful, there is still in prospect a long and difficult struggle."

The anaesthetic was administered by Dr. Francis Shipway, and within an hour of the successful completion of the operation a bulletin was issued announcing the result. On Thursday morning it was announced that the King had had some sleep during the night, and that the local condition was satisfactory. Though the weakness and toxæmia were considerable, the pulse was steady and His Majesty was not losing ground.

At its meeting on December 12th the Council of the British Medical Association, before proceeding to business, adopted a resolution, proposed from the chair, expressing in loyal terms the deep sympathy of all the members of the Association with their Patron the King and the Royal Family, and their earnest hope for His Majesty's early and complete recovery.

Scotland.

Gifts to Edinburgh University

INTIMATION has been received by the Court of the University of Edinburgh of two substantial gifts for the endowment of a department of surgery. Of the total of £15,000, £10,000 has been given by the Rockefeller Foundation and £5,000 by Mr. Thomas Conan of Leith.

Gynaecologist to the Edinburgh Royal Infirmary

At a meeting of the managers of the Royal Infirmary on December 3rd, intimation was received of the retirement of Dr. William Fordyce, who was appointed assistant gynaecologist in 1906 and gynaecologist in 1921, and who now retires under the age limit. The managers, in recognition of his valuable services to the Infirmary, invited him to accept the position of consulting gynaecologist to the Infirmary, and minutely then appreciation of his work. Dr. James Young, as assistant gynaecologist, now becomes gynaecologist in charge of a ward, and Dr. Ernest Charles Lohm has been appointed assistant gynaecologist.

New Glasgow Professor

The Cairdner chair of physiological chemistry in the University of Glasgow has been filled by the appointment by the University Court of Professor Andrew Hunter of Toronto. The chair was recently rendered vacant by the promotion of Professor Cathart to the regius chair of physiology in succession to Professor D. Noel Paton. Professor Hunter graduated M.B., Ch.B. at Edinburgh University in 1901, and, after a period of postgraduate study at the Universities of Berlin and Heidelberg, was appointed assistant professor of biological chemistry at Cornell University, U.S.A., and later professor of biological chemistry in the University of Toronto. The new professor is expected to take up his duties at Glasgow early next year.

Notification of Chicken-pox

In view of the recent outbreaks of mild small-pox, the Scottish Board of Health has issued a circular under the Public Health (Chicken-pox) Amendment Regulations (Scotland), 1928, continuing the regulations previously in force, and making chicken-pox a notifiable disease for two years until December 31st, 1930.

Extension of Stobhill Hospital, Glasgow

Sir John Gilmour, M.P., Secretary of State for Scotland, on November 30th opened the new electro-medical department which has been erected by the Glasgow Parish Council at Stobhill Hospital. In declaring the new wing open, Sir John Gilmour said that a great hospital like that of Stobhill, which dealt with the poor of the country, was leading the way and pointing to what he hoped, in course of time, might take place in other parts of the country. He thought that whatever differences of opinion might exist with regard to detail in hospital administration it was only by some measure of centralization and pooling of resources that they could extend to all ranks and classes of the country the latest results of scientific treatment. The linking up of public authorities and private hospitals could, in his opinion, be effected for their mutual benefit, but he would be sorry if anything in that linking up were to lessen the interest of the private individual or stem the contribution of the private citizen. Stobhill Hospital, which is under the control of the Glasgow Parish Council, supervised by the Scottish Board of Health, is the largest hospital in Great Britain, having accommodation for 1,900 beds, with a staff of over 500. The new department which has just been opened has been built and equipped at a cost of £40,000, and provides accommodation for x-ray and sunlight treatment, massage rooms, operating theatres, and eye, ear, and dental departments. A new pathological department, mortuary, and chapel have also been added. The hospital was built twenty-six years ago, and during the war was used as a military hospital, where at one time over 3,000 patients were treated in the hospital and in temporary buildings in the grounds. It returned to the control of the parish council in 1920, and since then has been used not only for Poor Law cases, but also for the reception of contributing patients from various parts of Scotland.

England and Wales.

Birmingham Medical School Retirement of Mr. W. F. Haslam

A PRESENTATION of a silver tray and a cheque was recently made to Mr. Haslam on his retirement from active service in the Birmingham Medical School. Mr. Haslam held a succession of offices since his appointment to the staff of the General Hospital in 1882, and was dean of the Faculty of Medicine in the University of Birmingham from 1919 until his resignation in May last. The silver tray presented to him was inscribed as follows: "Presented (with a cheque) to William Frederick Haslam, M.B., F.R.C.S., by colleagues and friends in the University of Birmingham on his retirement from his office of Dean of the Faculty of Medicine, a token of affection and gratitude for valuable services to the Medical and Dental Schools and the University during a period of forty-six years, 1882-1928."

London School of Medicine for Women

The annual dinner of the London (Royal Free Hospital) School of Medicine for Women was held at the Savoy Hotel on December 6th, when Professor Winifred Cullis, D.Sc., presided over a very large and happy reunion. In proposing the toast of "The School and Hospital" Mr. John Buchan, M.P., recalled his experience in connexion with the concentration camps for women and children when he was a young man in South Africa with Lord Milner. He had learned there two lessons which he had never forgotten—one the unassessable value of the self-sacrificing work of doctors and nurses, who in six months turned what had been a lazaret-house into a health resort, and the other the equally unassessable value of the work of women for a women's committee, under Dame Millicent Fawcett, had helped to turn the tide. The Royal Free Hospital, which was about to celebrate its hundredth birthday, was one of the most progressive and best equipped in the land. The London School of Medicine for Women was only half the age of the hospital, but it also had taken rank among medical schools for high efficiency. It precluded the only two equities—namely, that based on competence. It had opened to women a way into a profession for which they were peculiarly fitted. Its history was a continual evolution of hard work, patience, optimism, and good sense. He hoped that when the school in its turn reached its centenary it would be able to look back even upon its present proud position as nothing more than the day of very small things. Professor Winifred Cullis, in responding, expressed gratitude for the generous donations which had made it possible for the hospital to provide further facilities, notably a dental institute, which would form the basis of a magnificent dental school for women. She noted with pride that a past student had contributed £10,000 towards a nurses' block, and she hoped that other old students would follow suit, in recognition of the fact that women would not be in their present position in medicine had not the Royal Free Hospital opened its doors to them fifty years ago. Another definite step forward was in the teaching of psychiatry, for which arrangements had been made with one of the large mental hospitals. Research work was also being undertaken in connexion with the treatment of cancer by radium. She went on to allude delicately to the exclusion of women students from some of the hospitals of London, a step which those at the London School of Medicine for Women greatly deplored, because it might be interpreted as a slur upon women and upon the way they had worked at the hospitals. In conclusion, she referred to the proposed inauguration of an Old Students' Association, through which it was hoped to be able to approach old students and obtain from them a definite and considered opinion on certain lines of policy. Lord Riddell proposed the health of "The Guests," naming many of them, and Miss Brock, the well-known educationist, and Major Ian Hay Beith, better known as "Ian Hay," responded to the toast. Lady Biscoe proposed the health of the chairman, saying that Professor Cullis was one of the forces making for international friendship because of the work she had done on the International Federation of University Women. Those who had worked with her in the

laboratories saw a more intimate side of her character, in her never-failing kindness and consideration for all with whom she came in contact. The chairman, in responding, paid a tribute to the two secretaries, Dr. Halden-Davis and Miss Widdows, whose excellent work had made the pleasant evening possible.

Metropolitan Asylums Board and the Local Government Bill

The Metropolitan Asylums Board, at a meeting on December 8th, received and adopted a report from the General Purposes Committee regarding the Local Government Bill now before Parliament. Under the bill, it will be remembered, the Board will cease to exist, and its functions will be transferred to the London County Council. The report refers to proposals to this effect which have been before the Board on three occasions in recent years, when it has consistently urged objections to them. On the last occasion, in May, 1926, the Board accepted the view that the London County Council would find it impracticable to undertake such an addition to its duties if it were intended that the existing close contact between the elected representatives of the people and the work to be transferred should be maintained. It was decided to inform the Minister of Health that the Board's experience had shown that the management of the central public health institutions of London was of sufficient importance and extent to justify the existence of a central body endowed with statutory powers on which the bodies dealing with local affairs in London should be adequately represented. The report then recalls that the Minister, in January, 1927, received a deputation from the Board, which laid before him in detail its views on his proposals, and that the Minister stated that these views would receive consideration, the next step was the issue, in July last, of the White Paper containing a forecast of the proposals contained in the bill. The Board adheres to the views previously expressed as to the transfer of its powers to the London County Council. Since its inauguration, it is pointed out, the Board has enlisted the services of a large number of men and women who have devoted themselves to the work of providing, maintaining, and extending where necessary the public hospitals required by London for infectious diseases and tuberculosis, mental hospitals, ambulance services, etc. Practically the whole of the debt of nearly £7,000,000 raised to meet capital expenditure has been paid off. The Board has now under its control some 25,000 hospital beds, and in times of pressure employs a staff of 10,000 persons. It is to be involved, the report proceeds in the changes through no shortcomings of its own; on the contrary, tribute has been paid by the Minister of Health and the London County Council to the efficiency of its organization. The members of the Committee finally express the view that the inclusion in the bill of proposals for the abolition of the Board may well be viewed by the people of London with regret, and that the Board should express to the Minister of Health its own regret that its representations have not succeeded in bringing about any modification in his proposals so far as they affect the Board.

Cost of Tuberculosis Treatment.

The Ministry of Health has issued a memorandum (122B/T) showing in tabular form under various headings the weekly cost for each patient at various residential institutions for the treatment of tuberculosis in England and Wales during the year ending March 31st, 1928. For the purpose of comparison the corresponding figures for the previous two years have been included where these are available. The tabular arrangement resembles that in former years, except that provision is made for classification of the cases more in accordance with the records prescribed in memorandum 37/T. It is hoped that the information thus provided will give substantial assistance to the authorities concerned in determining whether their own institutions are being conducted as economically as is compatible with efficiency. The importance of keeping beds filled is emphasized, and it is suggested that local authorities may well revive from time to time the question of staffing which has an important bearing on the cost. When all the beds in an institution are not required for patients from the area served it is advised that efforts be made to obtain patients from the authorities of other areas.

Correspondence.

THE FRACTURE CLINIC THE OTHER POINT OF VIEW

Sir,—Professor Hey Groves, in his presidential address to the British Orthopaedic Association (*British Medical Journal*, December 1st, p. 993), sets out very clearly the arguments in favour of improvement, both of our organization for the treatment of fractures and of the methods of teaching fracture technique in our teaching hospitals. Briefly, he advocates the formation in each of our larger hospitals of a special clinic in which cases of fracture shall be segregated under the charge of one surgeon, with a small, highly specialized team working under him. This was the method found so satisfactory and efficient in the latter years of the war, and the method which Sir Robert Jones advised in an address on the subject (*British Medical Journal*, May 16th, 1925).

No one acquainted with the facts will deny the necessity for the improvement in our present methods of treatment. Speaking generally, organization has lagged behind the necessities of the situation. Methods have changed little in the last quarter of a century, except here and there in the wards of an enthusiast. Thus, in spite of the fact that modern methods of transport have made the fracture problem more serious than ever it was, and may bring it at any moment literally to the door of any medical man.

A solution, similar in many ways to that suggested by Mr. Hey Groves, was set out by Sir Robert Jones three years ago. It has not found widespread acceptance, though obviously much thought must have been given to the subject. Mr. Hey Groves asks why this is so. "The reasons," he states, "must be of an obscure character, because they have never been put into plain words by those who deprecated any change." The matter is one which we have often discussed with our colleagues when reorganization of the surgical services at our hospital has been under consideration; furthermore, the views of some of those who deprecated such a change were well set out by Gask and other speakers at the discussion at Bath on the subject at the Association Meeting in 1925.

Admittedly such units would provide most efficient treatment for those who came under their care. The vast majority of fractures, however, throughout the country have to depend on treatment by members of the profession who have not had the opportunity of such specialization as work in one of the clinic teams would provide. The problem, so far as the treatment of the majority of fractures is concerned, therefore resolves itself into the question of the education of the average medical man. Would these units provide better teaching for the average student than some less drastic modification of our present methods? We think not. It is suggested that every student should spend two or three months working in the unit. This is good as far as it goes, but it must be remembered that for the majority of practitioners this would, if the system were generally adopted, be all the fracture experience they would get during the period they were students and residents.

Specialization in a teaching school is a double-edged weapon. Whilst it leads to greater efficiency in the few who actually run the department, the student who is taught in it is apt to lose interest in a subject which is labelled "special." Having acquired sufficient gleamings to enable him to pass his examinations he tends thereafter to regard such a subject as one to be dealt with by the "specialist" only. To divorce fracture surgery thus from the work of the greater body of practitioners would be disastrous.

We feel that every large hospital should have a department specially set aside for the treatment of fracture cases. This is a question of administrative efficiency, but we believe it is better to leave the cases in the department under the care of the general surgeons and their corresponding resident officers rather than to bring them under any one surgeon. Applying this method to the hospital in which we work it would mean that the four general surgical units would each have charge of fractures in the fracture department, and that in each unit at least two residents would

each year have that personal responsibility for the care of these cases that alone can educate and fit the practitioner to take charge of such cases after his hospital days are over. Such a department must have attached to it a senior resident or registrar to exercise general supervision, initiate the new house-surgeons into the work of the unit, and be responsible for out-patient fractures attending the clinic.

By a scheme such as this the hospital would have four surgeons and four assistant surgeons who are in daily contact with the fracture problem, and each year new residents would leave the school having had a thorough grounding in the principles and practice of fracture surgery. We do not think it would be an improvement to replace these by a small team of three specialists, working in the rarified atmosphere of a special department, whilst the students of the school passed into the world without the possibility of gaining a working knowledge of fractures after having passed their final examination. We are, etc.,

SPYAMOUR BARLING
6 PLINIAL MILLS

Birmingham Dec 9th

A PLAN FOR ABOLISHING ARTIFICIAL RESPIRATION FOR WHITE ASPHYXIA OF THE NEWBORN

SIR,—Much observation of the treatment of "white asphyxia" has convinced me that the accepted methods of treatment are on wrong lines, and are more likely to damage than assist the child's chances of recovery.

Let us recall the condition of the "white" baby, and its cause. It arises chiefly as the result of difficult forceps delivery or the too rapid moulding of the head in breech delivery, while sometimes it follows pressure due to abnormally strong pains, and occasionally the child is suffering from pure asphyxia after delivery, produced by premature placental separation or prolapse of the cord. But of all these causes the commonest is pressure on the head by difficult forceps delivery. Is the child really ill because it has been and is being deprived of oxygen? Is it actually suffering from asphyxia? The general appearance of the child is that of simple shock: pallid face, slow feeble heart beat, absent reflexes, toneless muscles, low blood pressure, and rapid cooling of the body are characteristic.

Now Holland, Palmer, Phillips, and others have shown that tears of the septa of the dura mater (chiefly the tentorium cerebelli), with a variable quantity of extravasated blood, are almost a constant feature of the *post mortem* examination. Even after death following breech delivery, where asphyxia is generally recognized as the danger, Holland found that of 16 dead fresh foetuses no fewer than 14 showed intracranial lesions. Tentorial tears and haematomata are gross injuries, and sufficient to cause shock apart from any coincident lack of oxygen.

It is probable that the devitalized baby requires little oxygen for at least fifteen minutes after birth. Those who have seen babies born after "twilight sleep," under the influence of morphine, must have been struck by the way in which the child will lie in its cot, quiet and pale, making little or no effort to breathe, while its pulse beats regularly and strongly, though perhaps slowly. But these babies always recover if labour has been normal. The shallow, infrequent, or absent respirations are an incident of the general state of shock. The child will breathe when the shock has lifted, but artificial expansion of the chest cannot be expected to assist shock. Indeed, can we imagine a worse treatment of shock than the violent movements, massage or squeezing of the chest, abdomen, and loins, which are often observed? During its birth the child has just suffered severe mechanical stress, and only too often artificial respiration is but a continuation of the stress. A further point often forgotten is that firm handling of the loins, often done in Byrd's method of respiration, is liable to damage the suprarenal capsules. At necropsy of the stillborn child this is found to be one of the commonest of all lesions.

In addition to the danger caused by the more violence of the movements of artificial respiration when performed unskillfully, it is an actual hindrance to natural spontaneous inspiration, when the child is making its first effort to breathe. We have all noticed that the early inspirations are made as spasmodic gasps just at the moment when the chest is being pressed upon by the downward movement of the ribs during Sylvester's method. The child tries to expand its chest at the very moment that it is being compressed. But perhaps even worse than Sylvester's or Byrd's method is that of direct mouth-to-mouth insufflation. Here nothing can happen but inflation of the stomach through the oesophagus. The diaphragm is pushed up and the heart still further embarrassed.

The spasmodic inspiratory gasp is of great value to the child, not only by the air intake, but also because of the stimulant action on the pulse, which immediately happens. A finger on the cord feels a great and sudden improvement in the strength of the pulse, coincident with the gasp and lasting for some seconds afterwards. But no such improvement is noticed when the chest movements are imitated artificially.

To sum up, the child is suffering primarily from shock, and not from deprivation of oxygen. Until the shock has passed no treatment is wanted but warmth, the head kept low, blandly dropped into the mouth—not for any reflex stimulation, which is impossible, but because some alcohol may be absorbed by the mucous membrane—and possibly some stimulant hypodermic, such as ether, camomile, or adreline. Professor McIlroy has shown that good results may follow the administration of carbon dioxide, a principle which is the very reverse of artificial respiration.

My contention is that in the aggregate more harm is done by attempting artificial respiration than by its complete abandonment. I believe that most examiners secretly agree with this teaching, but they all feel that their candidates should describe artificial respiration as an indispensable mode of treatment, while all lecturers and teachers equally feel that they must teach it in deference to the requirements of the forthcoming examinations.

Is it not time that the treatment of shock of the newborn should be reconsidered?—I am, etc.,

London Dec 4th

ALECK BOURNE, M.B., F.R.C.S.

THE DIAGNOSIS OF GASTRITIS

SIR,—The recent interesting correspondence on the relative value of x rays and fractional test meals in the diagnosis of gastritis merits more than passing notice. It raises the question whether practitioners are being led as much as is generally assumed regarding the use of modern methods of precision.

For my own part I agree with Dr Hurst in regarding the use of x rays as of very doubtful value in the diagnosis of gastritis, and in regard to the value of the fractional test meal my experience leads me to precisely the same conclusion. I am satisfied that the more closely we consider the results obtained from fractional test meals in different conditions the more we will be driven to the conclusion that their value has been materially overestimated. The fallacies in drawing deductions from the facts obtained have, it appears to me, received inadequate consideration.

In the past few months I have made an extensive series of observations on the action of a lactic milk preparation in various conditions, clinically accompanied and unaccompanied by disturbances of acid secretion. I have used as controls the ordinary gruel meal and sweet milk. The results of these observations confirm a part of Dr Molloy's conclusions, they also appear to show clearly that in his presentation of the subject Dr Hurst fails to cover the whole field of the problem. It must not be assumed that I do not believe in the value of the fractional test meal, but my experience leads me to enter what I believe to be a necessary word of caution as to the readiness with which current teaching is accepted as a reliable practical guide in diagnosis and treatment.—I am, etc.,

Edinburgh Dec 8th

CHALMERS WATSON, M.D.

¹ Holland. Report on the Causation of Foetal Death. Ministry of Health Report No. 7.

PAPULAR URTICARIA

SIR,—In his reply to my letter Dr Hallam (December 8th, p 1065) brings forward as additional evidence that papular urticaria is not influenced by dieting the fact that of 52 cases reported in the *British Journal of Dermatology* (March, 1927) 10 were in infants who were being breast-fed, and that weaning did not ameliorate the condition. But in the original paper Dr Hallam states apropos of these cases, "a child may become sensitized to a protein through its mother's milk," and quotes literature in support of this. Later in this paper he quotes the work of Sidlick and Knowles, who found that certain of their cases were cured on a restricted diet.

I do not wish in any way to disparage Dr Hallam's very valuable contributions to our knowledge of this disease, but I think he is going too far when he denies, as he now does, that foodstuffs can play any part in its production.—I am, etc,

Clifton Bristol Dec 8th NORMAN BURGESS, M A, M B,
MRCP

SIR,—The various forms of urticaria are due to a great variety of causes, many of which, in my opinion, are foods.

One of the worst cases I have ever seen was that of a lady who had eaten some mussels during luncheon at one of the large hotels. Other more chronic cases may be due to eating eggs, fish, or Brazil nuts. One of my patients, sensitive to apples, would develop urticaria if she stayed any length of time in an apple orchard. If she peeled an apple her hands would swell from the external contact with the fruit, this has also been noted many times in handling eggs and eggshells. Unfortunately the skin reactions are not so valuable or certain in these cases as they are in asthma. Schloss demonstrated this fact many years ago. A child could sometimes take an egg with impunity, and at other times the ingestion of an egg would cause urticaria. Schloss found that on these occasions the child would respond with an urticarial wheal to the application of egg as a dermal test, but not at other times. A patient of mine gave a reaction to all the legumens, and the urticaria disappeared entirely when these were avoided. Other patients are sensitive to animal hairs and feathers, which can be demonstrated with the skin reactions.

I was not aware that patients lost their urticaria so commonly on entering hospital. Many of the asthmatics gain the same freedom. I have always attributed this to leaving the cat, dog, feather-bed, or other proteins at home, and I have proved it in numbers of cases. I would suggest that if Dr Hallam wishes to make further investigations it might be worth his while to test the patient's reactions to a wider circle of proteins, possibly including a sample of dust from the patient's house. The full value of the dermal reactions has never been credited to them, nor is it likely to be, while some of the proteins on the market are so singularly inefficient.

In closing this letter and thanking Dr Hallam for his paper, may I also congratulate Drs Barber and Ortel on their biochemical investigations into these allergic phenomena?—I am, etc,

London W 1 Dec 10th

FRANK COKE

PROBLEMS IN GASTRIC SURGERY

SIR,—With reference to the article by Sir Berkeley Moynihan in your issue of December 8th (p 1021), which appears to be a collection of very contradictory statements, am I to understand that he accuses me of "faking" my x-ray results? It may be of interest to him to know that no case in which I have diagnosed a gastric ulcer that has come to operation has shown no ulcer present. In a few cases I have missed small ulcers which were present, and I lay no claim to infallibility, but I have yet to diagnose an ulcer which is not present.

With reference to the preparation of the stomach for the opaque meal examination, will Sir Berkeley, of his experience of x-ray examinations, state what he would recommend to be carried out? Of my own small experience, at the rate of some 1500 examinations a year in a big hospital department extending over seven years, I have found that the best results are obtained by examining the stomach at

the earliest possible moment, when empty, and before any palliative measures have been adopted.

Finally, I can assure Sir Berkeley Moynihan that quite a large number of apparently large ulcer craters do disappear, from an x-ray view, in the time stated. Perhaps if he will read Dr Barclay's interesting contribution in the same issue it may dawn on him why this is quite possible.—I am, etc,

GEORFFREY FIELDS, M B, Ch B,

X Ray Department St Thomas's
Hospital, Dec 10th

DNRE

ACHALASIA OF THE CARDIA SO-CALLED
CARDIOSPASM

SIR,—From a paper published in your issue of November 24th (p 932) it appears that Mr H H Greenwood, having operated last April upon a single case of so-called cardiospasm which has not yet relapsed, feels that he is in a position to regard my views as "inadmissible," though they are based on prolonged clinical investigation on at least twenty-five cases, supported by the pathological work of Mr G W Rake on nine specimens, as well as the clinical and pathological observations of many other observers. He is good enough to add that my views have "gained a certain amount of credence by a parrot-like repetition, unsupported by facts." He then makes the amazing assertion that the inflammation and degeneration of Auerbach's plexus found by Rake, and more recently by Cameron of Glasgow and Mosher of Boston, in every one of some fifteen specimens, can have nothing to do with the pathogenesis of the disease.

The relief following Walton's operation is of exactly the same nature as that following the use of Plummer's bag or the mercury tube, and is simply due to stretching, the effect of which is to produce a more favourable postural tone of the sphincter, as anyone familiar with Sherrington's work would realize. There is no question of curing this condition by any form of treatment. All that can be done is to reduce the resistance offered by the sphincter, as the changes in Auerbach's plexus are of a permanent character, the hypertrophy and dilatation of the oesophagus remaining unaltered, though the stagnation may be completely overcome.

If Mr Greenwood has the opportunity of examining a second case, he might find it interesting to pass a mercury tube before resorting to operation. He will discover that it meets with no resistance, and is not gripped when it passes the cardia, in marked contrast with the firm resistance felt by the finger and the grip exerted upon it by the anal sphincter in the presence of spasm.

Mr Greenwood would have been wise to visit a pathological museum or consult the extensive literature on the morbid anatomy of the condition before publishing his statement that the existence of hypertrophy of the muscular coat of the oesophagus remains a subject of contention. Obvious hypertrophy, quite as great as that of the colon in Hirschsprung's disease, is always present. Mr Greenwood states that the term "achalasia" implies a pathology similar to Hirschsprung's disease and hypertrophic stenosis of the pylorus; it is not my fault if the word has this peculiar effect upon him. Achalasia means absence of relaxation; the word was first applied by me in 1914 to the cardiac sphincter in cases of hypertrophied and dilated oesophagus. It was not until 1919 that I suggested that Hirschsprung's disease had a similar pathology, entirely distinct from that of hypertrophic stenosis of the pylorus, in which the hypertrophy of the sphincter is in striking contrast with the normal size or even atrophy of the cardiac and anal sphincters in other conditions. Hirschsprung's disease is probably acquired in early childhood, and is not congenital, and many cases of achalasia of the cardia have been observed in young children, there is nothing unusual in the age of onset in Mr Greenwood's case.

I shall still recommend the mercury tube with confidence, in spite of Mr Greenwood and his one "cure." Almost all patients are greatly relieved by its use, and the majority, after a varying period, are able to dispense with it entirely or only pass it at long intervals. The most difficult cases I have met with are those which have been treated by the

foreable dilatation used by Mr Greenwood, as this may lead to the gradual development of a fibrous stricture, the dilatation of which is painful, this is hardly surprising, as the violent pain felt by Mr Greenwood's patient for twenty-four hours after the operation shows how the tissues must have been damaged, in contrast with the slow and painless dilatation produced by a series of mercury tubes. A number of deaths have occurred after the use both of Plummer's bag and of foreable dilatation, but the mercury tube is entirely free from danger.

Before criticizing my "ingenious statements" Mr Greenwood should make an attempt to understand what he criticizes. It is easy to demonstrate that the oesophagus in this condition is permanently filled with a mixture of food and fluid, which forms a column about eight inches high. When food is eaten the resistance of the closed sphincter is overcome by the weight of the column, and its opening allows the excess to pass, it closes once more directly the column is again only eight inches high. The mercury tube acts solely by its weight, exactly like the column of food, but its weight is constant, whereas that of the column of food falls as its length diminishes, and one of less than eight inches is insufficiently heavy to keep the sphincter open.

Mr Greenwood finishes his paper with the conclusion that because the patient bolted his meals this must be 'the main factor responsible in all cases,' and yet he has the courage to write that it is "pure theory and extremely improbable" that the constant changes in Auerbach's plexus demonstrated by Rake have anything to do with the development of the disease!—I am, etc.,

New Lodge Clinic Windsor Forest Dec 1st ARTHUR F. HENST

Sir,—Mr H. H. Greenwood, in discussing the condition of achalasia, makes certain statements on the pathology of this condition which cannot pass unchallenged. He asserts that the term "achalasia" implies a condition analogous to that of congenital hypertrophic pyloric stenosis. Whatever views may formerly have been held on this point, there can be no doubt now that this condition is in no sense one of achalasia (absence of relaxation). The spasm is obvious clinically, there is hypertrophy of the sphincter such as is not observed in achalasia, and, finally, the nerve plexus is intact.

Passing now to cardiospasm itself, Mr Greenwood states that 'hypertrophy of the muscle forms no essential feature of cardiospasm.' But such a statement is entirely contrary to figures obtained from necropsy records, and perhaps I may be allowed to quote three of my own cases. The first was one of the early stage of the disease before secondary dilatation had occurred. In this case the measurements were

Just below the cricoid	4.0 cm
Middle of oesophagus	1.8 cm
Just above the cardia	2.4 cm

The cardiac sphincter was not hypertrophied. In a series of twenty normal oesophagi examined, the average for these measurements has been

Just below the cricoid	0.13 cm
Middle of oesophagus	0.25 cm
At the cardiac sphincter	0.3 cm

In two cases of typical long-standing achalasia (as yet unpublished), in spite of marked dilatation, the figures were

	CASE I	CASE II
Just below the cricoid	0.3 cm	0.4 cm
Middle of oesophagus	0.6 cm	0.8 cm
At the cardiac sphincter	0.3 cm	0.3 cm

(All these figures refer to total thickness of the wall.)

These are only three examples from a series of nine, all of which show similar findings. Comment is scarcely needed on these figures.

In Mr Greenwood's case spasm of the cardia was actually demonstrated at operation. He therefore claims, from this "pathology of the living," that spasm is a constant feature in the disease. It may, however, be pointed out that the findings with the mercury bougie are just as much the "pathology of the living" as are those findings with the

fingers, and it is the experience of the majority of users of the mercury bougie that there is no spasm commonly present at the cardia, this being shown by the absence of gripping of the instrument in any degree, by the sphincter. Recently I have pointed out that, until destruction of the plexus is complete, any oesophagitis or irritative lesion may be sufficient to excite the neurons to such an extent as to produce a spasm of the cardia, which is, however, in the majority of cases, only of short duration.

The points that Mr Greenwood raises about Auerbach's plexus are difficult to understand. He admits, apparently, that a destructive lesion may and does exist. He then proceeds to state that the presence of such a lesion is not germane to the question of cause. What, then, is his standpoint? Either that the lesion is not a primary one, or that a primary destruction of Auerbach's plexus will in no way affect the nervous mechanism at the cardia.

The first of these objections may be disposed of by reference to the first case quoted in this letter. It has been objected that the lesions in the plexus are secondary to the oesophagitis present in the chronic cases, but in this case there was no macroscopical or microscopical sign of any oesophagitis, and yet the lesion in the plexus was already advanced.

The second objection is even more easily dealt with. All physiological work, recent and remote, macroscopical and microscopical, has been to show that the vagus, stimulation of which relaxes the cardiac sphincter and causes contraction of the rest of the circular muscle of the oesophagus, has a cell station in Auerbach's plexus—that, in fact, all the ganglion cells in Auerbach's plexus are neurones on the vagal path. Destruction of these cells, such as Mr Greenwood apparently admits to occur, must then produce an absence of relaxation of the cardiac sphincter, and, occurring in man, produce the condition of achalasia—so-called cardiospasm. Kronecker and Meltzer over fifty years ago produced in rabbits, by division of the vagi, a condition exactly similar to achalasia in man.

The postulate that destruction of the plexus can occur without upset of function is thus clearly untenable. The action of the mercury bougie or any other form of dilatation of the sphincter is purely mechanical, and, in spite of Mr Greenwood's statement, its success in no way suggests an immediate recovery of the nerve lesions—I am, etc.,

GUY'S HOSPITAL S.E.1 Dec 4th

G. W. RAKE

SIMPLE PHLEBITIS AND EMBOLISM

Sir,—In the *British Medical Journal* of December 1st (p. 1010) Dr O. Hilton asks for the experience of others in cases of simple phlebitis. In upwards of forty-five years of active general practice I have seen many cases, but have never ventured outside the orthodox procedure of strict bed. The only instance of death I have encountered was in the case of a working woman. When I saw her she had marked phlebitis and much pain in the leg below the knee. This had been going on for some days, during which she had continued to carry out her household duties. I insisted on her going to bed at once. The next morning at 7 o'clock I was called to see her. Her husband informed me that she sat up in bed on waking and was talking to him, when she suddenly fell back dead. I have often quoted this case to patients who have been unwilling to carry out instructions—I am, etc.,

Lechlade Dec. 5th

GEORGE DE J. PATTERSON

Sir,—I have read with great interest Dr O. Hilton's letter. It has always seemed to me that the danger of thrombi of phlebitis getting loose and forming emboli has been much exaggerated. I am convinced that in a number of cases of traumatism, such deep-seated phlebitis with thrombi does arise, but is not diagnosed, and the cases improve with massage and mobilization. Moreover, I consider that, in the early stages of phlebitis, thrombi do not necessarily arise at all, or else at a much later date than is usually supposed. I have during the last thirty years treated a large number of cases of fresh phlebitis by means

¹ Reported in *Guy's Hospital Reports* vol 76 1926 p 145

of manual vibrations applied once daily (in some cases twice daily), and have in practically every case had rapid and permanent results—I am, etc.,

London W 1 Dec 6th

EDGAR CYRIAC

SIR—I am much interested in Dr Hilton's letter on this subject, on which I can speak from first-hand knowledge having had one or more attacks of phlebitis every year since 1917, when I contracted it in the army.

During my first attack I was treated with belladonna applications and by being kept strictly in bed in a military hospital in England. I was visited daily by an eminent, though aged, physician in uniform who felt my leg each day, and remarked that while the thrombus was there I must on no account get out of bed. After nearly two months the thrombus could no longer be felt and I was allowed out of bed and eventually, after a month's convalescence, back to duty. I had another attack in 1918, while still in the army, but managed to get out of bed after three weeks. When, however, after the war, I returned to practice, and had one or two attacks each year, three weeks was much too valuable to spend in bed, and I managed to convince myself that there was little or no risk of the thrombus becoming detached. During the last few attacks I have had (the last was in May of this year) I have gone to bed at once on the appearance of signs of phlebitis, and have had cold water applications to my leg (I have tried antiphlogistine, but thought cold applications better). Internally I take—as I do when threatened with an attack—ten minims twice daily in water of the French preparation, extract of horse chestnut (*solution d'extra de marron d'Inde*), which I am convinced has a beneficial effect on at least the pain, three or four friends to whom I have recommended it agree on this point. When the pain goes, as it does usually in three or four days, sometimes a week, I get up and about again, at first with the aid of a stick, and apply a simple ointment, such as zinc, to the affected part. I twice applied an iodine ointment, but it seemed to make the phlebitis worse.

Colleagues who have met me limping in the street have often expressed themselves as horrified when I have said that the temporary limp was due to phlebitis, and have tried to persuade me back to bed. But I remain unconvinced that I am much more likely to have an embolism than any of the hundreds of persons whose varicose veins have been injected with sclerosing solutions. I would have tried this injection treatment, but I am told that my deep veins have been affected as well as my superficial ones. I may yet fall back on the "cure" at Bagnoles de l'Orne in Normandy, though I have been told that it is the duller spa in Europe and an eminent surgeon has tried to persuade me to have a course of injections of a *Staphylococcus albus* vaccine, on the ground that the phlebitis is caused by a low infection from the skin, but I have not done so. I still think that a few days in bed at the beginning of an attack, until the pain is gone, is all that is necessary—I am, etc.,

London W Dec 3rd.

M D

THE SO CALLED TITANIUM RAYS

SIR,—Dr C B Heald's letter in the *British Medical Journal* of November 24th (p 962) was most opportune. Dr A Roberts's reply in your issue of December 8th (p 1067) is most unconvincing. I would be greatly obliged if Dr Roberts would give me precise information on the following points: (1) Where and from whom he obtained his "electrodes containing titanium" in 1924. (2) When and where he first stated that titanium was only present in the electrodes to the extent of 1 to 5 per cent. (3) What is the actual price per inch Dr Roberts pays for his "electrodes containing titanium" and from whom does he obtain them?

Dr Roberts's experiment with the cowhide is really too ingenious. Apparently he is not aware that an arc between two "electrodes containing titanium," or in fact any arc, gives off visible light, and that the red rays especially have considerable powers of penetrating animal skin, and would therefore naturally affect the photographic plate. Many physiotherapists will be surprised at Dr Roberts's ignorance of the physical properties of ultra-violet rays. This all demonstrates the urgent need that exists at the present time for drastically purging physiotherapy of all the nonsense which is, alas! only too prevalent—I am, etc.,

London W 1 Dec 7th

W KERR RUSSELL, M D

SPONTANEOUS PNEUMOTHORAX SUPERIMPOSED ON ARTIFICIAL PNEUMOTHORAX

SIR,—In your issue of December 1st (p 1011) Dr Hugh Garland comments on the case of lung rupture recorded by Dr S P Wilson in the *Journal* of November 17th. Dr Garland suggests that the "staircase" temperature chart in the series of similar complications recorded by Blair and myself might be due to infection of the pleura.

In his memorandum Dr Wilson states that air was removed from the pleura after the rupture had occurred, and that the temperature was normal on the following day. In the only case (W F) of our series where removal of air was indicated we noted that the temperature dropped 1 degree and four degrees respectively (lung rupture occurring on two occasions in the same patient) and returned to the level obtaining before the rupture occurred. It would seem to be quite possible that the same sequence of events occurred in Dr Wilson's case, as no mention is made of the temperature at the time of rupture, the previous level of temperature in his case being fortunately normal.

Exactly parallel "staircase" charts occur in spontaneous pneumothorax arising in patients untreated by collapse therapy, such patients recover from the immediate effects of the pneumothorax and show no evidence of violently infected pleura. In fact, when the chart assumes this character in the first three days a good prognosis can usually be given.

Since the publication of the paper referred to by Dr Garland, further observations would seem to suggest that the rise of temperature is not solely due to increased intrapleural pressure but to the effect of sudden mediastinal displacement. In Dr Wilson's case the occurrence of a lung rupture might lead to no such displacement owing to the splinting effect of an air and fluid in the unaffected pleura.

Barlow and Thompson state that small pneumothoraces are extremely common in pulmonary tuberculosis. I have only noted three of this type. They were all on the left side, the diagnosis resting on a sudden rise of temperature and an immediate slight shift of the apex bent or mediastinum. In one case of traumatic lung rupture following an attempt to induce an artificial pneumothorax the temperature, previously above normal, fell to normal limits. X rays showed a shallow collapse of the peripheral parts of the lung, the central area being consolidated, no mediastinal displacement was observed—I am, etc.,

R C HUTCHINSON

Worthing Dec 2nd

DEFINITION OF DRUNKENNESS

SIR—Dr L Rowland Fothergill writes in your issue of December 1st (p 1010) that I stated on November 24th (p 964) that the British Medical Association Committee's definition of drunkenness was specially drafted to apply to the offence of being drunk in charge of a motor vehicle. I said that it appeared to have been so drafted, and I still think it does. He says it was intended to apply to accidents in factories or other employments, to walking on a cliff or other height, to conducting a child through or near traffic. I am unable to find any of these things scheduled as a statutory offence. What I do find, and I said so in the same letter, is that there are statutory offences in which no element of danger is involved. Possibly, under the B M A Committee's definition, it may be advanced that a man drunk on licensed premises is so much under the influence of alcohol as to render him unable to execute safely the occupation on which he was engaged at the material time, and so, liable to spill his beer—I am, etc.,

Thurstone Sheffield Dec 2nd

Gordon Wilson

THE THOMAS SPLINT

SIR,—Professor Ernest Hey Groves, President of the British Orthopaedic Association, in his address on the treatment of fractures, printed in the *British Medical Journal* of December 1st (p 993), asks why the Thomas splint is not used when fracture cases have to be transported over country roads. May I say that the Home Service Ambulance Committee has done its best to ensure the use of this splint by equipping 130 of its ambulances with it. These ambulances are in use in rural areas, and

are in charge of members of the Order of St John and the British Red Cross Society whose training includes the application of the Thomas splint—I am, etc.,

19 Berkeley Street W 1 Dec 4th J. DUNN W. PACTT

ETHYL CHLORIDE ANAESTHESIA IN TONSIL AND ADENOID OPERATIONS

SIR,—There is one point that has not been referred to, so far as I have seen, in the correspondence on the subject of ethyl chloride as an anaesthetic for tonsil and adenoid operation, and that is the comparatively long analgesic period which succeeds the anaesthetic one. The former is sufficiently long to allow of examination of the tonsil bed and the removal of any fragment of tonsil in the few cases where the whole has not been removed. It is likewise sufficiently long to insert a stitch in the pillars or tie a bleeding point in the still rarer cases in which it is advisable to do so after tonsillectomy in children.

After a prolonged and extensive experience of ethyl chloride, dating from a few years after its introduction, I regard it as a most satisfactory anaesthetic for the guillotine enucleation of tonsils in children. It is efficient, safe in experienced hands, and is followed by little or no shock. The cases, however, in which ethyl chloride is to be used should be carefully chosen. It may, on the one hand, be a suitable anaesthetic for an adult tonsillectomy where the tonsil is not buried or adherent, while on the other hand it may be unsuitable for enucleation in a child where the tonsils are buried, adherent, and have been the site of frequent attacks of tonsillitis. The rapidity of induction of and recovery from anaesthesia with ethyl chloride make it most valuable where large numbers of children have to be dealt with, though speed alone should not be a main consideration. It is also, usually, a safer anaesthetic than chloroform or ether in those institutions where, unfortunately, children are not detained as in-patients after operation.

As to the question of haemorrhage, a great deal too much stress is laid on the loss of a little blood in these cases. In many there is not only a septic tonsil, but a septic bed, and it is an advantage that the part should have a little flushing, it is a mistake, speaking generally, to seek to tie every bleeding point or stitch up delicate structures like the faucial pillars after an operation to deal with a septic condition. It is sometimes contended that the oft-quoted "general surgical principles" are not carried out if there is any bleeding from a tonsil that is not stopped, but surely in every surgical operation a certain amount of capillary bleeding is left to look after itself or stopped by pressure of dressings and bandages. In enucleation of the prostate, which has some resemblance to that of the tonsil, nature is trusted to some extent. Bleeding is, of course, occasionally met with from an exceptionally large or rigid vessel, the walls of which have not been twisted and frayed as is usual in this method of operation, but, as already stated, this can be dealt with under ethyl chloride anaesthesia. Nor is it necessary to break the rule that it is wiser for the patient not to leave the table till haemorrhage is controlled, as in the average case a little gauze pressure will do so. It is always wise to reopen the gag, apply this pressure, and then do any toilet that may be required in the exceptional case.

The operation should usually, in my opinion, be a little more elaborate, though not much more tedious, than that described in the original paper. In most cases it is of advantage to use a strong tonsil forceps passed through the guillotine to pull the tonsil from its bed and, when necessary, to dissect it out partially, except in cases where the tonsil is very prominent and has a shallow bed. The forceps and dissector made for me by Messrs Mayer and Phelps, or Waugh's forceps, will be found useful for this purpose. The tonsil having been thus freed, the blunt guillotine is pressed home and enucleation completed by that instrument, which gives a better healing surface than a complete dissection.

One of your correspondents has stated that the best anaesthetic is a good anaesthetist, and there is a great deal of truth in this statement, it will make ethyl chloride

anaesthesia all the more satisfactory when the administrator is an expert. Another correspondent seems to think that the practitioner sees the bad results of tonsil and adenoid operation, and the specialist does not know the after history of the patient. His experience must surely be unusual—namely, that the effects of the operation are bad and not good, and that the cases are not seen after operation. Personally, I always like to see the patient in a month, whether hospital or private, and have usually been impressed with the great improvement in the general condition—I am, etc.,

Bath Dec 1st

H. NORMAN BARRETT

SIZE OF TYPE

SIR,—I should like to obtain the views of the readers of the *British Medical Journal* on the question of the size of the type used in the printing of our paper. I regard it as far too small and as causing considerable eyestrain in those who read it. In the issue of December 1st there are twenty-six columns of this particular variety to which I object. It is, I believe, technically called "minion." In elementary school books it would not be allowed, and I protest against its use in our *Journal*. We would much rather have a little less matter printed in a decent readable type than be compelled, as we are at present, either to strain our eyes unduly or to omit reading the part of the *Journal* printed in microscopic characters—I am, etc.,

Here Dec 2nd

L. A. PARRY

* Dr PARRY raises a difficult question which has long exercised the minds of those responsible for the conduct of the *Journal*. Far more material is received every week for publication than can be printed in the space available, and the use of small type in Parliamentary Notes and elsewhere helps us to meet the very varied tastes of 34,500 members within the limits of a single issue. We shall be glad to receive the views of readers, and to communicate them to the *Journal* Committee.

ALKALI THERAPY

SIR,—My attention has been called to a somewhat serious error in Dr A. T. Hurst's paper in the *British Medical Journal*, November 3rd, 1928 (p. 780, column 2), concerning the descriptions of "alcol" and "neutralon." This error also occurs in the paper "Contribution to the study of 'alkalis' as therapeutic agents," by Freezer, Gibson, and Matthews, published in the *Guy's Hospital Reports*, 1928 (p. 192).

Confusion has arisen in the description of the above two materials. "Neutralon" is aluminium silicate and "alcol" is colloidal aluminium hydroxide. These two materials were mentioned in the above paper, and the latter was found by Mr Matthews to contain 55 per cent of aluminium hydroxide. It is most unfortunate that the descriptions were reversed in the paper, and an apology is due to Messrs C. A. F. Kahlbaum of Berlin, the proprietors of "neutralon," and to Messrs A. Wander, Ltd., of London, the proprietors of "alcol."

The results given by Freezer, Gibson, and Matthews are those of physico-chemical measurements, and they are quoted as pH values of a solution of hydrochloric acid which before treatment with "alkali" has a pH value of 1.0. The relatively low efficiency of "alcol" as a neutralizing agent, as found by the above authors, is in keeping with the statement of Messrs Wander, Ltd., that "alcol" fixes the acid not by neutralization but by adsorption—I am, etc.,

Guy's Hospital Medical School
London SE1 Dec 5th

C. S. GIBSON

A CLINICAL NOTEBOOK OF 1710

SIR,—In Mr Murrehead Little's note, published under this heading (December 8th, p. 1052), he stresses, among the names of the various wards, "the strange one of Cutting" which was common to the two (then only existing) London hospitals of St Bartholomew and St Thomas. This is explained by Sir D'Arcy Power as being the operation ward at St Bartholomew's. At

St George's, and the other early voluntary hospitals, cutting for the stone was performed in one ward allocated to that purpose, that being known as the "cutting" ward. There was then no operating theatre, operations being performed either in the surgery or in the ward where the patient lay—I am, etc.,

London W 9 Dec 9th

G C PACHEA

Obituary

MICHAEL MARTIN DAVITT, M B, B Ch, B A O,

Visiting Physician and Superintendent Galway Central Hospital,
Lecturer in Clinical Medicine, University College Galway

We regret to announce the death of Dr Michael Davitt, which occurred at his home in Galway on December 1st. The news of his death, which was altogether unexpected, caused widespread sorrow in that city, where he enjoyed the esteem and friendship of all classes. On November 30th, when proceeding to lecture at University College, he was taken ill with a pain in the back of the neck, which was quickly followed by the more pronounced symptoms of tetanus. He had had a severe attack of this disease two years ago, following an accident, while lifting his little son over a wall, he scratched his chest on a rough and dirty stone.

Michael Martin Davitt was the eldest of the three sons of the late Michael Davitt, and was born at Ballybrack, co. Dublin, on May 23rd, 1890. Educated at the Christian Brothers', Dublin, and Dun Laoghaire, he subsequently went to Blackrock College, twice visiting California with his parents and receiving part of his earlier education there. He graduated B A and B Sc (with honours) at the National University of Ireland in 1911, and three years later headed the first honours list of graduates in medicine, surgery, and obstetrics. After serving as house-surgeon and house-physician in the Mater Misericordiae Hospital, Dublin, he practised for some time in England, and was attached to the Mile End Infirmary. On his return to Dublin he became assistant physician to the Children's Hospital, and visiting physician to Jervis Street Hospital. Eight years ago, on the establishment of the Central Hospital, Galway, he was appointed visiting physician and superintendent of that institution, being also lecturer in clinical medicine at University College, Galway. As a student he was elected to the first governing body of this institution, under its new charter, by the votes of the graduates.

Dr Davitt took a keen interest in outdoor sports, and played forward for many years under the Rugby code. At the time of his death he was president of the Connaught branch of the Rugby Football Union. He was an enthusiastic lover of music, and was prominent in the organization of the coming Schubert centenary festival in Galway. While not an active politician he was a supporter of the existing Free State Government, by whom he was nominated as a candidate for the recent election to the Senate. Deep sympathy is felt for his mother, his sister, and his two brothers—Judge Cahill Davitt, and Dr A F Davitt, of Jervis Street Hospital, Dublin.

We regret to announce the death of Dr WILLIAM BROWN HUNTER, one of the oldest and best known medical practitioners in the North of Ireland, which occurred at Londonderry on October 22nd. Born of farming stock in county Derry, he received his early education at Londonderry, undertaking his professional studies at the University of Edinburgh, where he graduated M B, C M in 1866, proceeding M D three years later. He commenced practice in Scotland, at Yetholm and Jedburgh, and subsequently removed to Lly, afterwards returning, about forty years ago, to his native country, where he soon established an extensive general practice in Londonderry. He had, however, a specialized interest in diseases of the eye, ear, and throat and, in conjunction with the late Dr Donaldson he inaugurated a campaign designed to secure more adequate facilities for their treatment. The result

of this effort was the institution of the Londonderry Eye, Ear, and Throat Hospital, which has a long history of useful service, and which meets the needs of patients from a wide area in the North-West of Ireland. Dr Hunter was for many years honorary surgeon to the hospital, and even after his retirement some years ago continued to display great interest in its working. His ungrudging service to the community, his professional skill, and his kindness and sincerity gained him the respect and affection alike of his colleagues and of the public, and his death has caused general regret. He took a prominent part in the affairs of his profession, and as a member of the British Medical Association held office in one capacity or another almost continuously for over thirty years. In the old Londonderry and North-West of Ireland Branch he became a member of the council in 1893, and was later honorary treasurer and afterwards vice-president of the Ulster Branch, in the Derry Division he served as chairman in 1906, and was a member of the executive committee from 1904 until three years ago. Dr Hunter had been a widower for fifty years, his wife having died soon after their marriage.

Dr JOHN McASKILL HENDERSON, who died at Nairobi, Kenya, on November 22nd, at the age of 33, had for the past two years been engaged in research work in that colony. A native of Ayrshire, he received his medical education at the University of Edinburgh, graduating M B, Ch B in 1922, he was also a graduate in arts and science. In 1926 he became D Sc Aberdeen. After serving for a brief period as assistant physician at the Royal Edinburgh Mental Hospital, and spending a year in general practice in Glasgow, he joined the physiology department of the Rowett Research Institute in Aberdeen. About two years ago he spent some time at Cambridge, and afterwards proceeded to Kenya to undertake research on nutrition at the instance of the Medical Research Council. He was a member of the British Medical Association. A colleague writes: "The death of John Henderson at the age of 33 will touch the hearts of many teachers and fellow students who knew him at the Universities of Edinburgh, Aberdeen, and Cambridge. From Ayr Academy he passed with many honours to Edinburgh, where, as the editor of *The Student* who set a new standard of criticism and humour, as one who counted the company of men and yet found time to head the class lists, and as the ready helper of perplexed freshers, he will be remembered by many of his fellows. At the Rowett Institute his constant application, imagination, and independent judgement were soon recognized by the director and his colleagues, who saw that Henderson's work combined a rare sincerity and high technical skill. In Kenya, in the course of his work on nutrition, he investigated the diet of natives in hospitals, prisons, and homes, and a high authority has described this work as of "high practical value and permanent importance," and predicted "a brilliant future"—but his fatal illness had already begun. Science has lost a devoted follower, and those who knew and loved him best have lost a sensitive friend whose nature was ever buoyant with an undercurrent of quiet playfulness—a man interested in life first and in science as a part of life."

Dr MONTY BARANOV, whose recent death is mourned by his many friends in England and South Africa, was born at Vryheid in 1895, and received his early education at King Edward the Seventh School, matriculating in 1912. He came to England in 1913, and joined University College, London, as a medical student in that year. He showed great aptitude for the medical sciences, and was a prosector in anatomy at the Royal College of Surgeons, London, in 1915 and 1916. He obtained the M R C S and L R C P diplomas in 1918, and was appointed house-physician to Dr C. Bolton at University College Hospital. He graduated M B, B S Lond. later in that year, and went to France with a commission in the R A M C. He proceeded M D in 1920 while casualty officer at this hospital, and, having developed a keen leaning towards ophthalmology, he also assisted Mr Percy Fleming and Sir John Parsons. He then entered the Royal London Ophthalmic Hospital

(Moorfields-) and rose to the position of senior house surgeon. Later he became chief clinical assistant at Moorfields, and obtained the D.O.M.S. in 1923. Towards the end of that year he returned to his home in Johannesburg, taking with him many good wishes from his chiefs and associates in London. He then commenced consulting ophthalmic work in Johannesburg, and in 1924 was elected honorary assistant ophthalmic surgeon to the Johannesburg General Hospital. He continued actively at work until some six weeks before his death. A colleague writes: Baranov was not only popular with the honorary and nursing staffs of the Moorfields Hospital, and his popularity followed him to South Africa, where he earned the respect and esteem of all who were associated with him in his work. He took a keen interest in his non-European work, in which his fine operative ability soon made itself manifest. Baranov was full of the joy of life in work and at leisure. He had in the highest degree zest and energy for doing things, care for his patients, and love for his fellows. His keen sense of honour, together with his reliability and brilliance, secured for him a position of great trust and the admiration of his colleagues. His sympathy, understanding, and generosity gained him the sincere affection of many friends. The deepest sympathy is felt for his young widow and his mother and father.

Dr JOHN MACGREGOR, who died on November 27th at Iytham St. Annes, Lancashire, was a well known figure in medical circles in various parts of the country, and had been for over thirty years honorary physician to the Newspaper Press Fund, an office in which he succeeded Sir Benjamin Richardson. He received his medical education in Edinburgh and at the London Hospital, obtaining the diplomas L.R.C.S., L.R.C.P. Edin. in 1884, and being admitted to the Membership of the Royal College of Surgeons of England a year later. Earlier in his career he was a demonstrator in anatomy in the Edinburgh School of Medicine, and he was afterwards pathologist and ophthalmic assistant in the Royal Infirmary. Subsequently he was engaged for a period in private practice in Yorkshire, and ultimately established himself as a consultant in London, where he built up a large practice. During the war he rendered valuable service in the medical examination of recruits, and later in furnishing medical aid during air raids. In addition to his work for the Newspaper Press Fund, he gave a similar service to the Press Club, of which he was an honorary member. He was a Fellow of the Royal Medical and Physical Societies of Edinburgh. Dr MacGregor is survived by his widow, who is well known for her philanthropic and social welfare work in Leeds and London.

Dr SIDNEY JAMES CLEGG, who died on November 23rd, received his medical education at the University of Manchester where he graduated M.B., Ch.B. in 1909, and proceeded M.D. in 1914, he obtained the D.P.H. in 1910. After holding the post of resident medical officer at the Infectious Diseases Hospital, Newcastle-on-Tyne, he was appointed deputy M.O.H. At the outbreak of war he became medical officer to a battalion, and subsequently organized and commanded one of the first sanitary sections. At the end of the war he held the rank of D.A.D.M.S., and was awarded the O.B.E. (Military) and the Médaille d'Honneur des Epidémies (on argent). He won especial distinction for services in connexion with the introduction of methods for the disposal of refuse and also the control of milk. At the end of the war he returned to Newcastle, but, in 1923, was appointed medical officer of health for Durban, Natal, where he remained for five years. His health suffered in consequence of the exigencies of his work and also of the climate, and he returned to England last September, making his home at Rhos-on-Sea. A colleague writes: Clegg's passing removes a striking figure from preventive medicine. His wide sympathies and broad outlook endeared him to all with whom he came in contact, and created for him a very large number of friends.

Medico-Legal

A SPECIALIST'S FEES

WHEN a specialist sued for fees in the King's Bench Division on December 5th, Mr Justice McCardie said that the difficulties would not have arisen if doctors could tell their patients in clear terms at the beginning of the treatment the scale of fees they intended to charge. His Lordship thereupon gave judgment for Dr J. H. Douglas Webster, a specialist in radiology and electrical treatment, and honorary physician in charge of the radiology department at the Middlesex Hospital, for fees claimed for treatment of Miss Muriel Clifford of Bloomsbury Square, London, for severe sciatica, with the exception of a special fee of £30 for a journey he made at the defendant's request from Eastbourne, where he was then staying, to give her treatment in London. Dr Webster's counsel said that this fee was really smaller than he could have reasonably charged, for it was a custom of the medical profession that a specialist who went out of town to a patient was entitled to charge one guinea a mile for the distance travelled, and this custom equally applied to a specialist who was staying at Eastbourne making a journey to London at his patient's request.

Mr Justice McCardie recognized the importance of maintaining an adequate remuneration for the medical profession, for it required seven or eight years and the spending of thousands of pounds for a doctor to become qualified. He had to take expensive rooms, and he must maintain an adequate social standing. Therefore it was impossible to regard the medical profession as other than one entitled to adequate remuneration. His Lordship held that Dr Webster's charges were reasonable, except for the fee for the Eastbourne journey, which he reduced to £4.

The Services

ARMY MEDICAL ADVISORY BOARD

It has been decided to reconstitute the Army Medical Advisory Board with the following terms of reference. To advise the Secretary of State for War on any question of policy in connexion with the Army Medical Service, on which he may desire to consult them. The Board will consist of the Director-General A.M.S. (President) with four civilian members of the medical profession appointed by the Secretary of State and the President of the Medical Board, India Office, when matters concerning India are under discussion. The ordinary meetings of the Board will be presided over by a chairman appointed by the Secretary of State from among the civilian members of the Board and nominated by the members in consultation with the D.G.A.M.S. If the D.G.A.M.S. desires to attend any meeting of the Board he will take the chair.

The Board will meet three a year but the civilian members may arrange additional meetings on notifying the D.G.A.M.S. through the chairman. After each meeting the conclusions of the Board will be reported to the D.G.A.M.S. and after further consultation if necessary by him to the Secretary of State. Whenever he desires to do so the Secretary of State will see him or any of the civilian members of the Board and the Board will have the right after informing the D.G.A.M.S. of access to the Secretary of State.

The following have been appointed to the Board as now constituted: Lieut. General Sir Matthew Fell, D.G.A.M.S. (President); Sir Berkeley Moynihan, Bt., P.R.C.S. (Chairman); Lord Dawson of Penn, M.D., Sir Cuthbert Wallace, F.R.C.S., Professor D. P. D. Walker, F.R.C.S., with Sir Leonard Rogers, M.D., F.R.S., President of the Medical Board, India Office, when matters concerning India are under discussion. The Secretary is Major C. M. Drew (D.A.D.G.A.M.D.). Vacancies among the civilian members will be filled by the Secretary of State on the recommendation of the remaining members of the Board.

Army Medical Directorate Consultative Committee

It has been decided also to appoint a committee, to be known as the Army Medical Directorate Consultative Committee, to advise the D.G.A.M.S. as to (a) the supply of candidates for the regular R.A.M.C. and its reserves, (b) post-graduate and other professional courses of instruction for R.A.M.C. officers, and (c) such administrative or professional questions as may from time to time be referred to it. The chairman will be the Director-General A.M.S. and the vice-chairman the Deputy Director-General A.M.S. There will be six civilian members of the medical profession who hold instructional or other appointments at university centres or medical schools and one civilian member of the Chemical Warfare Committee. The civilian members will be appointed by the Secretary of State on the nomination of the D.G.A.M.S. every three years. Full meetings of the committee will be held twice yearly, or as often as may

be required at the War Office. Other meetings may be held elsewhere, as required.

The Secretary of State has approved the following appointments to the committee: Lieut-General Sir Matthew Fell (chairman), Major-General H. B. Fawcus (vice-chairman), Sir Robert Bolam M.D., Sir E. Farquhar Buzzard, M.D., Professor T. R. Elliott, M.D., F.R.S., Professor J. Fraser, F.R.C.S., Professor G. E. Gask, F.R.C.S., Mr. A. E. Webb-Johnson, F.R.C.S., Professor J. Barcroft, F.R.S. (Chemical Warfare Committee). Major C. M. Drew is secretary of this committee also.

No 14 STATIONARY HOSPITAL

The annual dinner of the No 14 Stationary Hospital was held at the Trosadero Restaurant London on December 7th. Colonel C. R. Evans D.S.O. took the chair, and proposed the toast of

The Hospital. He described the way in which No 14 Stationary Hospital came into existence at the beginning of the war, and touched lightly on some of the vicissitudes in its career. He referred warmly to the spirit of comradeship which had always characterized it and which continued to attract each year to the annual dinner a gratifying number of the hospital staff. Dr. H. L. Tidy, the organizer of the dinner, read letters from several medical officers who were unable to attend. A hearty vote of thanks was accorded to him for his services in keeping these pleasant functions in existence.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

THE House of Commons this week passed a resolution allocating time for the committee and subsequent stages of the Local Government Bill and the Local Government (Scotland) Bill and completed examination of the Imperial Telegraphs Bill. Other business put down for the week included the first day of the committee stage of the Local Government Bill and debate on Mr. Chamberlain's proposal to reduce the housing subsidy after next September. The House eventually decided to allot seventeen days for the Local Government Bill as follows: committee thirteen, report three, and third reading one. Twelve more days were allotted to the Scottish Bill—namely, committee nine, report two, and third reading one. [Originally only eight days were proposed by the Government for the committee stage of the Scottish Bill, but Sir J. Gilmour agreed to give an extra day.]

Representatives of the Poor Law Committee of the British Medical Association met the Parliamentary Medical Committee at the House of Commons on December 11th to discuss possible amendments to the Local Government Bill. The Scottish Bill on the same subject was not considered by the conference. Certain amendments proposing to give effect to the views of the Poor Law Committee have been, or will be, put down by Dr. Fremantle, Sir Richard Luce and other members, but do not come before the House as the proposals of the Parliamentary Medical Committee. On Clause 4, which deals with the alternative powers of giving assistance the Poor Law Committee denied that it should be obligatory, instead of optional, on local authorities to give assistance under the Public Health Act, Mental Deficiency Act, Maternity and Child Welfare Act, Blind Persons Act and Public Health (Tuberculosis) Act, by virtue of the appropriate Act, and not by way of poor relief. Amendments proposing this are already on the paper. The future of institutions taken over by the public health authorities was also mentioned in the discussion, and a desire expressed that they should not be run as Poor Law infirmaries but as public health hospitals. A suggestion was made that the mandatory character which the conference desired Clause 4 to have should be qualified by giving the Minister a right to waive the obligations of the local authority on application being made to him and a case proved. The bill already proposes to give him similar power to waive the obligation of appointing whole time medical officers.

Discussion arose on the proposal in the bill to include health services in the block grant to local authorities. Some medical members of Parliament argued that child welfare and maternity services should be excluded from the block grant in the first five years but the representatives of the Poor Law Committee of the British Medical Association thought a compromise might secure that additional grants would be made where large developments occur in maternity services and child welfare. The conference was of the general opinion that the provisions of the bill regarding the block grant might be augmented by the Minister taking power under Clause 86 to see that councils provided efficient public health services.

The representatives of the Poor Law Committee indicated that they approved the main principles of the bill, subject to ratification of this view by the Council of the British Medical Association which was due to meet on the following day.

Local Government (Scotland) Bill.

The House of Commons discussed on December 5th, a money resolution authorizing the expenditure involved in connexion with the Local Government (Scotland) Bill. After Dr. Elliott had explained the objects of the resolution, Mr. Cowan wished to know what power the Government had taken to assist new social services which might be started during the quinquennial period. Was any money available in Scotland which could be used for expanding or for new services?

Dr. DRUMMOND SMITH said he was disappointed that Dr. Elliott had given no justification for the proposal to finance health services by bringing them into the ambit of a block grant instead of allowing them to continue under the percentage grant system. No town or country district in Scotland had yet a really adequate public health system nor had an excessive amount of money ever been spent in any such way. The bulk of the total grants was still to be paid under the percentage system but health services were to be put under the block grant system. Health services were the most rapidly developing of public services, within the last twelve years more subjects had been brought within their scope, and the expenditure on them had in some cases increased two or three times. His friends believed that the Minister of Health and Dr. Elliott were not unsympathetic to these services but he suspected that the Treasury had adopted the block grant as a means of checking rapidly developing services which were likely to expand still more. Public opinion was ripe for a still larger development, and on local authorities some of the keenest workers on the public health side of local government were Conservatives. In many of the large towns of Scotland the present and the preceding year had been "economy years" yet this year was to be taken as the standard under the bill. Therefore if any development of services now in existence was undertaken within the next five years, the expense would fall on the ratepayers.

There was no child welfare service in Cathness nor in a number of other districts of Scotland. Did the Government expect that any district which had no child welfare and maternity service at present was likely to establish one within the next five years, seeing that to do so would involve a great increase in the local rates? Figures showed that in Edinburgh last year there were many more deaths among mothers who had no ante-natal treatment than among those who had. The significance of this was just being realized where the service was not adequate and where it had not been taken up at all. If the whole of the public health services could not be taken out of the block grant could not child welfare and maternity at least come under the percentage system? No probable development of child welfare and maternity service could be regarded as excessive. Maternal mortality had been receiving special attention and two Commissions were inquiring into it at present. Many factors in maternal mortality were not understood and there were great difficulties in regard to it. One obvious factor, however, was that women who received attention before confinement had a much greater chance of surviving. The House and the country would be grateful if these services were removed from a stagnating influence. Dr. Shiels closed with a reference to a cognate matter. For years past the House and the Scottish Board of Health had put various new duties on local authorities. These authorities now had to supply insulin they had a new duty with regard to encephalitis and they did not know what other new duties would turn up they would have to put on the communities the whole expense of new services which the House or the Board of Health might call upon them to provide.

Mr. W. WATSON (Lord Advocate) said that by the percentage grant Parliament was at the mercy of richer districts, and penalized the poorer. That was a vital point when considering the adequate provision of public services including health services. Sir John Gilmour was as concerned as was Mr. Chamberlain to see maternity and child welfare schemes fully and adequately protected and carried out.

The House then carried the financial resolution by 224 to 140.

Preservation of Infant Life Bill.

This bill was considered by the House of Lords in Committee on December 6th. Clause 1 provided that

Any person who with intent to destroy the life of a child capable of being born alive, by any wilful act causes a child to die before it has an existence independent of its mother shall be guilty of felony, to wit child destruction, and shall be liable on conviction thereof on indictment to penal servitude for life. It is provided that no person shall be convicted of an offence under this section if it is proved that the act which caused the death of the child was done in good faith for the purpose only of preserving the life of the mother.

A further subsection provided that evidence of twenty-eight weeks pregnancy at any material time should be prima facie evidence that the woman was at that time pregnant of a child capable of being born alive.

Lord ATKIN moved to omit Clause 1 in order to insert the following new clause

1—(1) A woman may be convicted of infanticide notwithstanding that the death of her child is caused by her in the course of delivery, and the term "infanticide" in this bill shall mean infanticide Act 1922, shall include a child while in the course of delivery. (2) For the purposes of this Act the course of delivery shall be deemed to continue until the child has an existence independent of its mother.

Lord Atkin, in moving his amendment said he had previously objected to the bill on the ground that it went further than was necessary and that it exposed professional men to the danger of being charged with a new offence which it was unnecessary to put upon the Statute Book. He was prepared to accept the view that

a gap existed in the law and that whereas at present a woman could only be convicted of an offence if a child who was killed had a separate existence, there might be cases in which the death was caused while the child was in the act of being born. That gap ought to be remedied and his amendment precisely provided for the position by proposing that the offence of infanticide should be extended. The bill went further. It extended the offence to third persons other than the mother. He was reluctant that a new offence should be created which would expose professional men and women to the possibility of a charge of this kind. From time to time the doctor had to make up his mind that to save the mother's life the child must be sacrificed. This bill would make such a doctor liable to a new offence, punishable by penal servitude for life unless he discharged the onus of showing that he acted in good faith for the purpose of preserving the life of the mother. Lord ATKIN objected strongly to any onus being put on anybody to prove he was innocent. It was very inadvisable that professional men and women should carry on their important vocations under the possibility of a criminal charge either by a disappointed parent or a mischievous attendant. Another objectionable provision in the bill was that the offence was extended to the killing of a child before delivery had begun. That was an unnecessary proposal, which would overlap the existing law on procured abortion. For these reasons Lord ATKIN proposed that the bill should be confined to meeting the only evil which really existed, and that this evil should be met by slightly extending the bounds of an old offence.

Lord MERRIVALE said he was not prejudiced against any proposal for dealing by an independent method with the grave danger at which this bill was aimed. Lord ATKIN's amendment would reduce to a misdemeanour the limited offence which it created. The loophole for evasion of the long-established severity of the criminal law towards abortion which had been pointed out by Mr Justice Talbot had not been till then generally appreciated. Lord DARLING had framed a bill in a previous session which had been accepted by the House of Lords on principle and sent to a Grand Committee. That bill was designed to provide that, in the case unprovided for by the penalty of abortion should be incurred by those engaged in the act. No person of any experience wished to imperil a decent doctor who had performed a terrible task and had deprived a fellow creature of life but as Lord MERRIVALE conceived it, the respectable medical practitioner and the decent midwife did not run this risk, but the people who at present practised abortion and in a vast number of cases escaped without penalty because the crime was most difficult to bring home. The House of Lords would provide for the security of the respectable medical practitioner and the respectable midwife if a clause or subsection were inserted to provide that there should be no prosecution of a registered practitioner or of a registered midwife without the sanction of the Attorney General.

Lord PARSONS said the question of the doctor or the nurse was a distinct one. For reasons which they all knew they had not the advantage of hearing the views of Lord Dawson of Penn. He thought the bill as it stood was unduly harsh.

Lord DARLING said that at present a woman who desired not to have a child born alive and continue to exist could go to a professional abortionist of whom there were many and say:

I expect my delivery about a certain time. When I know it is coming I shall send a message to you. I only ask you to do what is perfectly safe. Before it has a separate existence, when it is neither a living soul nor merely a foetus you kill it, and by the law of England you commit no offence whatever. If Lord ATKIN's amendment were carried that monstrous condition of things would still be the law of England. Lord DARLING had spoken to learned judges and had found that there were far more of these cases than people who did not attend as was suspected. On the question of proving onus the provision in Clause 1 running:

if it is proved that the act which caused the death of the child was done in good faith for the purpose only of preserving the life of the mother did not say that this must be proved by the defence. Lord DARLING offered at the proper time to move to alter the provision to read: provided that no person shall be guilty under this section unless it is proved that the act was not done. That would put on the prosecution the obligation to prove that the person who did the act had not done it only to preserve the life of the mother.

Lord HAILSHAM, the Lord Chancellor, said that by English law a child had not a separate existence by reason of the fact that it had breathed. It had to be proved to have acquired a separate and distinct circulation from that of its mother. If the life of a living thing be taken after the commencement of its birth but before it had acquired a separate existence in the sense indicated then at present there was no offence at all. Nobody could be punished if proved to have done it, however maliciously and wickedly. He had expressed regret that publicity had been given to the existence of this gap but the gap having been disclosed it was incumbent to close it. Unfortunately there were people who made of abortion a trade profitable in proportion to its danger. The practice of abortion was very rife in this country at present, and Lord ATKIN's amendment would provide the abortionist with a charter. Some provision had been made in the bill to cover the doctor who acted in good faith, but Lord HAILSHAM thought it advisable to go further. He advised Lord DARLING to accept or introduce an amendment making clear that the doctor was not charged with the burden of proving he acted in good faith, or else to accept the suggestion of Lord MERRIVALE that no prosecution should take place under this bill without the fiat of the Attorney General which would be an adequate protection. When once Parliament had made clear that so long as the act was done in good faith it was no criminal offence he did not think they would embarrass the medical man. It was necessary sometimes to procure abortion for the sake of the mother, and he had never

heard that any doctor had been embarrassed or had hesitated in the discharge of that duty by reason of the knowledge that if he was not acting in good faith he would be guilty of a criminal offence. He did not think the embarrassment at all would be greater under this bill than under the existing law but care must be taken that the offence was not made to extend further than was necessary. He advised Lord DARLING and the House to make that clear now or on the report stage. The Infanticide Act said that a woman would otherwise be a murderer should be a less offence when the person murdered was a newborn child and when the mother who had taken its life was disturbed and unbalanced in her mind by reason of having just given birth to the child. Lord ATKIN's amendment would mean that if the woman's mind was not up to it and if she did the act in cold blood deliberately then she would commit no offence at all. The Infanticide Act did not create an offence but modified a penalty. The bill before the House created an offence which had been made penal in the Indian criminal code many years ago.

Lord ATKIN said that both as a judge and a president of the Medical Legal Society he had expressed himself against the offence of abortion. His objection to the bill was that it minimized that offence because that which corresponded to abortion under this bill would only be an offence if done with the intention of procuring the death of a child which was not an ingredient in an ordinary case of abortion. He did not believe there was a single instance known of a professional abortionist killing a child in the course of delivery. If that had happened it would have been discovered at coroners' inquests. He was prepared to accept that there were many more cases than the public knew where the mother had killed the child in the course of delivery.

By 40 votes to 11 the Lords decided that Clause 2 in its original form should stand part of the bill. The House then agreed to the remaining clauses.

Outdoor Relief in Distressed Mining Areas

Lord EUSTACE PERCY spoke on December 5th in reply to Mr. Wilkinson who, on a motion for the adjournment of the House, had urged the provision from public funds of clothes for children in the distressed mining areas. Lord EUSTACE said that in practically the whole of Glamorgan feeding of necessitous children was now done on medical certificates. In Rhondda over 1,000 children were being fed on medical certificates. A few weeks ago he sent down a medical officer who reported that the work was thoroughly well done and that it was necessary for the medical examination to be continued. That was being done and reports to Lord EUSTACE were that serious deterioration among the children from malnutrition was being prevented. As regards boots, the needs of the school children in South Wales had been met by voluntary effort up to now. The chief and urgent need in the schools of South Wales was clothing. Feeding of the kind he had described was going on in Northumberland but nothing was being done in Durham.

Answering questions on December 5th, Sir HENRY WOOD said that in parts of the coal mining areas as elsewhere outdoor relief was given by the guardians to able-bodied men only on a medical certificate. This was a matter within the discretion of the guardians. Lord EUSTACE PERCY announced on the same day that most education authorities in mining areas including eleven in South Wales were providing meals or other nourishment to children suffering from malnutrition whose parents could not provide them with sufficient food. In Monmouth and Aberllynny feeding was on an income scale and in the rest of Wales on a medical certificate on the state of the child's health. Medical examinations were frequent and arrangements were made so that any child who became malnourished between two medical inspections could be fed. He had made a specific recommendation on the amount of time that ought to elapse between inspections. Feeding in the distressed areas should be based on close and continuous medical inspection of the child. The areas which were doing that were doing much more satisfactory work than areas which merely fed on the basis of the poverty of the parents.

Lord EUSTACE PERCY on December 10th told Mr. James Hudson that of twenty local authorities in the mining districts of South Wales and Durham twelve were already providing meals for school children, two were preparing to do so and six were not so far as he knew providing any meals. Five of the authorities providing meals were doing so on a medical basis of selection and one other authority was preparing to adopt this basis. Some months ago he communicated with the local education authorities in other mining areas suggesting that a special medical survey of the schools should be made before the end of the summer term. As a result of this survey feeding had now been undertaken in certain of these areas also. Children selected on a medical basis might be provided with ordinary dinners or with special nourishment, such as milk and cod liver oil and malt. On many occasions during the course of the last year he had emphasized the importance of local authorities making adequate provision for malnourished children and had pointed out some of the advantages of the medical basis of selection as compared with the income basis but had put no pressure upon them to adopt the former in preference to the latter. When the medical basis was adopted he had urged that borderline cases should be re-examined at frequent intervals and that the schools as a whole should be periodically re-surveyed. In certain cases arrangements were also made for the temporary feeding of children between the visits of the medical officers if the head teacher had reason to believe that any child was not receiving sufficient food. The distinction which appeared to be drawn by Mr. Hudson between medicinal feeding and feeding children who were hungry was based on a misapprehension. Malnutrition for this purpose meant that the child was unable by reason of

lack of food to take full advantage of the education provided for it. That was the test prescribed by the Education Act, and the distinction was between selection on this basis by medical inspection and supervision of the children themselves and selection according to the size of the parents' income.

Vaccination against Distemper in Dogs

Replying to Mr Crawford on December 10th Mr GUINNESS said the Field Distemper Research Committee had recently announced that an effective method of vaccinating dogs against distemper had been discovered. He understood that the committee had offered to assist commercial laboratories or institutions willing to prepare the vaccine and make it available to the public. No public funds were available to assist the preparation or distribution of the vaccine. The Ministry's responsibility in respect of diseases of the dog was confined to diseases such as rabies, which were communicable to farm livestock or human beings.

Mr CRAWFORD asked whether if this was an effective preventive it did not mark a milestone in the treatment of dogs and if the Government could help in the efforts which were being made in this direction by recommending a grant to help to make the application of the vaccine universal? Mr GUINNESS said he agreed as to the great importance of this discovery, but he did not see any necessity for a Government grant seeing that the discovery was now past the experimental stage and there was every hope that it would be taken up in the ordinary course by those whose business it was to supply these vaccines. Dr VERNON DAVIES: Is it not a fact that this is a direct result of experiments made on dogs? Mr GUINNESS: I believe that is so.

Health of the Mercantile Marine.—Mr HERBERT WILLIAMS, in a reply to Dr Vernon Davies on December 5th said that as a result of consultations between the Ministry of Health and the Board of Trade a joint standing committee had been set up to advise the two departments on matters affecting the health of the mercantile marine. One of the first questions which that committee would be asked to consider was the preparation of a report on the health of the mercantile marine.

Women Members of Visiting Committees of Mental Hospitals.—Mr CHAMBERLAIN told Sir Robert Newman on December 6th that information was not available to show how many women patients of unsound mind were detained in borough or county mental hospitals in England or Wales where there were no women members on the visiting committee. When legislation dealing with the subject was proposed the Government would consider making it compulsory that a certain number of women should be appointed to serve on all such visiting committees.

Bellahouston Hospital.—Major TAYLOR in reply to Mr Buchanan on December 6th said the tenure of Bellahouston Hospital by the Ministry of Pensions would not extend beyond Whitsuntide, 1930. It was impossible so soon to indicate the steps that would be taken to accommodate patients who might then require hospital treatment. No difficulty was anticipated in making satisfactory arrangements. He would continue to maintain hospital accommodation in the West of Scotland as long as possible.

Notes in Brief

Mr Chamberlain is considering the setting up of an advisory committee on the question whether certain articles ordered for insured persons by insurance practitioners are foods and cannot properly be supplied to insured persons as part of their medical benefit under the National Health Insurance Acts. He hopes to provide for the representation of Wales on the committee.

The protocol prohibiting the use of gas in war has only been ratified by six States of which Germany is not one. The British Government is not prepared to ratify it unless all other signatories are willing to do so.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a congregation held on December 7th the following medical degrees were conferred:

M.D.—W. Haw
B.Chem.—H. N. Webber, H. Girling.

UNIVERSITY OF LONDON

The regulations in the Faculty of Medicine for internal and external students have been amended by the addition of the following words at the end of the section headed Branch III—Psychological Medicine:

A general knowledge of medicine will be expected of the candidates and questions in general medicine may be set.

Mr H. L. Eason has been elected chairman of the Library Committee.

The Geoffrey E. Dineen Travelling Studentship in Otorhinolaryngology of the value of £450 will be awarded annually. The tenure is for one year to be spent abroad in accordance with the scheme to be approved by the Board. It may be extended for one or two years and during the extended period the student may be allowed to undertake research at the Royal Ear Hospital or some other approved laboratory. Grants for the promotion of research in otorhinolaryngology or any part thereof may be made from the trust fund of the benefaction. No person shall be qualified for

election to the studentship or to receive grants from the fund until he or she has obtained M.B., B.S. degrees in the University. Applications on forms provided to be sent to the Academic Registrar of the University by December 31st, 1928 together with a statement of the nature of the research in which the student proposes to engage or a scheme of study submitted for the approval of the Board.

Sixteen medical entrance scholarships and exhibitions of the aggregate total value of £1700 tenable in the Faculty of Medical Sciences of University College and King's College and in the medical schools of King's College Hospital, University College Hospital, the Loudon Hospital, and the London (Royal Free Hospital) School of Medicine for Women will be offered by the London Inter-Collegiate Scholarships Board. The examinations for medical scholarships will commence on April 16th and June 25th 1929. The latest dates for the receipt of entries are March 21st and June 11th respectively. Further particulars and entry forms may be obtained from the Secretary of the London Inter-Collegiate Scholarships Board, S. C. Rauer, M.A., the Medical School, King's College Hospital, Denmark Hill, S.E. 5.

UNIVERSITY OF BIRMINGHAM

Dr. L. G. PARSONS has been appointed the first occupant of the new Chair of Infant Hygiene and Diseases of Children.

UNIVERSITY OF BRISTOL

The following candidates have been approved at the examination indicated:

M.D.—C. B. Perry, (Dissertation Approved) A. M. Critchley.
FINAL M.B., B.Ch.B. (Part I including Forensic Medicine and Toxicology):
—J. P. Coates, E. J. M. D. Colloso, H. F. G. Corfield,
—J. L. W. Davies, J. J. J. Gerald, E. D. Jones, G. F. Langley,
R. A. Lacey, R. P. Lucas, J. F. Newton, S. C. Wake (in Part I only),
U. M. Hopkins, W. L. Sleight, H. M. Stover (Part II),
A. A. Dowling, H. D. Pyke, I. G. R. Pells, F. H. L. Redman
(in Group II completing examination) Phoebe C. Vine.

* With distinction in Materia Medica, Pharmacology, Pharmacology and Therapeutics and Forensic Medicine and Toxicology.
† With distinction in Forensic Medicine and Toxicology.
‡ With distinction in Materia Medica, Pharmacology, Pharmacology and Therapeutics.
§ With second-class honours and distinction in Obstetrics.
¶ With distinction in Public Health.

UNIVERSITY OF GLASGOW

PROFESSOR ANDREW HUNTLY, M.A., B.Sc., M.B., Ch.B., of the University of Toronto has been appointed Gardner Professor of Physiological Chemistry in the University of Glasgow, in succession to Professor Cathcart, F.R.S.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC, TRINITY COLLEGE

The following candidates have been approved at the examination indicated:

FINAL MEDICAL EXAMINATION, Part II, Medicine (M.B.)—A. G. Thompson, W. J. E. Jesson, N. A. Stack, G. O. Dockery, D. F. Walsh, M. M. Finegan, J. E. C. Cherry, J. E. McMahon, J. T. McGinn, I. W. Pigott, E. F. S. Morrison, C. M. O'Brien, Surgery (B.Ch.)—A. G. Thompson, G. C. Dockery, D. F. Walsh, W. B. Johnston, J. E. McMahon, E. M. P. Molloy, N. Shapira, R. I. G. Reid, J. Beggs, F. R. Falkner, I. P. Battaglia, J. Herwich, C. M. K. B. S. Mackenna, Midwifery (B.A.O.)—L. B. Harris, T. B. McMahon, G. B. Thrift, O. M. Taylor, R. B. J. Esbom, B. H. Hamilton, C. M. O'Brien, I. Reid, A. H. O'Malley, E. B. A. Solomons, N. S. Blass, G. K. Graham, J. Beggs, A. F. Kennedy, P. A. Thornton, F. B. Mackenna, W. L. Chapman.

* Passed on high marks.

NATIONAL UNIVERSITY OF IRELAND

The Senate at its meeting on December 7th tendered to the relatives of the late Dr. Michael M. Davitt its respectful sympathy in their recent bereavement.

It was decided to hold an examination for a travelling studentship in pathology next year in view of the fact that the examination for 1928 had not been completed for.

The following appointments at University College, Dublin were made: Professor of Surgery, Senator L. Barnhill; M.D., M.Ch., Professor of Systemic Surgery, H. S. Meade, F.R.C.S.I., Lecturer in Medical Jurisprudence, A. R. J. Dunagan, M.D.

A report from Dr. D. J. Coffey as representative of the University on the General Medical Council was approved.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

An ordinary Council meeting was held on December 5th when the President, Sir Berkeley Moynihan, Bt., was in the chair.

Diplomas and Licences

Diplomas of Fellowship were granted to the following thirty six candidates:

J. R. M. Wigham, A. W. Holsate, B. L. B. Jefferson, J. H. Dozart, H. S. Allen, F. S. Page, T. V. Pearce, F. W. G. Nash, A. M. Clay, J. O. Barrett, V. G. G. W. Walker, V. H. Ellis, D. H. MacLeod, A. McWilliam, J. P. Monkhouse, G. H. Steele, C. B. Andrew, C. F. Beare, L. Price, A. Sourash, H. B. Stallard, T. B. Crabtree, J. M. Turner, G. E. Lark, C. I. Tuckett, L. A. Richardson, R. W. Butler, M. A. Hussell, J. M. Buchanan, I. Crooks, G. M. Gray, Dorothy W. Hall, J. S. Loughridge, C. McI. Marshall, S. V. Taylor, J. J. Walsh.

R C Brock, I D Miller and J T Sykes also attended the examination at the Final Fellowship Examination but have not yet complied with the regulations.

Diplomas of Membership were granted to A S Rajasingham and I Larence Whitrow, who have now complied with the regulations. Licences in Dental Surgery were granted to forty eight candidates.

Court of Examiners

Mr Ernest W Hey Groves was elected a member of the Court of Examiners in the vacancy occasioned by the resignation of Mr V Warren Low.

Annual Meeting of Fellows and Members

A report from the Committee on the Annual Report of the Council was received, and the comments recommended by the Committee regarding the resolution carried at the annual meeting of Fellows and Members were approved and adopted as follows:

In view of the recent postal vote of the Fellows the Council is not prepared to take into further consideration at the present time the question of altering the constitution of the College so as to give Members of the College direct representation on the Council.

The main function of the College is to promote the study and practice of surgery. If there are any matters in this connection affecting the health of the nation to which Members of the College wish to draw attention an opportunity for so doing is afforded at the annual meeting of Fellows and Members. While the Council will at all times welcome and give careful consideration to representations made to it by any Member or body of Members of the College in reference to matters which come within the functions of the College.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

The annual meeting of the Royal College of Physicians of Edinburgh was held on December 6th. Dr Robert A Fleming was re-elected President for the ensuing year. Dr Robert Thim was nominated Vice President and Drs G Loriel Gulland and John Orr William Loryce Edwin Bramwell, and A Iergus Heyat were elected to form the Council.

Drs William Russell and John Orr have been re-elected representatives of the College on the Board of Management of the Royal Infirmary of Edinburgh.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At the monthly business meeting held on December 7th, the 1 resident admitted to the Licences in Medicine and Midwifery, the following candidates who had passed the Winter Conjoint Final Examination: D J Herriek, J I Ryne, J P J MacMahon, L B O Sullivan, J Ryan, W J Walshe. It was unanimously resolved.

That the Committee of Management of the Conjoint Scheme of the Irish Royal Colleges of Physicians and Surgeons be requested to proceed with whatever steps should be considered necessary to establish reciprocity with the National Board of Examiners of the United States.

Medical News.

A PORTRAIT of Professor Priestley Smith LL D, F R C S, will be unveiled to day (Friday, December 14th) at the Queen's Hospital, Birmingham.

At a meeting of the Royal Anthropological Society to be held at 52, Upper Bedford Place, W C, on Tuesday, December 18th, at 8.30 p.m., Miss R M Fleming will give an address, illustrated by lantern slides entitled "A study of growth in children. Its ethnological and educational significance. An analysis of six years' consecutive measurement."

At a meeting of the Royal Statistical Society on December 18th, in the hall of the Royal Society of Arts, Adelphi, W C 2 at 5.15 p.m., Mr H E Soper will read a paper on the interpretation of periodicity in disease prevalence.

THE house and library of the Royal Society of Medicine will be closed from Saturday, December 22nd, to Thursday, December 27th, both days inclusive.

As announced in our advertisement pages, the Grocers' Company are offering scholarships of £300 a year to encourage original research in sanitary science. An allowance is also made to meet the cost of apparatus and other expenses in connexion with the work. The scholarships are renewable for one year, but renewable for a second or third year. The election will take place in May, 1929. Applications must be sent in before the end of April to the Clerk of the Grocers' Company, Grocers' Hall, London E C 2, from whom forms of application and further information may be obtained.

A JOINT gift of £20,000, payable over the next eight years, has been made by Sir William Berry and Sir Gomor Berry in response to the special appeal for £55,000 to rebuild the two wards of the King Edward VII Hospital, Windsor, recently destroyed by fire, and the erection of a new nurses' hostel. A sum of £12,000 is still required.

We are informed that about forty vacant beds are available for nursing and convalescent children of the professional classes at the Yarrow Convalescent Home at Broadstairs. The nominal weekly charge per child is £1 or less, the balance of the cost of maintaining the home being met by the founder, Sir Alfred Yarrow. Professional societies, parents, and doctors are invited to obtain particulars from the secretary, 116, Victoria Street, S W 1.

THE tenth annual dinner of the Royanment Unit of the Scottish Women's Hospitals was held at the Belgravia Hotel, London, on December 1st, under the presidency of Miss Frances Lyons, M S. Seventy four members attended.

THE council of the Oxford Ophthalmological Congress has elected Mr Bernard Cridland as master for the coming year, the deputy master being Mr Philip H Adams, the honorary treasurer Mr Robert J Coultter, and the honorary secretary, to whom all communications should be addressed, Mr C G Russ Wood, 12, St John's Hill, Shrewsbury. The dates of the next Congress are July 4th, 5th, and 6th, 1929.

THE report of the Food Investigation Board for 1927 has been issued by the Department of Scientific and Industrial Research (price 4s net). It gives an account of the various activities of the Board during the year under review, and in particular describes the progress of investigations not sufficiently advanced to warrant the issue of special reports. The report is divided into two sections, the first of which is a report of the Board, while the second is a report by the Director of Food Investigation. The latter is subdivided into sections, each written by the member of the staff responsible for the conduct of the particular investigation, the progress of which is described in that section.

A REPORT on phlebotomy and Oroya fever and venous pyemia, by the late Dr Hideo Noguchi and three colleagues, is published in the issue of *Science* for November 23rd.

THE annual report of the Commissioner of Public Health, Queensland, for the period ending June 30th, 1928, contains a note that the outcome of the disaster at Bundaberg has been that immunization by toxin antitoxin has ceased throughout the State of Queensland and that at present it is not possible to make use of a well tried and most effective method of controlling diphtheria.

We have received the first three issues of *Clinica*, a bi-monthly journal published at Bucarest under the patronage of professors in the medical faculty and the editorial direction of Dr B Theodorescu. Each issue consists entirely of original articles written in Rumanian with French summaries appended, and is devoted to some particular subject such as cardiology, alimentary diseases, and surgery respectively.

THE December issue of the *Mission Hospital* contains the annual financial statement of the Medical Missionary Auxiliary of the Church Missionary Society, from which it appears that there is a surplus on the year's working of £4,276, to which may be added £1,420 available for allocation from the surplus of the previous year. This has enabled increased grants to be given to some of the more needy mission hospitals overseas. Owing to the difficulties of the war years there is an outstanding deficit of £19,000. The present increase in income is attributed to the expansion of the bodies which support the Medical Missionary Auxiliary, since receipts from legacies have decreased this year by £7,000.

At the recent congress held at Bordeaux under the name of *Journées Médicales de Bordeaux*, the following papers, among others, were read: New treatment of pulmonary emphysema and asthma by Dr Croix; malignant carcinoma and naevi by Professor Sahrazès; aceto diurnal by Professor Abadie; new ideas on scarlet fever by Professor Dupérier; electrotherapy of infantile paralysis by Dr Roques; arterial encephalography and localization of cerebral tumours by Professor Egas Moniz of Lisbon; and treatment of bone and joint tuberculosis by Professor Rocher.

THE third congress of the German Society for Combating Rheumatism was held in Berlin from November 5th to 8th, under the presidency of Professor Dietrich, when the following papers among others were read: Local disease of the teeth and rheumatism, by Professor Adlon; pseudo rheumatism, by Professor G v Bergmann; rheumatic eye disease, by Professor L Krülowmann; etiological diagnosis and treatment of chronic joint disease, by Dr A Zimmer; treatment of rheumatic contractures, by Professor H Gocht; chronic joint disease, with special reference to articular syphilis and Still's disease, by Professor H Strass; and diagnosis and treatment of chronic joint disease, by Professor H Umber. The next congress will be held in the middle of April at Wiesbaden. Further information can be obtained from the secretary, Dr Max Hirsch, Fraunhoferstrasse 16, Charlottenburg.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The Editor, British Medical Journal, British Medical Association House, Tavistock Square, W C 1**

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QUERIES AND ANSWERS

DRY SKIN

"H M C" desires suggestions for the treatment of a woman, aged 40 who has had a very dry skin for a considerable time. She suffers each winter from deep cracks on the tops of the fingers and in the creases of the joints. Creams and ointments of various kinds and a course of thyroid gland, have been tried without much improvement.

A PAGE TURNING DEVICE FOR ARMLESS PATIENTS

With reference to W N's "Inquiry about a mechanical device for turning the leaves of a book." Dr W JOHNSON SMYTH (Bournemouth) and Dr F W BURTON FANNING (Norwich) remind us that among the many little inventions for the help of wounded officers who during the war were his guests the late Sir Arthur Shipley (Master of Christ's College, Cambridge) made an appliance of this kind suitable for a man without arms. It was held between the teeth and worked well. A description with figure appeared in the *British Medical Journal* of June 9th, 1917 (p. 769).

Mrs HUTCHINSON (The Lodge Pembroke College Cambridge) tells us that this contrivance was made by the Cambridge Instrument Company Ltd, Carlyle Road Cambridge during the war and it is possible they may still have the design and be able to repeat it. If not Mrs Hutchinson will endeavour to find a specimen contrivance or the design, which she believes to exist among Sir Arthur Shipley's papers.

INCOME TAX

Expenses of Caretaker Additional Practice

"J F M" is a bachelor, and as from October 24th purchased an additional practice. He continues to reside at his former practice where he employs a man and his wife as caretakers etc. and employs a widow at the additional surgery where she resides with her two children. What allowances is he entitled to?

On the facts stated "J F M" can claim the whole cost of the employment of the widow in respect of the additional premises—including of course any remuneration given in kind such as coal gas etc.—and the whole of the rent and rates. In the case of the premises where he resides, such expenses will have to be divided in a reasonable proportion, according to the ratio of private and professional use. We think that the income tax authorities will require the practice to be treated as a new one as from October 24th last, unless the additional net earnings from the new portion of the practice as now constituted are small.

Assistant's Motoring Expenses

A C F held various temporary appointments after qualifying in 1925 but has been in the same assistantship since November, 1926. He has been assessed as having commenced employment as from that date. He now uses his own car but for a considerable time a car was provided by his principal and a car which belonged to him was parked elsewhere. He also desires to know whether a man who books horses regularly through a commission agent can declare gallop or losses in his income tax return.

We are of opinion that in strictness the gallop of employment in such circumstances are separately computable for each employment and that expenses incurred in connexion with

care—either by way of renewal or through depreciation—are not deductible in respect of periods when it was not a condition of the employment that the car expenses should be borne by the employee. With regard to backing horses, the results, whether favourable or unfavourable to the backer, do not come within the scope of his income tax declaration.

LETTERS NOTES ETC

THE MEDICAL AND DENTAL REGISTERS OFFICE NOTICES

THE REGISTRAR of the General Medical Council (44, Hallam Street, Portland Place W 1) writes: In order to facilitate the work of those who find it essential to know whether a medical practitioner is legally qualified or not—snob, for instance, as officials of insurance committees, chemists and druggists, etc.—the Council publishes an office edition of the lists contained in the *Medical Register* giving the names and addresses of all registered practitioners. This office edition is bound in paper boards and issued from this office at the special rate of 7s 6d, post free, but no copies can be issued at this price unless they are ordered and paid for prior to December 31st of the year preceding that of publication. Similarly the Dental Board publishes an office edition of the *Dentists Register* containing the names and addresses of all registered practitioners and this local list at the price of 4s, not post free, but no copies can be issued at this price unless they are ordered and paid for prior to December 31st of the year preceding that of publication. This information may be useful to some of our readers.

THE DIAGNOSIS OF GASTRITIS

DR P J MOLLOY, in the course of a letter from Berlin writes: Considerations of space prevent my replying fully to Dr Hurst's criticisms of my letter of November 6th and I can therefore only deal with one or two points shortly. In his lecture he stated definitely that gastritis can be diagnosed only by means of a fractional test meal, and I suggested gastroscopy as an alternative method. The matter of gastroscopy being somewhat dangerous is beside the point. It is undoubtedly not the method of choice, but it is still a possible method. The radiological method is used by many people of experience and they are convinced it is the best finding it quite reliable in diagnosing gastritis. Therefore one may be allowed to take it that this method, although by no means perfect is another means of diagnosing this condition. And there are clinicians of wide experience who are convinced that gastrorrhoea is not a myth but a definite, if not too frequent, entity. I must still maintain my point of view that the primary essential factor of gastric and duodenal ulceration is not yet definitely known. I do not say that Aschoff is right, or that Bergmann is right, or that the infection theory is wrong, but am of the opinion that until the evidence of the guilt of any one factor is definitely proved the matter must be left open and there are not many who will maintain that the last word on the subject has been spoken. On the matter of milk test meals I went into the subject in detail with Kaik and I may mention that he is not satisfied that Dr Hurst's statements as regards his (Kaik's) work and findings are quite correct. And, finally, I hope Dr Hurst does not think I am, in medical matters, pro German and anti British: nothing is further removed from the truth. Having been some time in Germany I naturally am in more intimate contact with German than with English medicine but I do my best to keep in touch with medicine at home.

VAGINISMUS

A TASMANIAN CORRESPONDENT writes with reference to the inquiry by "G A" (September 8th, p. 473). Some thirty five years ago I had under my care a very bad case of vaginismus which had lasted five months. Under anaesthesia I inserted a fairly large boxwood egg shaped pessary, and impressed upon the patient the absolute necessity of removing it herself the next day by means of the strong tape left attached. I did not tell her anything about the size of the object left in her vagina. The plan was completely successful as also in two other cases later on. It is probable that the delivery while conscious of so large an object helps to correct the faulty psychology which is causing the trouble.

THE THERAPEUTIC VALUE OF VALERIAN

DR A ROSE (Aberdeen) writes to express complete agreement with Dr Manson's remarks about the value of valerian (*British Medical Journal* November 10th p. 842). I frequently use this drug in my work (he says) chiefly for patients suffering from neurosis. Unlike Dr Manson however, I prefer to prescribe with it ammonium bromide, occasionally sodium bromide but never potassium bromide. A typical prescription would be tr. valerianae ammon. draohm 1/2 bromide salt gr. x with perhaps a few grains of phenazone if the patient is suffering from headache that appears to be associated with the neurosis.

VACANCIES

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 48, 49, 50, 51, 54 and 55 of our advertisement columns and advertisements as to partnerships, assistantships and locum tenencies at pages 52 and 53.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 263.

An Address

ON

PERNICIOUS ANAEMIA

DELIVERED BEFORE THE WEST DORSET DIVISION ON
OCTOBER 30TH

BY

J. R. CHARLES, M.A., M.D., F.R.C.P.,

PHYSICIAN TO THE ROYAL INFIRMARY, BRISTOL

(Abridged)

PERNICIOUS ANAEMIA is a very mysterious complaint, the name of which may perhaps sometimes be changed, for it may exist without the specific anaemia which we recognize as pernicious. It has three main clinical modes of expressing itself, and perhaps when we know more about it we shall recognize more than three. It may appear clinically as a gastro-intestinal disease, or as a nervous disease, or as a blood disease, or as a combination of two or all of these conditions. Whether it need be as "pernicious" as it used to be is a question. Can anything be done to prevent its onset? Can anything be done to cure it? These are problems which will be discussed in this paper.

Last March a man, aged 61, was admitted into my wards with extreme prostration. One of his brothers, he said, was also extremely anaemic but as there has not been an opportunity of examining him it cannot be said that he also has pernicious anaemia. The left leg of the patient had been amputated many years previously for necrosis. For three years he had suffered from pains in the abdomen particularly in the epigastrium. These pains had no direct relation to food. He was also troubled with much intestinal flatulence. Six months before admission his pains disappeared. From that time he had developed increasing weakness during which period he vomited on several occasions. His appetite failed and he lost 2 st in weight. He lay in bed in a condition of extreme exhaustion and listlessness being so weak that he could hardly answer questions. He was very markedly lemon tinted. His tongue was clean but his teeth were carious. His heart sounds were very weak but there was no evident dilatation. There was diffuse tenderness over the whole of the abdomen but neither the liver nor the spleen could be felt. He had subcutaneous haemorrhages over his chest. No objective abnormality was found in his nervous system except that his knee jerk was extremely sluggish. His blood was pale and watery. A blood count showed

Red blood cells	2,400,000 per cmm
White cells	11,600
Haemoglobin	50 per cent
Colour index	0.65
Differential white count	
Polymorphonuclear	46 per cent
Lymphocytes	51
Eosinophils	1
Large mononuclears	2

Megalocytes were numerous and there were 3 normoblasts and 1 megaloblast to 100 white cells. Anisocytosis and poikilocytosis were marked. Van den Bergh's reaction gave "direct negative indirect" positive indicating a haemolytic anaemia.

A few days later he was given a transfusion which unproved his condition. He was so ill that he was given simultaneously all the remedies which might help him. These were arsenic dilute hydrochloric acid 30 minims three daily and liver. As he was unable to take this latter in a solid form he was given 2 drachms of the extract three times a day.

A month after admission he was very much better. His red cells at that time numbering 4,000,000 per cmm and his white cells 7,400. Ten days later his red cells numbered 6,500,000 per cmm. His colour changed entirely, the lemon tint disappeared and he left the infirmary in the middle of June with about 6,000,000 red cells per cmm and free from abnormal symptoms.

Since that time he has remained in good health until just recently but owing to his financial condition I do not think he has had sufficient food. He now complains of numbness and tingling in his hands.

This case is described in the briefest outline to draw attention to the family history of anaemia, the onset of his disease with abdominal trouble, the clean tongue, the extreme prostration, and certain points in treatment to which reference will be made later.

The disease may appear under very different guises—for example, as a cord lesion, the specific anaemia not being manifest till quite towards the end. Byrom Bramwell had a case of subacute combined degeneration of the cord in which the anaemia did not appear till about a fortnight before death.

There is, however, one outstanding feature in this complaint which is always constant, that being complete absence of free hydrochloric acid in the stomach. Lack of acid in

the stomach is a condition which is not very rare. Many people suffer from this, or perhaps do not suffer, because they may have no abnormal symptoms. It has, however, been pointed out that they are unduly prone to such complaints as appendicitis, cholecystitis, and rheumatoid arthritis.

All patients who develop pernicious anaemia have had an antecedent state of absence of free acid in their stomachs. It is quite probable that in many cases this lack of acid is an hereditary feature, and that this may be the reason why several cases of pernicious anaemia may be found among the members of one family. The nervous system is the seat of organic changes in over 80 per cent of all cases diagnosed as pernicious anaemia, the signs and symptoms of which may precede the blood changes.

These facts were brought to the forefront of this paper, and the anaemia is placed last, in order that the disease shall not be discussed merely as one of the blood, but rather as a very obscure complaint which affects the gastro-intestinal tract, the nervous system, and the blood. The blood is put last because it is so easy to make a mistaken diagnosis, and not to think of the possibility of pernicious anaemia when marked nervous or gastro-intestinal symptoms precede the haemic manifestations. As there is such a clinical condition as "leukaemic leukaemia," so there is such a condition as pernicious anaemia without anaemia, but probably never without gastro-intestinal trouble, for achlorhydria is almost, if not quite, a *sine qua non* of the disease.

At the very least, 80 per cent of the patients have symptoms directly referable to the gastro-intestinal tract, and many of these have suffered for many years before the anaemia is obvious. Out of 68 consecutive cases at Guy's Hospital I found that 45 had definite gastro-intestinal symptoms and that in 7 of these the symptoms dated back five or more years. For example, one, a man aged 57, had had diarrhoea and abdominal pain since he was 13, another aged 51 had suffered from similar symptoms since he was 25. These are not uncommon histories.

Achlorhydria is well known in many conditions, notably carcinoma, chronic gastritis, after severe infections, and from nervous causes. It may also, as we have seen, occur in apparently healthy subjects without giving rise to symptoms. When, however, symptoms do arise these are generally loss of appetite, morning nausea, a feeling of distension immediately after meals, heartburn, sometimes epigastric pain, and not infrequently diarrhoea.

Achlorhydria can only be recognized with certainty by gastric analysis. This has shown, by means of the fractional test meal that whereas many patients with so-called achylia gastrica secrete free hydrochloric acid during some period at least, of the process of digestion, cases of pernicious anaemia do not secrete free hydrochloric acid at any time.

A further interesting point has been described by Hurst and Bell—namely, that subacute combined degeneration of the cord may occur without the specific anaemia in cases of achlorhydria. As achlorhydria precedes all other symptoms of pernicious anaemia, we should know more about the secretions of our patients' stomachs, for it may be after all, within the realms of possibility that pernicious anaemia might be prevented from developing were free hydrochloric acid regularly administered to such people. Here we may note that the *British Pharmacopoeia* dose is much too small. If given at least 1/2 to 1 1/2 drachms is required, which may be taken in the form of a lemonade at meals.

Not only does achlorhydria precede the anaemia, but it is a permanent event persisting even during the natural remissions of the disease. Although as is so well known, the gastric mucosa frequently shows pathological changes in pernicious anaemia it has sometimes been found to be quite healthy though secreting no free hydrochloric acid. It would appear, therefore, that the deficiency lies in some underlying functional rather than structural cause and there is a good deal of evidence that it may be an inherited defect—a state which Hurst calls the "achlorhydric gastric diathesis." It has been found in relatives of patients who were suffering from pernicious anaemia and even in their children at as early an age as 6, or even 4.

The gastro intestinal symptoms of pernicious anaemia correspond very closely to those already mentioned in connexion with achlorhydria, though haematemesis may also occur, and the diarrhoea may be that of a definite mucous colitis. The tongue is frequently the seat of a glossitis, Hunter maintaining this to be so in every case. It is generally smooth, moist, and clean. So regularly is this the rule that a clean tongue associated with dyspepsia will suggest to our mind the possibility of pernicious anaemia, perhaps in the pre-anaemic stage, for a history of sore tongue may precede the recognition of the disease by years.

Cornell describes the case of a lady, one of his patients, who had seen him four months earlier complaining of nothing but nervousness, and who one day stopped him in the street to ask if he could do anything for her sore tongue. He asked her if she complained of anything else, to which she replied that her right foot was becoming so numb that she could hardly work the brake of her car. He examined her blood that day and found haemoglobin 60 per cent and 5,000,000 red cells per cmm, but a smear showed perfectly typical changes of pernicious anaemia.

One of this lady's male cousins had a sore tongue before seeing his doctor for weakness, and was also found to have pernicious anaemia.

If we now turn for a moment to subacute combined degeneration of the cord we find again that the nervous symptoms may develop long before the haemic manifestations. Very numerous observations have made it quite clear that the blood condition does not cause the cord disease. Moreover, there is no improvement in the nervous symptoms during the remissions in the blood state.

I have in my wards at the present time a man aged 43, who is suffering from this disease. He was a school porter, and says that he was an energetic man till a year ago. He then began to suffer from aching pains in his arms and legs which he called neuritis, and massaged them with oil. He has had these pains on and off ever since and for the last seven weeks pains in his chest causing difficulty in breathing.

There was no history of gastro intestinal trouble in this case. There was however a complete absence of hydrochloric acid in his fasting stomach, but a small amount was found one hour after a test meal. He has a marked lemon tint. A blood test showed red cells 1,200,000 per cmm, haemoglobin 35 per cent, colour index 1.4. Van den Bergh's reaction is indirect. The deep reflexes in his legs are very much exaggerated with a tendency towards an extensor response on the right but in addition to this he has a definite area of anaesthesia over the middle branch of his fifth nerve on the left side of his face, a very rare occurrence.

In the Mayo Clinic the nervous system was found to be involved in 80.6 per cent of 150 cases of pernicious anaemia. These figures agree with those of other observers. In many cases the ultimate fate of the patient depends much more on the nervous than on the haemic condition. Risien Russell, Batten, and Collier described three stages of the disease:

1. A stage of slight spastic paraplegia with slight ataxy and marked subjective sensations in the lower limbs. (Case 2.)
2. A stage of severe spastic paraplegia with marked anaesthesia of limbs and trunk.
3. A stage of complete flaccid paraplegia, absent knee-jerks, absolute anaesthesia, rapid wasting and loss of faradic excitability in the muscles of the paraplegic region, increase of superficial reflex excitability, absolute incontinence of both sphincters and oedema of the lower extremities and trunk.

The transition of one stage to the next may be remarkably abrupt. Sensory disturbances, such as tingling, cramps, sensations of heat and cold, pains, and girdle sensations, are common. Loss of deep sensibility, the overlying tactile sense being normal, is very characteristic. Mental disturbances may occur, sometimes of a melancholic, at others of a maniacal, form. Delusions and hallucinations are not unknown, but are rare.

It is most important to remember that the blood picture may be far removed from that which is typical of the disease if mistakes are to be avoided. This is especially so in the early stage, during remissions, and when the anaemia is very severe. Bramwell had one case in which the colour index rose in consecutive investigations from 0.8 to 2.3 during the last fortnight of life. Another case, in which the diagnosis was confirmed *post mortem* by Hurst, showed colour indices of 0.7, 0.6, 0.7, 1.2, 1.4, 1.0, 1.25, 0.8, 1.3, 1.4, and 1.0. Cases have been described in which it was continuously below 0.7, the correctness of the diagnosis having been proved by necropsies.

The earliest indication of incipient pernicious anaemia is a marked anisocytosis, with a preponderance of large oval cells, associated with achlorhydria. During certain remissions, especially those produced by liver feeding, a large number of reticulocytes are found in the blood. These reticulocytes are young red cells, rather larger than the normal red cell. Some stress is laid on these cells, because the appearance of more than 2 per cent indicates the probability of a remission, and reference will be made to them later when treatment with liver is discussed.

When the marrow is in a state of great exhaustion we may see, as in the case described at the beginning of this paper, subcutaneous haemorrhages, a feature which is very unfavourable, and often associated with a great diminution of platelets (thrombo-cytopenia).

One more event must be mentioned before leaving this side of the subject—namely, the so-called "blast crises." In these it appears as if the marrow were making a mighty effort, and pours into the blood stream almost all the varieties of cells met with there: megakaryoblasts, myeloblasts, normoblasts, myelocytes, reticulocytes, and polychromatophilic cells. As a rule a blast crisis is of very unfavourable prognostic significance, but occasionally a remission may follow.

CAUSATION

With regard to the causation of the disease little is known. Much research work has been carried out on the nitrogen, iron, fat, and carbohydrate metabolisms, but has yet no convincing results, in the way of finding a causative substance, have accrued. That it is a primary disease of the bone marrow appears most improbable. That it is due to some unknown toxin formed by microbial action on proteins in the intestine, following the loss of the antiseptic action of free hydrochloric acid in the stomach, seems much more likely. In this case the supposed toxin must be both a haemotoxin and a neurotoxin. If this be so, it is strange that feeding with large quantities of liver, which contains much protein, should be the best remedy known.

The questions must be asked: Can liver detoxicate the contents of the intestine? Is it possible that this may be a liver deficiency disease, associated with or caused by the achlorhydria? If liver feeding proves to be a curative agent, we shall want to know why, and the answer may tell us the true cause of the disease. Bile salts are found in the blood, indicating that the liver is affected in some way.

There is another disease, progressive lenticular degeneration, in which the liver is always grossly diseased, although this hepatic disease (enlipsis) has in many of the cases given rise to no symptoms during life. It has been virtually conclusively proved by Barnes that the liver disease in progressive lenticular degeneration antedates, by a long time, the nervous degeneration. Let us note that this is also a familial disease.

Manganese toxicæmia as seen in man is another nervous disease, with symptoms in many ways closely resembling those of progressive lenticular degeneration. If manganese is injected into animals it produces marked cirrhosis of the liver. Although there are no obvious hepatic symptoms in man, investigation of the liver function by levulose indicates in some of them a distinct hepatic deficiency. Treatment by liver feeding does improve patients suffering from the nervous effects of manganese poisoning, if they can be treated sufficiently early, before irrevocable damage has been done to the nervous system.

Bearing these facts in mind one cannot help wondering if the liver in health does exert some vitalizing power over the nervous system, and if the absence of this power may lead to degeneration in the nervous system.

TREATMENT

Prevention being better than cure, the question arises whether the onset of the anaemia could be prevented if all patients suffering from achlorhydria were discovered in time and treated with adequate doses of hydrochloric acid. The name of the complaint, "pernicious," is an adequate plea for the more frequent use of a stomach tube in cases which may present themselves as simple dyspepsia, and the test for free hydrochloric acid is so simple. If achlorhydria be found, years of disablement, followed by

death, may perhaps be avoided by a drachm or a drachm and a half made up into a lemonade and sipped with each meal. Perhaps liver should be given also, even in the pre-anaemic stage. Hydrochloric acid should be given permanently. Liver feeding is, however, the main treatment.

Minot and Murphy's special diet is one which is rich in proteins and food iron, especially in the liver. In addition to this they recommend fresh fruits and vegetables, while reducing carbohydrates and fats. Fats were reduced because unsaturated fatty acids are haemolytic. (Authorities, however, do not agree that there is an excess of unsaturated fatty acids in the blood in pernicious anaemia.) Following the use of this diet some very remarkable events have been noted. In a few days after its commencement reticulocytes are poured into the blood stream. Their number goes up from 1 per cent to 10 or 15 per cent, and remains so for a few days, and then gradually falls, so that the number reaches 1 per cent again in about three weeks. We saw that reticulocytes are immature red cells. This phenomenon is called "the reticulocyte hump." It appears to be a constant result of liver feeding. It does not occur in the natural remissions of the disease, or after any other known method of treatment. Liver therapy appears, therefore, to exert some very definite and specific action on the blood-forming functions of the marrow.

PERNICIOUS ANAEMIA, WITH FREE HYDROCHLORIC ACID IN GASTRIC CONTENTS DUODENAL ULCER PERFORATION OPERATION RECOVERY

BY

STANLEY DAVIDSON, B A CMB, M D, Ch B,
F R C P Ed,

ASSISTANT PHYSICIAN ROYAL INFIRMARY EDINBURGH RESEARCH
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THE complete absence of hydrochloric acid in the gastric contents of cases of pernicious anaemia is a finding which has been so constantly reported in every country in the world that it is now recognized to be a cardinal sign of the disease. The achlorhydria, moreover, is functional, and is not the result of pre-existing gastritis, and has been found to be present in every case examined previous to the onset of symptoms. It is uninfluenced by the phases of remission or relapse or by any method of treatment. The constitutional or hereditary factor in the disease is shown not only by the facts stated above, but also from our knowledge that blood relations of cases of pernicious anaemia are often achlorhydric even when young children. The absence of hydrochloric acid automatically stops gastric digestion, as free acid is necessary for the activation of pepsin. Gastric digestion, however, is of relatively small importance, because the digestive juices of the pancreas and small intestine are ample for the purpose of breaking down the sugars, fats, and proteins of foodstuffs to the simple molecular form in which they are absorbed. On the other hand, achlorhydria is held by many workers to be of great importance in pernicious anaemia because of the resulting altered biochemical reaction of the gastrointestinal contents. Whereas the stomach and upper levels of the small intestine are, in normal individuals, practically or actually free from pathogenic bacteria, in pernicious anaemia sepsis from above and ascension of organisms from below render the gastro-duodenal flora similar to that found in the lower ileum or colon. While I am satisfied that no specific causal agent for pernicious anaemia exists, and particularly that haemolytic organisms are of no etiological importance, I feel that if the absorption of toxins, bacterial or metabolic, does not take place in these circumstances it is impossible to conceive that it ever does. Lastly, the recent work of Castle,¹ if confirmed, is worthy of consideration. He found that if beefsteak, previously digested in a normal person's stomach, is given in suitable amounts to a case of pernicious anaemia, a typical reticulocyte response could be obtained, although beefsteak itself, the gastric juices alone, or beefsteak artificially

digested, failed to do so. This would point to pernicious anaemia patients' stomachs being deficient in some property which enabled them to utilize or manufacture the specific blood hormone from animal protein.

I or the above reasons it is right that achlorhydria should be held to be a cardinal sign in pernicious anaemia, and I have consistently taught that the finding of free hydrochloric acid definitely excludes the diagnosis of pernicious anaemia. This teaching was based on bacteriological and biochemical investigation of 50 cases of pernicious anaemia before, during, and after treatment. The following case, therefore, appears to me to warrant publication.

The patient, a factory labourer aged 34 gave a history of having had influenza in 1918. In 1919 he suffered from pain in the stomach, which was diagnosed by his doctor as chronic indigestion. The pain was dull in character and constantly present. It was not relieved by or related to food. He had no vomiting. He was constipated. The attacks lasted some weeks and continued on and off for over two years when he was admitted to the Royal Infirmary, Edinburgh. After five weeks' stay in hospital his symptoms were relieved and he remained well for eighteen months.

In 1925 the pain returned and was much more severe. It was only relieved by morphine. He was admitted to Ward 31 Royal Infirmary, Edinburgh. The test meal examination showed that his free acid = 50, total acid = 66. His spleen was enlarged and he had a somewhat doughy abdomen. His condition was diagnosed as abdominal tuberculosis. He was discharged much improved, and remained well until September 13th 1926 when the abdominal pain returned and he had to stop work.

On November 13th 1926 he was again admitted to Ward 31. The pain was very sharp and was situated in the left epigastrium. It extended over the lower four left ribs. It was not related to or aggravated by food. Although mostly in front it sometimes shot through to the back, but never downwards. Sometimes it was very acute. There was no pain on micturition and no frequency, nor was it aggravated by deep respiration or straining at stool. There was no vomiting, sweating, or diarrhoea but the patient had periods of constipation.

Asked as to previous illnesses he stated that he had had measles and influenza. His general surroundings were good, but his work which was moderately hard was done in a bad atmosphere. He was a moderate smoker and nearly a total abstainer from alcohol.

Family History.—Mother and father both alive and well two brothers aged respectively 35 and 19 were alive and well one brother and one sister died in infancy. There was no similar disease and no tuberculosis in the family.

State on Examination.—He was 5 feet 4 inches in height and weighed 8 st 4 lb, he was of average intelligence and was poorly developed and thin (temperature 97° F). He stated that his appetite had been poor for years. He often had a feeling of weight after food, but consistently denied that food aggravated or alleviated the pain. There were no cruetations, acidity or heartburn. His teeth had all been extracted six weeks previously.

Inspection of the abdomen showed it to be rather scaphoid. There was no local prominence or retraction. On palpation no tenderness or rigidity of muscle was elicited. There was a suggestion of a doughy feeling on splashing. The liver was not enlarged. The spleen was enlarged and palpable two inches below the costal margin in the mid axillary line, it was not tender and there was no friction on auscultation.

A test meal given on November 16th showed free acid = 23, total acidity = 50.

X Ray Report.—J shaped stomach of good tone and peristalsis. Duodenal cap persistently deformed and tender. At end of six hours the head of the meal had reached the hepatic flexure. The stomach was again filled and the deformity was again seen. At the end of twenty four hours the whole of the colon was outlined which is evidence of marked spasticity. Conclusion. The x ray examination is very suggestive of duodenal ulcer.

Haematopoietic System.—A blood count on November 16th 1926 showed red blood cells 2 640 000 per cmm, white cells 11 000 per cmm, haemoglobin 76 per cent, colour index 1.04.

A detailed report on the nervous, urinary, circulatory, and respiratory systems is given in the case history but as nothing abnormal was found it is unnecessary to repeat the information.

On November 21st 1926 the patient suddenly got an acute pain in the right epigastrium, accompanied by profuse sweating and board like rigidity of the abdominal muscles. The condition was diagnosed as a perforated duodenal ulcer and the patient was transferred to the surgical side for operation. The following day at 1 a.m., Mr. Hingworth operated. He found greenish fluid exuding from a perforation in the anterior wall of the duodenum. The stomach, gall bladder, liver and appendix were perfectly normal. The spleen was enlarged. A posterior gastro-enterostomy was performed and the patient made a perfect recovery.

On July 23rd 1928 the patient was admitted to Ward 32 complaining of weakness and loss of weight and pain in the back and right epigastric region which was not aggravated or relieved by food. On examination I confirmed the past findings and history as stated above. The patient was thin and emaciated and weighed only 6 st 13 lb. His skin was yellowish, suggesting slight jaundice. It in no way resembled the lemon yellow tinge so typical of pernicious anaemia. He was obviously anaemic and suffered from breathlessness on exertion and had soft systolic murmurs over the mitral and pulmonary valves. Apart from palpation of the spleen two inches below the costal margin, there

was nothing to be made out in any system except as stated below.

Alimentary System—Barium outlined a small high stomach from which the food was leaving rapidly through the gastro-enterostomy opening, which appeared well formed and oval which there was no tenderness. No barium was leaving by the pylorus, but no filling defect of distal portion of the stomach could be made out which might suggest new growth. *Six hours* Residual flakes of barium round stroma. Stomach was refilled and previous examination confirmed. No evidence of a gastric lesion was found. (Report from Radiological Department.)

Haematopoietic System—No enlargement of glands anywhere. A blood count taken on July 25th showed red blood cells 1 320 000 per c mm white cells 7 000 per c mm, haemoglobin 32 per cent, colour index 1.2. This was confirmed on July 26th and on August 4th, except that on the latter date his white blood cells numbered 10 000 per c mm. The blood picture showed marked megalocytosis and anisocytosis and was absolutely typical of pernicious anaemia except for the absence of leucopenia. The white blood cells varied from 7 000 to 10 000 per c mm on different occasions 80 per cent of which were polymorphonuclear leucocytes. Except when there has been concomitant disease of the kidneys, I have never found a white count so high as this in any case of pernicious anaemia. The fragility test was normal. The van den Bergh test showed direct reaction—weak delayed reaction indirect reaction—positive reaction. This was indicative of haemolytic (non-obstructive) jaundice. The Wassermann reaction was negative.

Test Meals—Three test meals were given at different times. The first two showed no free hydrochloric acid. This was not surprising since the fluid tested was a greenish bile-stained mixture of gastric and duodenal contents. The third test made just previous to discharge from hospital consisted mainly of stomach contents which turned red litmus blue Congo red blue and gave a positive Gunzberg reaction. Titration showed free acidity=25 total acidity=51.

Treatment

The patient was placed on light diet and given alkalis and liver by the mouth. Following this treatment the gastric pain disappeared and the patient put on weight rapidly. He gained 1½ st in six weeks. The symptoms and signs of anaemia quickly disappeared and his blood count rose from 1 350 000 red cells per c mm and haemoglobin 28 per cent on August 4th to 3 690 000 red cells per c mm and haemoglobin 60 per cent on August 27th. The white blood corpuscles remained at 8 000 per c mm. A typical reticulocyte rise occurred and the response to treatment was exactly what one is accustomed to get in a case of pernicious anaemia but not in secondary anaemias. The enlarged spleen remained unchanged.

The patient was discharged from hospital looking and feeling very well.

Summary

It is interesting to obtain a long history of epigastric pain which the patient consistently denies is affected by the taking of food, and yet find he is suffering from duodenal ulcer. The presence of marked megalocytosis and anisocytosis, a colour index over unity, and a van den Bergh reaction characteristic of haemolytic jaundice, are all classical signs of pernicious anaemia. On the other hand, the presence of free hydrochloric acid in the stomach and the absence of leucopenia contraindicate the diagnosis. Moreover, there is considerable evidence to show that pernicious anaemia patients conform to a constitutional type or build. Thus Addison noted that the disease occurred chiefly in persons of a somewhat large and bulky frame. More recently Diaper,¹ by his laborious method of anthropological measurements of 45 cases, confirmed this observation, and showed that the pernicious anaemia group tended in their measurements very decidedly to approach the aeromegalic. My own clinical experience agrees with these views. My first visual impression of the patient described in this paper was of a small, badly developed, emaciated, haggard man, who was probably suffering from a simple or malignant ulcer of the stomach. Without many blood examinations I would have been loath to diagnose the case as pernicious anaemia.

Hurst and Haintman² have reported pernicious anaemia occurring after gastrectomy in a very few cases. Conybeare³ has reported a case following gastro-enterostomy.

In the case reported here the blood condition was present previous to operation and so far as I am aware, the co-existence of duodenal ulcer and pernicious anaemia in a patient has never previously been reported.

I have to thank Professor Edwin Bramwell for the early notes of this case during the patient's stay in his ward and Dr Alexander Goodall for his assistance and his permission to publish the case.

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CHRONIC NEPHRITIS IN CHILDHOOD *

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From the standpoint of morbid anatomy there are no forms of chronic nephritis which are peculiar to childhood, and conversely, even an arterio-sclerotic granular kidney may occasionally be found in children. There are, however, certain clinical features about the disease in children which deserve attention. So in this discussion it will be profitable both to describe our experiences of the various forms of the disease in children and also to consider if there be anything peculiar or characteristic about them in childhood which will throw light on some of the obscure problems of the subject. It is in this light that the study of disease in childhood may be looked upon as an important branch of comparative medicine, and as such should concern us no less than the study of actual "children's diseases," of which, *sensu stricto*, there are very few examples.

For the convenience of description and discussion a classification of the various forms of chronic nephritis must be attempted. It is usual to deplore the fact that the various clinical types of the disease are difficult to correlate with the classifications given to us by the morbid anatomists, but I think that we can agree that there are at least three groups of the condition which occur in childhood and that in the main they are widely different and best considered as separate diseases. These are (a) chronic interstitial nephritis, (b) chronic parenchymatous nephritis, including nephrosis, and (c) chronic ascending pyelonephritis.

It is probable that each of these three groups can be further differentiated into types which in themselves are distinct diseases, but for the present they will serve our purpose, being clinical entities which we are accustomed to recognize and content to diagnose.

I have purposely included chronic ascending pyelonephritis for discussion. Truly it is not a primary disease of the kidney, but the same may perhaps be said of nephrosis, and it has this clinical importance, that it may impair the renal function in the same way as chronic interstitial nephritis, and so is likely to be mistaken for it. Moreover, it deserves some comment, for occasionally the ascending infection is due to an obstruction of the urinary tract which can be treated successfully, thus is more than can be said for most other forms of chronic nephritis.

My classification does not include two conditions which are sometimes spoken of as forms of chronic nephritis—namely, chronic haemorrhagic nephritis, and a syndrome to which Heubner gave the name "paedo-nephritis." The first of these is characterized by attacks of haematuria without oedema, which usually follow throat infections. I am inclined to look upon them as examples of recurrent attacks of slight acute glomerular nephritis. It is true that some of these cases do ultimately develop chronic interstitial nephritis with hypertension, but I know of at least two cases which have suffered from these attacks for more than ten years, and so far there has been no impairment of general health or of the renal function. "Paedo-nephritis" is a term which could now be discarded. Heubner coined it thirty years ago to describe doubtful forms of chronic nephritis in children who showed no other signs than albuminuria and anaemia. It is probably no distinct entity, but includes conditions such as latent chronic nephritis, toxic albuminuria, and orthostatic albuminuria.

CHRONIC INTERSTITIAL NEPHRITIS

It is this form of chronic nephritis in childhood which will yield some of the most interesting points for discussion. At one time it was considered a great clinical rarity, and in 1896 Leonard Guthrie, while writing a wonderful description of its signs and symptoms, was able to collect from the literature only seven cases under the age of 14. By 1903 Sawyer was able to collect twenty-four cases. But

* Read in opening a discussion in the Section of Diseases of Children of the Annual Meeting of the British Medical Association Cardiff 1928.

still the subject attracted no great attention apart from the possibility of its being a result of congenital syphilis, a view widely held at that time. In 1911, however, Morley Fletcher, Parsons, and Miller drew attention to the fact that the disease might result in peculiar bony changes and dwarfism and since that time a great number of cases have been recognized. More recently biochemical methods of examination have added further interest giving us clearer means of diagnosis.

Now of this disease, which we call *chronic interstitial nephritis*, I believe that we can recognize three clinical types in children in whom they are more easily distinguishable than they are in adults. Each of these types has probably its own mode of origin and evolution as a separate disease, although proof of this may be lacking when we attempt it by examining the end results in the kidneys after these diseases have run their course.

Taking them first as a group it will suffice briefly to mention some of the common clinical features and their variations which are found during the



FIG. 1—Renal dwarfism in a girl aged 10.

course of the disease. The symptoms may arise at any age from infancy onwards and usually advice is not sought for several years by which time a history of thirst, polyuria, anaemia, and arrested development can be obtained. On the other hand, an attack of uraemia, of one sort or another, may be the first warning of the disease.

In the majority of cases there is no history of an initial renal nephritis or of any illness which would be likely to cause it. On the other hand, in the minority the disease can be traced to an attack of acute nephritis or more commonly to a preceding illness of prolonged sepsis, and I think that it is on this point that two of the types I shall mention can be distinguished.

In the well-established cases the patients are usually emaciated, with coarse, dry, and pigmented skins. The general health is poor and they are liable to recurrent attacks of uraemic vomiting and headache. There is no mental defect, indeed, the patients seem to be shrewd, precocious and intelligent beyond their years. One of my patients at the age of 6 was a regular performer on the music hall stage as an infant prodigy at the piano. To the eye he looked no more than the age of 2 as he sat singing in a high shrill voice to his own accompaniment. To describe such cases, Guthrie quoted W. S. Gilbert's precocious child "who died an enfeebled old dotard at five."

When the dwarfism and bony changes are present they may be extreme, as will be seen from the accompanying illustrations (Figs 1 and 2). Fractures are common, and the gait becomes slow and uncertain. These bony changes are not likely to appear in those cases which run a rapid course towards their terminal uraemia. In studying the disease the bone deformities are of great clinical importance since they give us a valuable means of assessing the duration of the nephritis. They do not occur unless renal function is much impaired, so, for example, if a child with chronic nephritis has had bone deformities and failed to grow for ten years we can presume that he has been sorely afflicted with the disease for at least ten years.

Polyuria is one of the most prominent symptoms, and in one of my cases it was for this that advice was sought by the mother who remarked, "He passes urine night and day just like tap water." The amount of albumin is variable, and may be so slight at times as to be easily overlooked. Casts, leucocytes, and red cells are to be found in the urine as in the chronic nephritis of adults. The blood pressure may be normal throughout, high throughout or become high in the course of the disease. This is an important point, to which I shall refer again in classifying the different types.

Renal retinitis may be absent throughout, even though the patient die in uraemia. In my experience it is present only in those cases with high blood pressure. The renal function tests will demonstrate great loss of function in all cases of "renal dwarfism" and "renal rickets." In these the blood urea lies usually between 50 and 100 mg per 100 c.c. of blood, rising beyond that with each attack of uraemia.

It is on certain combinations of these various symptoms and signs that I would propose to subdivide the cases of chronic interstitial nephritis into the three following types.

TYPE I—*Chronic Interstitial Nephritis—Primary Renal Type without History of Acute Nephritis or Preceding Sepsis*

(Chief features: Unrecognizable onset, marked azotaemic nephritis, slow course with renal dwarfism developing, normal blood pressure, no retinitis, true uraemia. Small white kidneys at necropsy.)

These are the cases which start insidiously without any preceding acute nephritis, oedema, or prolonged septic illness. They are usually first seen when dwarfism or bone deformities are developed. By this time the blood urea is already high, and they present all the symptoms of the "syndrome de retention azotée" of Vidal and Javal—dry skinned and shrunken, with foul breath, stomatitis, subnormal temperature, and evident uraemic digestive symptoms. In the majority the blood pressure remains normal to the end, or, if raised, is rarely above 150 mm. and no retinitis appears. Attacks of tetanus, though not common, may occur with this type. The terminal uraemia is of the sort best described as true azotaemic uraemia, an undramatic picture of muscular twitchings, vomiting, and coma. There may be a terminal convulsion, but striking cerebral phenomena such as transient amaurosis or monoplegia do not occur. It is the type of uraemia which we see with calcareous auria in adults, and I am inclined to think this is the picture of true uraemia when uncomplicated by hypertension—although the textbooks call it "latent uraemia," because it lacks certain dramatic features. The following typical case illustrates this type.

J. S. (see Fig. 2) was under close observation from the age of 15 to 18 when he died in uraemia. He had been in chronic ill health from the age of 4, with maldevelopment of the bones and severe rickets. Prior to that he had not thrived well. In infancy he had measles and chicken pox. There was no history of scarlet fever of skin sepsis or of oedema. At the age of 8 an osteotomy was performed for the correction of his deformities and again about the age of 10. At the age of 15 he was found to have albumin in his urine and he then came under my care. At this time a history of polyuria and thirst since the age of 4 was elicited.

On examination he was found to be 18 inches below the normal height for his age. There was marked genu valgum and active rachitic changes at the radial epiphyses. Albumin and casts were in the urine. Blood urea was 59 mg per cent and the highest urea concentration in the urine was 0.90 per cent. The systolic blood pressure was 105 mm. and the optic discs and retinae were normal. There was no enlargement of the heart. During the next three years he led the life of an invalid scarcely able to walk about. His blood urea was constantly raised, and varied from 52 to 341 mg per cent. He had several attacks of tetany during this time. His blood phosphorus varied from 4.1 to 12 mg. and his serum calcium from 10.4 to 6.2 mg per cent. He died in a uraemic attack of thirty-six hours duration which was ushered in by vomiting and muscular twitchings and ended in coma. During the whole of the time he was under observation his blood pressure remained below 110 mm., and renal retinitis did not appear although frequent examinations were made up to the hour of his death. At the post mortem examination both kidneys were small (right 19 grams, left 25 grams). The capsule was not thickened and stripped fairly readily. After examination they were described



FIG. 2—Renal dwarfism in a lad aged 18, with chronic interstitial nephritis.

"Both kidneys have an embryonic appearance although the changes are those of chronic interstitial nephritis." The heart was not enlarged.

This is a typical example of renal dwarfism due to chronic interstitial nephritis of this type. It is reasonable to presume that he had suffered from it for at least fourteen years, yet during this time there was no rise in blood pressure. During recent years I have had five other similar cases under observation. Four of these are already dead in uraemia. The highest systolic blood pressures in these have been 95 (age 6), 100 (age 4), 100 (age 10), 105 (age 7), 160 (age 12). In none of these could I obtain a history of preceding acute nephritis or sepsis.

The type of kidneys which are found on *post-mortem* examination in these cases is always the same—small, pale, and shrunken, weighing usually about 1 oz. The capsule strips fairly readily, and in cortex are often to be found small nodular areas of local hypertrophy of kidney tissue. They are "small white kidneys."

TYPE 2—Chronic Interstitial Nephritis—Primary Renal Type with a History of Acute Glomerular Nephritis or Prolonged Sepsis

(Chief features. Within a few years of the initial illness high blood pressure (150 to 200 mm.) cardiac hypertrophy, albuminuria, numbers of red cells in urine, retinitis, the course of the disease is usually rapid. Dwarfism and rickets may develop.)

It is well recognized that transient tonsillar sepsis from streptococcal infection is a cause of acute glomerular nephritis. Other forms of sepsis are equally important, and in my own series of cases I have found that skin sepsis, whitlows, and gland abscesses are more common causes than tonsillar sepsis.

It is true that the majority of these cases of acute nephritis are cured completely, but on a *priori* grounds it is reasonable to presume that when the kidney damage has resulted from sepsis of a more prolonged character, such as might occur in cellulitis and osteitis, a chronic nephritis would be more likely to ensue. This is in accord with my experience of certain cases of severe chronic nephritis in young adults, with blood pressures of about 180 to 200 mm., albuminuria, red cells in the urine, and azotaemia. In many of these I have been able to obtain a history of cellulitis or "blood poisoning" a year or two before the first serious symptoms of chronic nephritis. Very often there has been no evident oedema or gross haematuria in the early stages to draw attention to the kidneys and to invite a close examination of the urine, and the presence of red blood cells in the urine—which is the chief and most important sign of acute glomerular nephritis—may have been overlooked. The following is an example of a case of this type in a child.

A schoolboy, aged 10, was admitted to hospital with appendix abscess. Prior to that he had been in perfect health without any history of previous illnesses. The abscess was drained, but was followed by a period of extreme illness for four weeks with high swinging temperature. At this stage an empyema was diagnosed and rib resection was performed with the evacuation of a quantity of thin pus. For two weeks afterwards the patient was in a critical condition with septic fever which slowly subsided. Convalescence was prolonged and it was six months before recovery was complete enough to allow him out of bed. Then followed a period of two years in apparent good health. The next striking symptom was a complaint of slight visual impairment believed to be an error of refraction for which advice was sought from an ophthalmological surgeon. Examination revealed a retinal haemorrhage.

On examination at this stage the urine was found to contain a large quantity of albumin, casts and some red cells, and the blood pressure was 195 mm. The heart was enlarged. Urine urea concentration was 14 per cent, and blood urea 92 mg per 100 c.cm. of blood. After this the course of the disease was rapid. Headaches were a prominent symptom and he died eight months later after a "uraemic phase" which lasted off and on for three weeks. In this uraemia headache, restlessness and convulsions were the most prominent features. Towards the end some oedema over the sacrum appeared.

This is a clinical example of a malignant type of chronic interstitial nephritis not common among children, but fairly frequent in early adult life.

TYPE 3—Chronic Interstitial Nephritis—Primary Arterio-sclerotic Type with Secondary Contraction of the Kidneys

(Chief features. A preliminary stage of high blood pressure—often over 200 mm. at first examination—cardiac hypertrophy, retinitis, tendency to uraemia of cerebral type, with transient amaurosis, monoplegia and convulsions. Later albuminuria and some azotaemia develop. Death from heart failure or apoplexy.)

It is not uncommon to see a young adult with a blood pressure over 200 mm., with a normal blood urea, with kidneys capable of concentrating efficiently, and with a mere trace of albumin in the urine. He is subject to headaches, but is capable of work. In this state he may continue for a few years with the blood pressure slowly rising. I know of such a case—a bricklayer, who had been working on scaffolding with a blood pressure of 305 mm. Sooner or later the albuminuria becomes severe and constant, and death takes place in apoplexy or as a result of heart failure. So long as there is no gross albuminuria these patients have a fair chance of survival, but when it appears their term of life is short. The primary disease in this condition is that form of arterio-sclerosis which Gull and Sutton named "arterio-capillary fibrosis," and which Evans and others name "diffuse hyperplastic sclerosis." The patients usually live long enough for the kidneys to become small and contracted, and after death they are commonly called granular kidneys or small red kidneys.

These are well-known clinical facts, which I mention only to ask if this arterio-sclerotic disease, primary diffuse hyperplastic sclerosis, is recognizable in a young child apart from severe chronic interstitial nephritis or at a stage before the kidneys become affected. It appears to be extremely rare. Evans' in his article on "Arterio-sclerosis in children" quotes a case (No. 2) of a boy who, at the age of 7, had a blood pressure of 195, with a trace of protein (0.001 per cent) in the urine, which gave all the reactions of globulin. Seven years later he had a blood pressure of 265 mm. systolic, 200 mm. diastolic, with a blood urea of 67 mg per 100 c.cm. and 0.025 per cent of albumin in the urine. He died of cerebral haemorrhage, the kidneys showing advanced chronic nephritis. But in this case there was evident dwarfism at the age of 7 with genu valgum, so it is probable that he had chronic nephritis already at that stage.

From my own experience I can quote the following case, of a child with high blood pressure and normal renal function who had an attack which was thought to be uraemia, which appears to be a true example of the type mentioned.

A girl, aged 10, was admitted to hospital with a history of generalized convulsions and some mental disturbance in which she was restless and noisy. On admission she was thought to be suffering from encephalitis. She was well nourished and of normal stature. The next morning the mental condition was clearer but there was complete amaurosis and palsy of the left arm. There was no muscular twitching and no vomiting. The retinæ showed some haemorrhages but no papilloedema. The aortic second sound was very loud and when the blood pressure was taken it was found to be 220 mm. systolic. The urine contained a trace of albumin but no deposit. The cerebro-spinal fluid was clear without pleocytosis. In two or three days the amaurosis and the monoplegia disappeared and no more convulsions occurred. This was looked upon as a case of uraemia because of the symptoms, blood pressure, retinitis and albuminuria. When, however, the blood urea was examined it was found to be only 26 mg per 100 c.cm. and urea concentration was normal. The child passed on towards recovery. Seen two years later there was commencing deterioration of renal function. Albumin was more evident, the blood urea was 45 mg per 100 c.cm., renal retinitis was again present, and the blood pressure was 210 mm.

The chief importance of such a case as this is the light it throws on what is called uraemia. Here we have a child with normal renal function showing such classical uraemic manifestations as transient amaurosis and monoplegia, whereas in the first type I have described, where a typical severe interstitial nephritis is combined with extreme impairment of renal function and azotaemia, the chief symptoms are vomiting and muscular twitchings. The former is, I think, a mere cerebral vascular syndrome, due to hypertension, and it is the latter which is true uraemia. In the second clinical type I described, in which high blood pressure and severe renal damage advance together, the uraemic picture is likely to be a confusion of the cerebral vascular syndrome with true uraemia, and it is that which is most frequently seen in adults.

I would like to stress the fact that these three types of chronic interstitial nephritis are merely a convenient clinical subdivision of the cases. They may suggest, but do not explain, the association of chronic nephritis and arterio-sclerosis, or other problems of pathology. Evans' studies have led him to the conclusion that the form of arterio-sclerosis we have been discussing is an inflammatory and not a degenerative lesion. If that be so, these three types may be different manifestations of the same disease,

in which the variation depends on the site of the damage—the kidney alone in the first type, the systemic vessels in the third type.

Etiology of Chronic Interstitial Nephritis

It is the cases of the first type I have described—slowly advancing azotaemic nephritis with little or no rise in blood pressure—which are commonest in children. In many of these the history suggests that the symptoms of the disease started in the first year of life. Kitcher, when discussing his original case, was of the opinion that the disease dated from intrauterine existence, and many others have supported a view of some congenital infection. This is probably not true in all instances, however. Barber's² cases occurred mainly in adolescence, and Rose Bradford³ has described young adults who die in uraemia with small white kidneys without cardiac hypertrophy or arterio-sclerosis (aplastic Bright's disease some people called them in those days), which is probably the same condition. Both sexes are equally affected (26 males and 25 females in a series collected by Hunt⁴), and there is no recognizable familial tendency. Syphilis can now be ruled out as a cause. In more than 90 per cent of cases there is no evidence of infection of mother or child. It must be concluded that we know nothing positive of the etiology of these cases.

In the second type of case I have described I have already suggested that a severe septic illness, even though it produced no recognizable acute nephritis, may be the cause.

In the third type the cause of the arterio-sclerosis is unknown, but it must be borne in mind that it is probably an inflammatory and not a degenerative agent.

Renal Dwarfism and Tetany in Chronic Nephritis

When a chronic interstitial nephritis has existed for some years, bone growth and development are usually affected. The changes in the bones have been fully described by Parsons,⁵ Paterson,⁶ and others, and are commonly spoken of as "renal rickets" or "renal dwarfism." They are the result of a metabolic disturbance which accompanies azotaemic nephritis, but they do not yield to the usual antirachitic remedies. Indeed, it occurred that one of my cases was thrown into uraemia after exposure to ultraviolet ray treatment. X-ray and histological examinations have shown that the changes are as follows: (a) actual cessation of growth and development at the epiphyseal line, producing dwarfism; (b) a rachitic change at the epiphyseal line, best seen at the lower end of the radius; (c) atrophy and osteoporosis of the shafts of the bones. One or other, or a combination of these, is to be found in most cases, and clinically they may present themselves as examples of late rickets or, as in Barber's cases, of adolescent genu valgum. If the course is prolonged there may be periods of temporary improvement with a healing line, which can be seen in a radiograph of the epiphyses as a narrow dense stratum. It must be mentioned that in some cases of short duration the bones remain quite normal.

Frank tetany is not a common symptom. As far as I know it has not been recorded in any of the published cases, but in two of my own it was a prominent feature. In many cases, however, latent tetany can be shown to be present by Chvostek's sign, and this should be sought for whenever chronic interstitial nephritis is suspected.

The changes in the calcium and phosphorus content of the blood throw some light both on the bony changes and the tetany. From the work of Greenwald,⁷ de Wesselow,⁸ and others it is known that in the azotaemic form of nephritis there is a retention of phosphorus, which may rise from its normal level of 3 or 4 mg to 15 or 20 mg per cent in uraemic cases. With or as a result of this, there is often a corresponding fall of calcium in the blood. I have been able to confirm this in some of my own cases of chronic interstitial nephritis with renal dwarfism, but in others there has been a rise of blood phosphorus only, without any fall in blood calcium. When one considers that ordinary infantile rickets is associated with a diminished amount of phosphorus in the blood, and tetany with a diminished amount of calcium, it is reasonable to believe that the bony changes and the tetany which may be present in chronic interstitial nephritis are also dependent on a disturbance of the phosphorus-calcium ratio of the blood and tissue fluids. On this point Parsons has advanced an interesting theory, which some of you may wish to comment

on. Speaking of those cases which have a high blood phosphorus but normal blood calcium, he says:

It seems conceivable that the serum calcium is maintained at this level to prevent the occurrence of tetany which is such a very serious complication and to which the young and growing child is much more prone than the adult. It is therefore not improbable that in renal rickets there is a washing out of calcium from the bones with resulting osteoporosis and rickets.

If Parsons's suggestion be correct, it is probable that the parathyroids would be the organs concerned in producing this effect. Now this may explain cases of parathyroid hypoplasia in chronic renal disease described by Bergstrand,⁹ Thomas, and Wentworth,¹⁰ which Box and de Wesselow¹¹ refer to in their published case of chronic nephritis with a possible parathyroid syndrome.

Renal Retinitis and Blood Pressure

In all the cases which I have seen of chronic interstitial nephritis in children with normal or low blood pressures no retinitis has been observed, even during or after their attacks of uraemia. To confirm this experience I have looked over 29 published cases in which the blood pressure was recorded. In 21 of these it was normal, in one 130 mm, in one 138 mm, in one 165 mm, and in 4 over 200 mm. The state of the retinae and discs was mentioned in 15 of these. They were normal in 9 cases, which all had blood pressures below 150 mm, and renal retinitis was present in 5 cases, in which the systolic pressures were 260, 250, 210, 165, and 100 mm. The remaining case had primary optic atrophy but no retinitis. Thus I could find only one case of chronic interstitial nephritis (Glaser¹²) in which retinitis was present with a normal blood pressure of 100 mm, and that child was dying of acute diphtheria at the time. From this I would conclude that so-called albuminuric or renal retinitis in children is not a manifestation of albuminuria or uraemia, but of hypertension or vascular disease, a view that has long been held by many.

Treatment

The treatment of chronic interstitial nephritis in children leaves little scope for discussion. It is well to bear in mind that some of the reported cases have died in uraemia immediately after an operation for the correction of the deformities. The best that can be done is to preserve what health they have by conservative methods. No success has been achieved by the use of glandular extracts.

CHRONIC PARENCHYMATOUS NEPHRITIS OR NEPHROSIS

This is the commonest form of chronic nephritis in childhood, and, taking year for year, it is more prevalent among children than among adults. In a series of 23 cases reported by Clausen,¹³ 15 were below the age of 7 years and 8 between the ages of 8 and 15, and this can be taken as a fairly typical age distribution.

Whether we call the disease "chronic parenchymatous nephritis" or "nephrosis" matters little. Müller¹⁴ coined and uttered the latter term in 1905, maintaining that the lesion of the kidney was a degeneration and not an inflammation. An opposite school of pathologists replied that that type of degeneration was the result of an inflammation, and refused to accept the term. Now it appears that the disease is not primarily a disease of the kidney at all, but a general disease with "an abnormal permeability of the cutaneous and renal vessels for albumins and lipids referable to changes of metabolism", so the most recent fashion is to call it "lipoid dystrophy of the kidneys." A fairly clear conception of the malady can be obtained if we use the word "nephrosis," and look upon it as a general disorder in which the kidneys are large and pale with tubular degeneration, and recognize that in this state the kidneys may be further damaged by a superimposed infection which produces an actual nephritis and complicates the picture.

Clinically there are certain clear features of the disease by which we may recognize it: obstinate oedema with effusions into the serous cavities, marked albuminuria, absence of haematuria, normal blood pressure, normal renal function, increase of cholesterol in the blood, diminution of the plasma proteins, and a peculiar susceptibility to secondary infections, especially to pneumococcal peritonitis.

The only evidence that the clinical condition is due to a disease of the kidneys is the albuminuria and the casts in the urine. Marriott¹⁵ refers to cases in which the oedema preceded the albuminuria and the appearance

of casts. If this is so, there are good grounds for the belief that it is not primarily a kidney disease, but that the kidney becomes large and white with tubular degeneration, as do other tissues in the body. By some it is held that the oedema is due to the retention of chlorides by a diseased kidney, but de Wesselow¹³ has shown that the absence of chlorides from the urine is not due to this. The kidneys are quite capable of passing and concentrating chlorides, but they do not get the opportunity, for chlorides are retained in the tissue fluids for other reasons.

Without going further into the definition and description of the disease and its pathology, there are certain practical clinical problems which may be considered for discussion. The first of these concerns the diagnosis. Can it be taken for granted that an absence of red cells from the urine and a normal blood men are essential before making a diagnosis? I do not think so myself, but I agree with the view that in a classical uncomplicated case there are no red blood cells in the urine, and the blood urea is normal, and that this is sufficient evidence that there is no inflammatory lesion at least in the glomeruli. Rarely, however, do cases run an uncomplicated course. They are peculiarly liable to secondary infections, and at such times a glomerulitis with haematuria and mitogen retention is superimposed. Under, Maxwell, and Green¹⁴ have given a very excellent description of prolonged observation of a patient who had intermittent periods of mitogen retention and died ultimately with bronchopneumonia, when the non-protein nitrogen of the blood was 187 mg per cent. On the other hand, I had the rare opportunity last year of following a case in a young child in whom the disease ran its course, while the blood urea was normal and there were no red cells in the urine. A very careful histological examination showed that there were no glomerular lesions and no red cells in the tubules—only marked tubular degeneration with the typical lipid substance present.

The next point concerns treatment. Marriott, a great authority on the disease, is a strong advocate of the view that it is due to a toxin which damages the tissue cells, and causes them to absorb more chloride from the blood, so producing oedema. The toxin is usually from a staphylococcal infection of the mastoid or paranasal sinuses. He advises a very thorough examination and exploration of these sites, and reports cases of rapid cure after drainage by operation. Is this a view with which most of us agree, and if we do not agree with it, is it because we have failed to recognize the local staphylococcal infections in our cases? Another form of treatment which Osman¹⁵ has revived is the use of large doses of alkali. On occasions its use is followed by the disappearance of oedema, but the same can be said for almost any other form of treatment. It should be tried in obstinate cases, but it is to be remembered that it often produces severe vomiting and tetany.

It is difficult to assess the value of any form of treatment for the disease is liable to incalculable fluctuations, and spontaneous cure may take place. Some of the most remarkable cases of cure are those in which the symptoms have disappeared after the patient has weathered the storm of an acute intercurrent illness such as influenzal pneumonia. There are other points in treatment on which it is easier to agree—namely, that a high protein diet is beneficial, that decapsulation of the kidney is useless and that it is imperative that every patient with nephrosis should be guarded rigidly against the danger of intercurrent infections in case he develops an acute lesion in the glomeruli and haemorrhagic nephritis.

The prognosis is a matter on which it would be useful to collate our experiences. Of Clausen's 23 cases in children, 10 died, 9 of infection and one of alkalosis due to an overdose of sodium bicarbonate. Of Schwarz and Kohn's¹⁶ 17 cases, 6 died and none of the others can be declared well. My impression is that although the oedema may disappear, albuminuria and ill health remain, for such was the result in 5 patients I have been able to trace who have survived for more than three years. I would like to ask if anyone can record cases of nephrosis which, after an initial stage of oedema lasting more than ten weeks have been cured and remained in permanent good health free from oedema and albuminuria.

CHRONIC ASCENDING PYELONEPHRITIS

Urinary infections are so common in infancy and early childhood that it is appropriate to consider what chronic renal damage may result therefrom, and whether some of the unexplained types of chronic interstitial nephritis do not have their origin in an ascending infection.

Most cases of acute pyelitis, if promptly diagnosed and treated, make a satisfactory recovery. There are others, more chronic, which remain in ill health and liable to recurrences of fever and pyuria. In a few of these a permanent damage to the kidneys ensues, and the failure in renal function shows itself as an advancing azotaemic nephritis ending in uraemia. If the condition is sufficiently prolonged, these patients become chronic invalids and develop renal dwarfism, and to all appearances look like the stunted dry skinned child with the primary renal type of chronic interstitial nephritis. In such circumstances it should be asked if there is not some chronic obstruction or deformity of the urinary tract which is the cause of the infection, for in children, as in adults, imperfect urinary drainage plays an important role in this.

One of the most striking examples of ascending pyelonephritis is due to the valvular obstruction in the posterior urethra of male children described so well by Young, Piontz, and Baldwin.¹⁷ This is a valvular obstruction amenable to surgical treatment, but if neglected it leads to hypertrophy of the bladder, dilatation of the ureters, pyonephrosis, and uraemia.

A review of the literature of the subject prior to 1919 shows that there had been reported only two cases of valvular urethral obstruction in which a diagnosis had been made during life. Since then a large number of cases have been recognized and successfully treated. In Hugh Young's clinic at Johns Hopkins Hospital, 12 such cases were seen in six years. In this country a case has been recently treated and reported by Gilmour.¹⁸ In one case which I have seen, a small boy in a chronic uraemic state was apparently cured and completely restored to health by operation.

I have mentioned briefly this type of case merely to invite attention to the possibility of the condition as a cause of chronic renal disease. It should at least be considered in every case of chronic pyelitis and uraemia in a young boy. When the subject is looked at conversely, however, there are few of the cases of chronic nephritis or renal dwarfism which can be traced back to an acute or chronic pyelitis.

I have attempted the task of describing and suggesting certain aspects of chronic nephritis in childhood which lend themselves to discussion, but I realize how truly Müller spoke when, in the address in which he introduced the term "nephrosis," he described the kidney as "ein heimtückisches Organ." For I also have found its diseases too spiteful satisfactorily to be described and confined within the limits of this address. But from a study of these diseases in children there emerge two significant facts to which I would direct your particular attention. (1) the "small white kidney" is the commonest form of chronic interstitial nephritis in children, and it does not appear to result from any preceding acute nephritis or infection, and (2) this disease, though resulting in uraemia, does not produce any rise in blood pressure or retinitis.

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SPLENOMEGALIC POLYCYTHAEMIA WITH HIGH BLOOD PRESSURE

BY
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It has been maintained by one of us (F. P. W.) that, contrary to what one would formerly have expected in true cases of splenomegalic polycythaemia (Vaquez-Osler disease), or erythraemia, the blood pressure is generally not or not much above the average, in spite of the excessive so-called 'blood viscosity'—in fact, that the presence of excessive blood pressure would suggest that any case in question is either not a true one of erythraemia or that it is complicated with contracted kidney or arterio-sclerosis (especially of the medulla oblongata, as a cause of arterial hyperpiesia)*. The following case bears on this and some other questions.

The patient, a single woman aged 53 years, returned from Switzerland in the early summer of 1927 complaining of violent indigestion, neuralgia in the eyes, cardiac palpitation and slight irregular loss of blood per vaginam. A Swiss oculist had examined the eyes and pronounced them normal. An abdominal swelling, evidently an enlarged spleen, was discovered. It was rather hard and reached down to below the umbilical level. A radiogram showed the greater curvature of the stomach indented and the viscera displaced to the right by a mass corresponding in position to the spleen. The first blood counts showed no excess of erythrocytes but a count on October 4th, 1927 gave haemoglobin 104 per cent, erythrocytes 7,800,000 per cmm, white cells 21,000 per cmm (of which the polymorpho-nuclear neutrophils were 74 per cent and the lymphocytes were 13 per cent). There could be no doubt that the case was one of true splenomegalic polycythaemia (the Vaquez-Osler disease or erythraemia). The patient was thin and her face was pale-browned in hue, later rather high-coloured and telangiectatic in appearance. The fauces were deep red and the whole picture was fairly typical of erythraemia. A most important feature however was the presence of high blood pressure which had apparently been first noted during her visit in Switzerland. The brachial systolic blood pressure was on several occasions as high as 280 mm. of mercury.

It should likewise be mentioned that her liver could not be felt and there was no evidence of any abdominal neoplasm. None of the superficial lymphatic glands were enlarged. The heart was not obviously hypertrophied. The urine showed nothing abnormal excepting a trace of albumin. The blood urea (October 7th 1927) was 0.04 per cent. The blood serum gave a negative Wassermann reaction. The faeces were examined for occult blood with nega-

the result. The patient was edentulous. The menopause had occurred about September, 1926 but since then there had been occasional irregular very slight losses. Like some of her relatives, she had been subject to occasional migraine-like attacks. The various reflexes were normal. There were no retinal haemorrhages or optic neuritis.

Treatment by a restful life and a non-stimulating diet with occasional blood letting led to temporary apparent improvement. In March 1928 however mental confusion developed, together with some loss of power in the right hand and occasional diplopia. From the beginning of April until her death the patient was troubled by recurrent pain and distension in the abdomen sometimes with a few days pyrexia. A small tender mass was felt low in the left iliac fossa and partial obstruction probably due to diverticulitis in the pelvic colon was diagnosed (F. J. B.). The rectum was always empty and ballooned. Improvement in the mental and parietic conditions took place for a time. Early in June 1928 the little toe of the right foot became gangrenous and she died on June 17th after having been more or less unconscious for two days. The last brachial systolic blood pressure taken (May 30th) had been 260 mm. of mercury. The maximum registered in her case was 280 mm. The last blood count had been on May 23rd when the erythrocytes numbered 8,900,000 per cmm (the highest erythrocyte count noted in this case), and the white cells were 26,000 per cmm. The haemoglobin was 110 per cent.

For an account of the necropsy and the microscopic examination we are indebted to Dr. W. J. Carnegie Dickson, who made a most careful post-mortem examination, about thirty-six hours after death. We have confined ourselves to what appear to be the essential points.

There was gangrenous discoloration of the right small toe. The subcutaneous and extra-peritoneal fat was reduced to a minimum and had a congested appearance, the blood vessels especially the larger veins being very prominent and full of rather thick viscid and somewhat dark blood.

The heart weighed 250 grams (9 ounces) and though the whole organ was rather small the left ventricle was relatively hypertrophied. There was considerable coronary sclerosis, very little atherosclerosis of the arch and descending thoracic aorta.

The lungs were somewhat emphysematous and showed hypostatic congestion.

The liver was comparatively small, weighing

990 grams (35 ounces) and was not cirrhotic. Microscopically there was no leukaemic infiltration. The reticulo-endothelial cells appeared rather diminished than increased in numbers and very inconspicuous.

The gall bladder contained a little viscid orange-coloured bile and 32 smooth rounded or slightly faceted cholesterol gall stones varying in size from small peas to thick beans.

The spleen was considerably enlarged, weighing 480 grams (17 ounces) and measuring 6½ by 3½ by 1½ inches. It was free from areas of infarction and microscopically (see Fig. 2) showed general fibrosis of the reticulum, the Malpighian bodies (lymphatic nodes) having practically completely disappeared. It was congested with blood and there were small areas of diffuse haemorrhage. The endothelial cells of the sinuses, and also of the reticulum, were comparatively small in size and there was very little evidence of phagocytosis and destruction of erythrocytes.

The left kidney was small and macroscopically and microscopically fibrosed. It weighed about 40 grams (under 2 ounces). There were three small calculi in the pelvis, the wall of which were

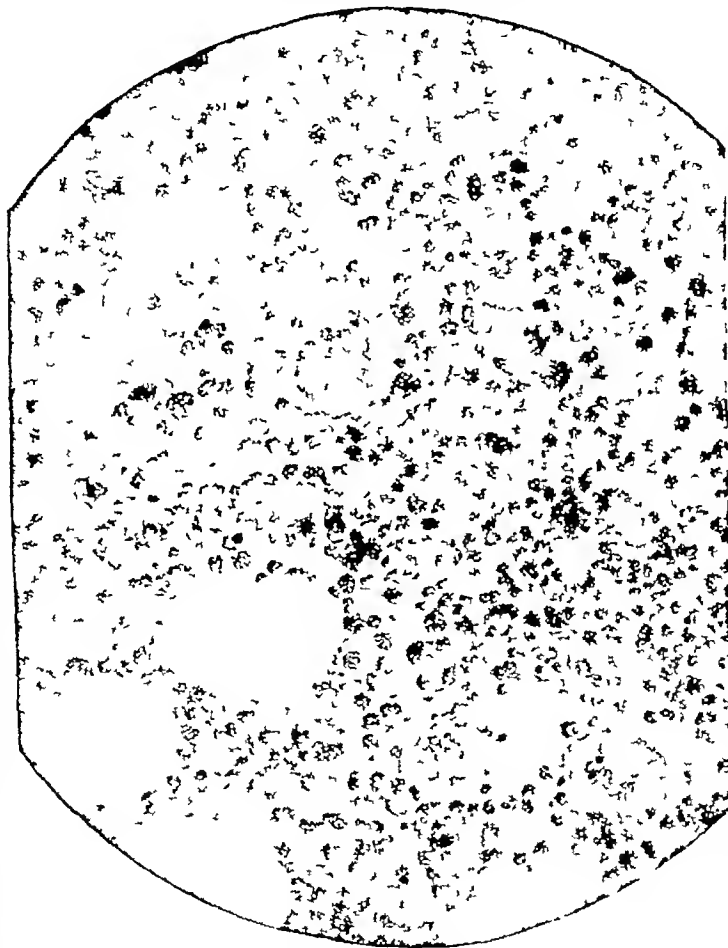


FIG. 1.—Microscopic appearance of the bone marrow from the centre of the shaft of the right femur. (×400.)

* Cf. F. Parkes Weber, *British Medical Journal* 1925 1 p. 1108 and 1927 11 p. 98; *Lancet* 1925 11 p. 1108.

thickened. The right kidney weighed 127 grams ($4\frac{1}{2}$ ounces) and microscopically the larger arteries (interlobular etc.) showed considerable thickening of both middle and inner coats whilst the glomeruli showed hyaline swelling of their capillaries. There were decided degenerative and necrotic changes in the epithelium of the convoluted tubules which were however, doubtless terminal in nature, or rather of *pseudo-ante mortem* and partly *post mortem* origin.

There were old fibrous adhesions of the great omentum and chronic adhesions of the left broad ligament and fallopian tube to the omentum and left wall of the pelvis. The sigmoid flexure and the rectum were much elongated and convoluted. There was excessive sacculation in the pelvic colon. The caecum was filled with pulsatious faeces and the transverse colon sigmoid flexure and upper part of the rectum contained marbled like scybulous faecal masses, and the mucous membrane showed catarrhal changes.

The uterus was small and atrophied and on its anterior surface an old partially calcified small fibromyoma projected. The ovaries showed marked fibrotic atrophy.

Bone Marrow.—The bone marrow of the shaft of one femur which was examined was red as also was that of the cancellous bone and of the ribs. Microscopic examination of the bone marrow showed great excess and activity of erythroblastic tissue and also to a lesser extent excess of leucoblastic tissue. There were small areas of diffuse haemorrhage. A striking feature of all the bone marrow preparations was the unusually large number of giant cells of the megakaryocyte class (see Fig 1). An equally striking feature was the relative absence of evidence of phagocytosis and processes of blood destruction by the endothelial cells.

There was nothing of importance to note in regard to the pancreas, thymus, thyroid, pituitary gland and pineal body. The calvarium was of medium thickness but very compact and relatively heavy. There were arterio-sclerotic changes in the cerebral arteries and terminal local thrombosis in some of the vessels with consequent softening of the right supramarginal and angular gyri. There were as above mentioned arterio-sclerotic changes in many of the medium sized visceral arteries especially coronary, renal and cerebral and the ganglion of the left small toe was probably of arterio-sclerotic origin.

REMARKS

The high blood pressure during life in this case of erythraemia was explained by the renal and vascular changes demonstrated at the *post mortem* examination. It is clear that the blood destruction in the spleen and bone marrow, as evidenced by the phagocytosis of erythrocytes etc., was not relatively excessive. But even if blood destruction in most cases of erythraemia were relatively deficient the abundant and invariable evidence of greatly excessive erythrocyte formation shows that deficient erythrocyte destruction (as has been long recognized) is not the main cause of the polycythaemia rubra. Nevertheless, as Dr Carnegie Dickson points out to us, the relatively deficient blood destruction in the present case might well be contrasted with the evidence of excessive destruction of erythrocytes in the bone marrow and spleen (reticulo-

endothelial system) of, let us say, typical cases of pernicious (Addisonian) anaemia. In regard to the great excess of megakaryocytes in the bone marrow, it is rather unfortunate that no exact count of the thrombocytes (blood platelets) in the circulating blood of the present case was made. In ordinarily stained blood films the thrombocytes did not appear to be in excess.

We are indebted for the illustrations to the kindness of Dr Carnegie Dickson. Fig 1 is to illustrate the microscopic appearance of the bone marrow from the centro of the shaft of the right femur, where in ordinary persons there is only fatty marrow. It shows excessive erythroblastic activity, the cells being mostly erythroblasts. To a lesser extent there is evidence of leucoblastic activity, but this was more obvious in the rib marrow. An especial feature is the large number of megakaryocytes, which were scattered throughout the sections of the marrow in both femur and rib. Fig 2 is from the spleen, it shows fibrosis of the reticulum, with more or less disappearance of the lymphocytes of the Malpighian corpuscles and pulp.

The engorgement with blood was better shown in other sections. In both the bone marrow and the spleen there is no evidence of any excessive destruction of erythrocytes.

PARAPHIMOSIS OF THE CLITORIS

BY

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On September 18th, 1928, I was asked by Dr Hepplewhite of Wallsend-on-Tyne to see in consultation with him a female child, aged 9 years and 4 months, who had a painful swelling at the vulva. Five days previously when out for a walk with an aunt it was noticed that the child was limping, but she denied that anything was the matter. On the day before I saw her she complained for the first time of pain, and only then was she examined, and a painful swelling in the region of the clitoris was noticed, but nothing was done until the next day, when Dr Hepplewhite was called in.

I was informed that the child was a devotee of a "fairy cycle," and the parents thought that the child had probably injured herself by the saddle when riding this. Dr Hepplewhite made a diagnosis of paraphimosis of the clitoris a diagnosis which proved to be correct.

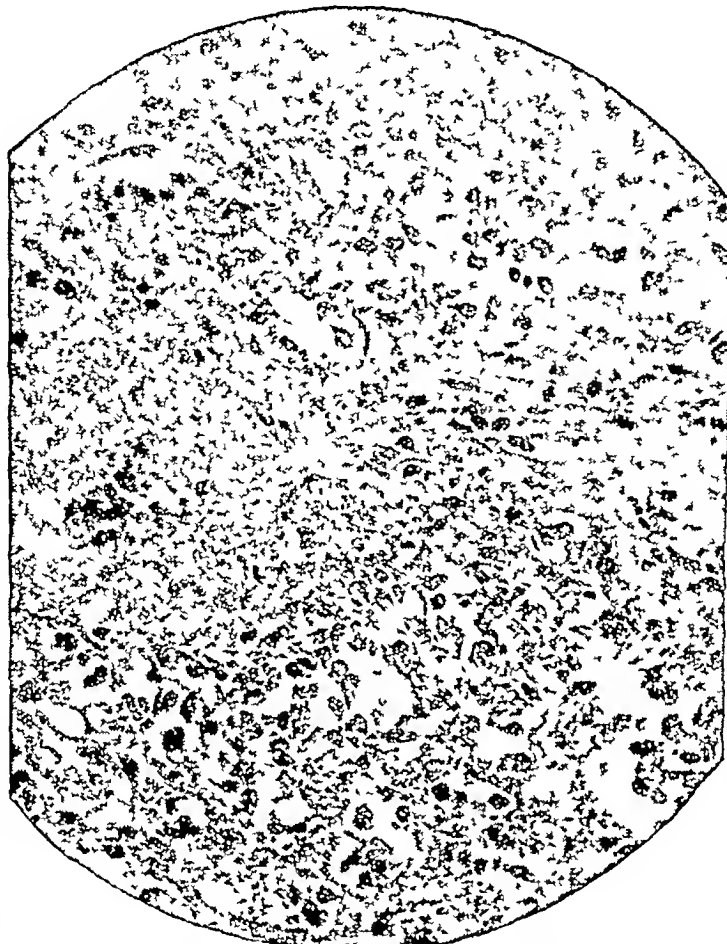


FIG 2.—From the spleen, showing fibrosis of the reticulum with more or less disappearance of the lymphocytes of the Malpighian corpuscles and pulp ($\times 400$)

On examination there was nothing unusual to note about the child's development, there were no signs of puberty. The normal site of the clitoris was replaced by an oedematous swelling the size of a large walnut. The swelling was the exact size and shape of the glans penis in an adult male in a case of hypospadias, it was rounded and smooth, with a vertical groove on its ventral surface. Immediately behind the swelling was a constriction with a circular area of ulceration similar to that seen in

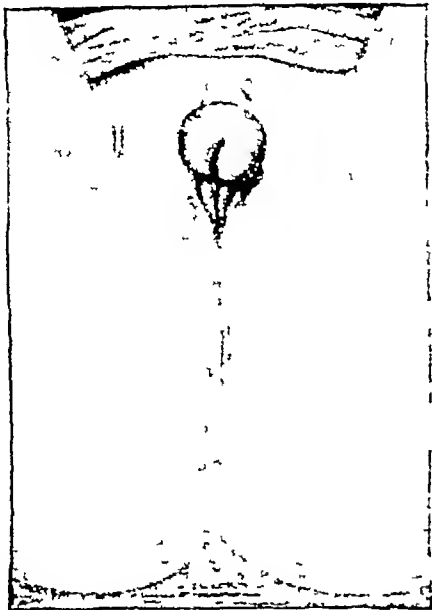


FIG. 1.

a neglected paraphimosis in the male the area was so exquisitely tender that a complete examination was not tolerable.

The diagnosis of paraphimosis of the clitoris was confirmed by an examination under a general anaesthetic. An attempt to divide the constricting band and reduce the paraphimosis was unsuccessful, and as there was a tendency to haemorrhage the clitoris was ligatured off. A full examination of the genitals failed to disclose any abnormality.

A photograph of the child was taken, and Mr S. A. Sewell has made a drawing from it (see Fig. 1). He has also drawn the specimen, which is the actual size when removed (see Fig. 2). It has been preserved by injecting gelatin into it.



FIG. 2.

It is impossible to say how the hood of the clitoris came to be displaced backwards. The mother said that she had never noticed any obvious deformity about the child's external genitals so probably the prepucial size was not of abnormal size. There is no reason to think that it was due to masturbation, therefore, accepting this premise, I regard the 'furry eye' saddle as the probable cause which displaced the prepuce backwards and gave rise to the condition.

The child was seen on November 1st, when she was fit and well. The wound was healed and the scar most satisfactory.

Having no knowledge of a similar case I applied to the librarian of the Royal Society of Medicine, who gave me permission to state that, despite a prolonged search, he is unable to find any reference to the condition in the literature. He showed me that there were numerous references to phimosis of the clitoris due to adhesions of the prepuce

A CASE OF POST-PARTUM ANALMIA

BY

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The following case shows how important the correct treatment is in this somewhat rare condition.

A woman aged 35—who had had no former illnesses except appendicitis cured by operation at the age of 21—was delivered of her first child in 1918. Labour lasted for three days and was followed by severe post partum haemorrhage. The baby lived a few hours. The patient ran a temperature for several weeks after the confinement was anaemic and suffered from severe headaches and occasional rigors. *B. coli* were present in the urine. There was right iliac pain for three months afterwards which was diagnosed as ovaritis. Her second confinement took place in 1920 and was uneventful and the puerperium normal.

A few days before her last confinement on November 3rd, 1926 she had a mild attack of influenza. A few *B. coli* were found in the urine during the last weeks of pregnancy, for which urotropine was administered. The delivery was a breech, the baby was born without difficulty and there was no trouble with the placenta which was normal in appearance. There was no post partum haemorrhage.

On the following day the patient complained of severe frontal headache and looked alarmingly anaemic as though she had had a severe haemorrhage during the night. Inquiries showed that there had not been any haemorrhage, and examination revealed nothing abnormal. The headache continued and was accompanied by impairment of memory, general weakness and progressive anaemia. The temperature began to rise in the evening up to 101° F. and the patient appeared to be very ill. There was no evidence of puerperal sepsis. The liver and spleen appeared normal, there was no history of sore mouth. The tongue, teeth and gums were healthy. Subsequent x-ray examination showed no sign of apical sepsis. The heart and lungs were healthy except for a haemic murmur which has since disappeared. Blood culture was negative. Report by one of us on blood examination on November 18th was as follows:

Haemoglobin	33 per cent
Red blood cells	1,603,000 per c mm
Colour index	1.1
Leucocytes	6,500 per c mm
Differential count	
Polymorphonuclears	70.5 per cent
Lymphocytes	20.3
Large mononuclears	4.7
Eosinophils	4.0
Mast cells	0.7
	100.0

Eight megaloblasts, six normoblasts and one microblast were noted in counting 300 leucocytes. Poikilocytosis and anisocytosis were well marked and there were many macrocytes and microcytes. Basophilia and basophilic stippling of red cells were very prevalent. Many of the polymorphonuclears showed immaturity and degenerative changes.

The blood picture is that of pernicious type, such cases arising in the puerperium appear to be particularly amenable to treatment especially by transfusion and a high proportion of recovery has been reported.

At this stage she was seen by Dr J. R. Collins who could find no evidence of puerperal sepsis or other focus of infection.

Another blood culture was negative. She was put on iron and on emic and hypodermic injections of adrenaline and dilute hydrochloric acid 1 drachm three times a day. In spite of treatment she continued to go downhill and on November 26th the report on her blood was:

Haemoglobin	25 per cent
Red blood cells	1,270,000 per c mm
Colour index	1.0
Differential leucocyte count	
Polymorphonuclears	60 per cent
Lymphocytes	30
Large mononuclears	4
Eosinophils	5
Mast cells	1
	100

Owing to the paucity of cells in the extremely thin films which the watery blood afforded only 100 leucocytes were counted. There were three megaloblasts, five normoblasts and one microblast to 100 leucocytes.

The blood picture is that of the most grave degree of pernicious anaemia, poikilocytosis, anisocytosis, basophilia and basophilic stippling are seen in every field. The most favourable reading possible of the haemoglobin content has been given, this is always some personal element to be allowed for in this estimation. The patient has lost 9 per cent of haemoglobin and 330,000 red blood cells per cubic millimetre since the last examination eight days previously. This needs no further comment. The vomit is devoid of free hydrochloric acid.

The patient's condition was then very grave, and after consultation with Dr Collins she was given a transfusion of 470 ccm of citrated blood by Keynes's method, her husband who was of the same group acting as donor. This was followed in a quarter of an hour by a severe reaction, and a temperature of 104°F , which lasted for four hours. No haemoglobinuria followed the injection. Her clinical condition steadily improved after the transfusion, her temperature became normal in two days, her appetite returned, and her headaches disappeared. The regeneration of the blood is shown in the accompanying graph. The loss of cells and stationary curve for haemoglobin between December 16th and December 30th corresponds to a pyrexial attack, during which the iron and arsenic were stopped. A gastric analysis (which was not complete as the patient vomited the tube at the end of an hour) showed achlorhydria.

She is now twenty-three months after the confinement, apparently in perfect health, taking hydrochloric acid regularly.

This case illustrates the importance of blood examination in puerperal anaemia, and the necessity of blood transfusion when the examination reveals an anaemia of pernicious type. There is no doubt in our minds that had it not been given the case would have ended fatally.

DISCUSSION

We consider that the case described above fulfils the conditions necessary for a diagnosis of pernicious anaemia: colour index above unity, accompanying a profound anaemia, the presence of numerous macrocytes and some

megaloblasts in the blood, paucity and abnormally large size of blood platelets, and absence of free hydrochloric acid from the gastric contents. Macrocytocytes (Cooke, 1927) were not found in this case, though we have seen them in other cases of pernicious anaemia.

Indications of a possible septic cause for the anaemia were entirely lacking. The uterus involuted in a normal manner. Moreover, the clinical signs of a serious anaemia were detected on the day following that of delivery. Pyrexia, which is usually observed in acute cases of pernicious anaemia progressing unfavourably, was present and showed an upward tendency until transfusion changed the whole aspect of the case.

It is admitted that there is some difference of opinion both as to the diagnostic importance and criteria of megaloblasts. Naegeli considers that large nucleated red cells, named by him "macrocytes," are seen in various forms of anaemia and have not the significance of the megaloblast of pernicious anaemia, the former being distinguished by a basophil cytoplasm. The megaloblasts observed in the case we describe all showed, to a greater or less degree, basophilic cytoplasm. But if, with most authorities, we regard the character of the nucleus as the criterion and basophilia of the cytoplasm to be an indication of immaturity, then the large nucleated red cells of our case were true megaloblasts.

There appears to be a difference, not yet clearly defined, between the pathogenesis of pernicious anaemia occurring in connexion with pregnancy and the puerperium and that of the disease arising apart from these states. Larrabee (1925) has directed attention to the striking effect of a transfusion, an effect well illustrated by our own case. Larrabee reported seventeen cases of severe anaemia arising in the course of, or shortly after, pregnancy, not attributable to other complications. In eight of these the blood picture was that of the pernicious type; four were transfused and recovered; three of the remainder, who were not transfused, died. He considers that one transfusion suffices to check the progress of the disease, an opinion substantiated

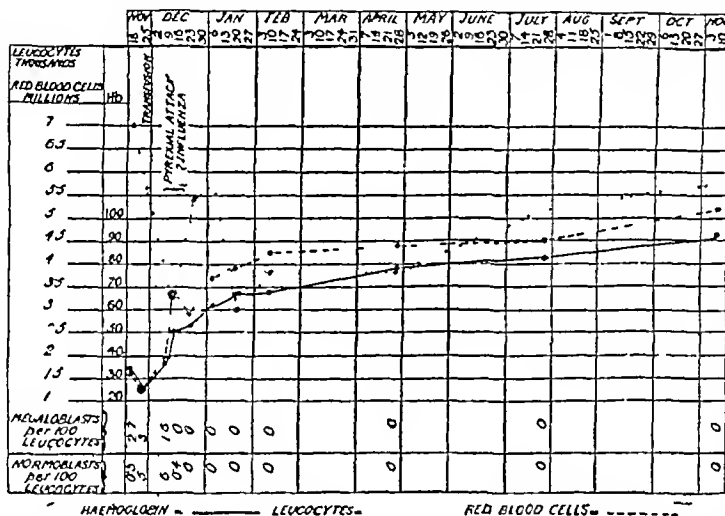
by our experience. Other writers have, on occasion, found repeated transfusions necessary.

Piney (1927) classifies the pernicious anaemia of pregnancy under the heading of "metabolic cases," and suggests that a congenitally defective haematopoietic system is unable to withstand the strain of pregnancy. Were this hypothesis sound, the first pregnancy would be expected to induce the disease. Our patient had successfully passed through two previous pregnancies, one of which, moreover, was followed by severe (post-partum) haemorrhage—an additional strain which would surely have overwhelmed a congenitally defective haematopoietic system.

Evas (1926) states that Faust and Talquist claim to have isolated the haemolytic substance from the body of the worm in *dibothriocephalus* anaemia, and to have identified it as cholesterol oleate, but he says that no foreign haemolysin has ever been demonstrated in the blood of cases of pernicious anaemia, and that increase of the normally present haemolytic agents (unsaturated fatty acids) is not proven. We are not aware whether the pernicious anaemia of pregnancy came within the scope of these investigations.

Rowland (1924) states that Hofbauer showed that a syncytial haemolysin in the ectodermal cells of the chorion is the source of the haemolysis of early pregnancy and of

the iron synthesis in foetal blood formation. The urine of pregnant women contains more iron than usual. According to Hofbauer an antihemolysin is formed, during the second half of pregnancy, in the maternal blood, and consequently the physiological anaemia of early pregnancy is overcome, a normal blood count being established by the ninth month. If antihemolysin formation fails, active haemolysis continues and progressive anaemia results. Rowland reports two cases, his paper contains a valuable discussion of



the disease. One of his cases died on the twelfth day after parturition, owing, in his opinion, to delay in resorting to transfusion until the disease was too far advanced.

The distinctive features of pernicious anaemia in pregnancy make Hofbauer's theory an attractive one. Cholesterol acts as an antihemolytic agent against many haemolytic substances, an increase in blood cholesterol occurs in pregnancy, and a diminution in pernicious anaemia. We regret not having made a blood cholesterol estimation in our case.

Pernicious anaemia in pregnancy is usually considered to be extremely rare in England. Lovell Gulland (1927), however, says "it is not very uncommon and, in my experience, is not usually fatal, though it may be so." He does not state whether his cases were transfused.

Green-Armytage (1927) states that anaemia of the pernicious type is not uncommon in pregnant women in India, and has a high mortality. Facilities for transfusion were not, it appears, available at his hospital. There are so many causes of anaemia in the tropics that his cases may be of a different nature to those reported from Europe and America.

Hoskin and Cairns Cadlo (1927) have recently reported a case in the *Lancet*. Their patient had suffered in India from a disease resembling sprue—a possible etiological factor which makes one hesitate to accept their case as a true pregnancy pernicious anaemia. Our patient had not been out of England, and at no time had suffered from symptoms suggestive of sprue. Hoskin and Cairns Cadlo transfused their patient but a gain of 6 points in

haemoglobin and of 380,000 red blood cells per cubic millimetre had taken place in the seven days following admission to hospital, and before transfusion was resorted to. The colour index in their case was below unity until the red blood cell count and haemoglobin value had become approximately normal—some ten weeks after admission to hospital.

The question arises whether a genuine cure—security from relapse—has been attained in our case. We venture to think that it has, and have delayed reporting the case for more than twelve months to afford stronger grounds for our belief. The blood now shows no indication of pernicious anaemia, and the patient is in excellent health. Twenty-three months after her confinement she still takes hydrochloric acid regularly.

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WELSH PHYSICIANS AND THE RENAISSANCE

BY

F. ROLAND WILLIAMS, M.A., M.R.C.S., I.R.C.P.,

MAELCLOCHIOG

IN Wales in the sixteenth century there existed two distinct medical traditions. The one tradition clung to the soil and the peasantry, the other was a scholarly tradition, nurtured in the older universities of Western Europe and imbued with the spirit of the new learning.

The popular tradition was of course, the older. It had its origins in folk beliefs and superstitions many of which must have been as ancient as the *menai lion* and the *crannichan* which are dotted over the bare hillsides of Cornwall and North Pembrokeshire. Mingled with these folk beliefs were survivals of the more bizarre and more purely superstitious elements in mediaeval Welsh leechcraft.

The vogue which this tradition must have enjoyed in the sixteenth century may be inferred from the fact that many usages typical of it still survive among the Welsh peasantry in remote, old-fashioned districts. Let me give some instances of such survivals.

Even a casual perusal of the old Welsh Leech Books of the Middle Ages leaves no doubt as to their preoccupation with sheer filth and ordure as therapeutic agents. That kind of belief you may meet with to-day in out-of-the-way districts of Carmarthenshire or Pembrokeshire, where human urine is still used occasionally as a lotion for itching eczemas, and cowdung poultices are not unheard of. Quite a short while ago, too, in Pembrokeshire, a colleague, called in to attend to a shotgun wound of the buttock, discovered that pig manure had been lavishly applied as a styptic and first-aid dressing pending his arrival.

Another stock feature of folk medicine and mediaeval leechcraft was the fantastic employment of drugs of animal origin.

Eve of newt and toe of frog
 Wool of bat and tongue of dog
 Adder's fork and blind worm's sting
 Lizard's leg and howlet's wing

—all had their place in that strange endocrinology which derived its origin from the "doctrine of signatures." A few such simples still linger in use as domestic remedies in the Principality. Bear's grease, so much lauded as a remedy in the Middle Ages, and a relic perhaps of the therapeutic theories of the hunter stage, may no longer be

fashionable, but few rural practitioners in Wales will have failed to observe the esteem in which goose grease is still held as an ointment for wheezing chests and sore throats. Spider's web has still some vogue as a styptic for cuts, and salt bacon is quite a favourite dressing for boils and abscesses. Even more primitive medicinal practices may be met with in Wales to-day. Students of the mediaeval Welsh *Doct of the Wyddfael Physicians* will have frequently encountered in its pages a ritual in which some small animal, such as a toad, is directed to be incinerated, pulverized, and administered to a patient in food or drink. I am credibly informed that such a procedure was carried out in Cardiganshire a little over a year ago, when, on the advice of a "wise woman," a mouse was roasted alive and the pulverized ashes were administered in porridge to a small boy who suffered from emesis. Charms and spells are hardly to be met with nowadays, but during the last century they were still sometimes hung in stables to ward off diseases from animals.

Since its survivals are so numerous in this our own time it may safely be inferred that this older tradition had a very great hold upon the mind of the ordinary man in sixteenth century Wales, and it is by contrast with those deep-rooted beliefs and practices of an older day that we may best realize how profoundly the new learning of the Renaissance influenced the practice of medicine in Wales.

It is true that the new tradition which grew up in Tudor times was empirical; its limitations and its errors are very obvious when looked down upon from those lofty peaks of scientific attainment which have been climbed since. But, viewed historically, it reflected quite worthily the mentality of a nation which had newly passed through the flame of a great intellectual revolution. Those who upheld it made no account of charms, magic, or the merely bizarre, they strove, within the limitations of the age which engendered them, to be scientific, temperate, and sane in their deductions and practice. But that which above all characterized these newer practitioners, and which stamped them especially and vividly as products of the Renaissance, was the breadth of their cultural outlook and the way in which they laboured to extend the boundaries of learning in other subjects besides medicine, while pursuing their everyday vocation as practising physicians.

There was a converse to that also. For, just as the physicians made excursions into other domains of learning, so did divines and the better educated country squires also invade the realms of medicine. Quite considerable collections of medical books were to be found in the libraries of some of the country houses, such was the case at Gwydir, the seat of the Wynn family. There is preserved among the Wynn papers a catalogue of twenty-one medical treatises which formed part of the Gwydir library in 1647. Most of these works belonged to the previous century, and had probably been acquired in Tudor times.

William Salesbury of Llanrwst, a distinguished theologian and philologist (acquainted, it is said, with nine languages besides Welsh and English), also had medical interests. To him is attributed the authorship of one of the medical "herbals" of the period.

The most interesting figure amongst the divines who practised medicine was Sir Thomas ap Williams, curate of Trefriw about 1573, who had a very considerable repute in North Wales as a physician. Several of his letters of advice to Sir John Wynn of Gwydir are preserved among the Wynn papers. His prescriptions, written some in Welsh and some in English, were richly sonorous of the pulpit, and liberally punctuated with *amens* and benedictions. "God be praised," he once wrote to Sir John, "that your worship hath had stools, otherwise it had been necessary to chastise *Protegat te nomen Dei Jacobi*."

Sir Thomas ap Williams's medical activities were a bugbear to at least one of Sir John Wynn's more orthodox advisers, Alexander Read who wrote indignantly to the baronet in 1610 protesting against the curate's presumption in posing as a physician, and pouring scorn on "his ineffectual old simples."

Read was a Scotsman by birth, and became one of the most popular and skilful general practitioners of his day. Before he became lecturer in anatomy to the Barber Surgeons in 1632 he lived at Holt on the Welsh border

* Read in the History of Medicine Section of the Annual Meeting of the British Medical Association Cardiff, 1923.

and his services were greatly in demand, not only throughout North Wales (where he attended the Wynns and other prominent country families), but also as far afield as Monmouthshire.

Called once to Newport to see a tailor with an injured leg, Read promptly amputated the limb above the knee with a carpenter's whip-saw, arresting the hemorrhage with a sort of mortar compounded of white of egg, unslaked lime, and hare's fur. He published several books on medicine and surgery, but his activities belong mainly to the seventeenth century, and so fall rather beyond the scope of this paper. For the same reason another of the physicians of the Wynn family, John Bullcley of Cleiflog in Anglesey, must be dismissed with just the passing mention of his name, for I wish to direct your attention more especially to those Welsh physicians of the sixteenth century who have claims to be remembered not only as physicians, but as pioneers of the new learning in other fields of knowledge also.

Robert Recorde of Tenby

Of these men, the earliest, and in some ways the greatest, was Robert Recorde of Tenby. He was a physician of repute, and also one of the great mathematicians of the sixteenth century. In this light it is interesting to compare him with those other notable Renaissance mathematicians, Arnold de Villa Nova, Neander, and Hieronymo Cardano, who, like Recorde, were also physicians, Cardano being first of all professor of mathematics at Milan and then professor of medicine at Pavia and Bologna.

Born in Pembrokeshire in 1510, Robert Recorde studied first of all at Oxford, becoming a Fellow of All Souls in 1531. Later he studied and taught mathematics and medicine at Cambridge, taking his M.D. there in 1545. He then returned to Oxford, where he taught arithmetic and mathematics. These sciences, according to Wood, "he rendered so clear and obvious to all capacities that none ever did the like before him in the memory of man." Rhetoric, anatomy, music, astronomy, cosmography also came within the ambit of his vast learning. He was an authority on coinage, and was at one time comptroller of the Mint. He was, moreover, one of the first in Britain to adopt the Copernican system of astronomy. The work he did in furtherance of the study of geometry, algebra, and arithmetic was important and lasting. To him we owe the invention of the sign of equality ($=$), and it was he who popularized the use of the signs *plus* (+) and *minus* (-).

As a physician he was not an inconsiderable figure. In 1547 he practised in London, indeed, he is said to have been physician to Edward VI. and Mary. He wrote a treatise on anatomy which is unfortunately not now extant, probably it was what he planned it to be—"an exact book with goodly pictures aptly framed."

One of his medical treatises does, however, still exist—*The Urinal of Physick*—a beautifully printed little volume, published in 1548 and dedicated to the Wardens and Company of the Surgeons in London. It was meant particularly for the enlightenment of surgeons so that they might not so often confound medical with surgical conditions "and surgery be slandered thereby." It was also intended for popular perusal so that the laity might be enabled to describe their urinary symptoms more exactly and helpfully when consulting a physician. In this connexion, Recorde "exhorts all men not to mock and jest with any physician (as some light wits do), tempting them with beast's stale instead of men's urine or bringing them men's water for women's."

The little book lays down the classical canon of uroscopy as derived from "Hippocrates, Galen, Aegnetas, Pliny, Constantinus Africanus, Dioscorides, etc." Recorde was careful, however, to stress the fact that the history of the case and the general observation of the patient were equally as important as the study of the urine in arriving at a diagnosis. He was thus no mere empirical uroscopist.

In spite of, or because of, the multitude of his intellectual activities, Recorde would not seem to have prospered, for he got into financial straits and died in the King's Bench prison in 1558.

Humphrey Llwyd of Denbigh

In Humphrey Llwyd of Denbigh the sixteenth century produced another Welsh physician who was notable for the breadth of his culture and for his pioneer work in new fields of knowledge. He was one of the cartographers of the period.

Born in 1527, Humphrey Llwyd proceeded to Oxford, to Brasenose College. He graduated as Master of Art, and then proceeded to study medicine. Afterward, for fifteen years, he was private physician to Lord Arundel, the Chancellor of the University. He then returned to Wales, living and practising at Denbigh Castle, where he died in 1568.

Humphrey Llwyd was devoted to music, and was an industrious and erudite writer on Welsh history and antiquities, but it was his work as a geographer which formed his chief contribution to the advancement of the new learning. Through his fellow townsman, Sir Richard Clough of Antwerp and London, he came into close contact with Ortelius, who, in his *Theatrum Orbis Terrarum*, referred to Llwyd as "the noble and most learned man," who supplied him with maps of England and Wales for his *Ancient Geography*. Many prints of Humphrey Llwyd's maps are still extant.

He wrote two medical works of note. The first, *The Judgement of Urine*, published in 1553, was a translation of Vassaeus's work on uroscopy. The second, published posthumously in 1585, and entitled *The Treasury of Health*, was a translation of the *Thesaurus Pauperum* of Peter Hispanus, together with aphorisms of Hippocrates, and the views of Jacobus de Partibus on therapeutics. To this rather conglomerate work Llwyd added, as original contributions of his own, a commentary on "the causes and signs of every disease," and a kind of Index Therapeuticus and Guido to Dispeasing—"a compendious table containing the purging and comfortative medicines with the exposition of certain measures and weights."

The book is interesting in that it reveals the kind of therapeutics used which guided the practice of a well-qualified physician of that period. None of the remedies advised by Humphrey Llwyd on the authority of his original authors can be described as grotesque or revolting. Even mummy did not occur in his materia medica, though mention was made of ivory, lapis lazuli, and confection of pearl. For the most part there was sound empirical common sense behind his prescriptions. Juniper "to comfort the reins", camphor and lavender "to comfort the heart", mints and oil of bitter almonds "to comfort the stomach", pillule of iubarba for the liver, oil of cardamoms and oil of pepper for colic, and oil of caraway "for the paynes in the smal guttes." A syrup "of the pillages of oranges" was recommended as a stomachic, confection of ginger "for all ventosities and inflations of the stomach," and syrup of poppy for a hacking cough that interfered with the patient's sleep. His favourite drug would appear to have been oxymel squill, which was advised for a variety of conditions. Mercury would not seem to have found any favour with him, but arsenic, in the form of lozenges, was recommended "to heale wyld fyre and ringwormes." One has only to compare the therapeutics of this book of Llwyd's with *The Welsh Leech Book* and other similar books inspired by mediæval standards to be able to gauge the enormous influence of the new knowledge and the new spirit of the Age of Discoveries upon the actual everyday practice of medicine in Wales.

The Welsh Grammarians

I now turn to that important and interesting aspect of the Renaissance which expressed itself in the work of the translators of the classics and the patient labours of the grammarians who helped to reveal the intrinsic beauty and literary potentialities of the "vulgar tongues" of western Europe.

At least one of the early translators of the classics into English was a physician practising in Wales. Thomas Phaer translated nine books of Virgil's *Æneid* into English verse while living at Cilgerran in Pembrokeshire. This was for some years the most popular English translation of the

Arctur Phyl also wrote two medical treatises: *A Goodly Brief Treatise of the Pestilence* and *The Hygiene of Health*, a popular manual of hygiene of the type of *Doyle's Castle of Health*.

The Welsh grammarians were many, and although some of them seem to have been Catholics, their work culminated in Wales as in England, in translations of the Scriptures, which became not only theological canons but canons also of literary style and diction. Several of these Welsh grammarians were physicians who sought relaxation from the cares of practice in the study of what one of them characteristically enough termed "the anatomy of language."

St Thomas ap Williams, curate and country physician, who was one of the many medical advisers of Sir John Wynn of Cwmdwr, compiled a Welsh Latin dictionary. Henry Salesbury of Denbigh, in Denbighshire, published a Latin grammar of the Welsh language in 1593. Salesbury was a graduate of Oxford and a physician of some eminence in North Wales. He also compiled a Latin Welsh dictionary, but it was never published.

The most picturesque, the most typical and the most learned of the Welsh grammarians of the Renaissance was, however, another physician—Doctor Rhys. John Dafydd Rhys was born at Llanfuchlan in Anglesey. He studied at Oxford, but did not graduate at that university. In 1555 he went abroad—perhaps as a recusant, for Wood stated that he lived and died a Catholic. However that may have been his wanderings brought him at last to Italy, the homeland of the Renaissance, where he studied medicine at the ancient university of Siena in Tuscany. He graduated as doctor of physic and then became moderator of the school at Pistoia. While in Italy he acquired a profound knowledge of Italian, and wrote two grammatical treatises in that language which were published at Padua. One was an introduction to the study of Latin, the other was a guide to the pronunciation of Italian, which became a favourite textbook for Englishmen visiting Italy.

After many years, however, the exile felt again the call of his native hills. He left Italy, that land of light and warmth, and returned to Wales, where he practised as a physician amid the sombre environment of the Brecknock Beacons. He died in Brecknockshire in 1609.

During this last period of his life he wrote a scholarly Latin treatise on Welsh grammar and prosody, and it is by this work of massive learning that he is best remembered by his compatriots. He also published a Welsh translation of Aristotle's *Metaphysics*, but the manuscript of that work has been lost.

His eminence in two lands as a grammarian has overshadowed John Dafydd Rhys as a physician, but he described himself in the preface to his Welsh grammar as "a man of harassed years in the care of the sick and the worries of business."

In the introduction to the same work, too, Humphrey Prichard referred to him as having gained the title of doctor "for his eminent studies in medicine."

The annals of the Renaissance in Wales would be the poorer if time had not preserved for us at least in silhouette the likeness of this insatiable old scholar. He was just such a personality as Browning has portrayed so vividly in *The Grammarian's Funeral*. Hakluyt described his contemporaries as "men full of activity, stirrers abroad and searchers of the most remote parts of the earth." John Dafydd Rhys was just such a one but adventuring for learning as others of his time and generation adventured for spices and gold mouldores.

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Information kindly supplied by the Librarian and the Assistant Librarian at the National Library of Wales.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

RETROPHARYNGEAL ABSCESS SECONDARY TO FOREIGN BODY IN HYPOPHARYNX

A RETROPHARYNGEAL abscess the result of injury due to the swallowing of a foreign body is rather unusual, the condition was found in the following case.

A man aged 45 was admitted to the rural department of the Manchester Royal Infirmary with the history of having swallowed two days previously a piece of chicken bone. He was unable to swallow any solid food, and liquids only with pain and difficulty. There was some obstruction to free breathing.

The senior house surgeon examined him with the mirror and also with Jackson's laryngoscope but was unable to find any foreign body although an X-ray report indicated a small elongated one at the level of the sixth cervical vertebra. Six hours later he was examined under general anaesthesia by Mr F. W. Wrigley, no foreign body being seen.

The dysphagia and pain now increased with rise of temperature to 100.4° F. and two days later he was referred to me by my colleague. On examination with the mirror I found very marked bulging forward of the left posterior pharyngeal wall partially hiding the left arytenoid from view. The left arytenoid and left aryepiglottic fold were very swollen and oedematous, much frothy saliva and mucus was collected about the swelling and larynx. The act of swallowing was very painful and on pressing the larynx over from the right to the left towards the tender site as indicated by the patient a sharp pain was caused. This sign Dr. Cabrilhac regards as



Arrow=chicken bone. Area between continuous and dotted line=swelling of posterior pharyngeal wall. Very black line below in mouth.

definitely indicating the presence of a foreign body. A radiogram taken that day showed a small spicule of bone embedded in the retropharyngeal wall at the level of the sixth cervical vertebra and marked bulging of the wall. The passage of barium paste had been seen obstructed at this point. As the patient was not ready for an endoscopic examination this was postponed until the following morning. During the night he brought up an ounce or more of pus and much mucus with a tracer of blood. In the morning after injection of morphine and atropine under cocaine anaesthesia I passed the short Jackson's oesophageal speculum. The larynx was still very inflamed and oedematous but the pharyngeal swelling was much less. No foreign body was seen but a tear on the posterior wall was found from which pus was expressed as the instrument moved near it. It was thought desirable not to open the abscess further, and the patient was given an adrenaline spray (1 in 10,000) and bismuth carbonate powder. His temperature remained at 100.2° F. for two more days then the laryngeal oedema and post-pharyngeal swelling rapidly subsided and in three days he was discharged swallowing normally.

A subsequent radiogram showed no sign of a foreign body and it seems certain that this was either vomited or swallowed when the abscess broke during the night, after this pressing the thyroid or cricoid cartilage over to the left no longer elicited any pain or increase in the tenderness at the site complained of by the patient. This sign must be regarded as a very valuable one in cases of suspected foreign bodies which are non-opaque to X-rays.

D. LINDSEY SEWELL

Honorary Aurist and Laryngologist to the
Manchester Royal Infirmary

LOCAL ASPHYXIA IN A YOUNG CHILD

SUCH a case as the following seems to be sufficiently rare to merit recording.

A girl aged 2 was whirled several miles in a push-chair on a chilly evening. When she was taken out on reaching home it was found that she was unable to stand and that her feet were blue, swollen and painful. On the next morning (Thursday) the left foot was still affected but the right foot had recovered. In the evening both feet were normal and the child was able to trot.

Dr BROMLEY read a paper on some questions and experiences in routine x-ray work. Dr Bromley explained that the interpretation of x-ray photography was really an interpretation of relative densities, and that it was only by realizing this that x-ray photographs could be confined to the best advantage. He emphasized the great importance of routine in technique, and stated his belief that alterations in technical routine should be made only after the most careful consideration and in the light of accumulated experience. The speaker showed on the screen a large number of x-ray photographs. In those showing bones and joints he indicated the necessity of eliminating the possibility of unusual bone formations before arriving at a diagnosis of fracture. In this connexion he showed instances of the two small ossicles occasionally present, one near the base of the fifth metatarsal bone, and the other in the neighbourhood of the joint between the tarsal scaphoid

and the head of the astragalus. Dr Bromley also demonstrated the shadows thrown by calcareous arteries, and expressed his belief that a radiographer, finding them, should report their presence so that the surgeon might be in a position to vary his treatment in the light of knowledge of the condition of the vessel walls in the neighbourhood of the fractured bone. Dr Bromley explained his technique in the radiography of the alimentary canal; he considered that the addition of flavouring agents to opaque meals was rather a disadvantage than otherwise, since, in his experience they rather tended to make the meal less palatable to the patient than it would otherwise be. Dr Bromley explained thoroughly the diagnostic significance of the crater, the filling defect and the spasmodic incision in the diagnosis of ulcers. He also described the significance of the duodenal cap, its causation and the diagnostic value of its various deformities.

Reports of Societies.

SACRO ILIAC PAIN

At the meeting of the Medical Society of London on December 10th with Dr WALTER CAMP in the chair, a discussion was held on sacro iliac pain.

Dr WILFRED HARRIS, in opening, enumerated the various causes of sacro-iliac sprains and subluxations which followed accidents, mismanaged labours, or congenital defects and occurred much more frequently in the female than in the male. One never expected to find a total dislocation of the sacrum, the most common displacement was a posterior rotation of the sacrum, producing flatness of the back, with more or less obliteration of the normal lumbar curve, such as was seen in an anaesthetized person on the operation table. The diagnosis of these subluxations by x rays seemed almost impossible save in rare instances, a stereoscopic x ray picture of the pelvis might, however, bring out subluxations not to be seen in the ordinary flat negative. Clinical experience of these low-back pains, with their speedy relief following certain measures should convince everyone as to their importance. Chronic pains in the back were frequently diagnosed as lumbago, muscular rheumatism, and chronic sciatica. Dr Harris then described the differential diagnosis. In these sacro-iliac sprains tenderness on pressure over the affected joint was almost constant and the pain would be aggravated by walking, standing, or lying flat on the back. The treatment of sacro-iliac pain, whether by manipulations, under an anaesthetic or not by strapping or the use of other supports, or by arthrodesis was outside the scope of his opening remarks, but the differential diagnosis of a sacro-iliac lesion from sciatica, spinal cord disease, arthritis of the hip, lumbago, and sacro-fibrositis was of great importance from the point of view of treatment. American surgeons particularly had investigated and written about this subject, and had helped to rescue many sufferers with chronic pain in the back from chiropractors and osteopaths. It was always necessary to guard against overlooking injury and muscular strain simulating sciatica. In the routine examinations tests should be made for tenderness over the joint by pressure on and below the posterior iliac spine. Tuberculosis might attack the sacro-iliac joint—tuberculosis of the sacrum or lumbar vertebrae might be recognized by a radiograph—and osteo-arthritis of the hip-joint was another condition liable to be mistaken for sacro-iliac sprain.

Mr P. JENNER VERRALL agreed that at all events until recently x rays were of little value and even the stereoscopic view did not dispel all doubt. For the most part reliance must be placed on clinical findings for the diagnosis. In many persons—in the female more than the male—this joint was congenitally lax. Too early weight-bearing after labour was a fertile source of trouble. Another form of sacro-iliac subluxation might occur after such an accident as the fall of some heavy object on to the lower part of the back while the person was in a stooping position. The symptoms of which patients complained were commonly pain in the back or sciatica, either of

which might be due to a multitude of causes. A history of injury or mismanaged labour might be elicited. In severe cases the gait of the patient was almost pathognomonic. Early and advanced cases differed fundamentally in posture, the early case showed considerable lordosis, the advanced case had a flat and almost vertical lumbar spine and sacrum. Deep tenderness over the joint (which must be distinguished from superficial tenderness due to referred pain) and pain elicited by lateral compression of the pelvic crests were useful signs. He was convinced that uterine displacement was less often a complication, and muscular strain more often a complication, than was thought likely twenty years ago. Sacro-iliac subluxation being accepted as a clinical entity, the treatment was reposition followed by support. He thought the frequency of sacro-iliac displacement had been greatly exaggerated, but anyone who had felt or heard the click while performing the manipulations for reduction, and the rotation of the bone, followed by a clearing up of the condition, must be convinced of its existence. Reduction should be followed by some form of support. In severe cases it was well to allow the patient to rest in bed for a few days with lumbar support, some cases wanted nothing more, but others required a sacro-iliac belt and pad the proper form of which he carefully described. Little or no benefit was obtained from local therapeutic measures such as ionization. Mr Verrall ended with an explanation of a method of grafting of the joint which he had employed in severe cases.

Dr E. J. BRADFORD exhibited a large collection of radiographs of this area of the spine. They were a selection he had made from 3,000 cases, not all sacro-iliac lesions, but lesions and deformities in that neighbourhood and supported the points already brought forward by Dr Harris and Mr Verrall. Special attention was drawn to the number of these cases in which there was a congenital deformity, and also to the variations seen in the articular processes of the sacrum.

Dr C. B. HEALD spoke as one who had been one of Mr Jenner Verrall's very successful patients. He had been an acute sufferer from the condition described. One point not mentioned by previous speakers seemed to him worthy of note—namely, the existence of sympathetic phenomena. He had experienced in association with the condition an extremely painful nightly colic. With regard to the sensations, in his own case he remembered that he did not mind bending, but he had the greatest objection to getting erect at one particular point. During and after the pain the leg felt large, heavy and "woolly" as though it belonged to somebody else of much bigger stature than oneself.

Dr H. A. ELLIS mentioned the diagnostic importance of the specific gravity of the urine in all cases of arthritis. In a case of osteo-arthritis the urine had a high specific gravity and there was excess of sulphates, in rheumatoid arthritis it was of low specific gravity, with deficiency of phosphates and no increase of sulphates. Mr VERRALL, in reply to a question, said that the manipulations were always conducted under anaesthesia with the patient completely relaxed. He thought it impossible to perform manipulation of the sacro-iliac joint otherwise.

CANCER OF THE CERVIX

At a meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland on November 23rd with the president Dr CHARLES FITZGERALD, in the chair. Dr BETHEL SOLOMONS, Master of the Rotunda, exhibited a specimen of carcinoma of the cervix, removed by the Wertheim method.

The patient aged 36 was a 5-para whose last baby was eleven months old. Two months after the birth menstruation returned and she had lost blood almost continuously for nine months when she came to the Rotunda. The growth was very extensive locally but did not appear to involve the parametria, bladder or rectum. The operation and recovery were without incident. Dr Bourke reported that the specimen was a solid carcinoma originating from the squamous epithelium of middle maturity. The tumour had infiltrated the cervix but the prostatic urethra was more external than internal. The measurement of a ball section of the growth after removal was 4.5 cm.

Dr Solomons dwelt on the fact that the radical operation was the choice for a case of this type—namely, a growth freely movable and of great magnitude—a large quantity of radium would be needed for such an extensive growth. He employed x rays as a routine post-operative procedure.

Dr D G MADILL, referring to the fact that the patient's 1st confinement had taken place only nine months before the finding of the tumour, asked if there had been any history of difficulty at the confinement, and said he did not think the tumour could have reached its present magnitude in nine months. He considered it probable that there must have been some evidence of malignancy at the confinement.

Professor A H DAVIDSON thought it time for an authoritative statement on the present position of radium and operation in cases of cancer of the cervix to be issued. He had seen very many inoperable cases which had been treated by radium in which the results had not been satisfactory, and could only remember one inoperable case, which had been treated about four years previously, in which there had been no recurrence.

Dr R M CORNER believed that if carcinoma was found soon after confinement the prognosis was favourable, since this meant that it was found in an early stage. He referred to a patient of his who had had a normal delivery in July, 1925, and who in December, 1926, had been sent to him again with a diagnosis of incomplete abortion. He had found a malignant condition, a Wertheim operation was performed, and the patient had been perfectly well since.

The MASTER OF THE ROTUNDA replied that the patient had been confined in the country eleven months previously, and he was informed there was no difficulty in the labour. He agreed with Dr Corbet that a tumour discovered apparently soon after confinement indicated probably a favourable prognosis. He did not believe that sarcoma was likely to be found in the microscopic sections. It was extremely difficult to estimate the results from radium therapy and operation for carcinoma of the cervix. Both depended on the skill of the operator. Heyman of Stockholm was obtaining excellent results with radium, which he used in all cases. His technique was beautiful. It was difficult for men who had not a large quantity of radium, and who had not the experience necessary to obtain the best technique, to compare their results with those of Heyman and others. The same remark applied to the operation. The Wertheim operation was difficult, and the best results were obtained by the man with the largest experience. Dr Solomons said he advocated operation for operable cases and radium for the other types in which, working with Dr Stevenson, he had had some striking improvements. It was an easy matter to pick out the authoritative papers on operation and radium therapy from the others.

Uterine Fibroids

Dr Solomons also showed a specimen of a large fibroid removed from a woman, aged 35, who had been married for one year and had had no previous pregnancy.

There had been amenorrhoea for five months and slight abdominal pain. On examination a soft tumour which was obviously a five months pregnancy was found in the lower abdomen. Separated from it by a slight groove and filling the whole of the rest of the abdomen, was a large, hard, somewhat regular tumour, this was freely mobile and slightly resonant on percussion. An x-ray film confirmed the diagnosis of pregnancy. The spleen shadow was visible and there seemed to be a slight connexion between the pregnant uterus and the tumour. The differential diagnosis lay between a spleen, a mesenteric tumour and a large fibroid or an ovarian tumour. A blood count showed the red cells to number 3,356,000 per c.mm. the haemoglobin was 60 per cent. and the colour index 0.9. On opening the abdomen it was obvious that the condition of the growth was fibroid. It filled most of the available space in the abdomen. Having been freed it was removed from the left cornu of the pregnant uterus and the cavity was stitched. There were four other fibroids in the uterus one of which was removed. There was very alarming haemorrhage from the bed of this tumour which seemed to be over the placental site. The haemorrhage was controlled by suture. It did not seem advisable to remove any of the other tumours, since they did not interfere with the pregnancy, which was still progressing.

The PRESIDENT agreed with the Master of the Rotunda Hospital that the only treatment was removal of the tumour. He thought the prognosis was good. He was specially interested in the diagnosis, because he had recently

seen at Mercer's Hospital a somewhat similar case. The patient had a fairly large tumour filling the middle of the abdomen, which at first suggested a spleen, but the blood count negatived this. The abdomen was opened, and a malignant growth of the mesentery was found.

Imputation of the Fallopian Tube

Professor A H DAVIDSON showed a specimen of myomatous uterus with amputated Fallopian tube. The patient, a woman aged 50, complained of irregular and severe uterine haemorrhage for the past six months. She had been married for twenty six years and had had no children or miscarriages, her menstrual periods had been regular up to six months previously. A fibrous polypus was found protruding from the cervical canal, and a multinodular fibroid uterus. In view of the patient's age Professor Davidson decided to perform hysterectomy. At the operation a peculiar and interesting condition of the right tube was found. There was a complete amputation of the tube at the inner end of the isthmal portion, and there was a thin fibrous cord running from that point to a cystic enlargement filled with caseous material, adherent to, and embedded in, a portion of the omentum. It seemed as if the tube had become parasitic on the omentum. The left tube, the seat of old standing salpingitis, was disorganized. Hysterectomy and double salpingo-oophorectomy was performed. Dr F S Bourke, who examined the tube, had reported as follows:

'A section of the peduncle attached to the large caseous mass consists of a fibro-muscular structure resembling in arrangement the muscle wall of the Fallopian tube. There is no evidence, however, of any epithelial lining. I am unable to say definitely that this is an amputated tube but it seems the most likely explanation for its occurrence in such a situation. Smears of the caseous matters were examined, but no tubercle bacilli were found.'

The PRESIDENT thought that this was an amputated tube, since the lumen of the tube was filled with caseous material.

Dr NIVIAN FALENER suggested that this was a caseous gland, and said that as a rule the caseous mass was in the upper part of the tube. In this case it had been found in the omentum, which he regarded as being rather against the condition being an amputated tube.

CANCER OF THE LUNG

At a meeting of the Section of Pathology of the Royal Academy of Medicine in Iceland in the Royal College of Physicians on November 30th, with the president, Dr T T O'FARRELL, in the chair, Dr J SPEARES reported a case of cancer of the lung.

A man aged 51, had been seen by him on October 5th complaining of pain in the abdomen which passed up and through his chest. He had been ill since May 8th. The patient had had three falls from horses and had suffered from malaria and black-water fever. He looked ill and was slightly anaemic. There was no difference in expansion on either side of the chest and no dullness. There were a few coarse crepitations with harsh inspiration over the lower lobes but no bronchial breathing. The heart and blood pressure were normal but the patient was extremely breathless out of all proportion considering that the heart and lungs appeared normal. There was tenderness over the splenic area and something definitely hard could be felt. The liver contained no lumps but felt unduly hard. There was no fluid in the abdomen. The sputum did not contain tubercle bacilli and the Wassermann reaction was negative. An x-ray examination showed lung trouble, mainly confined to the lower lobes, diagnoses suggested had been specific disease, malignant disease and some unknown factor. The patient went downhill rapidly and died on November 8th towards the end he coughed up purulent sputum and vomited without relation to food.

Dr Speares said that in his experience of tumours of the lung the principal thing noticed was dyspnoea. He drew attention to the fact that in textbooks the statement appeared that in malignant disease of the lung the malignancy was principally in the upper lobes. In this case most of the malignancy, although only secondary, was in the upper lobes. It was difficult to know whether malignancy predisposed to tuberculosis or vice versa.

Dr J T WIGHAM, who demonstrated the specimens, said that the spleen was not large, but was soft, and where it had been adherent to the tumour below it had torn to pieces. The stomach was apparently perfectly normal, and though adherent to the tumour below was not infiltrated at all, there being no primary stomach tumour. The

kidney was larger than normal, and presented remains of nephritis, but not very strongly marked, and apparently of recent appearance. The lung showed the typical appearance of secondary cancer. There was only one nodule in the liver. There was a mass of glands in the mediastinum, but it had only been possible to remove the lung, and practically the whole of the mediastinal glands had been left behind. He thought that the cancer was a pancreatic one, it was solid, there were no signs of necrosis, and it was not in any way an adenocarcinoma. The alveoli of the lungs were filled up.

The PRESIDENT referred to a specimen, which he had shown some years ago at the Academy, of a squamous-celled epithelioma of the lung in which tuberculosis also had been present. He thought the fact that there were no secondary deposits in the liver was in favour of the cancer not being in the stomach.

Dr CHARL MOUNT said that in the last year and a half he had seen two cases similar to that described by Dr SPEARES, and in both there had been a tendency to involvement of the base of the lung. In one case there was a pleural effusion which, when removed, revealed the underlying condition, which had previously been shown by x-ray examination. This patient had also been extremely breathless. In the other case the sarcoma had involved the mediastinal glands as well as both lungs; there was well-marked tuberculosis, with cavitation at the apices of both lungs, and also carcinoma of the colon. Dr H. B. COULDING asked if primary or secondary cancers of the lung were common a few years ago he had had under his care three patients with secondary cancer at the same time, but had not seen a case since. In one of his cases haemoptysis had been well marked, and in another there had been an extensive pleural effusion.

Dr SPEARES, replying, said that in his case there had been no evidence of a pleural effusion. Primary carcinoma of the lung was not so common as secondary carcinoma. Dr WICKHAM, replying, said that sarcomas were much more common in the lungs than cancer. Carcinoma of the rectum and breast very often ended with secondaries in the lungs. Primary cancers of the lung had recently been found to be not so rare as was formerly believed.

Lymphosarcoma

Mr F. J. HENRY read notes of a case of lymphosarcoma in a man sent to him towards the end of February as a case of chronic indigestion. He suspected a chronic gastric ulcer, and this diagnosis was confirmed by x-ray examination. At the operation a large chronic ulcer was found in the pyloric segment of the stomach, but in addition there was a large collection of glands lying high up in the stomach. A gland was excised from the greater curvature for examination, and a gastro-enterostomy was performed well above the ulcer. The patient recovered, and obtained complete ease from his gastric symptoms, but a guarded prognosis was given. Early in October he returned, looking very wasted, there was a large hard mass in the epigastrium, and enlarged glands in the right groin. A gland was excised, and a similar report was received to that of the previous occasion. The patient died in a few days.

Dr J. T. WICKHAM, who demonstrated the specimens said that the tumour was at the back of the stomach, passing down into the pancreas. It was a retroperitoneal tumour pressing forward into the stomach. When he had examined the first gland he had doubted whether it was malignant, as it was fibrotic, with a number of giant cells, which might possibly have been some variety of Hodgkin's disease, but there was no doubt that the second gland was malignant. There was an infiltrating sarcoma in the body of the stomach.

Bothriocephalus Infestation

Dr T. T. O'FARRELL exhibited a specimen of infestation with *Bothriocephalus latus*, this being the third which he had encountered, the previous ones had been recorded in 1916 and 1918.

The patient, a man aged 36 from whom the specimen was obtained, was born in County Leitrim, where he resided for fourteen years. He subsequently lived in Belfast for ten years, then in Blackburn, England, for three years and in Belfast again for three years. He frequently returned to his original

home on vacation, though he had never been abroad. Seven years ago he passed segments of a tapeworm which was not identified. In September 1923 he passed more segments and was treated with filix mas which he passed the present specimen which appeared to be the entire worm, though the head was not recovered.

The patient never exhibited any noticeable anaemia. A blood examination made in November was as follows: red cells 4,440,000 per cmm; haemoglobin 96 per cent; colour index 1.0; white cells 9,280 per cmm. Stained films showed slight anisocytosis with an occasional microcyte but no poikilocytosis. No nucleated red cells were found. The differential leucocyte count per cent was as follows: small lymphocytes 20; large lymphocytes 14; myelocytes 10; polymorphs 52; eosinophils 2; basophils 2. In common with the other cases from the County Leitrim area there was practically no anaemia and no eosinophilia. The patient had eaten freely of fresh water fish including pike but he had also an unusual predilection for raw meat.

Dr J. T. WICKHAM thought the patient must have eaten raw fish, since he did not think that cooked fish caused the worm to appear. He believed that the host must be some animal and not man, or else the worm would have died out. Dr J. SPEARES asked if the head of the worm had been found. The PRESIDENT replied that the patient had stated he never ate anything but thoroughly cooked fish but it was evident that this was not the case. He thought it possible that this worm was fairly common, and should be treated as an ordinary tapeworm. The head of the worm had not been found, and he personally was not satisfied that the worm had been expelled.

Mammary Adenoma

Dr A. B. CLERY showed an adenoma of the breast removed from a woman, aged 28 years, who had first noticed the lump two years ago. Several large veins were present over the breast, extending to the left sternoclavicular joint. The tumour, which was about three and a half inches in diameter, had a definite capsule and contained several cysts. Microscopical examination revealed adenomatous characteristics with marked epithelial proliferation, the cells being in places many layers thick.

The PRESIDENT thought that the condition was not encephaloid cancer, but the growth was much softer than what was usually found in the breast. In some of these cases soon after one tumour was removed another appeared and in some the tumours were symmetrical. Mr HENRY suggested that the growth might be a soft fibro-adenoma of the breast, a condition which was rarer than hard fibro-adenoma. Cases of pure adenoma of the breast were very rare, Sampson Handley had stated that he had only seen one in the whole course of his experience. Carcinomatous transference in cases of adenoma of the breast was rare.

Dr J. T. WICKHAM thought this was a rare form of adenoma. The whole tumour seemed to be made up of glands, and the glands which were visible were really tumours. These tumours originated from a very small focus, and not from a large one, as might be expected.

Boveri's Cerebro-spinal Fluid Test

Dr R. A. O'MEARA read a paper on Boveri's test for the cerebro-spinal fluid. He said that when first introduced this test consisted in mixing equal quantities of a 0.01 per cent solution of potassium permanganate and of the cerebro-spinal fluid. Dr O'Meara used somewhat stronger solutions of permanganate, about 0.02 per cent. He found the reaction of particular value in tuberculous meningitis with a clear cerebro-spinal fluid, he had never found the reaction negative in tuberculous meningitis, and in most cases bleaching of the permanganate occurred within three minutes. The speaker concluded, therefore, that the test might be of great value to the country doctor or the consultant, enabling him to distinguish at the bedside between tuberculous meningitis, with a clear fluid, and such conditions as meningism. He added that the reduction of the permanganate was to be explained not only by increase in protein, but also by the increase in non-protein nitrogen associated with meningitis. Conditions such as dementio paralytica associated with a high protein content rarely gave the reaction, and then only faintly, whereas in meningitis with no more protein in the fluid the reaction was always very active.

The PRESIDENT asked if Dr O'Meara had tested the cerebro-spinal fluid of cases of encephalitis lethargica by this method, and whether it could be used quantitatively.

Dr A. J. R. DUNGAN agreed that the test would be specially useful to those who could not get access to laboratory facilities. He thought it difficult when examining cerebro-spinal fluid to differentiate tuberculous meningitis and encephalitis lethargica unless the clinical picture was very marked. Dr CYRIL MURPHY asked how long it was before "weak" cases reacted to this test, and said that since in doubtful cases a laboratory diagnosis was usually, of very little assistance, Boveri's test should be very useful. Dr A. HALPENNY referred to the difficulty of finding tubercle bacilli in the cerebro-spinal fluid, which made it hard to differentiate tuberculous meningitis and encephalitis lethargica.

Dr O'MEARA replied that encephalitis lethargica tended to occur in epidemics, and, therefore, he had not had much experience of it. In cases of encephalitis lethargica the test did not give a strong positive reaction. He had only encountered one case in which the question of diagnosis between encephalitis lethargica and tuberculous meningitis arose, and in it he had diagnosed tuberculous meningitis from the result of the test. The clinician had not agreed, but the patient died in a few days, which Dr O'Meara regarded as being in favour of tuberculous meningitis, since patients with encephalitis lethargica did not usually die quickly. In this case he had found no tubercle bacilli, but Boveri's reaction was strongly positive. He believed that a good many cases which were recorded with very high cell counts were really cases of tuberculosis in which tubercle bacilli were not found, and were not cases of encephalitis lethargica at all. The reaction was described as being strong if it occurred in three minutes, and as weak if it occurred in three to six minutes.

CHOREA

At a meeting of the London Jewish Hospital Medical Society on November 28th, with Dr A. GOODMAN LEVY in the chair, Dr LEOPOLD MANDEL opened a discussion on chorea.

Dr Mandel said that chorea was easily overlooked, in spite of its widespread incidence, owing to the fact that its early manifestations were mild, yet its cardiac sequelae were devastating in their seriousness. Rheumatic endocarditis amounted to an economic and public problem of national importance. In England over 40 per cent of all deaths from heart disease were traceable to rheumatism. Some 25,000 people in England and Wales—the majority of them in the first three decades of life—died from heart disease, and though the figures for chorea alone could only with difficulty be separated from acute rheumatic cases it must be remembered that at least 33 per cent of cases of chorea showed cardiac lesions. It was important to recognize that there was a rheumatic type of child with an unbalanced temperamental make-up associated with physiological instability. This particular type should be safeguarded as far as possible during school age, not only from conditions which might cause acute rheumatism, but also from being overstrained in its education. An etiological factor of some importance was the part played by infected tonsils and the nasopharynx generally. There was some difference of opinion as regards the benefit of tonsillectomy as a protection against rheumatic disease, but it was the speaker's opinion that complete enucleation of the tonsils, if performed early enough, was a definite prophylactic step against rheumatic diseases generally, and undoubtedly beneficial in the prevention of endocarditis. As regards the signs and symptoms of the disease it was not generally recognized that chorea was associated with an increased temperature. Dr Mandel's observations over a long period of the rectal temperature showed that there was in all cases a mild pyrexia. If more attention were paid to what might be termed the prodromal period the disease would be more quickly recognized. With regard to the cardiovascular symptoms the early recognition of organic heart disease in cases of chorea was a difficult problem. Not all bruits were organic, and the course which he had found wisest was to regard a diastolic or presystolic bruit as evidence of definite heart disease. If the bruit was apical and systolic only he viewed it with suspicion, doubly so if there was evidence of dilatation. If it was more marked

it the base, and the patient was anaemic, it was probably haemic, but in any case all choreic patients should be examined at regular intervals for a period of six years after their initial attack. The medicinal treatment of chorea comprised nerve tonics and sedatives, and anti-rheumatic medicaments. Dr Mandel did not think that drugs shortened the course of the disease by one day, though they might, perhaps, control it. Of sedatives he had found the combination of chloral hydrate, pyramidal, and ammonium bromide the most satisfactory, especially if, in conjunction with it, a small dose of luminal was given at night. Calcium therapy, with or without parathyroid, vaccines, and serotherapy had not yielded any good results. Of the anti-rheumatic drugs sodium salicylate given with moderately large doses of the bicarbonate might have some effect in preventing cardiac complications. The speaker had recently treated a few cases by intrathecal injections of autoserum, and though he had had startlingly good results in two cases his series of cases was too small as yet to permit deductions. The paramount feature in the treatment of chorea was rest.

Dr NAIRN DOAGRE believed that there was a distinct rheumatic diathesis, and a certain type of child whose nervous system displayed particular affinity for the rheumatic toxin, with the result that rheumatism in these children showed itself as chorea rather than arthritis. Poor hygiene and faulty environment were important etiological factors. He outlined the London County Council scheme of dealing with rheumatic disease in childhood, and pleaded for the closer co-operation of the medical profession generally. Dr D. NABARRO said that there was no direct confirmatory evidence that some strain of streptococcus was implicated. He thought that the condition was an allergic one in which some toxin—probably derived from a streptococcus—was the cause of the disorder. Mr H. KRISCH held that tonsillectomy in these cases must be performed not only early, but completely, if good results were to be obtained. The condition of the nasopharynx and sinuses should always be inspected, because sinusitis was frequently overlooked in children. Dr CHATKIN outlined the methods of the London County Council medical school inspection. School medical officers at all times impressed on the parents the importance of keeping their children under the supervision of the family doctor.

DETERMINATION OF ALCOHOL IN URINE

At a meeting of the Society of Public Analysts, held on December 5th at Burlington House, Messrs J. EVANS and A. O. JONES described a method of determining small quantities of alcohol in urine, which was proposed as a chemical test for drunkenness. The urine was evaporated in a current of air, and the mixture of air and alcohol vapour was conducted into a strongly acid standard solution of potassium dichromate. The alcohol was oxidized to acetic acid, and the amount of the dichromate reduced was determined by adding potassium iodide and titrating the liberated iodine with standard thio-sulphate solution. After describing the apparatus designed for the purpose by Dr H. W. Southgate (see *British Medical Journal*, March 13th, 1926, p. 463), an outline was given of the experimental results obtained by Dr Southgate upon which the physiological interpretation of the amount of alcohol found in urine was based, together with an account of determinations by the authors of the extent to which alcohol was present in samples of urine from persons who had consumed known amounts of alcoholic beverages. The medico-legal application of the method was discussed.

Mr J. J. WIS answered criticisms which had been directed against his method of standardizing the iodine absorption of oils and fats. He showed that inaccurate preparation of the agent used had been responsible for the statement that theoretical values were not obtained with certain fatty acids; erroneous data had given rise to wrong deductions in other respects.

Mr A. SCOTT DODD, discussing the occurrence and determination of boron compounds in vegetable products, described investigations which showed that boron compounds had been found in a large number of dried fruits. The amount expressed as boric acid found in dried raisins and currants ranged from 110 to 260 parts per million, and, as regards miscellaneous dried fruits, from 40 parts per million in prunes to 300 parts per million in apricots and peaches. In fresh fruits the quantities ranged from 31 to 62 parts per million, corresponding to 220 to 550 parts per million in the dry substances.

Rebucius.

ESSAYS OF A SCHOLAR PHYSICIAN

As medicine is concerned with history and with science, with life and death, and with men and women, it easily leads the physician into the pleasant pathways of philosophy, and the philosopher, as opportunity offers, reveals himself, more or less abundantly, in the spoken or written word. It is this sequence of events which explains the appearance of Sir HUMPHRY ROLLESTON'S volume entitled *Aspects of Life, Life and Disease*. The book consists of thirteen personal studies, each one of which betrays an intimate acquaintance with the general and professional literature bearing on the debate and a capacity to make out of varied details a pleasing, instructive, and inspiring story. With the recital of many contributions from many sources is associated, too, the personal note that gives unity to the discussion and expresses the quality of the literary artist. That such a series of studies should be produced in the course of four or five years by an author whose professional and public responsibilities mean crowded hours, is an impressive demonstration of a love of literature and of a gift of expression that must command admiration, not perhaps altogether unmixed with a spice of envy. Sir Humphry Rolleston, however, has his assumed place with the goodwill of everyone, and the universal attitude towards his new volume will certainly be one of congratulation and of gratitude.

The subjects of the several essays vary widely, but common to them all is the thought that medicine is a part of life, and has active relations to other parts of life. Hence arises the necessity to define these relations and to secure accuracy of proportion and perspective if the (educational) values of medicine, as a mental and moral discipline are to be obtained for her disciples, and if the medical aspects of life are to find their rightful place in the discussions of the day and hour. Yet the essays are not purely or even mainly, on the academic plane, on the contrary, they are well in contact with daily interests, and the physician is not less prominent than the philosopher. Even that stern person the strictly practical man may find in these pages points which may well engage his attention, and possibly he may convince himself that the style and fashion of saving things has a value not altogether to be dismissed. It is sometimes said that medical writings are deficient both in lucidity and in literary achievement, but no such reproach attaches to Sir Humphry Rolleston's pen.

One of the essays—it appeared in our issue of October 9th, 1926 (p. 625)—is addressed to students and to newly qualified members of the profession, and is a careful analysis of the prospects offered in various branches of professional work. It applies itself to actual situations, and deserves careful consideration by those whose careers are opening before them. The author recognizes the value of experience in general practice and the desirability of cultivating at the same time expertness in a particular department. Such a combination, as he says, may develop the general practitioner "into an expert specialist" who may "set up in a big centre." This possibility has had some brilliant illustrations, but it may be doubted whether the present passion for a compulsory post-graduation curriculum and a "special diploma" will encourage such developments. In the same chapter Sir Humphry Rolleston subscribes to the view that medicine and surgery are unhappily divided, and that the desirable arrangement would be one of regional experts who would undertake all treatment, surgical as well as medical, in the departments over which they severally preside. He almost despairs of the future of the "general" physician and of the "general" surgeon. We venture to wonder whether the interests of medicine and of the public will be promoted by the evolution of groups of practitioners, each one of which will have a more or less pronounced diagnostic and operative bias in a narrow and particular direction. The care of individual organs and systems is no doubt excellent, but

we hope that someone will be left to look after the patient.

Related to the study of professional prospects are essays on success, the future of medical women, the medical aspects of holidays, and irregular practice and quackery, all of which make excellent reading and are characterized by an individual judgement which rests on thought and experience. More ambitious studies deal with old age with clinical variations of disease as recorded in history with the social and international consequences of diseases affecting rulers and other important personages, and with descriptions of diseases by medical men who have themselves been unwilling victims. In "Poetry and physic" recognition is paid to many disciples of medicine who have cultivated the muse, and in the "Medical aspects of Samuel Johnson" all who number among their friends the most engaging of literary companions will find notes both of interest and appeal.

The book is to appear in French as well as in English and we are more than content that our colleagues across the Channel are to have the opportunity of learning how literature and philosophy are cherished, amidst many competing professional demands, by an experienced and scholarly English physician.

POLIOMYELITIS

THE very severe epidemic of infantile paralysis in the United States in 1916 afforded a great opportunity for the study of the disease, and it is no doubt in part because of the experience gained then that Dr W. RUSSELL MACAUSLAND has been able to produce such a practical volume entitled *Poliomyelitis*. As surgeon to a big orthopaedic hospital the author's interests are largely concerned with treatment, but all aspects of the subject receive attention.

History, epidemiology, etiology, and pathology are well discussed in the opening chapters. The types of the disease are ably set out, with perhaps an over-emphasis on the rarity of polio-encephalitis, and diagnosis, both clinical and laboratory, is described. The rest of the book, over two thirds of the total bulk, deals with treatment in a thorough fashion. Treatment in the acute febrile stage and in the early paralytic stage is rightly emphasized, for in the opinion of the author "the majority of deformities can be avoided." It is fortunately possible, especially during an epidemic, to diagnose many cases of poliomyelitis before paralysis sets in, and for such cases the use of convalescent serum would seem to offer good chance of abating an attack. Unfortunately the results of serum treatment have varied greatly, and it is difficult to judge of its efficacy. Its use, however, has stimulated the early diagnosis of the condition. Treatment in the early paralytic stage comprises general symptomatic treatment, the prevention of development of deformity, and the restoration of muscle power. On each of these subjects Dr MacAusland has some wise things to say. After insisting on the prevention of deformity as the most important side of treatment he explains the causes of deformity under the following headings: muscle unbalance, ligamentous and tissue contraction, habit posture, static influence, and gravity. With a correct knowledge of these factors efforts at prevention can be carried out on scientific lines. On the treatment of the later stages the author is also very sound, his views on electricity will be welcomed, although he might have expressed his obvious views more strongly. "There is little need of electricity in the treatment of poliomyelitis." Muscle re-education by means of systematized exercises he considers of great importance for muscles in which some power remains, and very full details are given of the exercises suitable for various groups of muscles. Operative treatment completes this monograph, and is very fully described.

Apart from an omission to mention the use of cellulose splints there is very little about poliomyelitis which is not dealt with in this book. Dr Russell MacAusland has given us a comprehensive study, well illustrated and documented, and it should prove a valuable book to those concerned with this distressing malady.

Poliomyelitis. By W. Russell MacAusland M.D. Philadelphia, Lea and Febiger 1927. (6 x 9½) pp. xi + 407. 173 figures. \$5.50 dollars net.

¹ *Aspects of Life, Life and Disease*. By Sir Humphry Rolleston M.D. The Anglo-French Library of Medical and Biological Science. London: Regent Hall Trench, Trubner and Co. Ltd. 1928. (5½ x 8½) 1p. 304. 10s. 6d. net.

WOUNDS AND INFECTIONS OF THE HANDS

Plais et Maladies Infectieuses des Mains,² by MARC IEELIN, deals with a subject of wide interest and importance, for in industrial areas wounds and infections of the hands are matters of daily experience.

Commencing with wounds of the fingers and of the hand and the simpler methods of their treatment, the author goes on to the more complicated and difficult problems involved where important tendons have been divided. The subject of tendon division is treated in considerable detail, and several novel methods are described. In discussing infections of the hand a full and clear description is given of the anatomy of the cellular spaces, a proper appreciation of which has revolutionized surgery in this difficult region. The after-treatment of infections, and of the disabilities which may arise is fully discussed, and the volume finishes with a discussion of plastic methods of reconstruction, considerable attention being directed to the very important reconstruction of the thumb.

The volume is admirably illustrated with photographs of actual cases, and with really excellent sketches. The latter alone should render the work invaluable to everyone who has to deal with the difficult problems of the surgery of the hand, and for this reason we can most strongly recommend it even to those medical men whose knowledge of French is very limited.

BIostatISTICS

THE substance of Professor RAYMOND PEARL'S *The Rate of Living*¹ will be known to a certain number of readers as it presents in an extended form, the thesis which he maintained in a course of lectures on experimental vital statistics at University College, London, in the summer of 1927. Professor Pearl, as head of the department of biometry and vital statistics in the School of Hygiene and Public Health of the Johns Hopkins University, has played a notable part in the application of modern statistical methods to medicine. In the volume now under review his concern is to advance the opinion that biostatistics is not merely an auxiliary to preventive medicine, but is "the sign, the symbol, and in some respects the very essence" of an independent branch of science, the biology of groups. His efforts have been directed to the extension by experiment of the existing body of knowledge regarding populations of living organisms, work in this field has been carried on in the biological laboratory at Johns Hopkins since 1919 with the fruit fly *Drosophila melanogaster* and its mutant forms, and *The Rate of Living* surveys the results of these investigations in so far as they relate to mortality. This has involved an elaborate series of studies

of the qualitative and quantitative aspects of the primary forces tending to bring about the decline or ultimate destruction of groups." Here, it is interesting to reflect, is the material with which the bulk of the world's political, social, and economic thought is concerned. The relationship between group biology and the sociological side of life was exemplified in the discussion on the falling birth rate in the Section of Medical Sociology at the Annual Meeting of the British Medical Association at Cardiff, in which Professor Clegg, dealing with the biological aspect, made several references to the work of Professor Pearl (*British Medical Journal*, September 15th, p. 477).

Those who are interested in the broad subject of population will find much that is suggestive in this book. Space does not permit any description of the methodology of these experiments, although this must appeal to those engaged on biostatistical work, nor is it possible to discuss the concepts of inherent vitality and total vitality, the former being that which the organism possesses as an implicit consequence of its pattern or organization, as demonstrated by the observable fact that organisms are able to perform vital actions in the absence of exogenous sources of matter and energy. Professor Pearl's conclusion is that in general, the duration of life varies inversely

as the rate of energy expenditure during its continuance. "In short, the length of life depends inversely on the rate of living." The author disclaims any pretence to conclusiveness in his work, which he prefers to regard merely as a stage in the development of research and as suggesting ideas capable of application and testing in many directions, notably in the field of human biology.

HAEMATOLOGY

DR ALFRED PINCY is a very industrious writer on *Diseases of the Blood*,² or diseases of the blood-forming organs, as he preferred to call the conditions in his *Recent Advances in Haematology*, the second edition of which was noted in these columns on June 30th, 1928 (p. 1114). The present volume is less ambitious in design, and is intended to supply the student and the practitioner with the outlines of immediate practical value, and to serve as an introduction to more elaborate works, which assume such an elementary knowledge. In the introduction the constituent cells of the blood are described and their ancestry discussed, the monophyletic and the polyphyletic views being illustrated by genealogies. A short account of the reticulo-endothelial system is also provided. The next two chapters deal with variations in the numbers of the white and red corpuscles respectively, and, as in the introduction and the glossary at the end of the volume, an explanation is given here of the numerous names which have been applied to the various cells of the blood. In the section on "leukaemia" the author points out that the blood is not a tissue at all, but a mixed secretion derived from various sources, that, "leukaemia" not being a suitable term, leucosis should be divided into myelosis and lymphadenosis according as the proliferating process is in the bone marrow or the lymphatic tissue. This overgrowth may or may not be accompanied by the appearance of their immature cells in the blood, so that leukaemic or aleukaemic myelosis and lymphadenosis arise. The forms of what are usually called myeloid and lymphoid leukaemia are then described under somewhat modified titles. In the chapter on "Some diseases allied to the leucoses" lymphosarcoma, lymphadenoma, and Mikulicz's syndrome are described, while myelomas and various forms of splenomegaly, such as Banti's syndrome, Gamma's, Gaucher's and Niemann's diseases, are dealt with later in separate chapters. The various anaemias, including aplastic, pernicious, chlorosis, and that of children, are summarized, and after dealing with the haemorrhagic diseases and polycythaemia there is a useful diagnostic chapter on symptomatic blood changes, the various diseases being arranged in alphabetical order. There are three appendices—on technique, blood groups and transfusion, and x-rays and radio-active substances, and the large amount of information so clearly set out in this book is further elucidated by the admirable illustrations, especially the coloured blood films.

HELEN HANSON

THE many friends of the late Dr Helen Hanson will welcome the memoir of her life,³ written by F. LOUISE ACRAS at the request of the executive committee of the League of the Church Militant. It is a compact little book which all who knew this most kindly and gentle of women will be anxious to possess, and it has the added attraction of several reproductions from portraits. The memoir is prepared from material provided by over one hundred of Dr Hanson's friends, among them those connected with her in medical work and various committees and associations. All her friends—those of old suffrage days, workers in the mission field and war workers—speak of her wonderful gifts, and particularly of her genius for friendship. Helen Hanson's childhood was an admirable preparation for her subsequent life's work, and at school she already showed the promise of a bright future. After graduation

¹ *Plais et Maladies Infectieuses des Mains*. Par Marc Ieelin. Preface de Ch. L. Normant. Paris: Masson et Cie 1928. (Med. 8vo pp. viii + 272 66 figures, 30 figs. and majorities.)
² *The Rate of Living*. By Raymond Pearl. London: University of London Press Ltd. 1928. (5s. 8d. pp. 185 36 figures, 10 6d. net.)

³ *Diseases of the Blood*. By A. Pincus M.D. M.R.C.P. Churchill's Empire Series. London: J. and A. Churchill 1928. (Fcap. 4to pp. viii + 185 20 illustrations, of which 6 are coloured 12 6d. net.)
⁴ *Helen Hanson*. By F. Louise Acras. With a foreword by Lady Barrett C.B.E. M.D. M.S. and an introduction by the Rev. G. C. Simpson D.D. London: H. R. Allnutt Ltd. 1928. (Demy. 8vo pp. viii + 119 illustrated 2 6d. net.)

from the London School of Medicine for Women she held various posts at home, and then entered the mission field. The three years she spent in India are described in some cheerful home-letters, and she would undoubtedly have remained there longer if she had kept her health. Her work in Belgium, Serbia, Malta, and Macedonia is touched upon, and her twelve years of school work under the London County Council is dealt with at some length. With her school inspections never degenerated into mere routine, and she found great interest and pleasure in the gradual improvement of the standard of health of the school children. A few extracts from Dr. Hanson's writings are included in the memoir, one of them, a little paper on "The study of Urdu," is most amusing, while the religious outlook, as revealed in a statement of belief found in some pages of manuscript after her death, is one of the most interesting things in the book. Every page in this memoir shows that her high courage, perennial gaiety, and selflessness were due to a deep sense of Christianity, revealed during her life by her good deeds, though but rarely by words. To portray this elusive personality, whose charm had something odd and rare in its quality, must have been difficult, but it has been accomplished successfully.

NOTES ON BOOKS

Dr. MOUTONNET has made a careful compilation representing his present views on vertigo entitled *Les Vertiges Labyrinthiques*. Vertigo is a symptom often presented to the neurologist or the otologist for elucidation and relief and often enough it is the only, or at any rate the predominating, symptom. This study should therefore be of some help to those specialists for the physiology of labyrinthine nystagmus, the various theories connected with it and the functional examination of the organ of equilibration are well reviewed. Differential diagnosis receives much space but the pathology of the labyrinth is less elaborately discussed and in the problems of treatment especially surgical treatment there is little practical help. The book is inclined to reflect the present tendency towards elaborate studies of nystagmus and functional tests which lend nowhere and to neglect the difficulty of affording the relief for which the patient cries aloud. It is, however, not purely academic and is a fairly balanced and scientific review, but the absence of references is a serious defect in a work of this type.

In the three years since Dr. PERCY HALL's book on ultraviolet ray therapy* was first published it has reappeared in three editions one new impression and two American editions, which is sufficient evidence of its popularity. In the present edition the author seems to have modified his opinion about quartz mercury vapour lamp and has added a good deal of recent information and several new pictures. The chart of electro-magnetic waves (reproduced by permission of the Council of the Royal Society) is an interesting feature of the book.

A Doctor's Wife (Maura Meighan) is the author of a useful little book on *Simplified Cooking and Invalid Diet*. It is intended to help nurses, mothers, and housewives who are needing recipes and advice on cooking based on the most up-to-date principles of dietetics. The author states that she has been largely guided by *Hitchcock's Food and the Principles of Dietetics* and that Dr. Robert Hutchison has read the MS. of her little work. The book is good, the directions are clear and practicable. Everywhere she insists upon the use of the thermometer in the practice of cooking otherwise the aim of the dietary will not be achieved. Some of the recipes we have tried, and they work out well. The one for raw cabbage, on page 96, is good. Those who dislike bread sauce may feel discouraged at reading. Bread sauce should never resemble bread poultice, and resolve to try again after the cook has read the directions of our author. Several special dietaries are set out as, for example, for chronic constipation, diabetes and fever, and a section is devoted to diet without milk and eggs.

* *Les Vertiges Labyrinthiques*. Par André Moutonnet. Médecine et Chirurgie Pratiques. Paris: Masson et Co. (52 x 73 pp. 165 17 figures et 18 fr sans majoration.)

* *Ultra Violet Rays in the Treatment and Cure of Disease*. By Percy Hall M.D. F.R.C.S. L.R.C.P. With an introduction by Sir Henry Cairns M.D. F.R.C.S. and Leonard Hill M.B. F.R.S. Third edition. London: W. Heinemann (Medical Books) Ltd. (Demy 8vo pp. xviii + 236 57 figures 12s 6d net.)

* *Simplified Cooking and Invalid Diet*. By a Doctor's Wife. London: Faber and Gwyer Ltd. The Scientific Press. 1928. (Cr 8vo pp. 185 2s 6d net.)

M. VIRENQUE's booklet on the aesthetic surgery of the breast has appeared at an unfortunate time for such a publication, when the female sex appears to have entered into a conspiracy to disguise the fact that such an organ exists, and to reduce it to the smallest possible dimensions. The procedure described by M. Virenque is expressly designed to render more shapely and prominent such mammary as suffer from ptosis and it seems admirably adapted for the purpose. Our only criticism is that, in this country at all events, there is no demand for it.

The naïve egoism of Dr. A. I. SCHOFFIELD has overflowed into a volume three hundred pages long. *Behind the Brass Plate* is a book of rumour and gossip about men and women such as many people associate with the initials "I. P." Dr. Schofield, we gather, has rubbed shoulders with many distinguished personages. He has written letters to royalty, he has taken part in the birth of many movements. He believes in gifts of healing and in the existence of a "aurea", but he cannot abate spiritualism, and tells once more the story of M. W. T. Stead and the Yonkec entertainers. He disarms criticism by stating in his preface that he has simply set down such recollections of his life as his memory could recall, and that he has done so to amuse himself, as he is now debilitated from active life, and in the hope of lightening the hours of others similarly afflicted. His more or less veracious variis have the merit of vivacity.

* *Le Sein et sa chirurgie esthétique*. Par M. Virenque. Paris: N. Malin. (52 x 81 pp. 80 14 figures 12 fr.)

* *Behind the Brass Plate*. By Alfred T. Schofield M.D. M.R.C.S. London: Baillière Tindall and Co. Ltd. 1928. (Riv 8vo pp. ix + 336 15s net.)

PREPARATIONS AND APPLIANCES

A NEW SALICYLIC ESTER OF THE DIHYDROXANE SERIES

Some Clinical Results

Dr. A. GORDON WATSON (Bath) writes: During the past eight months I have given a new salicylic ester of the dihydroxane series (which may be abbreviated to SED) a clinical trial in rheumatic diseases at the Royal Mineral Water Hospital and in private practice and in a variety of injuries and diseases at the Royal United Hospital, Bath. It is neutral insoluble in water, but readily soluble in most solvents and fits used in pharmacy. The salicylic acid content is approximately 90 per cent but in spite of this high content it has so far been found to have no deleterious or irritating action on the skin. At first I used it in various strengths up to 50 per cent in an ointment, but latterly have used only 10 or 15 per cent.

As a pain-relieving application it soon showed its value. In April and May of this year I was collecting cases of sciatica for the medical conference held at Bath on May 10th and 11th and found that this ointment, applied by the patients at bed time, enabled some of them to sleep without the dose of aspirin previously required. Cases of rheumatoid arthritis obtained relief from pain and in one case marked swelling of the knee joints, which had resisted other treatment (mercuric ointment and potassium iodide ionization), quickly yielded to SED. In cases of generalized fibrositis and panniculitis I gave the patients whole body massage on days alternate to their mineral water baths, and am satisfied that it accelerated the cure in some cases.

On applying the pure drug to a raw surface—the result of a severe abrasion—there were no unpleasant results, slight warmth at first was soon followed by an anaesthetic effect. On this point I may mention that a patient who was using the ointment for sciatica found accidentally that it eased the pruritus associated with piles. It also quickly alleviates the itching from various skin diseases. A patient, aged 79 sent to me by a London physician as a case of generalized eczema which might provide clinical material for a dermatological clinic, was quickly relieved of all irritation, large patches of weeping eczema—on the palm of the hand, the arm, the abdomen, the labial folds, the anus and the area over the sacrum—all cleared up in three weeks, except one patch over the sacrum.

I found the 15 per cent SED ointment highly efficacious in the treatment of insect bites. Harvest bugs generally produce bullae on sensitive skins, if this substance is applied no bullae appear, irritation is reduced, and only a small papule remains as evidence of the insect's invasion.

In cases of injured joints swelling and pain are relieved, and a point of great interest is that where one would expect marked bruising, very little, if any, discoloration occurs. This action is so marked that I have asked some of my scientific friends to try to explain it by investigation of the action of this drug on the peripheral circulation. I believe that as the toxicity appears to be low it may be found useful as an internal remedy also.

Collective Investigation

INTO

THE TREATMENT OF VARICOSE
ULCERATION.

Report by

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DIRECTOR OF THE RESEARCH

THE British Medical Association, in connection with their collective investigation scheme, decided in 1928 to start with an inquiry into the treatment of varicose ulceration, and for that purpose two forms dealing with the questions to be answered were issued to those members of the Association who were willing to take part in the inquiry. In response 550 medical practitioners have filled up forms, and reports of 1,092 cases in all have been received. A large majority of the forms have been fully and carefully filled in, and great credit is due to those members who have made the returns for the trouble they have taken and the time they have spent in assisting in this inquiry. The answers to the questions and the information volunteered have now been collated, and the results are embodied in this report.

TABLE I—Sex Incidence of Varicose Ulceration

Number of cases	1 092
Males (percentage)	33.7
Females (percentage)	66.3

TABLE II—Age Incidence of Varicose Ulceration
(1 094 cases; age omitted in 8 cases of the total 1 092.)

Age	Percentage
20-30 years	2.3
30-40	10.7
40-50	24.7
50-60	31.9
60-70	21.8
Over 70 years	8.6

Remarks: This table shows that 56.8 per cent. of the cases commenced medical attendance between the ages of 40 and 60.

TABLE III—Percentages of Cases Healed at Various Ages
(No. healed 655; age omitted in one case of the total 656.)

Age	Percentage
20-30 years	2.6
30-40	13.0
40-50	28.5
50-60	31.4
60-70	17.9
Over 70 years	6.6

TABLE IV—Ratio of the Total Numbers of Cases at Various Decades to the Numbers Healed in those Decades

Decade	No. of Cases	Percentage Healed
20-30 years	25	68.0
30-40	116	73.2
40-50	268	69.7
50-60	348	59.5
60-70	236	49.5
Over 70 years	93	46.2

Remarks: This table shows that the expectation of healing is best up to 50 years of age, but declines steadily after that age.

TABLE V—Showing Age of Reporting for Treatment for Varicose Ulceration

(Age was given in 1 017 cases)

Age at Commencement	Percentage
13-20 years	1.8
20-30	13.8
30-40	28.5
40-50	30.9
50-60	15.6
60-70	7.1
Over 70 years	2.3

Remarks: This table shows that the majority of cases commence between 30 and 50 years of age.

TABLE VI—Occupation (given in 945 cases)

Occupation	Percentage
Domestic work	61.4
Other occupations involving prolonged standing	32.0
Farm labourer	2.9
Weaver	1.6
Gardener	1.2
Clerk	0.5
Motor driver	0.4

Remarks: The very small proportion of cases among farm workers and gardeners although their occupations involve prolonged standing, is interesting as showing the counteracting effect of constant muscular exercise in the open air.

TABLE VII—Suggested Causation of Varicose Ulceration

Suggested Cause	Percentage
Varicose veins	53.6
Injury	13.8
Phlegmasia alba dolens	4.0
Phlebitis	3.3
Prolonged standing	3.0
Not given	22.3

TABLE VIII—Relapses during Treatment

No. of Cases	Relapses
1 092	46.8 per cent.

TABLE IX—Number and Percentage of Total Cases and of Healed Cases, in which Rest in Bed or its Equivalent was Employed

	Number	Rest in Bed or its Equivalent
Total cases	1 092	614 cases = 56.2 per cent.
Healed cases	656	439 cases = 66.9 per cent.

The figures in this table show that out of the total cases that had rest in bed or its equivalent 71.5 per cent. appear among the healed cases.

Bandaging

This was an essential part of the treatment in 44 per cent. of the cases.

Strapping

This was an essential part of the treatment in 55 per cent. of the cases.

Local Treatment of the Ulcers

For the initial cleansing of the ulcerated surface various antiseptic fomentations were used, of which boric acid was the commonest. These have not been classified, but the principal applications or methods used for the treatment of the ulcers after cleansing are given in the following table.

TABLE X.—*Local Treatment of the Ulcers*

Application or Treatment used	No. of Cases in which used
Zinc preparation (generally a lotion)	249
Unna's zinc gelatin	164
Boric acid (generally a lotion)	159
Ultra violet rays	76
Injection of veins	60
Scarlet red ointment	37
Eusol	35
Carbolic acid	26
Removal of veins	25
Lassar's paste	25
Lead lotion	17
Ammoniated mercury ointment	11
Ichthyol	10

Various other methods of treatment (92 in all) were individually used in a very small number of cases, but as no useful deductions can be made from the results of their employment in so limited a number of cases, respectively they are not included in the above list.

Internal Treatment

Apart from the use of tonics, etc., the internal treatment mainly resolved itself into the administration of a calcium salt or parathyroid, alone or combined. A few medical practitioners report favourably on the internal administration of potassium iodide, but a large majority think it is only useful in syphilitic cases. Among the 1,092 cases included in this report potassium iodide was only administered in 61 cases.

Statistics as to the Effect of the Administration of Calcium Salts and Parathyroid in addition to the Local Treatment of the Ulcers

Among the 1,092 cases of varicose ulceration reported—

A calcium salt was administered in 102 cases.

A calcium salt and parathyroid were administered in 75 cases.

Parathyroid alone was administered in 58 cases.

Among the 656 cases in which healing occurred—

A calcium salt was administered in 35 cases.

A calcium salt and parathyroid were administered in 46 cases.

Parathyroid alone was administered in 13 cases.

The figures in the latter group show that among the 656 cases in which healing occurred 85.7 per cent had neither a calcium salt nor parathyroid administered, 7 per cent had a calcium salt and parathyroid administered, 5.3 per cent had a calcium salt alone administered, 2 per cent had parathyroid alone administered.

These percentages, in conjunction with the fact that out of the 235 cases in which a calcium salt, or parathyroid, or both, were administered, only 94 of the cases resulted in healing, would appear to show that the influence of these drugs on the healing of varicose ulcers is of minor importance, but that the advantage (if any) is slightly in favour of the combination of a calcium salt with parathyroid. A large number of medical practitioners state that after administering calcium salts as a routine method of treatment they have abandoned them as useless.

Opinions as to the Value of Calcium Salts and Parathyroid, alone or combined, in the Treatment of Varicose Ulceration

The specific question on Form 2 bearing on the above was answered by 428 medical practitioners as follows:

58.7 per cent found no benefit from their use
21.0 per cent believe them to be of some benefit
19.3 per cent never use them

Opinions as to Preventive Treatment of Varicose Ulceration

The specific question on Form 2 inviting the experience of medical practitioners as to what conclusions they had arrived at with regard to the preventive treatment of

varicose ulceration was answered by 450 practitioners as follows:

43.1 per cent recommend bandaging
20.6 per cent recommend rest
14.6 per cent recommend removal of veins
12.0 per cent recommend injection of veins
8.4 per cent recommend use of the elastic stocking
3.0 per cent recommend avoidance of use of garters

Results of Local Treatment

Of the 1,092 cases which form the subject of this report the ulceration was healed in 656 cases. In 147 of these cases the local application or treatment was employed in so small a number of cases, respectively, that no reliable deductions can be drawn as to the utility of the method of treatment. The following table gives the applications or methods of treatment used in 507 of the cases that were healed with the respective results.

TABLE XI

Local Treatment	No. of Cases in which Used	No. of Cases Healed	Percentage of Cases Healed
Removal of veins	25	25	100.0
Ultra violet rays	76	70	92.1
Injection of veins	60	55	91.6
Unna's zinc gelatin	164	117	71.3
Lead lotion	17	10	58.8
Lassar's paste	25	14	56.0
Carbolic acid	26	13	50.0
Ichthyol	10	5	50.0
Boric acid (lotion generally)	159	77	48.4
Ammoniated mercury ointment	11	5	45.4
Scarlet red ointment	37	15	40.5
Zinc preparation lotion generally	249	91	36.7
Eusol	35	10	28.5

A number of medical practitioners state that failure in healing was attributed to the refusal of patients to rest during treatment. This especially applies to the cases treated with Unna's zinc gelatin, among which the percentages of cures would probably have been higher if the advice to rest had been carried out.

Length of Time that the Ulcers had Remained Healed at the Date of Reporting

Out of the 656 cases in which the ulcers were healed the periods for which they had remained healed are given in 523 cases. A number of the cases were reported on soon after healing had occurred, so that the periods vary from a few weeks to some years. It is not considered desirable to occupy space with the tabulation of all these periods, but the average time over which the ulcers had remained healed in the 523 cases works out at thirteen months.

Conclusions and Recommendations as to the Most Reliable Methods of Treatment of Varicose Ulcers

Table XI shows that the best results were obtained respectively by (a) removal of veins, (b) the use of ultra-violet rays, (c) injection of veins, and (d) the application of Unna's zinc gelatin.

With regard to the choice of removal or injection of the veins, I am of opinion, from the perusal of the returns, that obliteration by injection is the simpler and safer procedure. This is also the opinion of G. H. Colt who, writing on the results of injection of the veins with salicylate saline solution, states that he obtained results which were so much better than were possible by laborious and somewhat risky operations that in his opinion operation seems to be no longer justifiable except in certain very isolated cases.

Whether a quinine or salicylate solution is preferable for injection remains to be settled, and it is very desirable that further inquiry should be made to determine this point. G. H. Colt considers that the larger volume of

the salicylate saline solution is more manageable than the smaller injection with the quinine solution, and is attended with negligible risk and little inconvenience. In addition he points out that quinine sometimes produces blindness, and that the risk is said to be about 1 in 1,600. R. M. Handfield Jones¹ states that, after experiencing unsatisfactory results from the use of quinine and urethane, he has confined his treatment to the injection of sodium salicylate in varying strengths of from 20 to 40 per cent.

Ultra-violet rays give excellent results, but they require administration by skilled operators, as a definite technique has to be employed in their successful use, and the dose requires to be varied according to the septic condition of the ulcer, the nature of the edges, and the condition of the surrounding skin. It would appear that in the majority of cases this treatment could not be carried out by the medical practitioner, but would have to be done in hospitals possessing the necessary installation and skilled operators.

The following are the conclusions at which I have arrived as the result of this inquiry.

1 *Treatment*—That in order to obtain the best results it would be advisable for the medical practitioner to limit the treatment of varicose ulceration to two procedures. The first is injection of the veins in combination with the use of Unna's zinc gelatin for the local treatment of the ulcer, the second is the use of Unna's zinc gelatin alone if injection is refused, or for other reasons cannot be carried out. It should also be borne in mind that treatment by ultra violet rays appears to be very reliable, provided that the proper administration of these rays is available.

2 *Prevention*—As the true varicose ulcer is the result of varicose veins it would appear that the rational method for the prevention of such ulceration is the obliteration of the affected veins, or the removal of them by operation. Of these two procedures it appears that obliteration by injection is both the safer and the easier one. If it is not possible to carry out either of these two procedures, then support of the veins by suitable bandaging should be employed.

REFERENCES
¹ *British Medical Journal* September 22nd 1928. ² *Ibid*. ³ *Lancet*, October 13th 1928.

RHEUMATISM IN RELATION TO INDUSTRY

A LECTURE on rheumatism in relation to industry was given at the Royal Institute of Public Health, on December 5th, by Dr Fortescue Fox, with Sir A. Stanley, Chairman of the British Red Cross Society, in the chair. The lecturer said that the first international conference on industrial rheumatism, convened by the International Society of Medical Hydrology, was held in London in November, 1925. Another conference, at which reports from eight countries were presented, took place at Buxton last October to frame the organization of an international league against rheumatism. In the three years separating these events the problems of rheumatism had been seriously discussed in the northern countries of Europe, and representative national societies had been formed to collect information to encourage and co-ordinate the existing work carried on, often in isolation, both for investigation and treatment of rheumatic disease, and to formulate proposals for the development of this work on approved and practical lines. Steps were being taken in England to form an association with the same objects, in succession to the British Committee on Rheumatism of the International Society of Medical Hydrology.

Proceeding Dr Fortescue Fox said that he had long held that arthritis varied both in character and severity at different periods of life. The rapidly progressive deforming arthritis of young adults, the "climacteric" arthritis of middle life (in both men and women), and the degenerative or local arthritis of age formed three definite clinical groups and were practically different diseases. It was unfortunate and confusing that the same name, "rheumatism," should be given to "rheumatic fever," which might well be called "cardiac fever" from its close connexion with heart affection, and to these insidious and chronic crippling diseases of older people, different forms of arthritis, none of which affected the heart. But there was some excuse

for it, because all the acute and chronic "rheumatisms" were related to definite external causes. They were all, in short, climatic and geographical diseases, diseases of zones or regions of the earth like tropical diseases.

The normal body showed a defensive reaction to the impressions of cold and damp, but there was good reason to think that in persons with "rheumatic liability" this reaction was defective, and might be entirely absent. The same reactions were also defective in infancy and old age, and hence external warmth and shelter were necessary to protect people at the extremes of life from the ill effects of uncompensated cold. The hot vapour baths used by northern nations from remote times were an endeavour to maintain, and perhaps restore, the reaction to cold—in short, a preventive and curative regimen in those bleak and inclement regions. Another external provocative of rheumatic disease was infection, which made havoc in persons with low resistance. But disease germs were relatively harmless in a healthy body. Sir George Newman had given warning of the necessity of "frustrating the activity of organisms within the body." It was well to get rid of these organisms, but was there any guarantee that where one weed had grown another might not grow? The radical treatment of rheumatism was to remove the rheumatic liability. To attempt to remove the organisms of diseases from the body without at the same time fortifying its resistance to invasion was like pumping a waterlogged ship without stopping the leak. It was good to remove an obvious danger, but it was better to make the ship seaworthy. Another cause of rheumatism was poisoning from within from abnormality of the body fluids, including suboxidation, the retention of waste products, and endocrine disorders.

Rheumatic disease, like most other diseases, must be attributed to the co-operation of external and internal causes, or to external causes acting upon a weakened body. Hence, many medical thinkers no longer spoke of a cause of disease, but of the "constellation of causes." The variety in individual cases and in groups of cases no doubt depended on the many possible combinations of external and internal causes, and hence the necessity in treatment of the study of individuals.

Apart from surgical procedures very little had been done to provide special treatment for rheumatic diseases. In spite of the burdens it laid upon industry, there were as yet no special departments for rheumatism. Fine work had been done at the English spas, but this only touched the fringe. In Continental countries town clinics for physical treatment had been established by the friendly societies to supplement the work of the spas. They dealt with forms of chronic disease in the industrial population for which the hospitals were unable to provide. The great physical forces—heat and cold in air and water, light, electricity, friction, and movement—were true physical remedies, and the body responded to these remedies by a wonderful series of reactions affecting both the tissues and the organs. The universal belief and experience of mankind had been amply justified by physical and physiological discovery, they now knew that all diseases which had a physical factor in their causation were properly treated by physical remedies.

In conclusion, Dr Fortescue Fox said that the clinic for rheumatism to be set up by the British Red Cross Society would be completely equipped for physical treatment and clinical investigation. It had been designed to treat 500 cases and upwards every day. The ground floor was devoted to medical baths, including pools and douches and vapour and thermal mud, with and without frictions and movements. In other departments, light, radiant heat, electrical currents, ionization, and diathermy would be used, and there would be special appliances for measurements and investigations. It was proposed that this assemblage of physical methods should be made available for suitable cases from the general hospitals. It was not claimed that clinics of this character would meet the whole need for these difficult rheumatic affections, but they would provide early treatment near the people's homes, and serve as diagnosis bureaux, and also for the demonstration and teaching of methods which were still comparatively unfamiliar.

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SATURDAY, DECEMBER 22ND, 1928

TREATMENT OF VARICOSE ULCERATION

In May, 1926, the Ministry of Health submitted to the British Medical Association a scheme for collective research by insurance practitioners, and in January, 1927, it outlined definite schemes for such investigations to be conducted by the Association and Ministry working in collaboration. The Ministry proposed that these inquiries should be undertaken by general practitioners engaged in the insurance medical service, and should be confined to insured persons. A special research subcommittee appointed by the Council of the Association to consider these proposals reported in due course to the Science Committee. Its recommendations were (1) that any scheme of research must be voluntary and unpaid, (2) that it must not be restricted either to insurance practitioners or to insured persons, (3) that it should be organized by the British Medical Association through the Divisions, and (4) that the subjects chosen for inquiry should be of such a nature that they could be treated in a simple manner. The subcommittee expressed the opinion also that a medical adviser to correlate the returns and advise the practitioners taking part would be necessary for a successful investigation. Following these preliminaries a discussion took place between the subcommittee and representatives of the Ministry of Health, when the Chief Medical Officer, Sir George Newman, cordially welcomed the suggestions outlined above. Eventually it was decided to initiate two concurrent inquiries—one into the treatment of varicose ulceration, and the other into the after history of patients who had undergone the operation of gastro-enterostomy.

At this stage the Association applied to the Medical Research Council for financial assistance to pay a medical adviser to control the investigations, but the Council replied that it was not convinced that a scheme of collective inquiry was likely to give useful results except where some definite new clue had been obtained by intensive research of another kind, and where new evidence was sought along a line precisely indicated. The members of the subcommittee, however, were convinced that the united experience of doctors engaged in a properly conducted collective investigation ought to yield data of great clinical value.

The first inquiry has now been completed, and its results are set out in the report published at page 1144 this week. The Council of the Association has been extremely fortunate in securing as Honorary Director of Research Dr. A. P. Luff, consulting physician to St. Mary's Hospital, Home Office Analyst, and a member of the Food Preservatives Committee appointed by the Ministry of Health. We feel that it will in no way detract from the valuable and accurate information that practitioners throughout the country have given if we say that Dr. Luff's work in correlating and presenting the case for them is above all praise, and has contributed in a high degree to the success of the investigation. The names of two other members of the special subcommittee should also be mentioned for the encouragement and support they gave to this piece of research—Dr. C. E. Douglas (who acted as chairman) and Professor W. E. Dixon.

Varicose ulceration is a common disease, and every general practitioner is required to treat it. It causes not only pain and discomfort, but is responsible for a very great deal of disability, especially among women. The treatment is tedious, the results are often disappointing, and relapse is common, so that it was most desirable to collect information with regard to the best form of treatment, particularly as it was known that some practitioners were more successful than others in their results. One of the most remarkable points brought out by this inquiry was the great variety of methods employed at the present day for the alleviation or cure of a single well defined condition. Scores of different local applications appeared to be used by individual practitioners, zinc preparations of one kind or another far outnumbering all the rest. Dr. Luff's report, which reviews in detail the statistical side, will be studied by our readers everywhere with the greatest interest. It has established the value of a collective investigation of this kind as an important branch of practical as opposed to academic research. Dr. Luff, in his conclusion, says that the investigation shows that in order to obtain the best results "it would be advisable for the medical practitioner to limit the treatment of varicose ulceration to two procedures. The first is injection of the veins in combination with the use of Unna's zinc gelatin for the local treatment of the ulcer, the second is the use of Unna's zinc gelatin alone if injection is refused, or for other reasons cannot be carried out. It should also be borne in mind that treatment by ultra violet rays appears to be reliable, provided that the proper administration of these rays is available." Besides these positive findings it seems worth while to emphasize the point that the once widely used treatment of varicose ulcers by administration of calcium salts, with or without parathyroid extract, has completely failed to establish itself as a trustworthy therapeutic measure.

The report conclusively indicates the best treatment prevailing at the present time for a known pathological condition, and this information has been derived from the collective evidence of a great number of general practitioners. It may be accepted that those who took part in the investigation, numbering 550 in all, belong to the keenest and most observant class of doctors—men and women anxious to assist not only their patients, but their colleagues as well. If the results of the inquiry are made the basis for future treatment of this widespread condition it is obvious that a large amount of disability will be prevented, with consequent advantage to everyone concerned. Among the economic gains will be a saving in the drug bill. We venture to suggest, therefore, that if practitioners act upon the results of their own experience in this collective investigation they will be assisting not only their patients and themselves, but their country.

LIVER TREATMENT OF PERNICIOUS ANAEMIA

Progress in therapeutics, though often slow, is occasionally accelerated in a way which borders on the dramatic. Had one been asked two years ago to compile a list of those tragic diseases which at the very moment of first diagnosis foretell inevitable and speedy death, pernicious anaemia would certainly have had a prominent place, to day there is probably no disease in which so confident a promise can be given of a complete and comparatively rapid recovery.

Writing on the subject of the liver treatment of pernicious anaemia in the early part of the present year we expressed the opinion that in attempt to draw conclusions as to the permanence of the good results thus obtained would be premature. Strictly speaking some degree of caution is still necessary to-day, but it cannot be denied that the uniform and widespread success of the treatment which we owe to Minot and Murphy has been such as to justify the expectation that results so consistently gratifying in the initial stages would not disappoint us in the end. Hopes that it were gaining ground were perhaps a little diminished by some observations made by Price Jones at the summer meeting of the Pathological Society of Great Britain and Ireland: he suggested that even after the apparent return of the blood to normal there might yet be a considerable excess of the abnormally large cells present in the blood stream and that the cures were not really so complete as had been supposed. Similar observations have since been published in a recent paper by Davidson and McCune¹ but, as Price Jones recognized, the available data as to the size of the cells in normal and healthy individuals are as yet too incomplete to enable us to draw any final conclusions in the matter. Whatever the outcome of these investigations may be their bearing is chiefly on the nature of the pathological process underlying the disease and not for the moment on the practical business of therapeutics. From experience already gained we know that once the anaemia has completely disappeared the amount of liver that the patient must continue to take varies with the individual: that in some patients it may be reduced considerably while in others even a small diminution is followed by deterioration in the blood condition and that the only recorded cases of relapse have been in patients who have reduced the liver diet too much or have abandoned it altogether.

So complete, indeed, has been the success of liver treatment that interest therein has largely passed from the therapeutic results themselves to the light they throw on our ideas in general about the etiology and pathology of the condition, and, in particular on the possible need for relaxing somewhat the stringency of the criteria by which the disease is to be diagnosed. No new theory of the causation of pernicious anaemia has been established, but it appears that the conception of a primary haemolytic lesion is gradually being discarded. Those who look on the intoxication from the alimentary canal as the essential etiological factor have been forced to the hypothesis that the toxins elaborated in the intestine act either by interfering with the liver function preventing the formation there of some substance which is essential for the maturation of the red cells or by inflicting direct damage upon the patient's marrow. When considering the part played by the liver it is well to remember that kidney diet is quite as efficacious as liver: any hypothesis based on the supposition that liver diet merely provides some substance which a diseased or inefficient liver is incapable of producing must clearly be received with caution.

Diagnosis, too, has been not a little affected by careful study of the results of liver treatment. Minot, quite early in his work suggested that any failure to respond to liver treatment was to be taken as an indication that the patient concerned was not in fact suffering from pernicious anaemia—a suggestion that was apt to raise a smile on the face of the sceptic who had then had no personal experience of the method. Careful review of a large series of cases however goes

far to confirm Minot's suggestion, and it is found that in almost all cases which are refractory some atypical signs can be detected which make an alternative diagnosis at least possible, if not probable. On the other hand, certain patients in whom some cardinal sign is absent may perhaps be more readily placed in the group of true pernicious anaemia if they show a characteristic response to liver therapy. Among such cases we may include the one recorded by Dr Stanley Davidson in our present issue (p. 1123), in which the typical achlorhydria was lacking. There is a general tendency to insist rigidly on the absence of achylia as a bar to the diagnosis of pernicious anaemia, and Heath² excludes from his list of pernicious anaemia cases one which would certainly have been included but for the presence of free hydrochloric acid in the gastric contents. Other similar cases have been recorded in the past, and however freely we may whittle these down by rather ruthless criticism, there still remains a residue which withstands all attack in the future a typical response to liver diet may perhaps be admitted as a *last line of argument* in support of the diagnosis.

During the past year a number of liver extracts have been put on the market and have proved their worth as a substitute for whole liver. A good many workers seem to have gained the impression that whole liver, when it can be obtained and is well taken gives in some indefinable way rather better results than the extracts, these clinical impressions may be well founded, but in so far as the results are open to accurate measurement no superiority of whole liver over liver extract has been demonstrated. This observation applies also to the interesting investigation recorded by Dr Janet Vaughan³ on the increase in weight of patients on liver diet. In her series all the patients gained weight, some of them to a remarkable degree and with great rapidity, whether this has anything to do with pernicious anaemia, or whether it is a wholly independent phenomenon, remains to be seen, it may be that here we have a therapeutic indication of some significance in quite another direction.

IMPERIAL BUREAUX

Our readers will remember that at the Imperial Agricultural Congress held in London at the end of last year, among many constructive recommendations made for the fostering of co-operation in agricultural research throughout the Colonies and Dominions was one for the creation of imperial bureaux in this country. The most important of the various functions of such bureaux was to disseminate the results of research in all parts of the Empire, and in other ways to co-ordinate the work of the various research stations at home and abroad. This recommendation has quickly borne fruit, and last week it was officially announced that eight such imperial bureaux were to be immediately formed in Britain—namely Soil Science (Rothamstead), Animal Nutrition (Aberdeen), Animal Health (Weybridge), Animal Genetics (Edinburgh), Agricultural Parasitology (St Albans), Plant Genetics, Non-herbage Plants (Cambridge), Plant Genetics, Herbage Plants (Aberystwyth), and Fruit Production (East Malling, Kent). While the main function of these new organizations is to foster agricultural research, the collection and dissemination of current information will affect other branches of applied science, and a number of these stations will have direct bearings on medicine. The Imperial Bureau of Animal Health will be established at Weybridge at the veterinary laboratory of the Ministry of Agriculture,

¹ Heath *Journ Amer Med Assoc* xci 13 p 828

² Vaughan *Lancet* May 26th 1926 p 1063

³ Davidson and McCune *Lancet* November 17th 1928 p 1014

under the directorship of Mr W H Andrews, D Sc, M R C V S. The laboratory was established in 1914 under the late Sir Stewart Stockman, and is mainly concerned with the diagnosis and control of the contagious diseases of animals. It is able to devote some time to research, in recent years notably on foot-and-mouth disease, poultry diseases and similar subjects. The Imperial Bureau of Animal Nutrition is to be established at Aberdeen at the Rowett Research Institute under the directorship of Dr Orr. This institute, although begun in 1914, was not opened until 1922. Its object is to obtain information which will enable animals to be fed and handled so as to produce the maximum amount of human food with the minimum cost. It has already produced valuable results, especially in relation to vitamins, mineral metabolism, and so on. Both of these bureaux are important from their own point of view, but they are also important from their relationship to human health and human nutrition. Much publicity has been given in recent years to comparative medicine, and there is now a growing appreciation of the debt which human medicine owes to animals. Accordingly the collected current information on these subjects should be highly informative to medical science in general. The Imperial Bureau of Agricultural Parasitology will be established under the directorship of Professor R T Leiper of the Institute of Agricultural Parasitology. This institute, an integral part of the London School of Hygiene and Tropical Medicine, is located at St Albans, and there is no need to emphasize the importance to medicine, as well as to agriculture, of much of its work in the sphere of comparative parasitology. Few of man's parasites are exclusively human, and information as to the behaviour of these forms and their relations in animals is of fundamental importance to a complete understanding of how they affect man. Accordingly the collating of all the available current literature is of more than passing importance. In addition to the recommendations mentioned above, the Imperial Conference favoured the establishment of a chain of research stations throughout the tropical parts of the Empire. The station at Addis Ababa in East Africa, as well as the recently projected station in Queensland, will be included in this scheme, and last week the Government of the Union of South Africa approved of the inclusion of their veterinary research station at Onderstepoort also. This laboratory, though not strictly tropical, includes many of the more important tropical veterinary diseases within its purview. Its previous work, under the directorship of Sir Arnold Theiler, has been of a very high standard, and has included researches into botulism, mineral deficiencies, tick-carried diseases, and similar subjects of considerable interest to medicine generally. Its future work will presumably embrace even more varied subjects, and its value to tropical research be accordingly enhanced.

PLAGUE IN CHINA

With the possible exception of Hong-Kong, where there were six cases last spring, the greater part of China would appear to have escaped plague during 1928. While India and French Indo-China are widely invaded, there have been no recorded epidemics of this disease in South and Mid-China during the course of the year. It is from the northern endemic centre of Outer Mongolia that plague, helped by the recent extension of new railway lines, has spread down through Inner Mongolia to the province of Manchuria. These railways have opened up the land for cultivation, mostly by poor immigrant farmers coming from Shantung, who live under crowded and often insanitary conditions. Early last August suspicious deaths occurred in the region of a place called Tung Liao, 400 miles from Harbin, the big Russo-Chinese city in North Manchuria, and investigations by Dr Wu Lien-Teh and Dr J W H

Chun, both Cambridge graduates, revealed the presence of *Y. pestis* in femoral buboes. Probably, as was the case in 1927, some few isolated foci had been smouldering on the Mongolian frontier since early summer, and the disease had later taken on an active form. It is interesting to note, as showing the activities of the League of Nations Health Committee and its Far Eastern Health Bureau, that it was in response to telegraphic inquiries from these bodies in Geneva and Singapore that Dr Wu, head of the North Manchurian Plague Prevention Service, set out for Tung Liao to investigate on the spot. About the same time telegrams were received from the Mongolian and Russian medical departments of Uiga requesting the Plague Service at Harbin to send 3,000 doses of vaccine and 10 litres of serum to deal with plague conditions there. These supplies were at once forwarded by Siberian railways to Verkhneudinsk, and thence by aeroplane to Uiga, the remote capital of Mongolia. By the end of September over 400 deaths had been recorded at Tung Liao, and protective inoculation was conducted on a wide scale, in addition to antiplague serum for treatment of the sick. House-to-house visits for detection of cases and isolation of contacts were largely responsible for the dying down of the epidemic, during which it was estimated that 92 per cent of the cases ended fatally. Experiments in the line of ascertaining whether human ectoparasites can convey plague infection have tended to prove this to be the case. Drs Wu Lien Teh and Pultzer, working in Harbin, successfully inoculated guinea-pigs, which died on the ninth day showing all signs of subcutaneous plague after having been bitten by human *Pulex irritans* (two insects after twenty-four hours' starvation), and this discovery of direct infection by the human flea has rather complicated the earlier Indian theory of bubonic plague being only developed through the rat-flea. Perhaps the fact that the habits of the villagers in sleeping on unswept "kangs" (heatable hollow platforms) with their clothes off may explain the unusual prevalence of axillary, cervical, and septicaemic cases. In the severe North Manchurian epidemics of 1911 and 1921, outbreaks which had arisen from a tarabagan (Siberian marmot) showed a strong tendency to develop pneumonic features. In the neighbouring province of Shansi a serious outbreak of bubonic plague occurred during October, about seventy-five miles west of the provincial capital, Tai Yuan Fu. It affected eighty-four villages, and by October 28th it was estimated that there had been over 2,000 deaths. The local Chinese seem to have been unable to cope with the situation, and finally dispatched troops from Tai Yuan Fu for the purpose of drawing a cordon round the infected area and preventing the further spread of the epidemic. Since autumn there have been famine conditions in widespread areas of North China, these result in lowering the body resistance and in the huddling together of the people, which are favourable factors for the spread of epidemics. China is still a long way behind in the matter of proper and adequate medical supervision, but this should come in time. The Chinese people have on previous occasions given proof of their responsiveness to Western methods of dealing with epidemics, and when scientifically trained doctors are available in much greater number than heretofore, progress in public health measures will be welcomed by the natives. The epidemic in Shansi Province was officially stated to be of bubonic type, and it was also reported to be dying down. On this ground offers of help in antiplague measures, made by foreigners, were declined. But on November 14th a telegram was sent from Dr Curran of the American Board Mission in Fenchow (Shansi) stating that there is now an outbreak of pneumonic type, and asking for further help to combat this. Doctors from the American and the English Baptist Missions are proceeding to the area of the outbreak.

THE TERCENTENARY OF MALPIGHI

THE year which marks the tercentenary of the publication of *De Motu Cordis* marks also that of the birth of Marcello Malpighi, Italian physician and philosopher. Founder of histology, greatest of microscopists, experimental physiologist, pioneer of iconographic embryology, patient and devoted physician, Malpighi lives in the history of medicine not only as a genius who effected a revolution in scientific thought and method, but as a most lovable personality. The plates accompanying his Royal Society memoirs are an indication of his quality as an embryologist the *De formatione pulli in ovo* and *De ovo incubato*, of his powers of observation and description. His name, as histologist, has been preserved in the Malpighian layers of the skin in the Malpighian bodies of the spleen, and in the Malpighian plexus of the kidneys, tufts, and capsules of the kidneys. In *De viscerum structura* he gave the first account of the lymphatics and splenic nodules of lymphadenoma, the disease later associated with the name of Thomas Hodgkin. Above all, he demonstrated that the capillary anastomosis between arteries and veins of the lungs (which to Harvey was a conceptual hypothesis) was a histological reality. The tercentenary of Malpighi was celebrated in the Section of the History of Medicine of the Royal Society of Medicine on December 12th by a lecture by Professor Franchini, director of the Institute of Tropical Diseases in Bologna. As becomes a fellow Italian and a son of Malpighi's own university, Professor Franchini made rather liberal use of high colours in portraying this pioneer, but he succeeded in giving a vivid picture of the state of science in seventeenth century Italy. This was a time when science was fighting at close quarters with ignorance and prejudice. When Malpighi was an infant Galileo was before the Inquisition, and the fires that burnt Michael Servetus in Geneva and Giordano Bruno in Rome had not entirely gone out. Persecutions odious though petty were inflicted upon Malpighi himself. He shared the obloquy attaching to those who practised dissection which was judged to be desecration of the dead. His chief enemies, however, were his fellow scientists, who broke his microscopes, wantonly destroyed his valuable manuscripts, and may even have set fire to his house. He bore these persecutions in silence and with magnanimity. When he removed from Bologna to Messina where for four years he was professor of medicine the persecution followed him, and eventually caused him to relinquish his chair. The Church seems to have been his protector at all events, he enjoyed the patronage of a cardinal, and in 1691, three years before his death, he became private physician to Pope Innocent XII. Not was it the general populace who made his scientific pursuits so difficult, for during his lifetime they reared a monument to him in his own city. He had many powerful friends, one of them Borelli, a distinguished mathematician and disciple of Galileo, in whose house at Pisa Malpighi practised his anatomical dissections and researches. In this house he made the discovery of the spiral structure of the cardiac fibres, a discovery which Borelli also claimed to have made. Returning to Bologna, he followed many lines of study, including the mechanism of respiration, the nature of the blood—whose red corpuscles he once described as "fat globules looking like a rosary of red coral"—and the structure of the brain. His work became known far beyond the confines of Italy. To the Royal Society of London he contributed a striking piece of research on the silkworm, and later other work in what would now be described as embryology and biology. He worked upon the embryology of the chick, studied the porcupine, the lizard, and the frog and made innumerable researches upon the anatomy of plants. Giving admirable accounts of germination. Professor Franchini quoted Haeckel as stating that only Lamarck and Wolf in the

eighteenth century, and Darwin and Muller in the nineteenth, could rank with Malpighi, the naturalist and philosopher. "In every observation of his," said the lecturer, "appeared the genius which understood clearly what was seen and went straight upon its aim. He did not pay attention to ridiculous disputes, nor lose time in useless scholastic arguments. He was a diligent student, a model of prudence, magnanimity, and modesty in an environment often hostile." Professor Franchini declared that if the writings of Malpighi had not fallen for two centuries into an unmerited oblivion we should see his name connected with a great number of tissues and functions which he was the one really to discover and describe. His manuscripts have been collected in sixteen thick volumes in the library of the University of Bologna, and there are others in Rome and elsewhere. Marcello Malpighi's latter days were rather pathetic. Professor Franchini described how he was summoned, an ill and tired man, to Rome to receive the title of pontifical head physician. In Rome the ruling passion was still upon him, and he continued many botanical, zoological, and chemical observations until he was struck down by cerebral hemorrhage. He got better, but shortly afterwards he was again stricken, and not the most energetic treatment could revive him. He died in the Quirinal Palace on November 28th, 1694, at the age of 66. A few weeks ago, by permission of the authorities, the tomb and coffin of Malpighi were opened. A skull of large size was found, well preserved in the upper part the temporal bone on one side had been, it appeared, cut away. Other bones were found, chiefly of the legs, but there were no documents or other objects in the coffin.

ULTRA VIOLET LIGHT IN THE HOME.

ON October 13th we published the papers read by Professor Dixon and Dr. Heald before the Section of Radiology and Physio-Therapeutics at Cardiff, and emphasized in a leading article the risk to the public arising from the administration of treatment by radiation and electricity at the hands of unqualified practitioners. Any doubt as to the need for that warning should be dispelled by perusal of the report in the *Times* of December 13th of a lecture on the applications of electricity to medical practice, delivered by Mr. G. G. Blake at the Royal Society of Arts before a meeting presided over by an eminent man of science, Sir Oliver Lodge. Mr. Blake seems to have convinced himself that not nearly enough unqualified persons are administering ultra-violet ray treatment. His ideal is an installation in every home, to be used by the members of the family upon themselves or upon each other. With reasonable care, he holds, the treatment is harmless, its administration requiring only a little common sense. He admits, indeed, that over exposure may produce the "familiar sunburn so prevalent at the seaside in holiday time," and that it is necessary to protect the eyes and the back of the head from the rays. But, having said this, and thrown out a suggestion that when lassitude follows exposure to ultra-violet light it is as well to stop treatment for a while, he feels apparently that he has issued warnings enough. The full text of the lecture is not before us, but in the newspaper report there is no word about the light allergy following over-dosage, described by Professor Dixon in his paper, nothing about the fact that treatment may be contraindicated in the presence of arterio-sclerosis, renal disease, some forms of heart disease, and phthisis. Nor is there any hint that the assessment of dosage—which seemed so easy in the early days of ultra-violet therapy before anybody knew much about it—is now recognized to present a difficult technical problem, to be solved only by those who have had adequate training. Medical men and women are not inclined to dismiss the dangers of ultra-violet

therapy in this light hearted fashion. Perhaps as individuals with a highly developed sense of responsibility they are unduly timid, but one may recall in this connexion an aphorism of Mr. Bertrand Russell's to the effect that when on any subject all the experts are agreed, the opposite opinion cannot be held to be certain. Anyone who said in public that every household ought to keep a stock of arsenic or strychnine for self-administration by the light of 'common sense' would not be taken very seriously, except perhaps by the police. But a manufacturer of arc lamps, or a lecturer in John Street, Adelphi, can give analogous advice in relation to actinotherapy without protest except in a medical journal. There may be something to be said in favour of trusting certain highly intelligent persons to administer ultra-violet light to themselves under medical directions, we may even grant that others, so robust as not to need this treatment at all, may indulge in self-irradiation without coming to much harm, but we cannot too strongly condemn the suggestion that arc lamps may be installed in every household and used with benefit and without appreciable risk by all and sundry.

MEDICAL SOCIETY OF LONDON

The programme for the second half of the current session of the Medical Society of London is now before us. The first item is a pathological evening on January 14th, commencing at 8 o'clock. The following general discussions have been arranged: January 28th, "Starvation in treatment," introduced by Dr. Edmund Spriggs; February 11th, "Eranche," Dr. Morland McCrea and Mr. Herbert Tiller; February 25th, "Acute Intestinal Obstruction," Professor A. H. Burgess and Mr. C. H. S. Franks; March 11th, "Chronic dyspepsias of children over the age of infancy," Dr. Reginald Miller and Dr. W. G. Wyllie; March 25th, "Medical indications for the induction of abortion and premature labour," Mr. Eardley Holland, Dr. B. T. Parsons-Smith, and Dr. Bernard Hart. These discussions will all begin at 8.30 p.m. The Lettsomian Lectures on "Dermatology in relation to other branches of medicine" will be given by Dr. H. W. Barber, at 9 p.m. on February 18th and 27th, and March 6th.

THE KING'S ILLNESS

The statement printed in our last issue at page 1106 brought the medical history of the King's illness up to 3 p.m. on Wednesday, December 12th, a few hours after pus had been located in the pleural cavity at the posterior base of the right lung, immediately above the diaphragm. The empyema was evacuated by rib resection under a general anaesthetic that evening, and the reports on Thursday indicated that His Majesty had come safely through the operation, and that drainage was proceeding. While the bulletins of Friday night and Saturday were not so reassuring about the patient's strength, those of Sunday and of Monday morning recorded some general progress and better sleep. After another temporary setback on Monday there was again some improvement, which has since been maintained.

The ups and downs of the past few days will not have surprised any medical reader of the bulletins, they were more than likely to happen after an operation for empyema in a patient of 63, already exhausted by a streptococcal blood infection. The public, too, have had many warnings that progress could only be slow and intermittent, and that anxiety must continue. The inevitable oscillations between hope and fear have none the less been very trying. Our King belongs to his people, and his illness has cast a shadow over every home.

We are able to print below a further authoritative statement, dated Wednesday, December 19th, 8 p.m., for the information of our readers, and through them for the steadying of public opinion. It is in keeping with the spirit of the age that this news, technical as it is, should have early and wide publicity.

"There are signs that the King's illness is producing in the public mind a sensitiveness, only too natural, caused by weeks of anxiety, and producing too easily alarm and therefore distress, both of which it is most desirable to avoid. Doctors, in their various spheres, can do much, by their knowledge, to maintain hope and confidence.

"The present condition of His Majesty can be best understood by recalling earlier stages of this severe illness. In the first phase, gradual in its onset, there were to be noted general infection with imperfect localization—little or no cough and only one small patch of pleuritic friction, blood culture positive (streptococcus), an irritative state of the nervous system which produced profound distress and sense of illness. Yet with these was a wish, born of quiet courage and the habit of duty, to make light of the illness and hold on to work, thus adding to the wear and tear of the fever. Towards the end of this first phase came an accentuation of pleuritic friction which extended to the diaphragm. The second phase was one of increasing toxæmia, with dusky appearance, dry cracked tongue, periods of delirium, exhaustion—in short, a clinical picture resembling that of a case of severe typhoid fever in the third and fourth weeks, but with the added anxiety of attacks of dyspnoea and cyanosis, due to strain on the heart. With the next phase came an abatement of fever and some evidence of localization. The blood culture was now negative, toxæmia was less, delirium subsiding. The localization in the right lung did not result at this stage in effusion, as shown by puncture and excellent radiographs. A few days later the temperature rose rather abruptly to a higher level, and on December 12th there was evidence at the extreme right base of an effusion which had commenced between the lung and the diaphragm. Drainage by means of rib resection was performed on the same day under general anaesthesia (gas-oxygen-ether). The predominant organism in the empyema has now been established to be identical with the streptococcus found in the blood.

"Though the infective process has become gradually localized, its severity, coupled with the lowered vitality resulting from the length of the illness, must make the progress of healing difficult and tedious. Local sloughing, however, is less pronounced to-day, and tissue reaction apparent. To stimulate vitality of tissues a brief general exposure to ultra-violet rays from a mercury lamp has been made each day since December 15th. The effect of these exposures is being checked by leucocyte counts and estimation of the bactericidal power of the patient's blood. There is reason to think that this employment of the ultra-violet rays has, in combination with the treatment mentioned in previous statements, been beneficial.

"It is hoped that the foregoing account will help towards an understanding of the future course of the illness. It will be apparent to medical men that not only the severity and length of the infection, but the exhaustion resulting therefrom, must make progress slow and difficult. At the same time, dangerous phases of the illness have been surmounted, and there are increasingly solid grounds for hoping that recovery will result from this long and anxious struggle."

The following medical men, in addition to those previously mentioned, have contributed to the care of His Majesty: Sir Hugh Rigby, Dr. F. E. Shipway, Dr. R. S. Woods, and Dr. F. D. Howitt. The names of the nurses in attendance are: E. Gordon, Catherine Black, Rosina Davies, and N. M. Purdie.

Ireland.

Encephalitis Lethargica made a Notifiable Disease

IN the course of a letter addressed by the Minister for Local Government and Public Health to the sanitary authorities in the Irish Free State attention is called to the *clinical and administrative aspects of encephalitis lethargica*, this disease, he states, was first observed in Austria in the course of the war, in the closing years of which it made its appearance in England and in Ireland, and has, in the subsequent period, assumed world-wide distribution. Encephalitis lethargica, or epidemic encephalitis, is characterized by certain manifestations originating in the central nervous system. As in other general infectious diseases, the symptoms vary considerably in character and severity. In the abortive, mild, or transient type the symptoms are restricted to soreness of the throat, nasopharyngeal catarrh, headache, vomiting or diarrhoea, accompanied by slight pyrexia. In the more serious forms of the disease many patients who survive the acute attack are later afflicted by motor disorders, characterized by rigidity and tremor, or by spasmodic movements, and certain forms of paralysis, and often by progressive lethargy and stupor. Various degrees of stupor have been noted. In the most severe form of attack the patient is described as lying in bed like a log, or resembling a waxen image in the lack of expression and of mobility. The prominent symptoms in a material proportion of recent cases have been lethargy and ocular paralysis, myoclonic movements, and sometimes twitching of the abdominal muscles. The disease attacks all ages, with a preference for the early and middle periods of life, and both sexes nearly equally. Encephalitis lethargica appears to belong to that group of maladies, including *cerebro-spinal meningitis* and *acute poliomyelitis*, in which the pathological agent is much more frequently present in the human organism than the clinical symptoms indicate. Although it is difficult to trace the infection from one person to another, it must be assumed that "missed cases" and "carriers" play a large part in the dissemination of these diseases. Since cases of encephalitis lethargica have been reported from various districts of An Saorstát, the Minister recommends that the disease should be generally added by sanitary authorities to the schedule of notifiable diseases through the procedure prescribed in Section 7 of the Infectious Disease (Notification) Act, 1889. He recalls the instructions contained in his circular letter of January 31st, 1923, wherein medical officers of health were enjoined to report encephalitis lethargica case by case. He adds that, in conjunction with encephalitis lethargica, it would be well if *cerebro-spinal meningitis* and *acute poliomyelitis* were also included in the group of notifiable diseases in any sanitary district where this has not already been done.

Sanitary Condition of Downpatrick

A report by Dr. Graham, medical inspector of the Ministry of Home Affairs in Northern Ireland, states that in Downpatrick there is no systematic inspection of the meat and milk supplies, and that the abattoir is not kept in a proper condition, the sanitary accommodation being used by neighbours, who create a filthy nuisance. He suggests that steps should at once be taken to prevent the public obtaining access to the place, and that the premises should be thoroughly cleansed and kept clean, but that the council should consider the erection of a new abattoir. The report also notes that while cases of infectious disease have occurred during the past twelve months no record is kept of them, and urges that a register should be supplied to the medical officer for the recording of all notifications of infectious disease received. The sanitary authority have not provided an efficient disinfecting apparatus for their district, nor adopted the provisions of the Infectious Disease Prevention Act, 1890. The water supply is not filtered in any way, and, owing to the small quantity in the service reservoir, the water is being used as it arrives from the collecting area without being subjected to the beneficial effects of storage. The inspector also calls attention to the fact that at the back of several small dwellings pigs are kept in most unsatisfactory conditions—a practice

which should cease, as the premises are unsuitable for the purpose and the creation of a nuisance is unavoidable. It is also pointed out that certain houses which were condemned many years ago are still inhabited, although they are situated over out-houses in which hens, etc., are kept, and there are obvious signs of rat infestation. The sanitary accommodation is also very defective. It is urged that these matters should receive early consideration by the council with a view to action being taken.

Paying Patients in County Hospitals

At a recent meeting of the Wexford County Health Board it was decided to adopt the draft regulations of the Department of Local Government and Public Health in regard to paying patients in the County Hospital, Wexford. The regulations provide that persons admitted to the private and semi-private wards shall pay to the Board a charge of 9s. per day in the first instance and 6s. in the second, together with appropriate additional charges for any special nursing or other expenses incurred in connexion with treatment. The medical officer and surgeon may agree with the person admitted as to the terms on which medical or surgical treatment shall be provided, and shall be entitled to demand payment of such agreed sums, but they shall, out of any sums thus received, pay to the Board any money due from such person to the Board, and which has not been paid or recovered by the nation of the hospital. Dr. M. O'Brien, surgeon to the hospital, was in attendance during the consideration of the question.

Scotland.

District Nursing in Scotland

At the annual meeting of the Scottish branch of the Queen's Institute of District Nursing, held on December 10th, it was announced that the Duchess of York had consented to become president of the Scottish branch in place of Princess Louise, Duchess of Argyll, who had resigned the office which she had held since 1890. The Countess of Mar and Kelch presided, and dealt with the work of the institute during the past forty years. It had risen from very small beginnings to an organization which now employed 710 Queen's nurses on the Scottish roll with, in addition, nurses in training homes in Edinburgh and Glasgow as well as other nurses in affiliated districts, supervised by the institute, making up a total of 850 nurses. Dr. J. Parlane Kinloch, chief medical officer of the Scottish Board of Health, remarked that the time was opportune to survey the whole position of the nursing service in relation to public health work. He said that there were, in the first place, training schools for nurses which had been recognized by the General Nursing Council under the Nurses' Registration Act of 1919. It was not satisfactory, however, that failure had attended the endeavour to link up the general hospitals with the fever hospitals, children's hospitals, and maternity and mental hospitals, so that the probationer nurse could receive within a period of four years a comprehensive training in nursing methods. He thought it would be a good plan for the council of the Queen's nurses to provide regional training schools for nurses, near the four universities of Scotland. The Central Government Department had prepared a syllabus of training which the whole-time health visitor must undergo, and within this course of instruction the trained health visitor might have a nurse's training also. He had come to the conclusion that the present arrangement whereby health visitors were required to devote their whole time to health visiting work from a health department, divorced from actual nursing work, was a bad one. The health visitor, in present circumstances, must lose her freshness of outlook because she was separated from fundamental nursing work. He suggested that the two services should be amalgamated and that the individual public health nurse, in charge of a smaller district than she managed at present, should undertake, in addition to nursing of the sick, the preventive work which the urban authorities required. He considered that every qualified nurse in future should

be an expert in preventive work, as she was at present in remedial work. Mr James Allan Cook gave details of the financial situation in Scotland. He said that two years ago then accounts showed a debit balance of £1,000, but at the end of the account now being closed there was a credit balance of £3,000. This satisfactory position was largely due to a sum of £6,000 received as the result of the Edinburgh payment.

University of Glasgow

At a meeting of the University Court of the University of Glasgow on December 13th a report was submitted by Dr Boyd on the work of the educational clinic, which had completed its second year. During the year the clinic had dealt with 100 boys and girls who had been brought on Saturday mornings by their teachers for examination because of some defect in learning or conduct. After two or three visits the staff had often been able to recommend a course of educational treatment, and in other cases, notably in regard to speech defects, the children returned at frequent intervals for supervision. The clinic, it was reported, had been of considerable benefit to the staff in gaining experience in this new field, and the work had also been highly appreciated by teachers. Cases of mental dullness had accounted for about half of the problems submitted, while speech defects were concerned in over one-fifth. At the same meeting it was intimated that Dr John Fergus had offered to establish a prize in connexion with the Muirhead chair of medicine, to take the form of books or instruments, as decided by the professor or Senatus.

University of Aberdeen

At a meeting of the University Court of the University of Aberdeen on December 13th it was announced that Dr Charles Reid, lecturer in experimental physiology in the University, had been appointed to the chair of physiology at Prince of Wales's Medical College, Patna University, India. Dr Reid, who is a graduate of Aberdeen University, succeeds at Patna University another Aberdeen graduate—namely, Professor E. W. H. Cruickshank, who has been appointed to the chair of physiology in Dalhousie University, Halifax. At the same meeting, it was intimated that the number of full-time students attending the University during the academic year 1927-28 had been 1,344, including 782 men and 552 women, together with 49 part-time students. Of the full-time students 711 lived in Aberdeen, or within a radius of thirty miles of it, 598 came from other parts of the British Isles, 25 from other parts of the British Empire, and 10 from foreign countries.

Control of Venereal Disease

At a public lecture given under the auspices of the Combe Trust in Edinburgh on December 5th, Dr David Lees took as his subject "The problem of infection," including that of venereal disease, and described the modes of entrance of bacteria into the body, and the barriers which nature sets up against them. He discussed the nature of the intensive campaign which had been waged against tuberculosis in this and other countries for the past quarter of a century, and expressed the opinion that a similar campaign was required to deal with the problem of venereal disease. He pointed out that syphilis and tuberculosis were in many ways alike—both were insidious in onset, both characterized by absence of pain, and in both the tissues of the body were slow in their defensive mechanism. He considered that of the two syphilis exerted the more harmful influence on the individual and on the national health. The facilities for free treatment had been utilized by many infected persons, but in spite of this initial success we were still left with the difficulty that we were unable to see it out and eradicate, as in the case of tuberculosis, the sources of disease. With progressive health legislation certain factors predisposing to the acquisition of the disease, such as overcrowding, bad housing and alcoholism, had been reduced. The provision of healthy amusements and recreation facilities in the form of sports had also been largely helpful, but he considered that the Church should play a much more active part in this campaign than it had taken up to now in the matter of inculcating chastity among the younger members

of the community. There was no field of medicine in which more striking results could be promised and attained than in the eradication of venereal diseases in children by treatment of the parents. It would appear that the stamping out of venereal disease was possible, and the failure to make greater progress than was taking place was due to many causes. A higher moral standard in the community and a more extensive knowledge of the dangers were important, but there would still exist in every community irresponsible persons who cared little for their own health and less for that of others, and the problem of how to deal with this minority was a vexed one. There was a large body of opinion, chiefly among those who were in close contact with the work, which believed that health authorities should be empowered to deal with people of this type as dangers to themselves and to the community. As education of the public advanced he believed that a demand would come from the educated public for the control of those irresponsible persons who spread venereal disease.

England and Wales.

King Edward's Hospital Fund

The annual distribution meeting of King Edward's Hospital Fund for London was held on December 14th, with the Lord Chancellor, Lord Hailsham, in the chair. Lord Hailsham read a letter from the president, the Prince of Wales, in which His Royal Highness expressed regret at his inability to be present, and took occasion to congratulate the Fund on its achievements during the year. The meeting adopted a resolution voicing sympathy with the King in his illness and the wishes of the members for his speedy and complete recovery.

Lord Hailsham, before proceeding with the principal business of the meeting, referred to the recently announced gift of £50,000 from Sir Otto Beit for the purchase of radium, which, he said, opened a new field for the activities of the Fund as a central body for the hospitals. The distribution this year, he continued, constituted in itself a great landmark in the history of the Fund, for it was the first time that the ordinary annual distribution had reached the total of a quarter of a million. When King Edward, as Prince of Wales, founded the Fund in 1897, he aimed at £100,000 a year. The distribution was now two and a half times this amount, yet, with the increase in the number of beds, the development of expensive treatment, and the changes in the value of money, the demands on the Fund had grown in even greater proportion. The year's success had been due largely to some special donations, notably two of £10,000 each from anonymous donors. The Fund had also received an exceptional amount in legacies, but it had depended largely for its success on the steady support of the smaller contributions, including the amounts collected by the League of Mercy. Lord Hailsham then referred to the report of the Pay Beds Committee of the Fund, published in July, of which a summary appeared in the *Journal* of July 21st (p. 120). He had left to the last, he said, the biggest of all the problems with which the King's Fund and the voluntary hospitals were faced at the present moment. The transfer to the county councils of the Poor Law infirmaries would produce great changes, and, they hoped, great improvements. It would be necessary to work out a scheme by which the voluntary hospitals should continue to make their special contribution to the hospital service which depended on the fact that their management was voluntary and that their finance was voluntary. The voluntary hospitals were engaged in considering the principle of co-ordination between themselves and the new county hospital service so as to preserve these essential features. In this discussion the King's Fund must necessarily take an active part and for this reason they had appointed a special committee. They hoped thus to provide a means of focusing the opinion of practical hospital people and bringing it effectively to bear, both during the discussions on the Local Government Bill and during the subsequent preparation of schemes by the

county councils and other local authorities in the King's Fund area.

Lord Revelstoke, honorary treasurer said that it had been the considered practice of the Fund not to augment the amount of the annual distribution without having a reasonable prospect of being able to maintain it in the future at not less than the increased figure. When, at the beginning of last month, the council met to determine the amount of the ordinary distribution the estimates pointed to the conclusion that this important step would be justified, and the total distribution was therefore increased from £247,000 to £250,000. Lord Marshall stated that the League of Mercy proposed again to allocate £17,000 to the King's Fund and that its grants to extra-metropolitan hospitals amounted to £8,210.

Sir Cooper Perry chairman of the Distribution Committee, presented the report of that body in which it was stated that the number of hospitals applying for grants was 141 the same as in 1927. The report mentioned that the Federated Superannuation Scheme for Nurses and Hospitals Officers came into operation at the beginning of the year, and that by the beginning of October eighty-nine hospitals had joined the scheme. A schedule containing a list of awards to hospitals (including recovery and convalescent branches) was presented by Colonel Wernher, honorary secretary. Among the larger grants were

Charing Cross Hospital £4,750 Guy's Hospital £11,500 King's College Hospital £7,000 London Hospital £15,150 Metropolitan Hospital £4,750 Middlesex Hospital £8,750 Miller General Hospital £4,850 Prince of Wales's General Hospital £5,100 Queen Mary's Hospital £4,750 Queen's Hospital for Children £4,800 Royal Free Hospital £7,500 Royal National Orthopaedic Hospital £4,750 Royal Northern Hospital £9,850 St Bartholomew's Hospital £6,000 St George's Hospital £8,200 St Mary's Hospital £6,000 St Thomas's Hospital £10,000 University College Hospital £8,000 West London Hospital, £5,500, and Westminster Hospital £4,450.

Medical and Dental Treatment of London School Children

The arrangements for the medical and dental treatment of children attending public elementary schools and scholars and pupils in secondary schools for the year April, 1929, to March, 1930, were considered by the London County Council on November 27th. The arrangements authorize slight increases in the number of cases of eye defects, ear, nose, and throat conditions, minor ailments, and dental disorder for which provision may be made. The total number of cases for which provision is authorized for 1929-30 is 273,000, of which 139,000 are dental cases, and the estimated cost of the arrangements exclusive of standing charges is £105,500, of which dental cases account for £47,000. These figures represent an increase of 8,000 cases above those authorized for the current year, and an increased expenditure of £3,784. It is stated that the in-patient method of dealing with throat operation cases (tonsils and adenoids), whereby the children are kept at the centre for two nights instead of being immediately sent home, has been very successful. All the centres have been fully occupied, and there has been congestion at last Friday centres. Provision is made to enable further in-patient treatment to be given should the opportunity arise for obtaining additional accommodation. Five or six new minor ailment centres are to be opened during the coming year as well as one additional centre for the treatment of stammering children. With regard to rheumatism the Council in February last decided to establish five supervisory centres to which children suspected to be rheumatic or requiring observation for rheumatism might be brought periodically for advice. The centres in question are the Hospital for Sick Children (Great Ormond Street, London), the Queen's hospitals and the Downham and Elizabeth Bullock school treatment centres. At the three hospitals the children are dealt with at special weekly sessions in the out-patient department and the medical officer in charge of the department undertakes the examination and treatment. At the two school centres one half day a week is set apart for rheumatism cases, and one of the Council's medical officers attends to examine the children and advise as to treatment. The cases for examination and treatment are selected by the school doctors. It is stated that during the two weeks that the scheme

has been in operation very satisfactory results have been obtained. The parents greatly appreciate the facilities afforded, and no difficulty is experienced in securing the attendance of the children at the centres.

Fees of Medical Advisers in Tramway Claims

The fees paid by the London County Council to the medical men—not more than three in number—who are retained as advisers in connexion with tramway accident claims have hitherto been as follows: a retaining fee of £42 a year, half a guinea for each examination, and 2 guineas for each attendance at court to give evidence, with special fees if attendance is required outside the county of London. The fees for examination and court attendance are subject, until March next, to an increase of 25 per cent. The two medical advisers are both resigning, and in making the new appointments it is proposed to revise the fees to make them comparable with the fees paid by insurance and other companies. It is proposed by the Highways Committee, with the concurrence of the Finance Committee, that the retaining fee be abolished, the fees for attendance at court remain as at present, and the fees for examinations be varied in accordance with the distance of the case from the medical adviser's residence: up to five miles, £1 1s, over five and up to seven miles, £1 11s 6d, over seven and up to nine miles, £2 2s, over nine and up to thirteen and a half miles, £3 3s, over thirteen and a half and up to eighteen miles, £4 4s, and over eighteen miles, special fees to be determined by the solicitor. These fees will not be subject to the 25 per cent increase.

Correspondence.

PROBLEMS IN GASTRIC SURGERY

Sir,—I feel sure that your readers were more than ordinarily interested in Sir Berkeley Moynihan's article on problems in gastric surgery (December 8th, p. 1021), in which he states with great clearness his position in the gastro-enterostomy or gastrectomy controversy. As a judicial summation of the present situation his contribution is valuable, but one cannot help feeling that there is a certain amount of bias shown towards the operation so closely associated with his name.

There is, perhaps, a danger that the weight of his opinion and experience, welcome as it is, may tend to overbalance the considered conclusions of others whose collected experience must be much greater again.

In stating that I "fail to recognize the necessity for direct treatment of a duodenal ulcer in addition to gastro-enterostomy," he inadvertently conveys the impression that I am without experience of this method, which is far from the truth. For several years I have, when treating duodenal ulcer by gastro-enterostomy, either excised the ulcer completely or dealt with it by Balfour's cauterization method. The reason I cannot agree that this point is the key to success is not, therefore, lack of experience with the method, but the fact that I have seen cases of haemorrhage and perforation follow its performance, and that endoscopy of the duodenum so frequently reveals multiple ulceration that nothing short of duodenectomy would suffice to deal directly with the ulcerative condition. Sir Berkeley Moynihan himself owns that ulcers on the posterior wall may be found more often than his operation figures indicate. I am convinced that this is so, the surgeon is only too apt to forget that the duodenum has a relatively inaccessible posterior wall. If I could believe that the ulcer was the essential part of the disease and not a mere incident in a much more widespread process, I could the more readily agree with the importance of removal. The partial duodenal stenosis which widespread removal may produce is perhaps the explanation of improved results following removal, many surgeons habitually perform pyloric exclusion for the same reason.

The second point to which I should like to refer—namely the radiographic evidences of cure—is already raised by Dr. Fildes in this week's issue (p. 1110). In justice to Sir Berkeley Moynihan, it should, however, be pointed out that his statement (with which most will agree) was that

"he had never seen an ulcer of the site depicted here in less than four months," tacitly implying that the real ulcer in the case quoted could not have been of the size radiographically demonstrated, a circumstance explained, as Dr Fiddes points out, by Dr Burchley's article upon the interpretation of radiographic appearances. This article was a touch one, and presents succinctly conclusions to which many interested in gastric diagnosis had been forced.

I notice, however, that Dr Barclay attributes the heaping up of the mucous membrane to local spasm of the unsmoothed mucosae, whereas in my own experience it is due mainly to the inflammatory oedema of the submucosa surrounding the ulcer, which is always present in the active phase of ulceration when the patient is most commonly examined. This is well seen either when an ulcer is exposed by gastrotomy or by the endoscope, but for obvious reasons is not so easily demonstrated on the removed specimen *in post mortem*. It is indeed important to realize that the periods when the patient gets most pain are those in which there is a cellulitis of the surrounding submucosa, the chronic ulcer in the quiescent stage producing, in the absence of complications such as stenosis, comparatively slight discomfort—I am, etc.,

London W Dec 15th

NORMAN C LIVER

ARTIFICIAL RESPIRATION FOR WHITE ASPHYXIA OF THE NEWBORN

SIR,—I fully concur with every word of Mr Aleck Bourne's letter in your issue of to-day (p 1109). The "white baby" is not asphyxiated. The term "white asphyxia" should be eliminated from all textbooks and the word "shock" substituted for it. I should like to add one suggestion as to treatment. The flaccid condition of the child, especially of the abdominal wall, readily allows of direct cardiac massage by placing the thumb of the left hand over the precordia while the fingers of the hand are tucked in under the diaphragm. By gently squeezing the thumb and the fingers together the heart is stimulated to contract quite easily. In my experience cardiac massage is perhaps the most valuable method of treating the "white baby"—I am, etc.,

London W 1, Dec. 15th

HENRY SIMON

SIR,—Mr Aleck Bourne's important letter on this subject is of much interest to all who practise midwifery. With his conclusion, "that in the aggregate more harm is done by attempting artificial respiration than by its complete abandonment," I am in complete sympathy. Nevertheless, after reading the letter, an impression is left that mechanical interference is of no avail and should therefore be avoided. In view of certain experiences I venture to suggest that this is not always the case.

Occasionally a child's first inspiration may be hindered by some obstruction, and, if the child is feeble and shocked, there may be insufficient strength to overcome this obstruction. Professor B P Watson popularized in Edinburgh the old method of aspiration of mucus from the throat by direct suction through a special glass pipette. The amount of thick tenacious mucus which can be removed from the pharynx by this means is sometimes astonishing. Such mucus must, at times, be responsible for partly or wholly blocking the air way.

With regard to artificial respiration, this is probably unnecessary in the first five or ten minutes. Sylvester's and Byrd's methods, as Mr Bourne shows, are ineffective and not devoid of danger, but the condemnation of direct mouth to mouth insufflation is perhaps unjust. One has reason to believe that on more than one occasion one has saved a child by this procedure. The belief in the value of this method has been strengthened by the following case.

I witnessed a difficult forceps delivery. The child was born pale, flaccid and apnoeic. The usual restorative methods were tried without avail and after ten minutes the heart beat became slow and feeble. At this point one volunteered to do direct insufflation through a layer of gauze. After ten or twelve breaths the child's heart began to beat strongly and rapidly, the skin changed from white to a rosy tint and some tones returned to the limb muscles. The child, however, did not breathe spontaneously and after a minute or two lapsed into its previous state. The procedure was

repeated with the same encouraging results, but these again disappeared on stopping treatment. The insufflation was continued at intervals for fifty minutes from the time of delivery and the repeated improvements were apparent to all present. Substituting other more elegant methods of artificial respiration was of no avail. After fifty-five minutes the heart beat finally ceased. At post mortem examination a deep tear of the tentorium cerebelli was found similar to those described in so much detail by Holland. There was a considerable haemorrhage around the tear and this presumably accounted for the paralysis of the respiratory centre. The stomach was only moderately distended by air owing to the pressure kept up on it at the time of the treatment.

This case well proves the value of direct insufflation in neonatal asphyxia.

While, therefore, agreeing that in a pallid child the treatment of shock is of first importance, and too hasty and too vigorous means of artificial respiration are to be avoided, I feel that there are cases where the child's life may be lost by an excess of masterly inactivity in the treatment of asphyxia neonatorum—I am, etc.,

J CHURCHILL MOIR, M B, F R C S Ed

Redhill, Dec 15th

PULPITAL MORBIDITY

SIR,—In your issue of December 15th (p 1082) there is a very interesting paper by Drs Armstrong and Shaw, but in it there is a very grave error. The statement is made that according to the B M A standard, if the temperature reaches 100.4° F on two occasions between the second and tenth days of the lying-in period, the patient is morbid.

In making up our statistics we take as the B M A standard that if the temperature should reach 100° F on any two occasions between the second and eighth days, the patient is regarded as morbid. All deaths, with or without fever, are included.

It is most important that there should be absolute accuracy when a uniform standard is taken; otherwise it will not be possible to compare the health of one institution with that of another—I am, etc.,

Dublin Dec 15th

BETHEL SOLOMONS,
Master Rotunda Hospital

DENTAL CARIES AND VITAMIN D

SIR,—I have read with much interest the account, published in the *Journal* of December 15th (p 1079), of the investigations carried out by Mrs Mellanby and Mr C Lee Pattison on the influence of vitamin D, administered in the form of radiocitol, in promoting calcification of the teeth. Whatever that effect may be, the work of these investigators must not blind us to the incontrovertible truth that dental decay is initiated by the corrosive action on the enamel of an acid formed by the fermentation of saccharide (carbohydrate) food, and that tooth enamel can offer no more resistance to that acid than a block of marble. It is simply a question of the affinity of a certain acid for calcium. The initiation of dental decay can therefore have nothing to do with the less or greater resistance of the tooth to the action of acid. That which determines the onset of caries is the prolonged contact with the enamel of fermentable saccharide food. Accordingly, caries begins in those situations where such prolonged contact is apt to occur—namely, in the pits and crevices of the teeth (notably on the grinding surfaces of the molars) on the adjacent surfaces of the teeth, and at the necks of the teeth. Caries never begins, no matter what the nature of the food past or present, on the smooth surfaces of the enamel which are kept clean by the adequate friction of tongue, lips, and cheeks. Let us hold fast by these essential truths, and let us, as medical men, lose no opportunity of bringing them home to mothers and school teachers. Only in this way is it possible to cope with the calamitous condition of the teeth of the people of this country. All dental decay is preventable, by simple, common sense means—I am, etc.,

London W Dec 15th

HARRY CAMPBELL

SIR,—Those who are well acquainted with the theory that the prevalence of dental caries is due to the undue lodgement of easily fermentable carbohydrates in the retention areas of the teeth will find additional evidence of its

truth in the experiments recorded by Miss May Mollinby and Mr C. Lec Pattison in your issue of December 15th.

The results given with regard to different groups of children are admittedly not strictly comparable, not particularly, however, because of age, but because the diet of those children in the group getting radiostol differs materially from the diets which appear to be regarded as controls. We can analyse certain differences between the diets in the radiostol group and in the group referred to in Table I, as the dietary in this latter was recorded in the *British Medical Journal*, August 30th, 1924 (p. 355). It will be noted that in the radiostol, but not in the other group, one ounce of bacon and half an ounce of cooking fat were present in the average daily diet. Both of these items are recognized generally by the dental profession to be antagonistic to the onset and progress of caries. Again, the amount of sugar was limited to one ounce in the radiostol group, whereas in the other group it varied from one and a half to three ounces daily. As sugar is recognized to be more conducive to dental caries than any other carbohydrate it is easy to see how the results recorded came about.

I need not discuss the rest of the paper, as to a great extent it only tends to divert attention from these essential facts, and to bias judgement with regard to the effect of the so-called vitamin D, for, so far as the evidence goes, there seems to be no reason for assuming that radiostol had anything whatever to do with the results recorded in the group of children to which this drug was administered—I am, etc.,

London W. Dec 17th.

J. SIM WALLACE

ABDOMINAL FRICTION IN PERITONITIS

SIR,—Dr. Walter Broadbent, in his interesting note in the *Journal* of December 8th (p. 1103) does well to refer to abdominal friction in early peritonitis—a subject which, as he says, does not seem to be mentioned in the textbooks. I have noticed these friction sounds in a case of acute cholecystitis and in several early cases of appendicitis—first attacks. In my cases of appendicitis the friction sounds were detected by both palpation and auscultation, and in each case the signs were evinced less than eight hours after the onset of the attack. The sounds disappear after the accumulation of fluid in any quantity in the peritoneum, and, in chronic cases becoming acute, adhesions probably prevent much peritoneal gliding (the cause of the friction) taking place. Hence the sounds are heard in first attacks of appendicitis as a rule. I have elsewhere¹ suggested the term "peritoneal crepitus" for these phenomena.

I have read an article by Dr. J. A. Ryle in which he refers to these friction sounds in acute cholecystitis—I forgot for the moment where. I have never seen them referred to among the earliest unequivocal signs of acute appendicitis—observed before the occurrence of a rise in temperature—I am, etc.,

Aberdare Dec 10th

ANDROSE W. OWEN

THE MEDICAL PROFESSION, THE VOLUNTARY HOSPITALS, AND THE DE-RATING BILL

SIR,—Some very pregnant words which occur in the Minister of Health's speech in committee upon the De-rating Bill (*Hansard*, December 13th, column 2460) I think deserve the attention of the medical profession. I quote the words:

'Let no hon. member run away with the impression that the Government desire that those who have been treated under the Poor Law in the past, in the case of medical relief, should continue to be treated in that way. Our policy, the policy of the Ministry of Health—at any rate as it is conducted at present—is exactly what my hon. and gallant friend (the member for Derby [Sir R. Luce]) desires that it should be. We desire that people who are sick shall be treated according to the nature of their sickness and not according to whether they are destitute or otherwise.'

These ideals seem to approach dangerously near to the grandiose conceptions of the Labour party, whose schemes for social services, if they matured, would, as Sir Herbert Samuel has recently pointed out, add an annual expendi-

ture of something like 226 millions sterling to the present cost of social services, which are already responsible for considerably more than a third of the total expenditure of this country upon all its administrative and imperial activities. It envisages a condition of things which is humorously sketched by Dr. Walter Carr in his very interesting address to the Medical Society a time when there will be no private practice at all, but the State medical departments will have supreme authority over the treatment, the hygienic regulations, and education of every member of the community.

Evidence is not lacking that the medical profession is at last becoming somewhat disturbed at this prospect. The King Edward's Fund, that good friend of the voluntary hospitals, has taken the wise precaution of setting up a special committee to watch the development of the De-rating Bill as it concerns the voluntary hospitals, but it seems to me that not only the voluntary hospitals but every medical man in this country is deeply concerned in this question. The manner in which the De-rating Bill has come before Parliament makes opposition extremely difficult to the proposals which more particularly affect the medical profession, but that profession is not without its influence if it can be induced to exert it, and it seems to me that the very large cat which the Minister let out of the Ministerial bag in his speech on Wednesday last deserves very careful watching.

I have received an invitation, which I have accepted with much pleasure, to deliver the Harveian Oration before the Harveian Society next March on the medical profession, the voluntary hospitals, and the De-rating Bill, when I hope to have an opportunity of expanding my views upon these subjects. But as decisions will probably have been taken upon some of these questions before that date I venture to invite the attention of the profession to the subject now—I am, etc.,

London, W. Dec 15th

E. GRAHAM LITTLE

PAINFUL SHOULDER

SIR,—From your interesting and comprehensive editorial notice of the discussion on this subject at the Royal Society of Medicine (December 15th, p. 1103) it is clear that not one speaker mentioned the pathological condition which is responsible for a very large number of cases—namely, traumatic synovitis of the shoulder-joint. I cannot understand this omission, for in my hospital practice, which cannot differ very much from that of others, I and those who work with me see and treat cases of this trouble every week.

There is a history of a sudden strain or wrench, or of a fall on the shoulder, or of a dislocation which has been reduced in the ordinary manner. The symptoms are:

1. *Stiffness or limitation of movement.* The patient finds he cannot raise his hand above his shoulder, cannot brush his hair or take his hat off, has great difficulty in putting his arm into his sleeve, and still greater difficulty in taking it out, cannot place his hand behind his back to do up his brace button.

2. *Constant dull aching pain,* made worse by movement, and very much worse if he attempts to carry out any of the movements which are limited. This pain is very troublesome at night and interferes with sleep, especially if he lies on the damaged side. He says he cannot lie on that side, and that though he goes off to sleep all right he very soon gets wakened up by the pain, he manages to get into a comfortable position and dozes off only to wake again because of the pain, and so it goes on all night.

3. *Presence of two tender spots on palpation.* One is on the outer side of the arm between the deltoid and biceps the other is at the outer end of the infraclavicular fossa. These spots may be so tender that the patient starts involuntarily when they are pressed upon.

The shoulder in this condition is never swollen up with fluid as is the knee under similar circumstances, it seems that the excess of synovial fluid drains away down the tendon of the biceps. Treatment does not consist in massage and movements, ionization, diathermy, or radiant heat, but is solely by rest beneath the clothes. The wrist is tied to the neck in a knotted sling, and left there day and night until the tender spots are no longer tender and until the patient can sleep all night without the pain waking him once. This usually takes two or three weeks.

¹ *Lancet* 1925 vol. i p. 518.

This condition was described admirably by Thomas in his *Contributions to Surgery and Medicine*, Part III, 1887 (pp 29-51)—I am, etc.,

London W. Dec 13th

PAUL BERNARD ROTH,
Orthopaedic Surgeon, Wilkes Hospital

IODIZED OIL IN DIAGNOSIS AND TREATMENT

SIR,—Those workers in this country who employ iodized oil for diagnosis and treatment will be interested to learn that a British preparation, an improved iodinol, is now on the market containing 40 per cent by weight of iodine. The new iodinol has been made by Dr. Muntandale. It is a clear yellow liquid, containing no free iodine, and it can be sterilized by heating in a water bath without decomposition. I have used it for injecting into the lung. The resulting pictures are excellent, and there is no irritation of the mucous membrane—I am, etc.,

T. C. CHAMBERLAIN, M.D., F.R.C.P.

London N.W.1 Dec. 5th

THE TEAR-REFLEX TEST FOR ASTHMA OF NASAL ORIGIN

SIR,—Mr M. Mortimer Whitty in your issue of December 1st (p 985) contributed a memorandum on the tear-reflex test for asthma of nasal origin. This, I feel sure, will be of great help to the practitioner in the differential diagnosis of the various types of asthma. In nasal asthma as is well known, the treatment of gross pathological lesions—for example, mucous polypi, paranasal sinusitis, etc.—is of great value in the prophylaxis of this malady. In the absence of these conditions it has been my custom to touch gently with a silver probe the mucous membrane of the conchae and the tubercle of the septum to discover centres the palpation of which may induce sneezing or coughing, in other words, to elicit the "cough spots" described by McBride some years ago. True linear cartilization of these areas in the majority of cases greatly ameliorates the condition of the patient, increasing the intervals between the asthmatic spasms. One can imagine the tear reflex described by Mr Mortimer Whitty to be a test more delicate and more easily elicited far whereas the production of tears by probing the nasal mucous membrane is confined to the sphenoidal division of the fifth nerve the induction of coughing is obtained by a more circuitous route—namely the sphenoidal division of the fifth sympathetic and the vagus or possibly by the close proximity of the nuclei of the fifth nerve and the nucleus ambiguus in the floor of the fourth ventricle—I am, etc.,

W. MACALISTER BROWN, M.B., Ch.B.

Wolverhampton Dec. 8th

BOOKS AS POMITES

SIR,—The procedure in Hampstead for many years has been that the public health authority notifies the public library authority of any cases of notifiable disease received and should any member of the household concerned be in possession of a public library book it is sent for and either destroyed or disinfected. Unfortunately there are many libraries now where for a small subscription books can be borrowed and where such safeguards cannot so easily be applied, and these may be a real source of danger. Perhaps our sanitary inspectors should inquire whether such books have been in contact with notified infectious cases when they visit the house concerned and notify the appropriate lending library—I am, etc.,

Hampstead N.W., Dec. 8th

CECIL W. CUNNINGTON

AVULSION OF THE SCALP

SIR,—Moved thereto partly by Mr Gillies' despatching irony and partly because I had the privilege of visiting Sidcup in 1918, I feel compelled to offer him some explanation by way of apology for my sins of omission. Mr Gillies's work on plastic surgery is so well known and so closely associated with the technique of tube grafting that mention of the latter almost automatically recalls the former. That I did not specifically refer to it is solely

because on perusal of his book I could find no detailed account of a precisely similar case. Ogilvie's *Recent Advances in Surgery* in which Mr Gillies's case is illustrated, was not published till nearly two years after the operation on my case had been completed, and I became aware of it too late for inclusion in my references. I make no claim to originality, and am glad to have this opportunity of acknowledging my indebtedness to Mr Gillies—I am, etc.,

Ipwich Dec 11th

A. GREY BANKS

ULTRA-VIOLET RAY THERAPY

SIR,—May I endorse the views expressed by Dr I. C. Mudie in your issue of December 1st (p 1011) regarding the effect of ultra-violet radiation in highly nervous cases? It seems to me that successful treatment of such conditions depends entirely on the recognition by the operator that the patient must be treated "judiciously." I have found that radiation of the whole body as too stimulating—symptoms are aggravated and my rule now is to radiate a comparatively small area—for example, back or chest—at a sitting, and to aim at the production of a mild erythema only. My nerve patients come three weeks and in the vast majority of cases improvement is very soon admitted and apparent. Unlike Dr Mudie I do not combine radiation with any internal medication but rely on the good work of the mercury vapour lamp—I am, etc.,

Edgboro Dec 3rd

ANDREW SMITH HANNA

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

THREE days in the House of Commons this week were allotted to the committee stage of the Local Government Bill and arrangements were made for a debate on distress in the coal-fields before the adjournment of the House for Christmas, which was proposed to be from December 20th or 21st till January 22nd.

Local Government Bill

The committee stage of the Local Government Bill began in the House of Commons on December 13th.

Mr A. GREENWOOD moved an amendment providing that the council of a borough or urban district with a population of not less than 20,000 might become a Poor Law authority.

Dr FREDERICK REMOND moved the House that the Royal Commission on the Local Law had strongly advised the county area as the unit of administration to deal not simply with the Poor Law but with the causes of poverty, one of the chief of which was ill health. The question of health arose not only in institutions but before people entered them. So long as local experience was used wherever possible as the bill proposed it was necessary to have co-ordination under the county authority. He opposed the amendment.

The amendment was defeated by 218 to 151.

On Clause 3 (provisions as to alternative powers of giving assistance) Sir RICHARD LUCE moved an amendment to remove the option which the bill gave to local authorities in the working of certain parts of the health services and to insure that as far as possible in future, those services which could be administered under existing Acts should be so administered and not by way of poor relief. He said that this amendment and two others on the paper dealing with the same point would not completely transfer the medical services from the public assistance committees unless further action was taken under Clause 5 where power was given to the county councils to direct that parts of their duties should be transferred to committees other than the assistance committees. Sir Richard suggested that the bill did not carry out the Minister's proposal to co-ordinate the medical services in each area. If a large portion of the duties was left to the new assistance committee—which really only replaced the old guardians—medical services would not be divorced from other public assistance although such a divorce was necessary for the effective co-ordination of medical services. The assistance committee was not really a suitable committee to undertake the duties which the bill would impose upon it. Its first duty would always be the provision of monetary assistance to the poor. The administration of the medical service had in the past been one of the great failures of the guardians. There had been notable exceptions but on the whole he could not say that the medical services for the poor provided by the guardians had been as good as those administered through voluntary hospitals. It would be advantageous to transfer medical matters to committees which were already devoting their time to these subjects. A new assistance committee would have to be trained in the duty of medical relief and Parliament would be duplicating work in which other committees were already trained. They now had a

medical officer of health who was the adviser of the health committee and of other committees which dealt with health matters. He would be compelled to divide his attention and to be one of the officers in direct touch with the new assistance committee. Everyone admitted that something should be done to remove the stigma of pauperism from those to whom it attached merely from the fact that they were sick, or suffering from some disability. It would be difficult to do that unless there was a divorce between the medical cases and the cases of paupers who were paupers only. Furthermore until these two services could be divorced it would be impossible to carry out the new organization that was required and the co-ordination between the voluntary system and the other medical systems of the country. That end required one definite authority in each area by whom co-ordination could be organized. He realized that there were certain difficulties in his proposals. Poor Law hospitals at present were often in the same building as the rest of the Poor Law institutions but the schemes which had to be prepared under the bill should so far as possible divert the various hospitals and institutions to different duties. That could not be done so long as each hospital or each institution was doing all sorts of work as in Poor Law hospitals at present.

In his speech on the second reading of the bill Sir Richard Luce continued the Minister of Health had said he favoured the eventual divorce of medical service from the rest of the Poor Law but had given two objections. The first and most important was that many local authorities had not the machinery to carry out the various health services as they ought to be carried out under the relevant Acts. One of the amendments put down by Sir Richard and his friends would get over that difficulty by allowing the Minister to give a time limit to authorities which were not yet ready. Within that limit they could still work their existing system of pauper relief. Without a time limit a refractory or reactionary area might go on indefinitely under the present system. Assistance committees once they had started on medical work would be very unwilling to give it up and Parliament would have over again all the trouble they had now in getting rid of the guardians. The second objection which the Minister had raised was that he was loath to interfere with local authorities in the management of their own affairs and would prefer to give them the option to work in the way they thought best. But the best method of work was by the divorce of the medical service from the other services, and if there was a danger of then not working according to the best method it was not right to give local authorities this option. Parliament was engaged in a very important reform of Poor Law, and it would be a great pity to halt half way. Sir Richard added that he realized that the vast majority of local authorities would adopt the better method.

Mr. SIMON WEBB heartily supported the amendment and said that Sir Richard Luce had put the points for it extremely well. He observed that the chief reason why public medical assistance was given was that the patient should go for treatment at the earliest possible moment. Large sums were given out of the rates to deal for instance with cancer. In some places that was done under the Public Health Acts and in other places under the Poor Law. Unless unfortunate people were induced to come at the earliest possible moment the mortality would be intensified by delay to give treatment as poor relief was not the way to induce people to come as quickly as possible. Pauperism meant that the pauper was subjected to a positive legal disability. If a patient went into a voluntary hospital and received treatment as a charity he had the right of action against the hospital authorities and the servants of the hospital if there was gross negligence. In a case tried the other day in connexion with a maternity home the right of action was not denied though the action was not successful. The pauper was deprived of this right of action and was left undefended against negligence by the superintendent or nurse—he did not like to say by doctors although there had been such cases. Mr. CHAMBERLAIN said the difference in legal liabilities of guardians and voluntary hospitals was not so great as Mr. Webb had represented. Recently when a metropolitan board of guardians was sued for damages to a boy whose arm had been injured they settled the case with the judge's approval by paying £1,000. On the other hand it had been held that a public health authority was not responsible where a doctor improperly discharged a patient from a fever hospital. The governors of a voluntary hospital were not responsible where negligence had been alleged against a nurse acting under the orders of a doctor.

On the actual amendment Mr. CHAMBERLAIN thought there was no difference between those who supported the amendment and the Government. The Government did not desire that in the case of medical relief those who had been treated under the Poor Law in the past should be so treated. It desired that people who were sick should be treated according to the nature of their sickness and not according to whether they were destitute or otherwise. That policy could not be carried out completely until the power given under Clause 4 had actually been used by local authorities. The Minister desired that these should take advantage of it at the earliest possible moment. When the bill had reached the statute-book a circular letter would be sent out from the Ministry of Health to local authorities calling attention to particular points in the Act and indicating the view of the Ministry on the intention of the Act and the way in which that intention should be carried out. The Government did not make this clause mandatory because things as they were at this moment would not allow this arrangement to be carried out. Some time must be given local authorities to make necessary adjustments. To get the full advantage and effect of the reform which they proposed they must allow the county councils to make a survey not only of the needs but of the existing

institutions and to consider how these institutions could best be adapted. That might mean vast structural alterations and time must be allowed for the councils to consider what was wanted and to make the requisite arrangements. It would be necessary, if the clause were mandatory, to give the Minister power to suspend it as Sir Richard Luce had recognized. Was it essential to do so when they well knew that it must be suspended everywhere? If Sir Richard Luce meant by his amendment that the policy of the Government should be made more clear Mr. Chamberlain would further consider that point before the report stage, and if words could be found to make clearer the intention of the Government he would then have them inserted to indicate that local authorities should pursue the plan advocated by Sir Richard Luce as and when facilities were open for them to do so.

Sir RICHARD LUCE said that in view of Mr. Chamberlain's sympathy and his promise to reconsider the point he wished to withdraw his amendment. The amendment was by leave withdrawn.

On December 17th the House again went into committee on the bill. Clause 5 enacts that an administrative scheme for the constitution of a Public Assistance Committee should be made by the county councils and county boroughs. Mr. LANSBURY moved an amendment to delete the reference to the Public Assistance Committee and to substitute that the scheme should provide for the delegation of the transferred functions to appropriate committees of the council. Mr. CHAMBERLAIN in opposing the amendment said that exactly the same ground had been covered on Clause 4. His answer to the amendment was exactly the same. It was simply that it would be physically impossible to hand over to the appropriate committees all the varied functions which were to be transferred. Many local authorities would be in the position of having no public hospital and only a Poor Law institution. To make a proper scheme the new authority would have to sit down and consider all the institutions. They could not make that survey and carry out the structural alterations necessary in a day.

Mr. WEBB said that the amendment which the Minister of Health would move later on would allow the London County Council to transfer to any of its committees any functions whether they were performed under the Poor Law or under the Education or Public Health Acts. In other words, under the terms of that amendment the London County Council would be able to transfer to what was called the Public Health Committee not only the functions which it exercised under the Public Health Acts and other similar Acts but also functions in regard to the sick and infirm which could be carried out by the guardians and the education committees. The same freedom should be given to other large authorities in the country.

The amendment was rejected. The guillotine motion soon afterwards came into operation and under it the discussion on Clauses 5 to 8 automatically came to an end. As a result Dr. Fremantle's amendment to Clause 5 was not debated. Another amendment, in the name of Sir Richard Luce and Dr. Fremantle providing that all matters relating to the exercise of the transferred functions, except the raising of a rate or borrowing money should stand referred to the Public Assistance Committee or such other committee of the council as the council should so determine, was passed over.

On Clause 6, which provides for the appointment of guardians committees and subcommittees a further amendment by Dr. Fremantle was cut out by the guillotine. Clause 7 provides that as soon as an administrative scheme has been submitted to the Minister of Health the council submitting the scheme shall publish a notice of the fact in the local newspaper. An amendment to this clause by Dr. Vernon Davies was also guillotined.

On Clause 9 which deals with disqualifications, Mr. WEBB moved an amendment providing that a person should not be disqualified from membership of the council of a county or county borough by reason that he or a member of his family had been an inmate of any institution provided under the Lunacy or Mental Deficiency Acts. Mr. Webb said that as the law now stood a man was a pauper if his wife or child had been taken to an asylum even if he had paid the cost of maintenance in that institution when it was charged to him by the guardians. Mr. E. BROWN said that there was some doubt whether relief given for maternity and child welfare in a maternity home constituted relief under the bill. Mr. CHAMBERLAIN said that a maternity home or a similar institution was covered by the words of the clause. So far as the Mental Deficiency Acts were concerned, the point raised by Mr. Webb was quite clear. Under the Mental Deficiency Act of 1913, while the authorities were entitled to recover a sum towards the expenses of the maintenance from the individual they had no power to recover from the guardians. Therefore treatment in a mental deficiency institution was not poor relief. It was true that a pauper lunatic who was confined in an asylum and was chargeable to the guardians was disqualified under certain circumstances but there again one consideration was whether the person was receiving medical or surgical relief. When legislation was introduced to deal with the recommendations of the Royal Commission on the lunacy laws, no doubt the Lunacy Acts would be added to the Acts mentioned in Clause 4 of the Local Government Bill, and there would be a provision under the terms of this bill. Mr. WEBB remarked that it was not fair to disqualify 115,000 people before the passage of lunacy legislation, when the matter could easily be set right now. Mr. CHAMBERLAIN replied that he was not sure that the matter could be easily set right now but he would give it further consideration. The amendment was withdrawn, and Clause 9 was added to the bill.

Clause 10 (repeal of the Unemployed Workman Act 1905) Clause 11 (amendments to certain Acts) and Clause 12 (alteration of the constitution of assessment committees) were then passed under the guillotine, and the debate was adjourned.

In 1926-27 the Poor Law authorities of England and Wales spent according to Sir Kingsley Wood, £10,105,000 on such maintenance and treatment of the sick as will be transferred to the public health authorities under the Local Government Bill.

Proposed Change in Housing Subsidies.

On December 12th, in the House of Commons, Mr. CHAMBERLAIN moved that the draft of the Order proposed to be made by the Minister of Health and the Scottish Board of Health under Section 5 of the Housing Financial Provisions Act be approved. This Order proposes to terminate from next September the grant of subsidies under the 'Chamberlain' Housing Act and to reduce the subsidy payable under the Whitley Act.

Criticizing the proposal, Mr. ARTHUR GREENWOOD quoted from reports by medical officers of health for Birmingham, Stoke-on-Trent and Wandsworth regarding the shortage of houses.

Dr. ELLIOT said the suggested reduction of the subsidy in Scotland was not so great as in England. The housing situation in Scotland was still acute.

Dr. FREMANTLE said the House was considering an expenditure on housing amounting roughly to £10,000,000 a year for from twenty to sixty years apart from any continuance of housing subsidies in the next few years. The medical officers of health asked for grants of £10,000, £20,000 or £50,000 at most to improve the health of the people. If the case for housing was argued from the point of view of improving the health of the people then they would rather spend on other purposes every extra penny proposed to be spent on housing. Every Chancellor had only a limited sum of money to devote to public health services including housing; therefore £100,000 more for housing next year meant £100,000 less for other purposes. Even if this costly way of helping the health of the people were necessary, the House of Commons still had to consider whether it got value for money. The subsidy was an unnatural way of supplying houses and the sooner they got back to normal conditions the better. He hoped that next year it would be possible to deal with the same question as a whole. All housing subsidies should be merged in a block grant to be given to boroughs and housing authorities specifically for their clearances and for the provision of houses for the poorer classes.

Mr. BIRN said that for every boy under 5 years of age who died in a four-roomed house four would die in a single-roomed house. According to the estimates of the Scottish Board of Health there were still 100,000 houses overprovided in Scotland. Other members gave instances of overcrowding and bad housing conditions.

Sir KINGSLEY WOOD in reply said the country was building at the rate of 188,000 houses a year.

A Labour amendment was defeated and the House approved Mr. Chamberlain's resolution.

National Health Insurance

Sir KINGSLEY WOOD, answering Mr. Crooke on December 11th, said that the national health insurance scheme was not financed on the basis of a single fund and the surplus was in the main the aggregation of the surpluses of over 8,000 approved societies and branches. Those surpluses were ascertained by quinquennial valuations the results of which were summarized in the report of the Government actuary. The last of such reports dated November 25th 1926 showed that the total surpluses amounted to £12,413,319 from which amounts totalling £26,619,161 were certified for distribution in additional benefits in the ensuing quinquennium.

Colonel APPLIN asked the Minister of Health whether he was aware of the waste of medicines due to doses being prescribed in drachms and shown on the bottle as tablespoonfuls, and whether seeing that the average tablespoon held 50 per cent more medicine than 4 drachms he would consider a regulation requiring all doses on bottles of medicine supplied under the national health insurance scheme to be shown in drachms and ounces or the issue of a cheap medicine glass. Mr. CHAMBERLAIN said the graduated markings on medicine bottles usually indicated half ounces—that is 4 drachms. His investigation of the prescribing of insurance practitioners did not suggest that medicines were often repeated before the proper time which would be the result of the consumption of over large doses. He did not think the matter one in which he was called upon to interfere.

Relief for Distressed Mining Areas

On December 17th the Prime Minister announced that the Government proposed to ask Parliament for authority to grant to the Lord Mayor's Fund £1 for every £1 received in voluntary subscriptions to the Fund and as an immediate step to grant £150,000 to the Fund as the equivalent of the money already subscribed to it. The Government would also ask Parliament to approve an immediate vote of £100,000 to assist the removal of families from the distressed areas. Opportunity would be given to the House to debate the question before rising for the Christmas recess.

Lord EUSTACE PERCY on December 11th stated that there were twenty-two education authorities in the West Riding. Of these during the week ended December 1st twelve were providing meals for 5,000 children. He had as yet received no official return from the West Riding County Authority, but he understood that they were now feeding about 1,000 children. Of the remaining nine authorities, some were understood to be making preparations for

feeding. Surveys by the authorities' medical officers of the condition of the children were conducted in a number of the areas last summer, and recently in the Barnsley area. The results of the surveys varied considerably in different areas, 8 per cent of the children were found to be malnourished in the districts of the county surveyed and 36 per cent in Barnsley. In Doncaster, Pontefract, Rotherham, and Sheffield the surveys failed to reveal at that time any abnormal conditions. The surveys were concerned primarily with the state of nutrition of the children and he had not the same amount of information in regard to boots and clothing, but they tended to confirm what was generally known as to the unsatisfactory state of the children's boots and clothing in the distressed areas. Thus in the West Riding survey of last summer 21 per cent of the 44,000 children examined were found to have bad boots, in the recent Barnsley survey approximately 6 per cent were returned as badly clothed.

Defence against Poison Gas.—On December 11th Sir I. WORTHINGTON EVANS told Mr. Thurtle that research and experiment relating to defence against gas were directed towards the methods and appliances for individual and collective protection and also towards the treatment of gas casualties. Research and experiments were primarily concerned with defence against gas but it was essential, for the purpose of the protection against gas, to investigate the possibilities of new gases and other forms of chemical warfare which might be illicitly employed against this country. Mr. Thurtle asked whether the secondary reason for these experiments was to discover how gas could be employed offensively. Sir I. WORTHINGTON EVANS said that his answer was a very full one.

Women in Medical Schools.—In an answer to Sir Robert Thomas on December 12th Sir KINGSLEY WOOD said the Minister of Health understood that outside London there was no restriction on the admission of women to medical schools. The position in London already formed the subject of an inquiry initiated by the University of London.

Notes in Brief

Sir J. Gilmour states that the Scottish Board of Health has approved a proposal of the Glasgow and South West of Scotland Joint Committee for the administration of the Blind Persons Act to establish a central clinic for the medical certification of blind persons.

Out of 30 education authorities in Wales, 27 undertake dental service. During 1927 162,605 children were dentally inspected in Wales and 68,345 treated.

Obituary

SIR JOHN PHILLIPS, M.D., F.R.C.P.

Honorary Physician to the Queen, Consulting Obstetric Physician to King's College Hospital.

We had to announce with regret in our last issue the death, on December 8th, of Sir John Phillips, M.D., honorary physician to Queen Mary, consulting obstetric physician to King's College Hospital, and professor emeritus of obstetric medicine at King's College, London.

Born on July 6th, 1855, the eldest son of Zachariah Phillips of Brehmston Manor, Bedford, John Phillips was educated at Bedford Grammar School and at St John's College, Cambridge. In 1877 having graduated B.A., with honours in the Natural Sciences Tripos, he proceeded to his clinical studies at King's College Hospital. In 1879 he obtained the diploma of M.R.C.S. Eng., and took the M.B. degree at Cambridge in 1881. He became M.R.C.P. Lond. in 1885 and proceeded M.A. and M.D. in 1888. Four years later he was elected a Fellow of the Royal College of Physicians of London, and he served on the Council of the College from 1911 to 1915. He was appointed assistant obstetric physician to King's College Hospital in 1889, obstetric physician in 1906, and consulting physician on his retirement from the active staff in 1915. In addition, he had held appointments as consulting physician to the British Lying-in Hospital in Judell Street, and as consulting obstetric physician to the Bromley Cottage Hospital in Kent. Throughout the greater part of his association with King's College Hospital as obstetric physician and gynaecologist he also held the position of professor of obstetric medicine at King's College, being appointed professor emeritus on his retirement. He was elected a Fellow of King's College in 1900. At various periods he served as examiner in midwifery and diseases of women to the Universities of Cambridge, Glasgow, and London, and to the English Conjoint Board. He was knighted at the beginning of 1918, and in March of the same year the Queen appointed him to be her honorary physician.

Sir John Phillips contributed the section on "plastic operations in gynaecology" to Allbutt and Playfair's

System of Gynaecology, and on "vaginal operations" to Cheyne and Buighard's *Operative Surgery*. His book, entitled *Outlines of the Diseases of Women*, reached its fourth edition in 1906. Among his contributions to medical journals may be mentioned papers on the management of the pregnant, parturient, and lying-in woman suffering from cardiac disease, on rupture of the vagina during labour, on hepatic toxæmia complicating pregnancy and labour, and on the therapeutic influence of x-rays on female pelvic disorders. For some years he acted as joint editor of the *King's College Hospital Reports*.

As an obstetrician he was noted for thoroughness and remarkable dexterity, and these qualities, combined with dignity and charm of presence, brought him a large private practice. His method of handling a case from beginning to end was an object lesson to the young accoucheur. In the gynaecological theatre his technique was marked by scrupulous attention to detail and unhurried precision at every stage of the operation.

Sir John Phillips married in 1890, and leaves a son and three daughters, his first wife died in 1917. He married again in 1926. His later years were clouded by progressive failure of sight, leading to almost total blindness.

THE LATE DR MICHAEL DAVITT

We have received from Dr John Mills, honorary secretary of the Connaught Branch, the following appreciation:

The tragically sudden death of Dr Michael Davitt has evoked the widest sympathy of his professional brethren and the general public, not alone in Galway, but throughout Ireland. As a student he had had a career of distinction rarely equalled in the annals of the National University of Ireland, of which he was a graduate, and he achieved a unique place in the affection and regard of his fellow students, being with them in the social and athletic life to the fullest extent. The son of one of the ablest and most disinterested men who has contributed in a very large degree to the making of recent history in Ireland Davitt was very thorough in anything he undertook, and especially made his mark in the devoted work he gave to the organization of the Central Hospital in Galway and its remodelling into a modern hospital from the form of a workhouse, an undertaking begun some few years ago, and entailing a vast amount of thought and care. For the accomplishment of this work Davitt was appointed physician to the Central Hospital, and fulfilled his task so fully and completely that the hospital which now replaces the old Union Hospital is a modern structure which can very favourably challenge comparison with similar ones in much larger towns. He was unremitting in the discharge of his duties, seeking only and always the good of his patients, by whom he was greatly esteemed. His professional colleagues regret a courteous, kindly gentleman, who was always helpful and considerate and who took a real pleasure in assisting a professional colleague. With such a character, alert intellect, and keen interest in the profession he was frequently engaged in consultation.

Universities and Colleges

UNIVERSITY OF OXFORD

At a congregation held on December 17th the following medical degrees were conferred:

D.M.—A. Q. Wills
B.M.—J. C. Neely G. G. Hill Joyce Wright Margaret A. L. Herbertson

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

THIRD M.B. B.S.—J. G. W. Ayres * Elizabeth Cooper * H. H. P. Hines worth (University Medal) * C. A. Keesle * H. G. W. Rahn * H. R. Reid S. I. Abraham G. T. Allerton Sophia Antonovitch H. Avery Owen R. Byron G. W. Black G. N. Box Marjorie T. Brerley Emily E. Cass S. Craddock W. P. M. Davidson J. Davies S. J. M. De Navasquez Irene Dixon Marjorie M. Dobson C. P. Donaldson E. Eliso M. Dongla D. Ellis Alexandra G. H. English M. R. Ernst H. Evans Geraldine W. Everett A. P. Farmer A. McK. Fleming G. G. Gilliam Helen M. Herbert Alice D. M. Hodge Muriel S. Hulke P. Inwald I. J. Jones R. M. Jones D. I. Kassar E. M. Lourie S. McGladdery M. MacKenzie H. Mannington W. H. Miller M. B. Modj C. F. Moore G. F. B. Payne Mary E. Pease D. Preiskel M. Rothkopf Clarice A. Skidmore C. F. J. Smith Edith J. L. Smith T. R. Smith Ellice R. Skidmore

Snow J. G. Thwaites Phyllis D. Towell Scott-Russell Trick Gladys M. Tullidge A. G. Watkins A. H. N. Whitlow P. G. Wile yomosingio L. A. Willmott Jessie W. Wilshe E. L. Wright Winifred M. Wright (Group D) Nancy M. Hadeloy S. W. Barber Annie G. Basher Beatrice A. Bittorworth K. J. E. Davies Hilda I. Dean C. J. Douglas M. L. Ooterman A. I. Gaston H. N. W. Harler Kathleen Horne P. Kaplin G. H. Livingstone J. E. MacKenzie L. W. Maokio Hernia M. Mills M. L. Mistri Doreen G. C. Nixon Joan M. Oldaker S. A. Wickramasinghe (Group II) Lucy F. Arthur Julia C. H. Avery P. C. B. Butler P. O. Harris Dorothy I. H. H. J. V. Macgregor Joyce Morgan D. T. R. Morris C. B. Picken H. W. A. Post H. G. Robertson Elizabeth H. Searfield I. J. J. Smith P. A. M. Sontier Frances J. Winter W. H. S. Wallace, A. J. Watson J. W. Wile E. A. Wood B. A. Young

* Honours
† Distinguished in Medicine
‡ Distinguished in Pathology
§ Distinguished in Surgery
|| Distinguished in Midwifery

UNIVERSITY OF BIRMINGHAM

At a congregation held on December 14th the following medical degrees were conferred:

M.D.—H. P. James
M.B. Ch.B.—T. C. Dance L. W. Downie A. H. I. Jackson T. W. Massey, M. K. Omar Elizabeth C. Smith K. A. Thomas

UNIVERSITY OF LIVERPOOL

Dr J. H. Dible, Professor of Pathology and Bacteriology, Welsh National School of Medicine, Cardiff, has been appointed to the George Holt Chair of Pathology.

Dr Warrington Yorke, Professor of Parasitology in the University since 1914, is appointed to the Alfred Jones Chair of Tropical Medicine.

The following candidates have been approved at the examination indicated:

M.D.—T. A. Clarke R. W. Eldridge J. E. Howie D. U. Owen Helen Standing A. G. Wilkinson
FINAL M.B. Ch.B.—Elizabeth B. Robson * F. L. Rubin (Part II) A. I. Adams N. J. Crawford J. H. St. B. Crosby A. Dala I. B. Jones L. De Jongh Hilda M. C. MacMahon Garri * J. S. Mather O. T. Mercer G. W. Molyneux, E. E. Probble I. H. Rowlands G. A. Talbot-Jones F. J. Walton (Old Regulations Part I) A. Gardner Teresa Lightbound R. G. Walker (Part II) F. J. H. Crawford A. M. Russell

* With distinction in Surgery
† With honours Class II

UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examination indicated:

FINAL M.B. Ch.B.—Alfred M. Butterworth I. M. Hughes E. P. Johnson J. S. Miller J. W. Murray Evelyn I. M. Shoppard H. P. Stubbs R. Whitehead R. T. Whimor * W. Wraith (Zorseide Medicine) L. Bold Christobel M. Hall F. Z. Levy A. S. McGowan A. Taylor (Hygiene and Preventive Medicine) L. Bold Christobel M. Hall F. Z. Levy A. S. McGowan J. H. Patterson F. J. B. Powell A. Taylor (Obstetrics and Surgery) Mary I. O. Mackintosh Marian M. Reekie.

UNIVERSITY OF EDINBURGH

A graduation ceremony was held in the Upper Library Hall of the University on December 14th when the following degrees were conferred:

M.D.—A. M. Affleck H. Buist A. H. Campbell I. L. Chisholm J. E. Lillis * A. M. M. Grierson S. E. Kirk (in absentia) D. R. Lewis I. N. Macleod Rosemary O. Morris H. A. Murray (in absentia) J. B. Nisbet * D. H. Iaterson I. A. Ritchie A. Ronald * Jessie C. B. Sym I. A. B. Walker I. J. Ware Alexandra A. Warnock (in absentia) M.B. Ch.B.—C. P. Beattie L. Beckettman P. Belmont G. M. Bell R. H. E. Bell D. Blackley Matilda F. Correa R. Cunningham J. I. A. G. L. Dick P. K. S. Gupta I. Harro Anna M. M. Kerr L. T. Low C. MacGaffey J. M. Lean W. Moro I. H. Paton C. Bamdeholl A. Ramsay R. S. Ritson, I. R. W. Smith C. J. S. O. Taylor W. P. Wallace.

M.A.—Dr R. T. G. Alcock
* Highly commended for thesis
† Commended for thesis
‡ Passed with honours

UNIVERSITY OF DUBLIN

TRINITY COLLEGE

At the first winter commencement, held on December 11th, the following degrees were conferred:

M.D.—A. E. A. O. Byrne
M.A.—A. A. Shaik
M.B. Ch.B. B.A.O.—G. O. Deekera Mollie Finegan J. Horvich W. J. E. Jessop J. E. McMahon C. M. O'Brien J. W. Pigott R. G. Reid J. Sayers Nora A. Stack A. A. Thompson D. F. Walsh I. F. Rathaus (in absentia)
LICENTIA IN MEDICINA, SURGERY AND OBSTETRICS—E. du P. Molring

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At the recent primary examination for the Fellowship when 168 candidates presented themselves the following 45 candidates were approved:

A. All R. M. Alderton M. A. E. Anon E. T. Bannister J. H. B. Beal F. Bloknell G. H. Booth O. N. Clark A. C. Copley D. Davidson, J. R. Dogra L. P. J. Evans F. G. Fenlon M. L. Foranby R. L. Forsyth F. Forby, A. C. Fraser T. O'Brien A. J. Goldsmith R. Gralner J. J. Griffiths H. E. Harding C. H. S. Harris A. Helmy T. V. Jacob E. F. King R. T. O. Connell M. S. J. McNeil J. G. Miller R. W. C. Murray J. E. A. S. Rajasingham A. de W. Ranken J. H. Reid G. M. Pladke C. S. Rajasingham A. de W. Ranken J. H. Saint J. G. Pandey A. M. Smith G. V. Stephenson N. C. Tanner T. Thornton J. B. Tracy J. G. Wiles J. W. Wilson

Medico-Legal

ACTION AGAINST MATERNITY HOME TRUSTEES AND COMMITTEE OF MANAGEMENT

The hearing of an action before Mr Justice Ayles and a special jury in the King's Bench Division in which one of the three plaintiffs, David Ross, an infant suing by his father, claimed damages for personal injuries received through the alleged negligence of the defendants as trustees of the Crayford Maternity and Nursing Home, the committee of management of the home and Nurse Campbell, a member of the staff, terminated, after proceedings extending over several days, on December 10th, when the members of the jury found them selves unable to agree, and were accordingly discharged without a verdict. The mother of the infant also claimed damages for personal injury and alleged breach of contract and her husband claimed special damages by reason of the injuries to his wife and child. The defendants denied any breach of contract or negligence, or that the plaintiffs suffered any damages as alleged.

It appeared that the infant was born in the home on November 25th 1926. Eight or nine days later, following the usual practice in the establishment he was taken from his mother at 9 p.m. and placed in a cot in a basement kitchen. The cot it was stated was not protected or enclosed and the kitchen floor was about 3 feet below the level of the ground. At about 1.30 a.m. Nurse Campbell who was on night duty heard the infant cry and on going to the cot saw a rat emerge from it and disappear through the window. It was found that the child's face had been hit by Mrs Ross giving evidence said that she was awakened at 6 a.m. and taken down to the kitchen having been told that her baby had met with an accident caused by a rat. She found that the baby's face was bleeding terribly and this gave her so great a shock that her sleep was broken. She and her husband complained that the authorities at the home were negligent in not protecting the cot it being well known that the place was infested by rats. In cross-examination Mrs Ross agreed that but for the accident she had no fault to find with the way in which the home was conducted. She stated that when her doctor visited her he told her she had had a severe shock to her nerves, but she did not tell the matron of the home. After she left the home she was under treatment for two months and had to employ a daily help and a housekeeper.

Dr W. R. Morrison Erith said that his partner attended Mrs Ross in her confinement. He visited the home on the day of the accident and saw the nurse who told him of it and said that they had told Mrs Ross that a rat inflicted the injuries to save her feelings and prevent her being shocked. He saw the baby whose wounds had been dressed with iodine. The right side of the face from the forehead down to the chin had been cut and scratched and bitten in many places. The worst wounds were just below the right eye and a little farther down the cheek. These were bites; the other injuries were scratches. At present the worst deformity was that part of the right eyelid was pulled down by a scar. The scratches were now better but the deformity was bound to be permanent unless something was done. The effect of the accident and the sight of the child on the mother was what it would be on any woman it had upset her nervous system considerably. Mr Ross giving evidence stated that when motor ing with his wife she had twice fauted when rats ran across the road. A gardener formerly employed at the home avowed that during 1923 and 1924 rats were often seen running along the banks of the River Cray by the home and across the lawns and a rat catcher said he had seen rats emerge from out buildings and run across the lawn.

Dr W. A. Rogerson Boxley Heath said that he was honorary medical superintendent of the home at the time of the occurrence. He had attended his own cases there for four or five years and had sent his wife there for convalescence. The home was in every way a fit and proper place for nursing it had a most efficient matron and staff. He had never seen a rat in the home. Answering Mr McVillie for the plaintiffs Dr Rogerson said that he had no recollection of having read a letter sent to the home from the clerk of the local urban council complaining that a report of the occurrence had not been sent to the council. Miss C. E. M. Campbell giving evidence stated that she had been night nurse at the home for the last four years and described the occurrence of the incident after which she stated she at once picked up the baby and ran with him to the matron who was in bed. The infant plaintiff's face was washed and dressed with sterile gauze. It was not true that when Mrs Ross was taken to the kitchen the infant's face was covered with blood.

Dr C. F. Knight Dartford who was medical superintendent of the home till September last said that the babies were put into the kitchen with his approval. He did not think it was a dangerous thing to do. Dr C. M. Ockwell one of the defendants and the medical officer of health for Crayford said that he and his co-trustees had nothing to do with the management of the home. He was medical superintendent for the first two years and it was during that time that the practice was initiated of putting the newborn babies into the kitchen for the night. Evidence was given by a surgeon that he had examined the home in October last and that there were no rat holes in the kitchen and by a sanitary inspector that he had seen no sign of rats in the house and grounds.

On December 10th the matron of the home Miss Maud Walker gave evidence to the effect that she had never seen or heard about any rats in the house before that occurrence. She afterwards

described the events which followed the accident saying that there was no indication while the mother was in the home that she was suffering from shock.

Dr H. W. Barber said that he examined the infant plaintiff on April 11th 1927 when he was brought by his parents to the witness consulting room. There was a scar over the bridge of the nose and one from the inner corner of the right eye also two others beneath the eye and two punctate scars on the forehead. The chief ones were on the area of skin below the right eye. The healing of the scars appeared to be quite sound and there was no pulling down of the lower eyelid.

His Lordship asked Mr McVillie how he made any case against the trustees. Mr McVillie replied that he and his friend had discussed the matter and he did not think his Lordship would be troubled with that point. Counsel addressed the jury and his Lordship summed up. The jury after being absent about two hours intimated that they were unable to agree, and, as already stated were discharged.

Medical News.

The Royal College of Physicians of London will be closed from Saturday, December 22nd, till Saturday, December 29th both days inclusive.

The Christmas lectures at the Royal Institution this year will be on "Sound Waves and their Uses," by Mr Alexander Wood, lecturer in physics in the University of Cambridge. They will be given at the Institution of Electrical Engineers, Victoria Embankment. The general courses of lectures to be given before Lister at the house of the Institution (21, Abchurch Lane), include six lectures on "Evolution and the Problem of Species" by Professor Julian Huxley, and three lectures by Sir William Bragg on "The Early History of X Rays." The Friday evening discourse on March 1st will be by Sir Robert Robertson on the "Infra red Spectra," and on March 22nd by Sir Ernest Rutherford on "Penetrating Radiations."

SESSIONAL meetings of the Royal Sanitary Institute will be held at 90, Buckingham Palace Road, S.W.1, on Tuesday, January 8th, 1929, at 5.30 p.m. and on Friday, February 1st at 5 p.m. Professor Bostock Hill will open a discussion on cleanliness as the basis of health at the first meeting, and at the second there will be a discussion on the civilian population and chemical warfare, introduced by Dr F. R. Humphreys.

The nineteenth annual exhibition of the Physical and Optical Societies will be held from January 8th to 10th, 1929, at the Imperial College of Science, South Kensington. The exhibition will be open in the afternoon from 3 to 6 p.m. and in the evening from 7 to 10 p.m. Lectures will be given at 8 o'clock each evening. On January 8th Professor F. J. Hopwood will describe experiments with high frequency sound waves, on January 9th Mr Conrad Beak will deal with lenses, and on January 10th Mr A. J. Bull will speak on some colour problems in photo-engraving. Tickets, which are required for the first two days, may be obtained from the secretary of the Physical and Optical Societies, 1, Lowther Gardens, S.W.7.

At the annual meeting of the Metropolitan Hospital Sunday Fund at the Mauston House, London, on December 17th it was reported that the amount collected last year was £85,414 showing a decrease on the previous year of £1,520. Collections in the churches amounted to £35,089, this being the smallest total since 1914. The distribution committee reported that 227 institutions, 4 more than in 1927 had applied to participate in the Fund, and recommended the distribution of £81,310.

The fifty-first annual meeting and dinner of the Old Epsomian Club was held at the Trocadero Restaurant on December 13th, and attracted a "record" attendance. The new president, Dr. H. C. Protty of Kettering, was in the chair, and proposed the toast of "Floreat Epsomia," commenting on the value of the influence of the masters at Epsom College on the character of the boys in the earlier years of the history of the school. In responding, the headmaster, Mr. A. C. Powell, mentioned the great services rendered to the club by the late president, Sir Cecil Armitage. He referred to the excellent progress made by the club in the last few years, and then related the more salient scholastic and athletic successes achieved by the school in the previous months. Mr. A. C. C. Parkinson proposed the health of "The Guests in an entertaining speech, and, in replying to it, Dr. J. W. Carr told various witty stories. Mr. G. E. Waugh, in a highly amusing speech waxed reminiscent over the earlier connexion of Dr. H. C. Protty with the school and proposed the toast of his health. The president suitably responded.

A THREE months' course of lectures and demonstrations on clinical practice and on hospital administration for the diploma in public health will be given at the North Eastern Hospital, St Ann's Road, Tottenham, N 15, by Dr E H Thomson, medical superintendent, on Mondays and Wednesdays, at 4.45 p.m., and alternate Saturdays at 11 a.m., commencing on Monday, January 7th, 1929. The fee for the course, which complies with the requirements of the revised regulations of the General Medical Council, is £4 4s. A course under the old regulations may be taken for £3 3s. The fees should be sent to the Clerk of the Metropolitan Asylums Board, Victoria Embankment, E C 4.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W C 1**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W C 1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS as well as orders for copies of the *Journal* should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBERS of the British Medical Association and the *British Medical Journal* are MUSEUM 9561, 9562, 9563, and 9564 (internal exchange four lines).

The TELEGRAPHIC ADDRESSES are

EDITOR of the *British Medical Journal*, Aitology Westcent, London

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements etc.), Articulate Westcent London
MEDICAL SECRETARY, Mediscera Westcent London

The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams *Harillus, Dublin* telephone 62550 Dublin) and of the Scottish Office, 7 Drumelough Gardens, Edinburgh (telegrams *Associate, Edinburgh* telephone 24361 Edinburgh).

QUERIES AND ANSWERS.

INCOME TAX

Replacement of Car

"J. K." has been informed by the Inspector of taxes that the allowance is 'either the cost of the new car less the amount received for the old car or the cost of the old car less the amount received for the old car, whichever is the less.' Is this correct?

* * * Yes. There are in effect, two different limits to the amount of the allowance, the first is that a taxpayer cannot claim to deduct more than the out-of-pocket cost—the former of the above alternatives—and the second limit is that the allowance must not extend to the provision of a better car, it must not include further capital outlay. We may perhaps add that the second alternative would not necessarily apply if the cost of cars generally were rising.

Payment under Superannuation Scheme

"F. J. B." holds an appointment and pays £100 a year under a superannuation scheme. What is the appropriate allowance? Can he claim deductions in respect of subscriptions to medical societies?

* * * The question is dealt with in Section 32 (3) of the Income Tax Act 1918 as amplified by Section 26 of the Finance Act of 1920. The result of a somewhat complicated provision is to give payments made in connexion with such a superannuation scheme an allowance equivalent to that given formerly for payments made to life assurance companies under policies to secure deferred annuities. Possibly the regulation which

"F. J. B." has in mind is that relating to compulsory deductions by Act of Parliament. The appropriate allowance therefore is £100 at 2s. 11. "F. J. B.'s" total income does not exceed £1,000, and 3s. in the £ 11 it exceeds £1,000 but not £1,500. The subscriptions can be deducted if membership of the societies in question is a condition of the employment.

Allowance for Children during Education

"W. M." has two sons undergoing medical and dental training as hospital students. The Inspector of taxes returns to the usual rebate on the ground that they are receiving vocational as distinct from educational training.

* * * We assume that the students in question have not yet qualified—special post qualification training might raise difficult questions. On that assumption we are at a loss to understand

the Inspector's attitude in this case, as it seems at variance with general practice elsewhere. If he adheres to his view we suggest that "W. M." might place the facts before the Board of Inland Revenue sending his communication to their Secretary at Somerset House, W C 2.

LETTERS, NOTES, ETC.

TREATMENT OF UTERINE Sepsis

DR MORRIS KRAFS (Harrogate) in the course of a letter on the treatment of septic uterine conditions (puerperal and non puerperal) writes: By a slight modification of the Remington Hobbs method of preparing the patient and using a bivalve speculum I have been able to treat these cases single handed. The patient lies across the bed on a mackintosh with her buttocks well over the edge and towards the light and keeps her knees on to her chest. The legs are covered from foot to groin with warmed towels or a sheet, and 13 pints of antiseptic solution are poured over the vulva. The inner labial surfaces, etc., are cleansed by widely separating the labia, pouring on antiseptic lotion, and finally placing a sterile pad at the vaginal orifice in such a way that the labia when released will keep it in position. Three bowls (flamed) are required one for swab forceps and swabs soaked in antiseptic (but squeezed fairly dry) another containing the bivalve speculum and Hobbs' introducing "forceps" for antiseptic lotion and the third containing a syringe (with a catheter attached) filled with warmed glycerine. The third bowl stands in a basin containing very hot water to ensure that the syringe and glycerine shall remain warm. The operator after preparing his hands knocks down the vulval swab, introduces the speculum, and cleanses the cervix. He now lifts the syringe from the bowl, expresses air from the syringe and catheter and by means of "introducing" forceps raises the free end of the catheter and passes it to the external os. The glycerine is expelled slowly to facilitate the passage of the catheter within the canal and to cleanse the canal from below upwards, a little to-and-fro play on the catheter allows for the return flow. While the patient is being irrigated she is asked to breathe deeply and regularly with her mouth wide open. If she is in severe pain before the treatment her knees should not be drawn up to the chest, but her feet placed on two chairs widely separated. The operator then kneels between the chairs and needs a head light. I use monsol for sterilizing the vulva, etc., and for my own hands, swabs and instruments.

INITIALS IN THE "MEDICAL REGISTER"

THE General Medical Council recently had an application from a medical man whose second Christian name is "Hannah" to have this name substituted in the *Medical Register* by the initial "H." Presumably he found a female name occasionally gave rise to confusion although there have been many instances in history of distinguished men who generally were godsons of queens or great ladies, bearing female Christian names. But it has never been the custom to allow initials to take the place of names in the *Medical Register*. There were a few such cases many years ago and there is still on the *Register* one practitioner whose second name—not initial—is "C." This gentleman, on being written to by the Registrar replied that "C." was his second name so written on his birth certificate and on his diplomas and in these circumstances the Council had no option but to enter it as such on the *Register*. The applicant who wanted to diminish the name "Hannah" to its first letter however, was informed that the Council could not allow the initial to appear but that on complying with the prescribed requirements the second name could be deleted.

AN APPOINTMENT BOOK

WE have received from Messrs John Bale Sons and Danielsson Ltd 83, Great Titchfield Street, W 1 a copy of their *Dental Surgeon's Daily Diary and Appointment Book* for 1929 which enables appointments to be booked for each half hour during the day. Every page opening shows one week. The diary also contains pages for cash entries and an almanack, etc. The price is 7s 6d, or interleaved, 9s 6d.

MIRROR WRITING

MISS M. L. SPACKMAN (Clitheroe Lancashire) writes: Your readers may be interested to hear apropos the article published on December 1st that mirror or looking glass writing is practised more commonly than is usually supposed. Occasionally the more harm accrues of schoolgirls learn it deliberately as a "secret society" method of communicating with each other, and I know a woman of 40 who learned it in this manner and still uses it on postcards even to friends who can read it only through a mirror.

CHRISTMAS MOTORING

THE Automobile Association road patrols will not be on duty in England, Wales, and Ireland on Christmas Day. During the rest of the holiday season the A.A. patrols road service outfits, and night service outfits will continue as usual.

VACANCIES

NOTIFICATIONS of offices vacant in universities, medical colleges and of vacant resident and other appointments at hospitals will be found at pages 37, 38, 39, and 42 of our advertisement columns and advertisements as to partnerships, assistantships and locum tenencies at pages 40 and 41.

A short summary of vacant posts notified in the advertisement columns appears in the Supplement at page 276.

An Address

ON

THE DIAGNOSIS OF CANCER OF THE STOMACH.*

BY

WILLIAM GORDON, M.D., F.R.C.P.,

CONSULTING PHYSICIAN TO THE ROYAL DEVON AND EXETER HOSPITAL,
AND TO THE WEST OF ENGLAND EYE INFIRMARY

WITH the knowledge at our disposal cancer of the stomach should often be diagnosed earlier than it is. In the following epitome of the subject I have tried to give just the indications which are certainly useful and to avoid unnecessary repetition.

Practically all clinically discoverable gastric cancers are primary, and almost all are carcinomatous. Gastric sarcoma is a rare disease, probably not accounting for more than 5 per cent of the cases, and, although possible at any age, is only to be seriously considered in patients under 30. It may grow to a very large size, which should be suggestive of its nature. Clinically discoverable secondary cancer I have never met with.

FACTORS IN THE DIAGNOSIS

Let us consider first the chief factors in the diagnosis of primary gastric cancer.

Frequency, Age, and Sex

Cancer of the stomach is now the commonest of all cancers in this country, therefore we must always be on the look out for it. The slight difference in its incidence in males and females is quite unimportant. It is commonly said to be most frequent between the ages of 40 and 60, and that is a very misleading statement, for that is only true of the population at large, and is quite untrue of the patient. The liability to gastric cancer (according to the figures of the Registrar-General) rapidly increases, both for men and women, up to 75, after which it slightly decreases for men and slightly increases for women.

Duration of Symptoms

The disease varies widely in duration, more widely than do most cancers. Some cases, especially in younger people, end within three months. A few last over two years, a very few indeed perhaps to four years. The average duration from the onset of symptoms may perhaps be put at about a year. Symptoms which have lasted more than eighteen months, unless then associated with wasting and cachexia, are unlikely to be due to cancer. Yet once I have seen a woman, stout and rosy, with symptoms which had not varied for two years, who was found at operation to have an extensive carcinoma of the stomach. It is worth while remembering that pyloric growths are more apt to last long than growths further to the left.

Predisposing Conditions

Gastric ulcer sometimes becomes the seat of gastric cancer. A curious difference of opinion has arisen in late years with regard to the frequency of this sequence. The older observers were unanimous that it was unusual. Suddenly someone launched the idea that it was quite common—that as many as 70 per cent of gastric cancers were preceded by a clear clinical history of gastric ulcer. Now, however, an abundance of evidence—clinical, pathological, and radiological—has been accumulated, proving conclusively that the older view was right. The explanation of the mistake would appear to have been faulty pathology. It is, in fact, an important clinical truth that most patients with gastric cancer have not previously suffered from any sort of serious gastric disorder, so that when an elderly person begins to suffer, for the first time in his or her life, from "indigestion," the possibility of cancer of the stomach should at once occur to one's mind.

Heredity counts. When a single case of cancer has occurred in a patient's family too much stress should not be laid upon it, but when several cases have occurred in near relatives we ought to be suspicious.

Locality also counts. When a patient comes from a locality in which cancer is rife—there are such localities—we should be additionally cautious in deciding against cancer.

Significant Symptoms

In rare cases gastric cancer is "latent" in one or other of three ways. Either (1) all characteristics are absent, most often in old and feeble persons, or (2) gastric symptoms are replaced by symptoms either of cachexia or of some complication or intercurrent disease, or (3) gastric symptoms are masked by those of secondary deposits in other organs.

The onset may be either insidious or almost sudden—actually sudden when it takes the form of a hæmorrhage.

The significant symptoms are "indigestion," anorexia, weakness, wasting, anaemia, pain, vomiting, hæmorrhage, tumour, tenderness, fever, offensiveness of breath or vomit, diarrhoea, dysphagia, enlarged supraclavicular glands, oedema of the feet, thrombosis of veins. The "cardiac sign" should always be looked for, and, where there is the slightest chance of radical removal, the x rays, test meals, and search in the stools for "occult blood" should be matters of routine. I will take these in order.

"Indigestion."—Discomfort after meals, fullness, weight, nausea, flatulence, pyrosis, none of them in themselves characteristic, become suspicious when arising for the first time in a person over 40, and still more so when the age is greater. The tongue may be clean or furred.

Anorexia.—Anorexia is one of the earliest symptoms in about 30 per cent of the cases, and sets in sooner or later in 80 per cent. Sometimes ment is especially disliked. Once anorexia begins it generally goes on to be absolute. When present it is highly suggestive of cancer. In a recent paper Dr Villandre says "Carcinoma has been found in practically every case in which there has been aversion from food." Nevertheless there are cases in which the appetite remains excellent.

Weakness.—Weakness which cannot be accounted for is often an early sign, and, when clearly in excess of what the apparent "indigestion" and other conditions present account for, is suggestive. Some loss of weight and anaemia will generally be found as well, if looked for. In cases of "senile heart" it is not sufficiently well known that an unaccountable rapid breakdown of compensation, previously good, may be caused by the superimposition of carcinoma in some abdominal organ.

Wasting.—It is important to remember not only that wasting may be very slight at first, but that treatment may cause a considerable gain in weight, and for a considerable time. A change of diet, combined with washing out of the stomach, has been known to produce a gain of 19 lb, a cheering error of diagnosis has been followed by a gain lasting for three months, and (a curious circumstance still unexplained) an exploratory operation, in which the cancer has been found, has apparently been the cause of an increase of 63½ lb during four months. Sooner or later, however, wasting makes its appearance, and, though it may have been checked for a time, returns and progresses, and thus return is in itself suggestive. Wasting is most marked when an orifice of the stomach is involved. Often the abdomen is first affected, then the breasts, neck, and face. The skin tends in time to become loose and inelastic. Inquiry should, of course, be made as to whether the loss of weight can be fully accounted for by the taking of too little food, since that would deprive it of its special significance. Also the urine will, of course, have been examined for sugar and albumin, tubercle and all causes of fever will have been excluded, and Graves's disease (which may cause surprisingly rapid loss of flesh) proved absent.

A rapid rise in weight in cancer of the stomach may be due to the onset of (1) ascites, (2) pleural effusion, or (3) a rapid and extensive secondary cancer of the liver.

Anaemia.—Anaemia may be of any degree up to producing an appearance which may closely resemble that of pernicious anaemia. But the characters of the blood are

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those of secondary anaemia, and the failure of treatment, now so successful in pernicious anaemia, would distinguish. Possibly the diseases may occasionally coexist.

Pain—The most important points to remember about pain in gastric cancer are (1) that about 13 per cent of the cases are painless throughout, (2) that pain is present at the onset only in about 33 per cent of the cases, (3) that although at first usually occurring only after food, it tends later to become continuous, and to be not greatly worse after food nor much relieved by vomiting, (4) that recumbency may increase it, (5) that food sometimes relieves it, (6) that it becomes severe at some time or other in nearly half the cases, and that (7) lastly, according to Fenwick, it is apt to be accompanied by a remarkable irritability and restlessness, which he considers suggestive. The characters of the pain are usually not very helpful, but in a recent case I observed the occurrence of the sort of pain which the late Mr. Maimaduko Shield believed to be characteristic of cancer in breast tumours—namely a "sharp, sudden twinge or shoot like an electric shock or the prick of a needle."

Vomiting—Vomiting, like pain, is absent throughout in about 13 per cent of the cases, but it is very rare for both pain and vomiting to be absent together. Vomiting is less often an early symptom than pain, although it is sometimes present at the onset. Frequent vomiting is usual in the later stages, it is often a special feature of diffuse cancerous infiltration of the stomach—so-called "leather-bottle" stomach—which contracts its own cavity as it grows. Vomiting at considerable intervals—such as once in two or three days—of large quantities of dark brown, sour-smelling, frothy liquid is, on the other hand, indicative of gastric dilatation, which may be due to cancer, in this lost condition food eaten days, or even weeks, previously may be found little altered in the vomit.

Haemorrhage—Bleeding may show itself by haematemesis, melaena, or by "occult blood" in the faeces. Haematemesis only occurs in about 33 per cent of the cases, melaena still less commonly, although some amount of bleeding into the stomach probably takes place in every cancer. "Occult blood," therefore, should always be looked for where the diagnosis is in doubt and successful operation is possible. When found, it means at least some form of organic lesion of the stomach. When constant it is strongly suggestive of cancer. When haematemesis occurs it is generally slight and looks like coffee-grounds. In only about 10 per cent of gastric cancers is there a considerable bright red bleeding, such as is so common in gastric ulcer. But such a sudden gush may, in rare cases, be an early symptom. In about 1 per cent haematemesis may be immediately fatal. At a late stage of the disease, when the patient has become very feeble, a serious haemorrhage may only produce syncope and collapse, without vomiting.

Tumour—A tumour is discoverable sooner or later in about 75 per cent of the cases, and it is possible that this proportion might be even greater if examination of the abdomen under an anaesthetic were more often carried out. It is courting failure to delay operation until a tumour is evident, though it is important to remember that a discoverable tumour does not necessarily mean that a successful operation has become impossible. In connexion with the subject of tumour it is desirable to recall the proportions in which different parts of the stomach are affected by cancer. They are as follows:

Pylorus	about	60 per cent
Cardiac orifice	10	
Lesser curvature	10	
Whole stomach	6	
Posterior surface	5	
Greater curvature	3	
Anterior surface	2	
Fundus	1½	

Multiple growths occur in about 3 per cent. Of the various growths pyloric cancers are palpable in about 70 per cent of the cases, growths near the cardiac orifice only in about 50 per cent, since they lie under the ribs and liver, those on the anterior surface and the curvatures in about 80 per cent, whilst those on the posterior surface are usually not palpable at all. We must remember also that a large soft growth may be absolutely under the hand palpating the abdomen and yet be impossible to feel. I

have seen such a growth at operation, its presence had had to be diagnosed without feeling it.

It is also desirable to recall the frequency with which various regions of the abdomen are seats of tumours, thus:

Epigastric and umbilical regions, each about	33 per cent
Hypochondriac regions, right or left each about	16 per cent
Hypogastric region (always pyloric tumours) about	2 per cent

A tumour may rarely be the first sign of trouble. Alas, a tumour may be palpable and diagnostic whilst the patient is still in good general condition. It is necessary to repeat, because so often forgotten, that a tumour which cannot otherwise be felt may often be felt easily under chloroform.

The size, shape, and consistence of the tumour vary greatly. At the pylorus the tumour is generally small, oval, or tubular, firm and sometimes nodular, but matting or infiltration of surrounding structures may alter its character. Elsewhere the masses felt may be soft or firm, regular or irregular in shape. The tumour is often visible as well as palpable. It moves with respiration and can be moved with the hand, often remarkably freely, especially a pyloric tumour, which may be sometimes moved several inches in every direction, unless fixed by adhesions, although it is unwise to assume the absence of adhesions because the movability is fairly free. Pyloric tumours are those which are most often found near the umbilicus—a little above and to the right of the umbilicus is a common position for them. Gas may be sometimes felt to bubble through a pyloric tumour. Cancer of the whole stomach is apt to form an oval or elongated tumour projecting into the epigastrium from under the left ribs with a well-defined lower and an indistinct upper border; this tumour tends to diminish in size as the cancer gets older.

Some tumours only descend from beneath the ribs, *when a deep breath is taken*, so that it should be an invariable rule to ask for such a breath to be taken. Gastric tumours are generally dull on light percussion and resonant on more forcible percussion. A gastric tumour may decrease in size, or even disappear, when extensive sloughing has occurred or when a fistula has formed.

Fever—Fever, like haematemesis, occurs in about 33 per cent of the cases at some time or other. This is often forgotten, and mistakes are made in consequence. I have drawn attention to this source of error, in cancer generally, in a former paper.² In about half the febrile cases the fever is continuous. Chills, headache, and pains in the limbs may be observed, and the temperature sometimes reaches 102° F. or 103° F., though usually only 100° F. or 101° F. Perigastric suppuration is present in some of these febrile cases, and should always be looked for. Considerable leucocytosis of polymorphonuclears would suggest pus.

Offensiveness of Breath and Vomit—These are specially present when gastro-colic fistula has occurred, when the odour may be actually faecal. But offensiveness may occur in absence of fistula, and is suggestive of cancer.

Diarrhoea—This may occur from time to time, and is doubtless due to gastric fermentation. It may be early.

Dysphagia—Dysphagia may occur when the growth is at the cardiac orifice. Then the x-rays should help.

Enlarged Suprarenal Glands—These are quite rarely found. But I remember a case, seen many years ago, where such glands were conspicuous, and formed a chain in the neck, diminishing from below up, they supplied a valuable aid in the diagnosis, the cancer was the most rapidly growing and widely disseminated gastric cancer that I have seen. I refer to it because in Vienna I have found a tendency to deny altogether the value of this "Virchow's gland." Care must, of course, be taken to exclude other causes for the presence of these glands. Their absence has no significance. Obviously this is a late symptom.

Oedema of the Feet—This, in absence of any other cause, should add to the suspicion of malignancy. It is a late symptom.

Thrombosis of Veins—It has been asserted by some German writers that, when the diagnosis of cancer is in doubt, the appearance of thrombosis of veins anywhere makes cancer probable.

"Occult Blood" in the Stool.—The finding of "occult blood" in the stool, if constant, is most suggestive of cancer. Three days of abstinence from all food containing either haemoglobin or chlorophyll must precede the examinations.

Test Meals

The examination of the fasting gastric juice is often essential. The points to be laid stress on are (1) absence or marked diminution of free hydrochloric acid (absent, however, also in some cases of gastritis, in gastric atony, in pernicious anaemia, and in acro-osteitis), (2) presence of lactic acid, (3) foul odour, (4) blood, (5) pus, (6) fragments of growth, and (7) sarcoma in pyloric obstruction. The absence of free hydrochloric acid is very suggestive of cancer, the presence of lactic acid has recently been claimed to be pathognomonic of cancer by Professor Civen Moore and Dr. Roberts, dealing with 22 cases.² It will be most important to confirm this conclusion by a larger number of cases and to determine how early the acid can be discovered. Fragments of growth are conclusive, but are very rarely found.

X Rays

These are of the utmost value in many cases, and when available should invariably be used. But there is no doubt that they sometimes mislead, much, however, depends on the skill of the radiographer. The fact is that here, as in so many other instances, the findings of every method must be correlated with those of every other. In the case of the plump rosy woman here alluded to in the X rays, in the hands of my colleague Dr. Miller Muir, declared unreservedly for cancer. Details of X ray work are outside my province. Dr. Spriggs's valuable recent paper should be carefully read.³ Dr. Mayers's "slow cinematograph camera" seems a most useful advance.

The "Cardiac Sign"

I described this sign in 1903, and twenty five years' experience has only confirmed my original estimate of its great value. It is almost pathognomonic of carcinoma. The only other conditions capable of producing it besides carcinoma are (1) starvation, and (2) severe diarrhoea. These two conditions must, therefore, be always borne in mind when looking for it. It is curious that this sign is usually absent in sarcoma, just as wasting is often absent in the early stages of sarcoma.

The sign consists of a remarkable diminution, which may go on to complete disappearance, of the deep cardiac dullness in the recumbent posture, when there is nothing else to account for it. When the question of carcinoma of some internal organ has arisen, if the recumbent cardiac dullness is found to measure only 1½ inches or less across, instead of the normal 3 to 3½ inches—it is often reduced to the size of a postage-stamp—in the absence of true emphysema as shown by good chest expansion, or of any other chest disease, which could either draw the heart backward or cover it with lung, the odds in favour of the existence of cancer are about 4 to 1, whereas if the recumbent cardiac dullness is of normal width (in the absence of cardiac enlargement or of any chest condition which could either hold the heart forward or retract the lung) the odds are about 4 to 1 against cancer being present. This sign is commonly accompanied by a remarkably feeble pulse and feeble heart sounds.

This "cardiac sign" is apt to be conspicuous in gastric carcinoma cases, and it is rather absurd of people, who cannot make it out, to speak disparagingly of the resources of medical diagnosis. It may be, moreover, an early sign of cancer. I remember a case of cancer (it was of the sigmoid, however) twenty years ago, in which my friend Mr. Russell Coombe and I had made an early diagnosis, and had asked a well known London surgeon (since dead) to operate. He said, "But you cannot diagnose cancer on such slight grounds." We replied that the diagnosis was made, and that we should be obliged if he would accept it. He did, the cancer was found and removed, and the patient is still alive. Another case affords a useful contrast to this. A friend, who had convinced himself of the value of the cardiac sign, sent an early case of ulcerine carcinoma to a gynaecologist of note, and, as he expressed it, "had the

floor well wiped with himself", later the gynaecologist apologized, but operation had then become impossible.

I would suggest the following explanation:

1 The heart tends to become small in carcinoma cases (brown atrophy).

2 The lungs tend to develop a spurious emphysema (Crawford), which I find can be distinguished from true emphysema by the normal expansibility of the chest—a condition perhaps due to a loss of elasticity in the lungs, analogous to the loss of elasticity in the abdominal skin often seen in cases of abdominal carcinoma.

3 The heart muscle doubtless becomes flabby like the skeletal muscles in cancer cases.

4 The small feeble pulse suggests an imperfectly filled vascular system.

In recumbency such a heart should tend to drop back under the anterior chest wall and allow such lungs to overlap it.

Sites of Secondary Growths

Certain sites of secondary growths are worth remembering, as influencing diagnosis. 50 per cent occur in the liver, 35 per cent in the peritoneum and omentum, 19 per cent in the pancreas, and about 10 per cent in the lungs and pleura. Consequently we find, sooner or later, *jaundice* in about 15 per cent of the cases, *ascites* in about 25 per cent, and *pleural effusion* in about 10 per cent. The secondary affections which chiefly tend to mask the primary cancer are cancer of the liver and *ascites*. About 25 per cent of cases of liver cancer are secondary to stomach cancer, and gastric cancer is perhaps the commonest cause of peritoneal cancer.

Other secondary growths occasionally useful in diagnosis, are *skin nodules*, like small tubercles freely movable under the skin. These when microscoped give the diagnosis of cancer, but when very small, unless most carefully examined, may be mistaken for mere lymphoid tissue. Growth in bone may be thought to be "rheumatism", here the X rays can clear up the diagnosis, but bone secondaries are not nearly so common in gastric cancer as in prostatic cancer.

Complications

The occurrence of certain complications not already dealt with must be borne in mind, in order to avoid the mistakes which their presence might cause, such as *General peritonitis*, which occurs in about 3 per cent of the cases and has been recorded as the first indication of the cancer. A *gastric perforation* into the general peritoneal cavity is a rare event. *Perigastric abscess* also occurs in about 3 per cent, and may be sub-phrenic, epigastric, hypochondriac, or umbilical. *Gastric fistula* is found in less than 3 per cent of the cases, usually between stomach and transverse colon, extremely rarely between stomach and small bowel or skin. *Nephritis* may coexist or arise in the course of the disease. *Pneumonia* is an occasional cause of death (6 per cent). *Melancholia*, which may be suicidal, occurs rarely. *Cerebral or spinal symptoms* arise in about 1 per cent of the cases. *Tetany*, *purpura*, and *epilepsia* are all extremely rare. *Phthisis* may coexist, though very seldom, a fact worth remembering. Extension of growth may, in rare cases, set up abscesses in liver, spleen, or kidney.

SOME DISEASES WHICH SIMULATE CANCER

Non cancerous causes of loss of flesh have been already referred to. Blood diseases such as pernicious anaemia, the anaemia of ankylostomiasis, and leucocythaemia, can only be confused with malignant disease by a careless investigator. The commonest difficulties seem to arise in connection with chronic gastritis, gastric and duodenal ulcer or their sequels, hepatic cirrhosis, gastralgia. I will take these in order. The points already dealt with I shall repeat as little as possible.

Chronic Gastritis.—It is from chronic gastritis that the diagnosis has most often to be made, and it is often very difficult in the early stages. Under 30, unless there were a gastric tumour, cancer would not be thought of. But over 40 it should always be thought of, when gastric symptoms arise for the first time. I cannot too strongly

uige the value of the "cardiac sign" in these cases, and of the necessity for the search for "occult blood," and for x-ray investigation

Gastric or Duodenal Ulcer or their Sequels—Apart from the uncommon cases in which cancer supervenes in ulcer, there is usually less difficulty here than with chronic gastritis, for cancer is rare at the earlier ages when ulcer is most common. The duration of ulcer is often much longer than that of cancer, and the symptoms tend to disappear and to recur. Pain in ulcer is usually more severe than in cancer, but less continuous, more aggravated by food, more relieved by vomiting. Appetite in ulcer generally remains good, although the patient may refrain from eating for fear of causing pain. Tenderness over the lesion is apt to be greater in ulcer, although it is a mistake to say (as has been said) that there is no tenderness over a cancer. Vomiting in ulcer is commoner and more regularly associated with meals, and haematemesis is more often profuse and occasional, with perhaps a history of similar haemorrhages some years before. The tumour of an old ulcer may increase the difficulty, and it is important to remember that, even at operation, the nature of the mass may only be determinable by microscopy of an excised portion. I remember a case of another inflammation (not irrelevant) of the pancreas where, at operation, an able surgeon thought we had made a mistake in diagnosis so firm was the mass found and so extensive, but the microscope showed only chronic inflammation, and the recovery of the patient confirmed the microscopy. Except in late and long-lasting cases of ulcer the weakness and wasting are not comparable to those of cancer. Special difficulty arises in cases where cancer has supervened on ulcer, because then the test meal shows a normal or excessive proportion of free hydrochloric acid, as in ordinary ulcer. It should be borne in mind that duodenal cancer is very rare. In some of these cases the x rays render valuable service. Sometimes exploratory operation is indicated, even apart from the question of possible malignancy, as in hour-glass stomach, pyloric stenosis, etc.

Hepatic Cirrhosis—It is sometimes difficult to distinguish the haematemesis of hepatic cirrhosis from that of gastric cancer, and where jaundice or ascites or both coexist the difficulty is increased. The history helps, when we can get it. The sallow faces of cirrhosis, with venous varicosities, are different from the anaemia and thinness of cancer. But there is often wasting in cirrhosis, and cirrhosis may exist without a characteristic faces. The spleen is often enlarged and can be felt in cirrhosis, whereas in cancer the spleen, unless it is involved in the growth (which is rare), cannot be felt. Haematemesis in cirrhosis is apt to be profuse and "coffee-ground," and to occur when there is no loss of flesh. The appearance of toxæmia, such as occurs in hepatic cirrhosis, may decide in favour of cirrhosis. "Hepatic deficiency tests" do not seem to be of much service at present.

Castralgia—This should only be diagnosed when organic disease has been most carefully excluded. I cannot recall a case in which it has caused difficulty, but it is mentioned by others, so I refer to it.

Some Other Tumours

Cancer of the Colon—History, symptoms, and x-ray examination should make the diagnosis plain. Also the direction of visible peristalsis, when present, should distinguish. I remember a case, seen many years ago, before the advent of the x rays, in which visible peristalsis from left to right led me to diagnose gastric cancer, but where the surgeon, summoned from a distance, operated for a colonic growth and found himself wrong.

Cancer of the Head of the Pancreas—Here we have to guide us a fixed tumour (if it be palpable), rapid wasting, white stools without jaundice, or jaundice with enlargement of the gall bladder, together with the diastase reaction, results of estimation of faecal fat and its character, the copious stools, and the microscopical finding in the motions of still striated muscle fibres. It would be also worth looking for possible sugar in the urine (unusual), and to use Cambridge's test and Iodine's test (adrenalin dropped into the eye).

Tumour of the Omentum—A pyloric cancer may simulate this. As I have pointed out in another paper,² the commonness of pyloric cancer as compared with the rarity of omental cancer will help us. But the x rays should be our best guide to a certain diagnosis. The same means of examination should distinguish pyloric cancer from the rather large list of tumours of other organs, which it may simulate in its surprising variety of location in the abdomen.

Simple Gastric Tumour—When such is clinically discoverable exploratory incision will be necessary and will decide.

Lian-ball in the Stomach—This is a possibility not to be forgotten in a hysterical person, and we should ask for a history of lian-swallowing.

Faeces in the Colon—Faeces in the colon may closely simulate a gastric tumour. If the mass can be unmistakably indented with the finger (very rare) then the presence of faeces cannot be doubted, but it is well to remember in such a case that there may also be a growth in the colon causing the faecal obstruction. Generally we must rely on the use of aperients and enemata, together with the x rays, to arrive at our diagnosis.

Aneurysm—Error is easier to make than one might imagine. Expandable pulsation, if found, is distinctive. The x rays may decide.

Gumma—The main thing is to remember it. I have diagnosed such a tumour and watched it disappear under iodide and mercury.

IN CONCLUSION

Four points must never be forgotten in dealing with a case of possible gastric cancer—namely

1 "It is never justifiable to open the abdomen as the sole means of making a diagnosis" (Walton).⁴

2 It is never justifiable to refrain from advising laparotomy when there is reasonable hope of successful radical removal if the general health permits.

3 The diagnosis must be arrived at by a joint use of clinical, radiological, pathological, and, if necessary, surgical means. And the greatest of these are the clinical, because they are the earliest to suggest.

4 "Dyspepsia" is not a diagnosis.

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THE SCOPE OF CAESAREAN SECTION.

AN ANALYSIS OF 295 CASES OF THE CLASSICAL OPERATION.*

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THE scope of Caesarean section is a subject of considerable importance, it is one which it might be possible to discuss, and about which there is some diversity of opinion.

We know that in a certain percentage of cases natural delivery resulting in the birth of a living child is an impossibility, and numerous expedients have been introduced to deal with such cases, none of them absolutely satisfactory or entirely free from danger. The induction of premature labour, prophylactic version, symphysiotomy and pubiotomy, high forceps delivery, all have or have had a vogue, and have been, in skilled hands, more or less successful. Each method, however, presents certain disadvantages. The induction of premature labour, if en-

* Read before the Leeds University Medical Society on November 6th, 1928.

marked upon sufficiently early for a living child to come through a high degree of contracted pelvis, will probably result in the birth of an infant which is weakly and unlikely to survive. Prophylactic version is by no means universally successful, and symphysiotomy and pubiotomy are often maiming and dangerous to the mother from sepsis and from lack of union. A high forceps operation, except in very skilled hands, is an extremely dangerous operation for the mother and is often fatal to the infant. This leaves us with the alternative of craniotomy or Caesarean section. In craniotomy the sacrifice of the child is obligatory, and this is not only repugnant to most obstetricians, but is also an operation by no means devoid of danger to the mother when she is in a state of shock and collapse. It is often difficult and requires prolonged anaesthesia. Caesarean section is the alternative left to us, and we have to consider under what conditions it is a safe operation, and whether in cases where it has hitherto been regarded as unjustifiable any technique can be introduced which will give better results.

The first authentic Caesarean section was probably performed in 1610 by Trautmann of Wittenberg, but for nearly two hundred years the mortality was over 50 per cent., as no sutures were used in the uterus and the patients died from haemorrhage and sepsis. In 1876 Poirro introduced the modification of amputating the body of the uterus and bringing the cervix into the lower angle of the abdominal wound. This operation was fairly successful, but was necessarily a destructive manoeuvre and necessitated a prolonged convalescence. It remained for Sanger in 1882 to introduce the employment of sutures for the uterine incision which made a conservative operation possible. Sanger's operation—known as the classical one, and of which the technique has been very slightly modified since he introduced it—presented certain disadvantages in cases which had been exposed to infection, which had been long in labour, and where other methods of attempted delivery had been tried. Deaths from septicaemia were only too common.

As an improvement, in 1907 Frank introduced a new method—namely the lower segment operation. A transverse incision was made through the lower abdominal wall and the peritoneum was separated from the bladder and from the lower uterine segment, which was then incised, the child delivered by forceps, the placenta removed and the incision closed—the whole operation being extraperitoneal. Though the operation was enthusiastically received it was found that the peritoneum was often torn, and Krönig proposed a modification—namely, the transperitoneal. He opened the abdomen by a median incision and separated the peritoneum from the lower uterine segment, which was then opened by a median vertical incision. These operations have been done scarcely long enough to show whether they are really satisfactory. The proximity of the wound to the vagina is disadvantageous since infection is more likely to occur. The spread of infection in cellular tissues is difficult to control, and it remains to be seen whether the scar in the lower uterine segment will stand the strain of pregnancy or a possible subsequent labour better than one through the muscular tissue of the upper uterine segment.

Vogt has recorded a series of 76 cases of lower segment operation with only 2 maternal deaths, and Küster 55 suspect cases with no maternal death. It must be borne in mind, however, that this operation is more difficult, and it is not yet clear whether there is more or less risk of rupture of the scar in a subsequent pregnancy.

There is no doubt that the classical operation is an easier one, and if it can be performed safely is the one which commends itself to the majority of operators. The advantages are its simplicity, the easy delivery of the child, and the lessened haemorrhage due to the retraction of the muscular wall of the upper segment.

Indications

In the time of Sanger the only indications were a contracted pelvis of high degree or a tumour which made natural delivery an impossibility. In 1898 Lawson Tait suggested Caesarean section for the treatment of placenta

maxim—an innovation which was regarded almost with horror by the conservative obstetric physicians of his day. Since then the indications for Caesarean section have been gradually widening, until at the present time the borderline in contracted pelvis between vaginal delivery and abdominal section lies about a true conjugate of $3\frac{1}{4}$ inches.

Severe eclampsia, accidental haemorrhage, and other toxæmias, an impacted oblique lie, ventroflexion, a rigid or atretic cervix, a narrow vagina in an elderly primigravida, a breech presentation with extended legs in a primigravida, a large child, a brow presentation, a tight contraction ring, serious cardiac disease, pulmonary tuberculosis, or severe bronchitis in the mother—all these have become indications in varying degrees together with other rarer and more unusual conditions. It became obvious that this extension of the scope of the operation presented grave dangers. The classical operation is an easy one and presents no surgical difficulties, and there is no doubt that it began to be employed occasionally in unsuitable cases. Not only is the operation dangerous unless performed with extreme care under proper conditions—for there is the immediate risk of sepsis in a suspect or potentially infected case—but also there is the ultimate risk of a weak uterine scar which may rupture in a subsequent pregnancy.

In 1911 Routh made an inquiry into the results of Caesarean section for contracted pelvis in patients operated on between the years 1891 and 1910. He found that although the mortality in clean cases was between 2 and 4 per cent., in the potentially infected it rose to between 10 and 35 per cent.—not much better than in 1882, when it was over 50 per cent. In 1921 a further series of 4,000 Caesarean sections was investigated by Muir Kerr and Cardley Holland, from hospital statistics in Great Britain and Ireland. Among 3,374 operations for contracted pelvis the mortality in early cases was found to be about 18 per cent. but late in labour and after induction of labour and attempts at delivery it was between 10 and 26 per cent. It was clear that in the suspect case Caesarean section was unjustifiable unless the technique could be improved.

Certain obstetric surgeons have been able individually to present lists of consecutive clean cases with no death—namely, Bar 95 and Schauta 125. But Bar specifically stated that he had most carefully rejected any potentially infected cases, which were dealt with by craniotomy. In Schauta's list of 76 cases of craniotomy on living children the maternal mortality was 1.3 per cent., in craniotomy a dead child there was a maternal mortality of 6 per cent.

The problem before us, therefore, is so to improve our technique that we can operate on the potentially infected case with a risk as low as, or lower than, with craniotomy. The chief danger to be avoided is the spread of sepsis with death from general peritonitis, septicaemia, pulmonary embolism, or septic pneumonia, and it is necessary to think out measures by which we can increase the resisting power of the patient, hunt the infection and aid elimination of toxic products, while at the same time it is essential to obtain a firm uterine scar.

My own technique for suspect cases is one which I adopted after a large experience of the treatment of infected war wounds, where the infecting agents were similar to those attacking the placental site—namely, the haemolytic streptococcus, the *Bacillus coli*, the *Staphylococcus pyogenes aureus*, and, in rare instances, anaerobic organisms such as the *Bacillus aerogenes capsulatus*. I have found this technique successful, and believe that its adoption may help to improve matters very materially.

I propose to give, therefore, a brief account of 295 cases of Caesarean section which have been under my care in hospital and in private during the last nine years, and which have been operated upon either by me or by my assistant surgeon Miss Ruth Nicholson, to whom I am much indebted for her able co-operation and assistance. During this period no craniotomy has been performed when the foetal heart has been heard, and no selection of the cases has been made. A classical Caesarean section has been done in all cases, clean or suspect, even if the patient had been long in labour with ruptured membranes, or if repeated examinations had been made, induction of premature labour performed, or forceps delivery attempted.

Technique for Suspect Cases

The patient is prepared for operation in the usual manner, but no attempt is made to sterilize the vagina. Open ether is employed as an anaesthetic. As rapidity of operation is imperative the classical operation has been invariably performed. The incision is made slightly to the right of the mid line, and the right rectus muscle drawn outwards, so that it will overlap the peritoneal incision. When the abdomen is opened a large gauze dach is placed in the upper angle to protect the intestines. The obliquity of the uterus is corrected and the abdominal wall is pressed firmly against the uterus by the hands of an extra assistant, who helps to push out the uterus as the child is extracted, so that no contaminated liquor amnii enters the peritoneal cavity when the uterus is opened. Large gauze swabs are placed behind and round the uterus, and the placenta is delivered through the uterine wound, all adherent membrane in the lower uterine segment being removed by a swab wiped out of warm saline. The uterus is stimulated to contract and retract by the injection of 5 units of pituitin and 1/100 gram of ergotin, administered when the uterine incision is made. If given too early the uterus contracts so firmly that accurate coaptation of the cut muscular surfaces is difficult. If there is excessive bleeding the uterus is massaged and compressed manually with swabs wiped out of hot saline. In making the incision care is taken to keep above the lower uterine segment, where the bleeding is difficult to control. The uterine incision is then closed by interrupted sutures, an ample bite of muscle being taken with a large curved needle, but the decidua is avoided, so that there is no obvious channel of communication between the infected uterine surface and the peritoneum. No 3 Van Horn twenty-day chromicized catgut is employed for the interrupted sutures, and No 2 for a continuous suture which brings into apposition the peritoneal and superficial muscular layers on each side of the incision, so that the knots of the interrupted sutures are completely buried and a smooth surface is left. The continuous suture is made firm by taking a back stitch at intervals so that no gaping openings are left. With repeated Caesarean sections this method entails the narrowing of the anterior uterine wall quite considerably. I have never done more than four on the same patient. The lower abdomen and uterus are swabbed over with warm saline and the omentum is drawn over the uterine incision. A large rubber drainage tube is placed in the cave of Retzius and fixed in the lower angle of the incision. The abdominal wound is closed by a peritoneal catgut suture and interrupted silkworm gut to include skin and rectus sheath, 20 ounces of rectal saline are administered with the table in the Trendelenburg position, while 10 or 20 ccm of a reliable antistreptococcal serum are injected subcutaneously. Care is taken by compressing the uterus to expel clots per vaginam. The lower abdomen is very firmly bandaged. Specimens of urine, liquor amnii, and placenta or membranes are secured for immediate bacteriological investigation. The Fowler position is adopted. Ten ounces of rectal saline are given every four hours, and the early evacuation of flatus is secured by a turpentine enema on the following morning, and a daily injection of 5 units of pituitrin, which also promotes uterine contractions. Pain and sleeplessness are combated by morphine and calomel and salts or castor oil are given early and freely, even to the production of diarrhoea and incontinence of faeces in very septic cases.

Where lacerations of the vagina, cervix or perineum exist from ineffectual attempts at delivery exudation is promoted by a dressing of 10 per cent hypertonic salt solution to which is added an equal part of 1 in 80 carbolic acid. Should the case progress favourably, with normal pulse and temperature, absence of vomiting and distension the drainage tube is removed in forty-eight hours, by which time a large amount of exudate will have drained away. As soon as bacteriological reports are received the appropriate serum, if available, is given or reported.

The technique for clean cases is very similar but the drainage tube and serum administration are omitted.

For purposes of analysis I have placed my cases in groups, as shown in the accompanying table.

GROUP	Total	Puerperium		Maternal Mortality	Fœtal Mortality
		Afebrile	Febrile		
I Contracted pelvis	228				
A Before or early in labour	133	113	25	0	3 Syphilis 1 Spina bifida 1. Promatritia 1.
B Late in labour—after 12 hours and including cases of obstructed labour	59	29	30	0	6 Spina bifida 2. Asphyxia 1. Jaundice 1. Pemphigus 1. Septicæmia 1.
C After instrumental introduction of premature labour by bongles balloon or stomach tube	24	16	8	0	0
D After attempts at forceps delivery	7	3	4	1	2
II (a) Eclampsia and other toxæmias*	11	7	3	1	5
(b) Accidental hæmorrhage (concoiled)	4	0	3	1	4
III Placenta prævia	22	16	6	0	2
IV Other conditions causing obstructed labour					
(a) Fibroid tumours	3	3	0	0	1
(b) Ovarian cysts	2	2	0	0	0
(c) Ventral fixation	1	1	0	0	0
(d) Rigid or atresia of the cervix	8	7	1	0	0
(e) Excessive size of foetus	4	2	2	0	0
(f) Malpresentation	4	2	2	0	0
V Grave diseases affecting the mother					
(a) Cardiac	7	5	2	1	2
(b) Pulmonary (chronic bronchitis)	1	1	0	0	0

* These included pre-eclamptic conditions, pernicious vomiting, severe albuminuria and uræmia.

I Contracted Pelvis

There were 228 cases in this group, they were divided into four subgroups as shown in the table. A typical infected case is the following:

A primigravida aged 41, with flat pelvis and diagonal conjugate of 4 inches was admitted with membranes ruptured seventy-two hours and meconium-stained offensive liquor. The cervix admitted three fingers. The greater part of the head was still above the brim. Foetal heart 160. The patient was yellow, pulse 104, temperature 100° F. By Caesarean section a white and limp infant of 6 lb 4 oz was extracted with a pressure sore over the left parietal bone. It responded to measures of resuscitation. The wound was drained 20 ccm of antistreptococcal serum were given in a continuous saline subcutaneously a pack soaked in hypertonic salt and 1 in 80 carbolic was placed in the vagina and ergotin and pituitrin were administered. The patient vomited a brownish material almost continuously. Her pulse was rapid and temperature subnormal. She was freely purged with calomel and salts the stomach was washed out and a high rectal wash out given. In spite of some temporary incontinence of faeces the patient made a good recovery. From wound and vaginal streptococci were grown freely.

In only one case of obstructed labour did a fatal result occur. The patient was in an exhausted condition after two separate attempts at forceps delivery, and death was due to septicaemia on the eighth day from a *Staphylococcus aureus* infection. The organism was recovered from the blood. The patient had refused a pelvic examination at an ante-natal clinic.

II (a) Eclampsia and Other Toxæmias

Caesarean section was only performed in special cases where other measures had failed.

Case of Eclampsia—A 2 gravida aged 27 was admitted with a history of scarlet fever when a child, influenza during pregnancy and of recent headaches, oedema and blurring of vision.

She was twenty-eight weeks pregnant and had had three fits before admission. Blood pressure 160/110. The urine was solid with albumin. In spite of morphine 1/4 grain and high colonic lavage ten further fits took place in rapid succession. Pulse and temperature began to rise and as there was no dilatation Caesarean section was performed. The child was stillborn. The placenta was small and full of infarcts; both kidneys were enlarged and the intestines were collapsed. While in the Trendelenburg position 30 oz of rectal saline were given and the stomach was washed out on the table. After operation ten further fits occurred; temperature 101° F, pulse 130. There was some right-sided clonic spasm. The urine contained casts, red blood cells but no pus and the eyes showed albuminuric retinitis and flame-shaped haemorrhages. The last fit took place on the following morning and the patient gradually improved and was discharged in good condition.

The one maternal death in this group occurred in a patient who had had no ante-natal care and was sent in comatose after ten eclamptic fits. She did not recover consciousness. No post-mortem examination was allowed, but a cerebral haemorrhage was suspected. The child was alive when the operation was started.

Case of Lethargic Vomiting—Mrs. S. had vomited during the whole course of her first pregnancy. She was jaundiced and began to vomit coffee-ground material. Labour was induced and a living child was delivered with difficulty as the pelvis was extremely small. Her urine contained coliform organisms and the child died on the fourth day from meningitis. Post-mortem there was no sign of injury to the head.

This patient again became pregnant in 1925 and was quite well for the first three months. She then began to vomit almost continuously, was very constipated and was admitted to hospital. In spite of the usual treatment the vomiting continued. Her temperature was 99° and pulse rate 110. The vomiting became haemorrhagic; the patient was comatose, the pulse poor and the urine contained acetone and diacetic acid, a trace of albumin and coliform organisms. Her condition was so serious that I performed Caesarean section although the patient was only about twenty-six weeks pregnant. On opening the abdomen the intestine were found to be collapsed and sticky. A foetus of 3 lb. was removed from the uterus which was dark in colour. The uterus contracted up but did not bleed. Saline 20 oz. was given subcutaneously during the operation and a large rectal saline which the patient was in the Trendelenburg position. The pulse improved and vomiting ceased very soon. The patient did well.

II (b) Accidental Haemorrhage (continued)

Caesarean section was only chosen in these cases when liminitive measures had failed and there was no dilatation of the cervix. Pituitin was administered freely to aid uterine contractions and no hysterectomy was done. The following was the only fatal case.

A 7 gravida was quite well until 3 a.m. on March 31st 1927 when she woke up complaining of abdominal pain. Nurse and doctor were called and morphine was administered. She complained of severe pain and nausea but did not vomit. Varicose veins were present on the right leg. On admission at 5 p.m. the same day the patient presented a toxic appearance and was quite unconscious; the pulse rate was 140, the temperature 96° and the breathing stertorous. The uterus was hard, no foetal heart could be heard. The urine was solid with albumin. There was dilatation of the os admitting three fingers.

A subcutaneous saline was given and Caesarean section performed at 6 p.m. The uterus was discoloured a mure-green. Blood-stained fluid was found in the peritoneal cavity and subperitoneal haemorrhages were present. A stillborn male child weighing 6 lb. 10 oz. was delivered. Three pounds of retro-placental clot had separated the placenta. The uterus contracted feebly and death took place almost immediately after the close of the operation. The liver, kidneys and uterine muscle showed thrombi, coagulation necrosis, and haemorrhages. A right iliac gland corresponding to the ulcerated leg was double the normal size and showed an increased number of lymphocytes. Bacteriologically the urine contained a mixed growth of *Staphylococcus albus* and streptococci, the varicose ulcer *Staphylococcus albus*, and the placenta non-haemolytic streptococci and *Staphylococcus albus*.

III Placenta Praevia

Caesarean section for placenta praevia has only been undertaken in cases where the placenta was central or overlapping, and where the soft parts were rigid. In practically every case vaginal examinations had been made before admission, and one or more severe haemorrhages had taken place. The same technique was adopted as in suspect cases of contracted pelvis. Special care was taken to secure good uterine retraction, as there is always a risk of post-partum haemorrhage especially a trickling from the cervix. This was not noticeable in any of my cases. Of the two foetal deaths in this group one was due to prematurity and the other to repeated haemorrhages.

IV Other Conditions Causing Obstructed Labour

(a) *Fibroids*—There were three cases in this subgroup. Pannystereotomy was performed in all cases, but in one, as the conditions were unfavourable, hysterectomy was deferred for three weeks; the puerperium was however afebrile. The tumours were large in all cases and had undergone necrobiotic changes. In one case where the infant was stillborn, the placenta was situated over a tumour and the child was obviously very badly nourished. In two of the cases the patients were elderly primigravidae, in the third no child had been borne for nineteen years.

(b) *Ovarian Cysts*—In both of the cases in this subgroup the tumours were non-malignant, and one completely blocked and filled the pelvis.

(c) *Uterine Fixation*—In only one case was Caesarean section necessary for a uterine fixation. It was associated with a slightly contracted pelvis, and a craniotomy had been done previously on a dead child for obstructed labour. The uterus was very firmly fixed anteriorly; the posterior wall was sacculated, and the uterus moved up very considerably when the hand was divided.

(d) *Rigid Os, Atresia of the Cervix* (8 cases)—Into this group fall two interesting cases. In one there was almost complete atresia, with a pinhole aperture in scar tissue from which liquor amni triedled. There was a history of a previous prolonged difficult labour associated with acute gonorrhoeal sepsis. In the other the atresia was complete. There had been one forceps delivery, and the patient was admitted after sixty hours of unrelenting pains in an extremely exhausted condition. She was cyanosed, and the pulse was weak and irregular. No aperture could be found, and the liquor was plentiful and clear.

In another case there was uterine inertia from great distension by twins. The cervix was not dilated, and faint liquor came away. Two living children, who survived, were delivered by section and the patient did well after a febrile puerperium due to a *B. coli* infection, which was treated by some potent anti-coliform serum from the laboratory of Dr. Weinberg at the Pastern Institute.

In four cases of elderly primigravidae the operation was performed for a rigid os, assisted in one with a breech presentation, in another for uterine inertia from small fibroids, and in two for occipito-posterior positions.

(e) *Excessive Size of Foetus*—In three of the four cases in this subgroup the operation was performed for obstructed labour. One case was of special interest. The mother had been previously admitted to hospital for obstructed labour due to a double-headed monster—a case of dicephalus dibrachius dipus—which presented as a breech. The second child though excessively large (11 lb. 8 oz.), was apparently normal.

(f) *Malpresentation*—There were four cases in this subgroup: two brow presentations, one face mento-posterior, and one impacted shoulder. The case of impacted shoulder presentation occurred in a multigravida who had had several normal and forceps deliveries. It was a case of flat pelvis. She had not attended an ante-natal clinic for a month and was admitted fully dilated, having strong uterine contractions. Foul liquor amni was coming away, and there was a marked Bandl's ring. A child weighing 5 lb. 10 oz. was delivered alive, and though it was in a condition of blue asphyxia, revived, 20 ccm. of anti-streptococcal serum and drainage were employed, and the puerperium was afebrile. The patient admitted later that she had examined herself, felt the band, and thought something was wrong. She made an excellent recovery and the child survived.

V Grave Diseases Affecting the Mother

(a) *Cardiac*—In these seven severe cases of morbus cordis Caesarean section was undertaken as being the easiest method of delivery. All the patients did well but one, whose death from a streptococcal pelvic abscess and broncho-pneumonia took place a month later. Sterilization had been attempted by incision and section of the tubes, and it was probable that infection started from the cut tube. Unfortunately no drainage and no antistreptococcal serum had been given, as the case was regarded as a clean one, although she had had several previous forceps deliveries.

(b) *Pulmonary (Chronic Bronchitis)*—The patient was suffering from very severe bronchitis and dilated heart. She could not move in bed without distress, and was extremely emaciated. She was given open ether as an anaesthetic, and did well.

RESULTS

(a) *Immediate*—The maternal mortality, taking all 285 cases together, is 13 per cent, a mortality exactly the same as in Schauta's series of craniotomy on 76 living children, and slightly lower than the 1921 report (Laidley Holland) operation death rate for clean Caesarean section—namely, 1.6 per cent. The foetal and neo-natal mortality is 8.5 per cent, which includes all cases of toxæmia, accidental hæmorrhage, and placenta prævia. The longest series of consecutive cases without a death is 157—namely, from Case 14 to Case 171, during a period of rather more than four years. It is noteworthy that many of the operations were performed in an extremely out-of-date and ill-equipped maternity hospital, and that no patient who had received a prophylactic dose of antistreptococcal serum died of streptococcal septicæmia. I think the serum helps to tide the patient over the first few days of the puerperium, when her resisting power is at a low ebb and her immunity in a negative phase. To be really useful it must be given at the earliest possible moment, and I usually give it during the operation. The one fatal case in a contracted pelvis after attempted forceps delivery was due to infection with *Staphylococcus pyogenes aureus*, a very dangerous organism extremely difficult to combat.

(b) *Ultimate*—I have made many inquiries with regard to the after-history of these cases, and have investigated the uterine scar in about 66 repeat cases. In none which have been treated after the method I have indicated have I found any weakness. Often the scar is imperceptible. I see no reason to discard catgut, which I have found quite reliable. In one case, where the operation had been performed for uræmic convulsions, the patient died subsequently with a ruptured uterus, but in this case, owing to a mistake, a bougie induction had unfortunately been performed. A certain number of cases have since passed through a normal labour or forceps delivery safely. Intestinal adhesions do not appear to have given rise to much trouble, but I have myself operated on one case of intestinal obstruction following a suspect Caesarean section after attempted forceps delivery. If the drainage tube is removed early there does not appear to be an excessive risk of hernia.

In conclusion, I think that these statistics show that craniotomy on the living child is an indefensible operation as a Caesarean section on the above lines involves no extra risk to the mother and gives the expectation of a living child. For central placenta prævia the results for mother and child are so good that it would be well if cases of antepartum hæmorrhage were sent into institutions where surgical measures could be undertaken satisfactorily at the earliest possible moment.

My best thanks are due to my house-surgeons and ward sisters, who help in the care of these patients has been invaluable, and to Dr. Hilda Cantrell who has investigated the records.

SARCOMA OF THE SMALL INTESTINE

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Sarcoma of the small intestine is, of course, a rarity and a clinical curiosity. The object of this paper is to give a brief outline of the subject and to place three cases on record. The literature is very extensive, it is also very dull, being made up of about 200 cases in all. These mostly appear as one-case records, and the notes have a monotonous similarity without broad generalizations. There is a very large transatlantic literature.

Among the very scanty facts which emerge as to the etiology we note a single recorded case in which trauma appeared to be the actual excitant. In another case the disease was found at the site of a tuberculous lesion. In a third case the immediate antecedent to the disease was typhoid fever. Males are affected twice as frequently as females, and the heaviest incidence of the disease falls in early adult life. There are, however, cases on record in every decade of life up to the ninth. The sarcomatous tumour is found most frequently about midway along the small intestine. Either way from this point its incidence lessens. Histologically round-celled sarcoma, lympho-sarcoma, and spindle-celled sarcoma occur with about equal frequency, but there is an example of almost every sort of sarcoma on record. The tendency to glandular invasion and metastatic dissemination is slight. The prognosis does not seem to vary much with either the site or the histology, but it does vary according to the gross morbid anatomy. The morbid anatomy admits of clear classification, thus:

1. The tumour may be a small polypoid mass projecting into the lumen of the gut.
2. There may be an extensive tubular or cuff-like infiltration of the bowel wall.
3. A growth may dangle as a pedunculated mass from the peritoneal surface of the gut.

The symptomatology likewise varies according to the morbid anatomy, but before proceeding to a description

of this certain symptoms common to all three types must be enumerated. These common symptoms are: (a) Precocious cachexia. (b) Heavy toxic and septic absorption with associated anaemia and fever. The fever would seem to be especially noteworthy in children, and the diagnostic difficulties are increased thereby. (c) Alternating constipation and diarrhoea, with malæna often. Vague abdominal discomfort and colic.

THE THREE CLINICAL TYPES OF THE DISEASE

1. The Sarcoma may Project into the Lumen of the Gut as a Small Polypoid Mass

This type would seem to be the most common, and also the one in which the prognosis is least grave. A minute account of such a case was given by Maxwell Telling in which a child of 3½ years complained of symptoms progressively increasing in severity and incidence over several months. The signs and symptoms closely resembled chronic intussusception, but not entirely. At operation a knuckle of small intestine containing an oval button-like mass encroaching into the lumen of the gut was removed. The little mass was found to be a spindle-celled sarcoma. Eight years later the patient was alive and well.

Almost invariably, however, in this type the illness passes through a phase lasting several months in which the general symptoms of cachexia, colic, and fever persist and progress, with a culmination in acute intestinal obstruction due to the polypoid mass precipitating an intussusception.

2. The Growth may take the Form of a Tubular or Cuff-like Infiltration of the Bowel Wall

Here again the general symptoms persist and progress for weeks or months. An acute stage may be reached in several ways. Most commonly an abdominal tumour is discovered, this is taken to be an appendix abscess, or a twisted ovarian cyst, or a hydronephrosis, or a gastric carcinoma. Less commonly subacute intestinal obstruction, erroneously ascribed to a colon growth, takes place. Least commonly a general peritonitis is caused either by necrotic changes in the cuff-like mass or by actual perforation.

3. The Growth may dangle as a Pedunculated Mass from the Peritoneal Surface of the Gut

This is the rarest type and the most grave. As in Type 2, the general symptoms progress till an acute illness

superficies due either to changes in the tumour itself, or to its increasing bulk, or, most rarely of all, to an untortion of a coil of small intestine caused by the freely dangling mass on its surface

CASE RECORDS

CASE 1

A was admitted in 1913 for acute intestinal obstruction found involving the small intestine about

18 inches below the duodeno-jejunal junction. The mass was adherent to the large bowel but it was freed without much difficulty and the whole mass, with the adjacent glands and about two feet of intestine was resected. A lateral anastomosis was done. The naked eye appearance of the specimen suggested a primary glandular condition with adhesion to and ulceration into the small intestine. A portion of the mass abutting into the lumen showed histological structure of a sarcoma with no extraordinary infiltration of eosinophil cells.

The patient was quite well for eleven years. In 1925 she was again admitted for colic abdominal pain and vomiting of several months duration. At operation an annular cauliflower growth was found high up in the small intestine. This was resected together with the adjacent glands. Histologically it showed a sarcomatous structure identical with the tumour removed in 1913.

In 1928 the patient reported herself quite well.

CASE 2

The patient complained of general abdominal colic, nausea, irregular constipation and diarrhoea and abdominal distension for about six weeks. At operation a mass resembling a sloughing cyst was found attached to the small intestine about one foot from the duodeno-jejunal junction. A wide resection and a lateral

anastomosis was performed. Histologically the mass proved to be a spindle-celled sarcoma. One year after the operation the patient reported himself as quite well.

CASE 3

This patient was admitted on account of acute intestinal obstruction of very sudden onset. No definite antecedent illness could be ascertained apart from two attacks of diarrhoea within the last few months. When first seen his condition was very poor, but it was decided to give him the chance of laparotomy. A small intestinal tumour was seen but all that could be done was an ileostomy.

At the post mortem examination the small intestine distension was found to be relieved, but an early acute general peritonitis was the cause of death. About eight feet from the ileo-caecal valve a rhomboidal fleshy mass was found adherent to the small intestine. It dangled from a small base and a pedicle containing some large veins. In bulk it measured about 2 in. by 1 in. by 1 in. Fig. 1 shows the mounted specimen. It had caused acute intestinal obstruction by bringing about torsion of the coil to which it was attached as shown in the photograph (Fig. 2). Histologically the structure was leiomyosarcoma.

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EPITHELIOMA, ERYTHEMA INDURATUM (?) AND ULTRA-VIOLET RADIATION

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At the discussion on ultra violet radiation in dermatology which took place at the Annual Meeting of the British Medical Association held in Edinburgh in July, 1927, the question was raised as to whether there was a risk of carcinoma after ultra-violet radiation comparable to that following upon excessive x-ray therapy. Some considerable time obviously would have to elapse to prove this, and more than a few isolated cases would be required to be of any positive value, as there must be few if any dermatologists who have not seen epithelioma develop on the cicatrices of lupus vulgaris where no physical agent of any description whatsoever—x rays, for instance—had been employed. Such cases are relatively infrequent, but their occurrence is generally admitted and requires to be kept in mind when endeavouring to arrive at the cause of cicatricial malignant degeneration in any given case.

A somewhat arresting case from the point of view of malignant development occurred comparatively recently in my clinic.

About the beginning of 1926 a male adult patient the subject of extensive facial lupus vulgaris who had been treated by a colleague in England with ultra violet rays came under my care in hospital on the latter's recommendation, for further ultra

violet treatment. The patient was submitted to carbon arc light treatment. In the summer of that year a suspicious lesion developed on the left cheek. I discussed with a surgical colleague the possibility of malignancy and a subsequent biopsy showed the growth to be of epitheliomatous nature. Arrangements were made for its excision but the patient disappeared and nothing more has since been seen of him. More than once I inquired if he had been treated at any time with x rays, but invariably got a negative answer, nor can I recall any evidence whatsoever in the shape of pigmentation, telangiectases or atrophic scarring that would suggest excessive x-ray therapy. I could do no other than conclude his statement was accurate.

Exposure to sun rays is included amongst the possible factors in the causation of epithelioma, and the same may be said of the etiology of xeroderma pigmentosum. It would appear, however, that this factor would require the associated one of abnormal vulnerability of the skin of affected persons; otherwise these diseases would be more frequent in countries where sunshine is a constant feature and I am not aware that such is the case. The sometimes familial character of xeroderma pigmentosum would also support this contention. Again, as previously stated, epithelioma may develop on lupus vulgaris where no physical therapeutic agents have been applied. The question naturally arises, Was this epitheliomatous development due to ultra-violet radiation or was it merely coincidental?—a problem obviously offering some difficulty of solution. It might be said, however, that the causation was at least as likely to be independent of treatment as due to it. The patient was of somewhat obstinate temperament, and the regrettable feature of the case was his disappearance—I understand he went to sea—after it had been arranged to excise the lesion.

A case equally interesting as that just recorded, from the point of view of complication, but of entirely different nature, was the following

A girl, aged 19 years suffering from facial and submental lupus vulgaris came under my care in November, 1925, and was put on ultra violet ray treatment, the carbon arc light being employed. After about four months treatment lesions highly suggestive of erythema induratum serofulosorum, one of which broke down, appeared on the legs. Their distribution however, tended to be at a higher level than is usually the case in this affection. I had never practised ultra violet radiation in erythema induratum and as the latter had developed during that treatment

I discontinued it. It is my practice to submit most patients suffering from erythema induratum to x ray therapy employing at the same time appropriate local medication—usually a resorcin ointment and lotion—and advising, where practicable, rest in bed or on a couch in the semi recumbent position. The patient was treated on these lines. X ray treatment was begun in March 1926 a half Snibouraud pastille dose screened with 0.2 aluminium, the pastille remaining unscreened and equidistant from the part exposed and the source of the rays, was given, this was repeated in a fortnight, and again in a little over three weeks—that is, a total dosage of 14 pastilles through 0.2 aluminium filter distributed over a period of a little more than five weeks. This was associated with an ointment and lotion as previously quoted, and rest enjoined. Healing followed. At the margin of the healed ulcer the sole lesion which had ulcerated, an incomplete circle of yellowish colour persisted.

Pigmentation remaining after healing is a recognized feature in erythema induratum, but the unusual tint led me to submit a specimen to the pathological

department for examination, which elicited the following report. The specimen shows a central area with atrophic epidermis surrounded by a swollen area in which the deeper layers show slight increase of pigment granules. No evidence of tuberculous disease is found. As these lesions had developed during ultra violet radiation—and the patient had not spent long hours on her feet—I naturally hesitated about resuming that treatment. However on May 2nd, 1927 I very cautiously began it again and fortunately with no recrudescence of the affection.



Left leg of patient with erythema induratum (?) lesions, the large one shows developing ulceration

PULMONARY ACTINOMYCOSIS.

BY

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JAMES HOMER WRIGHT,¹ in his account of pulmonary actinomycosis, says

Definite features are usually wanting until the disease is far advanced. If the lungs are extensively involved there is cough with fetid sometimes bloody, sputum and signs of bronchitis, pulmonary consolidation and cavity formation usually in the lower lobes. Cachexia, anaemia, fever of variable type, and the habitus phthisicus occur also. Frequent involvement of the pleura and thoracic wall are a prominent feature.

Most of the fairly numerous cases which have been reported in the literature from time to time conform more or less closely to the above classical description, and the majority of them have masqueraded for a considerable period as cases of pulmonary tuberculosis. Most of the authors seem agreed also in regarding the pulmonary variety as having the worst prognosis and being the least amenable to treatment. Thus Illich² collected 58 cases without a single recovery. Maier records 7 recoveries out of 35 cases.

Samuel West³ records 30 cases of actinomycosis of the lungs and pleura with 26 deaths, of the remaining 4 patients 1 was apparently cured, the others were discharged with the condition unrelieved, and were subsequently untraced.

Foulerton⁴ reports 14 pulmonary cases from the records of the Middlesex Hospital. 9 patients died, 2 were transferred to the infirmary in a hopeless condition, 1 was

untraced, and 2 were apparently cured. Of the 2 successful cases it would appear that at first operative treatment was employed without producing any favourable effect, cure seems to have been effected in one case by the administration of large doses of potassium iodide, in the other by means of an autogenous vaccine. Rickman Godlee,⁴ after a description of 13 cases of actinomycosis, states his opinion that although potassium iodide is useful, surgical intervention is of primary importance. Of his 4 pulmonary cases 3 patients died, the fourth recovered as the result of surgical intervention followed by the administration of potassium iodide in 40 grain doses three times daily. Bigland and Sergeant⁵ report the case of a man suffering from pulmonary actinomycosis complicated by empyema. The empyema cavity was washed out with collod iodine, the patient, who recovered, also received intravenous injections of iodine, and potassium iodide in large doses by the mouth.

The two cases under my own care, which are described hereafter, seem of sufficient interest to be put on record, first, on account of the somewhat unusual mode of onset, and secondly, on account of their favourable response to simple medical treatment.

CASE I.

A married woman, aged 47 was admitted to Croydon General Hospital on August 11th, 1927, with a history of one week's cough, with offensive expectoration and pyrexia. She looked ill, and had a hectic flush on the cheeks, the temperature was 101° to 102° F. the pulse 128 and the respirations 24. She had an impaired note at the right apex, harsh breath sounds and very striking post tussive suction. She was coughing up thick yellow pus, which smelt so offensively that I made a diagnosis of abscess of the lung although I must confess that I was decidedly puzzled as to its etiology. An x ray photograph showed a dull opaque area at the right apex which however, was less extensive than I had anticipated from the physical signs and from the large quantities of offensive pus which the woman was expectorating. I decided to watch her for a few days before thinking of any surgical procedure, and in the meantime put her on the halcyon and gave her creosote by the mouth and by inhalation.

A specimen of sputum was sent for examination, and on August 15th Dr. Guest reported. The predominant organism is a Gram positive filament, many of the filaments presenting true branching. I have little doubt that this is a case of actinomycosis. On August 18th a further specimen showed the same organism predominating, on August 19th it was still present but in diminished numbers, and there was a profusion of streptococci. On August 22nd, however the streptothrix filaments, showing true branching predominated.

On receiving the pathological report I put the patient on potassium iodide 10 grains three daily by the mouth and started her on a course of intramuscular injections of lipiodol (Lafay) twice weekly commencing with 1 ccm and increasing up to 10 ccm. Altogether she received 87 ccm of lipiodol in this way during her stay in hospital. The iodide was also increased up to 40 grains thrice daily.

On August 27th I injected 20 ccm of lipiodol intratracheally by the crico-thyroid route—the technique employed being that recommended by Chandler⁶—the patient being semi-inverted and turned on her right side. I performed this operation principally in order to obtain a better defined x ray picture of the abscess, but I also had it in mind that the procedure might be of some therapeutic value. The photograph showed dilated bronchi in the upper part of the right lung field, but the lipiodol had not entered into the opaque area of the apparently closed abscess cavity. While of some value from the point of view of localization, therefore, it is doubtful whether my procedure had the desired effect of bringing the lipiodol into contact with the actual area of disease. The cough gradually subsided, and after September 1st the patient had no expectoration.

The temperature remained high (evening 100° to 101° F.) until September 14th after which it was normal until her discharge from hospital on October 10th. At this time she still had an impaired note to percussion at the right apex and a few coarse rales. Her general condition was excellent, and she had no symptoms at all. For two or three months after discharge she took tincture of iodine (French Codex) 5 minims thrice daily in milk after that she had no treatment until October 1928 when I put her on iodine again for a few weeks. At the present time her condition is excellent, and there is nothing abnormal to be detected in her lungs either by physical examination or by x rays.

No "clubs" were ever demonstrated in the sputum, but the branching filaments were so typical on four separate occasions that I do not think there can be any serious doubt as to the correctness of the diagnosis. Wright¹ says that the demonstration of filaments showing true branching justifies the diagnosis, even though clubs are never seen. The patient had never been in contact with horses or other animals and denied ever having chewed grass or straw. She had some vague dyspeptic symptoms, but there was nothing at all to suggest any abdominal focus of disease, a barium meal of the whole alimentary tract showed nothing abnormal.

I must express my great indebtedness to Dr. Christ, who first demonstrated the organism in the sputum. I must also thank Dr. P. W. Hammond, who took the x-ray photographs.

CASE II

A hawker green grocer, aged 65, stated that he had enjoyed good health up to March 1927, except for occasional bronchitis in the winter. In March, however, he had a severe attack of bronchitis. He returned to his work in May, but his cough persisted, and in August he began to expectorate blood-stained sputum. He had never had severe hæmoptysis, but up to the time when I first saw him (September 23rd 1927) he had brought up a little blood nearly every day. He complained of great weakness and said he had lost weight. His doctor had had his sputum tested for tubercle bacilli on several occasions, but with negative result. While sitting in the consulting room he coughed up about a drachm of dark almost "prune-juice" coloured blood. I thought of neoplasm as a likely diagnosis, but an examination of his chest showed nothing but a slightly impaired note at the left base, and a few scattered rhonchi. A radiogram did not help much; the condition being suggestive of an indefinite diffuse fibrosis.

On October 6th Dr. Southgate reported long granular Gram-positive organisms in the sputum suggesting a streptothrix, some of the filaments showed true branching and many pus cells were present. A second specimen showed a streptothrix predominating, and Dr. Southgate expressed himself as having no doubt as to this being the causative organism.

The patient was admitted to hospital and 20 ccm. of lipiodol (Lafay) was administered intratracheally by the crico-thyroid route, the patient being turned over on his left side. The radiogram showed diffuse bronchiectatic dilatations over the left lower lobe but no actual cavitation was apparent. I am of opinion that the procedure was of some therapeutic value in this case, as the lipiodol was carried widely through the bronchial tubes of the left lung. This patient, being afebrile, and able to get about was only kept in in-patient for a few days; treatment being continued in the out-patient department, this was essentially the same as in the previous case—namely, lipiodol intramuscularly and tincture of iodine 5 minims in milk three daily (French Codex).

In January the patient reported that he was feeling well, had very little cough, had brought up no further blood and was putting on weight. A specimen of sputum contained no streptothrix. At the present time he is at work and in good health.

I am greatly indebted to Dr. Southgate, pathologist to Crofton General Hospital for giving me the diagnosis. I must also thank Dr. Herniman-Johnson for his co-operation in the radiological department, and Dr. Easton of Thornton Heath, who sent me this case in the first instance.

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THE TEMPERATURE IN PULMONARY TUBERCULOSIS

BY

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ALTHOUGH the importance of a rise or fall in the body heat as evidence of disease was recognized by Hippocrates its true significance has, curiously enough, rather fallen into the background, and that in an age in which accurate thermometry has become possible (Wunderlich, 1851). Now we require that if the temperature is to serve as a reliable criterion, it must be determined with exactness, various extraneous influences which may modify the correctness of measuring it have to be eliminated.

In view of the long-lasting discussion as to the best way of taking the temperature I investigated the different methods in several series of patients. By taking the oral and rectal temperatures simultaneously, twice daily for three weeks in one series, I found the tracings on the charts to be almost parallel, the rectal being the higher by about half a degree. The rectal temperature is probably the most accurate, its determination being unaffected by external influences, it is therefore recommended by many, but more time is required for taking it and the procedure is not pleasant either for the patient or for the nurse. I found similarly that the oral and axillary temperatures were almost parallel, with an interval between them of about 0.4 of a degree. The axilla must be thoroughly dried for the reading to be accurate, and great care is necessary in the case of patients with a tendency to perspire, as is common in tuberculosis. Taking the temperature of a stream of urine I found most unreliable in practice, the temperature was at least a degree above that of the oral method.

The oral method of determining the temperature seems to me to be the most suitable, but the patient must remain undisturbed for fifteen minutes before it is taken, and keep his mouth closed, otherwise it is cooled by the surrounding air. The thermometer should be left for at least five minutes in the mouth, since even though it is marked as a half-minute or minute thermometer registration is frequently not complete in this time. If the temperature is about normal it is often three minutes before the mercury begins to move at all, though in the case of a temperature of 100° F., or more, this will be recorded within a minute usually. Each patient should have his own thermometer so that these precautions can be observed and the nurse be enabled to read off the results in rapid succession. When there are only two or three thermometers in a ward with eighteen or twenty patients' temperatures near the normal are hardly ever recorded accurately, although marked rises are sufficiently well indicated to be registered sufficiently correctly. An additional reason for having separate thermometers is to prevent one patient from being infected by another, the thermometers being often hastily and imperfectly sterilized in carbolic lotion. There is also more chance of teaching patients to take their own temperatures, so that on returning home they may use the thermometer when they feel out of sorts and be guided as to the need for rest.

All the temperatures mentioned subsequently in this article were taken by the mouth.

What Constitutes a "Temperature"

After looking through the case-sheets of the first 450 male cases admitted to Crofton Sanatorium (1910-15), where there was a complete after-history and a period of residence in the sanatorium of at least six weeks, I have formed the following conclusions concerning male patients in particular.

Some may have a temperature of 98.4° F. or less in the evening with very little "swing" between the morning and evening figures for long periods, during which the disease in the lungs steadily progresses. The evening temperature may continue steadily 99.4° F. in a patient with tubercle bacilli in the sputum, and yet he may be alive and well ten years later. A temperature above 99° F. persistently, especially if accompanied by a pulse rate of 90 or over, is very unfavourable. This is often noted when the larynx is affected. Many cases with an evening temperature of 98.8° or 99° F. do well. Some regard a sub-normal morning temperature, below 97° F., as of unfavourable import, but the after-histories of patients with temperatures of 96.8° and even 96.6° F. do not bear this out, many are still alive after ten years.

It is probable that each individual has his or her particular type of temperature. If this could be obtained while health was good and kept as a permanent record the diagnosis, treatment, and prognosis of pulmonary tuberculosis would be made easier. Even with our present limited knowledge the behaviour of the temperature is a guide to prognosis. In 450 cases with tubercle bacilli in the sputum, the duration of sanatorium treatment being six weeks or more and a definite after-history being obtainable, the results in cases of fever (over 99° F.) were noted and tabulated (see Table I).

TABLE I.—Fever in Sputum Cases
Prognosis of 452 cases from the type of fever

Type of Case	Total	Died in Two Years	Died in Three to Five Years	Lived Six or More Years
Cases with normal temperature	200	82 = 31.5%	34 = 13.1%	144 = 55.4%
Cases with one relapse	5	12 = 34.3%	4 = 11.4%	19 = 54.3%
Cases with fever on admission later normal	50	6 = 12.0%	7 = 14.0%	17 = 34.0%
Cases with two relapses	25	15 = 60.0%	2 = 8.0%	8 = 32.0%
Cases with continued fever	60	50 = 83.3%	6 = 10.0%	5 = 8.3%
Cases with three or more relapses	20	17 = 85.0%	2 = 10.0%	1 = 5.0%

It will be noted that cases with only one relapse had as good a prognosis as those always normal (34.3 per cent. of patients died in two years, as compared with 31.5 per

cent) Cases in which the temperature was raised for several days after admission were uncommon (52 per cent of these patients died in two years), and still more so for cases with two relapses (in 60 per cent death occurred in two years) Cases in which the temperature is continuously above normal, or in which there are many relapses, but with intervals of normal temperature, are about equally serious (83 per cent of these patients died in two years, as compared with 85 per cent) These figures corroborate the conclusions of H. Brenton Porteous,¹ based, however, on the results of treatment on discharge from the sanatorium Gillespie² has also given figures showing how much worse the prognosis is in febrile cases before admission to a sanatorium or treatment of any kind

Ringer³ says that in phthisis "there is probably a daily unnatural elevation of temperature in all cases whilst a deposition of tubercle is taking place, and where the deposition of tubercle has ceased the temperature is normal", and "where there is no elevation of the temperature we may conclude that the progress of the disease is almost insignificant, although the patient is exposed to the lurking danger that from some slight cause this comparatively harmless condition may be aggravated into a severe and dangerous attack"

This explains why the temperature rises in some cases of phthisis and in others it is normal, even though tubercle bacilli are present in both cases But Ringer must have noticed some exceptions, because later he says "A natural temperature must not lead us to conclude that the disease is not slowly progressing since the amount of tuberculation may be too slight to raise the temperature" It will be noted that in Table I 31.5 per cent of the patients had died within two years, but, even so, the prognosis is reasonably good On the other hand, no patient, however seemingly hopeless, should be given a hopeless prognosis, since 8 per cent live five or more years

In the female the rectal, oral, and axillary temperatures also run practically parallel, but the temperature readings differ from those of the male in three important ways (1) Whereas the difference between the morning and evening temperatures in the male is nearly always 1°F or more, in the female the difference is usually less than 1°F (2) The normal temperature in the male is almost always level, but in the female the menstrual cycle is apt to cause a prolonged rise of temperature (3) Even the normal temperature of a female is often much more irregular than that of a male

1 Table II shows that in 90.1 per cent of males the

TABLE II.—Analysis of 1,816 Consecutive Cases to show the Difference between Morning and Evening Temperatures

	Difference of $^{\circ}\text{F}$ or more	Difference of less than 1°F
Males (1,237 cases)	1114 = 90.1%	123 = 9.9%
Females (579 cases)	251 = 43.3%	328 = 56.7%
Female cases in more detail		
Positive sputum (366 cases)	176 = 48.0%	190 = 52.0%
Negative sputum (213 cases)	75 = 35.3%	138 = 64.7%
Female cases with positive sputum		
Temperature raised	128 = 72.7%	16 = 8.4%
Temperature normal ...	48 = 27.3%	174 = 91.6%
Female cases with negative sputum		
Temperature raised	66 = 30.9%	9 = 8.0%
Temperature normal	34 = 34.0%	104 = 52.0%

Out of 360 patients with a normal temperature 278 or 77.2 per cent had a swing of less than 1°F Out of 219 patients with fever 194 , or 88.6 per cent, had a swing of 1°F or more

difference between the morning and evening temperatures is 1°F or more But in 56.7 per cent of the females the difference is less than 1°F In negative sputum cases this is so in 64.7 per cent, as compared with only 52 per cent in positive sputum cases Where there is fever one would expect a bigger swing, and 88.6 per cent of such cases have a difference of 1°F or more But when the temperature was normal 77.2 per cent varied less than 1°F , the difference is often only 0.2° to 0.4°F This kind of temperature is probably common with healthy women

In the literature on tuberculosis, midwifery, and the diseases of women there is very little mention of any variation of the temperature of normal women taken daily for the whole of a menstrual cycle But Reiml (1884) and Giles (1896)⁴ both found that "the temperature is at its lowest point about the middle of the menstrual period, rising then gradually to its maximum a day or two before the beginning of the menstrual bleeding, after which it drops suddenly" Other authorities maintain that the temperature remains unchanged or is altered only occasionally Johnstone⁵ says "There is some reason to believe that the general metabolism of women follows a definite monthly curve, the apex of which is just before menstruation" This could easily affect the temperature

According to the records at Creighton Sanatorium, in a considerable number of females diagnosed as tuberculous there is a definite premenstrual rise of temperature of considerable duration, the temperature being otherwise normal, after a menstrual period the temperature remains

fairly steady at about 97.4°F in the morning and 98.4°F in the evening, until seven or eight days before the next menstrual period, when it gradually rises to perhaps

98.4°F (morning) and 99.2°F (evening) It continues thus until the first or second day of the menstrual flow, when it falls quickly or gradually to the previous steady level In a well marked case the appearance on the chart is like a "valley" and a "plateau" (Chart 1) There is often 1°F of difference between these levels In others careful observation is needed to note the change, for the "plateau" is only 0.2° or 0.4°F above the "valley"

This long premenstrual rise is present in only 34 per cent

TABLE III.—Classification of 276 Female Cases, who were 15 to 40 Years of Age and had been under Sanatorium Treatment for at least Six Weeks, to show the frequency of the Long Premenstrual Rise of Temperature

	Long Premenstrual Rise	Level or Irregular
Cases with positive sputum		
Temperature normal ...	45	55
Temperature raised ..	6	44
Cases with negative sputum		
Temperature normal ..	62	41
Temperature raised ..	4	19

of positive cases, but in 52 per cent of negative cases (Table III) It is not often found when the temperature

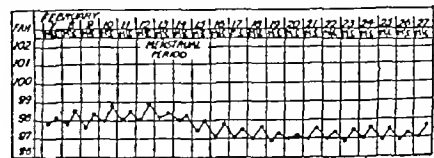


CHART 2.

is always elevated From these two data it may be supposed that a long premenstrual rise is probably frequent among healthy females It was present in one (Chart 2) of

two nurses whom I induced to take their temperatures for a month. It would be interesting to get corroboration of this view. In a considerable number of females the tem-

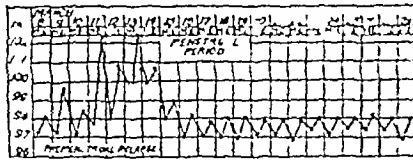


CHART 3

perature shows no alteration at all. Of course in addition, there are the definite manifestations of tuberculous given in the textbooks. There may be a definite febrile relapse before the menses (Chart 3), or the relapse may take

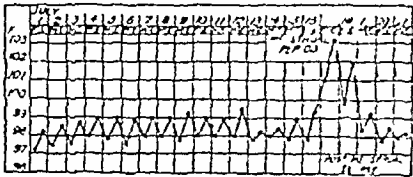


CHART 4

the form of a menstrual or post-menstrual rise of temperature (Chart 4). One girl with a positive sputum had three rises of temperature at intervals of three weeks but then her menstrual period and her temperature remained normal (Chart 5). Most of the relapses in females occur

about the time of the menstrual flow, and therefore at this time special care should be taken. Between the menses a temperature of 98.8° to 99° F is probably febrile,

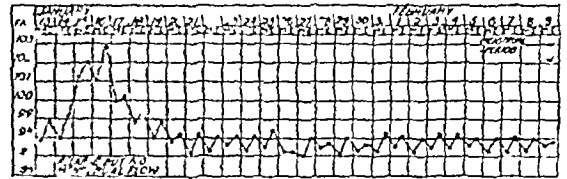


CHART 5

where is just before menstruation up to 99.4° F may be considered normal. If a female patient is admitted to the sanatorium with a temperature of about 100° F and a few days later the monthly period commences, the outlook for this patient is not as serious as if this temperature occurred midway between periods.*

3. In very few men is there any marked irregularity in the course of a normal temperature, but in women there are quite frequently fluctuations and irregularities. These women are usually of the nervous sickly type. In febrile cases also there are often great variations in the course of the temperature.

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* A menstrual cycle of about three weeks seems to be fairly common for females in a sanatorium.

CUTANEOUS ALLERGY FOLLOWING DIPHTHERIA ANATOXIN ADMINISTRATION

BY

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Urticarial eruptions are a frequent sequel of injections of therapeutic serums and constitute the most prominent symptom of serum fever. On the other hand they are rarely seen following injections of toxin antitoxin (serum) mixture, even with three injections at fortnightly intervals in diphtheria prophylaxis. For instance, Wahl (1927) with a personal experience extending over four years of several thousand children immunized by injections of toxin antitoxin, has recorded only one such observation.

It is not I think, so well known that urticarial symptoms—evidence of an allergic state—may arise in connection with diphtheria immunization with antitoxin. The following case lends itself to interpretation in this way.

A children's nurse aged 17 received three prophylactic injections of diphtheria antitoxin (Institut Pasteur) subcutaneously on July 4th, July 17th and August 2nd 1928. A thirteen-day interval separated the first and second injections, a sixteen-day interval the second and third. The doses given were 0.4, 0.8 and 0.8 c.c.m. respectively. Apart from the usual local redness at the site of inoculation no reaction accompanied the first two injections. On the evening of the third day after the last injection (that is, three days from the beginning) she felt slightly out of sorts and retired early to bed. The next morning she woke up with a swollen puffy face and while attempting to dress she noticed that suddenly everything went dark (2 vertigo).

She was put back to bed and when seen shortly afterwards the eyelids were found to be markedly oedematous and there was a widespread urticarial eruption present over the body, especially noticeable on the legs, thighs and chest attended by itching. This she stated had been present from the night before on her legs and chest. The temperature was 99° F, the pulse 80. The urine of specific gravity 1024 was acid and slightly cloudy. Albumin and sugar were absent, marked excess of indican and excess of creatinins were present. The bowels were regular.

After two days in bed with mild purgation and low diet, the attack completely passed, the eruption lasted from thirty-six to forty-eight hours, during two months since there has been no return.

The patient's past history included measles, chicken pox, and whooping-cough—all before the age of 7—no history of diphtheria or of any injections. She had a tonsillectomy at 7 and thereafter a healthy childhood. A personal history was elicited of a

dietary idiosyncrasy towards eggs, especially the yolk, which she said always made her feel sick. This idiosyncrasy appears to have been indirectly familial, an aunt on the father's side possessed it. It has however to be viewed in a mild and rather relative light in both for the patient has been known to take eggs without inconvenience when served in dressings, custards and other dishes where she was unaware of their presence. The aunt late in life developed diabetes, and then eggs formed an important part of her diet.

The foregoing clinical picture is indicative of an anaphylactoid state. The question arises, Was it of alimentary origin or due to the antitoxin injections? The excess of indican and the personal intolerance towards eggs suggested that the condition might be alimentary. Inquiry in this direction revealed that at lunch the day before the eruption the patient had partaken of clotted milk (*lait caillé*). An article of diet to which she was unaccustomed, there was no history of eggs. It was concluded however that there was little to incriminate in this, a view which has been confirmed since, for she has frequently partaken of the same and other brands of clotted milk without inconvenience of any sort.

By elimination, therefore, the diagnosis of anatoxin allergy was arrived at, the responsible factor being clearly the albumin content of the anatoxin.

Albumin Content of Anatoxin

Anatoxin being a formalized filtrate, from a bacterial culture in nutrient broth, its albumin content naturally depends upon the nature of the broth, and, according to Ramon (1924) also upon the luxuriance of the bacterial culture.

Tested from the point of view of albumin and albumin derivatives, the diphtheria anatoxin employed gave a well-marked positive Heller's test indicating the presence of albumin. This was confirmed by precipitation with trichloroacetic and hydrofluoroacetic acids. The biuret and xanthoproteic tests were positive. Millon's and Adamkiewicz's tests gave negative or indefinite results. Evaluation of the albumin present, with trichloroacetic acid in a Sear and Cantowhe rachalalbuminometer, revealed a content of approximately 0.01 per cent.

This represents a content of 0.0001 gram albumin per c.c.m. The figure is significant, it is practically identical with the recognized albumin content of toxin antitoxin mixture. Now, from the point of view of anaphylaxis,

quantities so small as 0.000001 gram of a pure albumin, like egg albumin or serum albumin, are known to be sufficient to constitute a sensitizing dose for the guinea-pig (d'Hérelle, 1923).

Comment

This case is illustrative of a type of sensitization which, as concerns immunization by diphtheria anatoxin preparations, has hitherto scarcely been noted—namely, sensitization of patients to the albumin of the preparation—that is, to all intents, to the albumin of the nutrient medium employed for the culture of the diphtheria bacillus giving the toxin. In this way the case is instructive, and gives occasion for certain reflections.

Immunization against diphtheria, whether with toxin-antitoxin mixture or with anatoxin, gives apparently good initial immunity, this is deemed of such importance as to overshadow any ultimate inconveniences. Both methods, however, give rise to remote risks, and both to initial risks. The remote risks of toxin-antitoxin injections are so well known as to need only passing mention. The patient becomes sensitized to the horse serum of the antitoxin, and thereby risks anaphylactic manifestations whenever for any reason later in life therapeutic serums may have to be administered. Many clear-cut instances have been described in the literature, notably by Stewart (1926, 1927), Gatewood and Balldridge (1927), and Lathorp (1927). The initial risks of toxin-antitoxin immunization are practically negligible. Hundreds of thousands of children and adults have undergone this immunization during the past four or five years without any definite reaction. In fact, in this respect no particular note of alarm—so far as the literature goes—has been sounded. The case recorded by Wahl, referred to at the beginning of this paper, is one of the very few exceptions and observations of its kind.

This was the case of a 10 months' baby which, after supporting perfectly two injections at a fortnight's interval on the occasion of the third injection, a fortnight later developed respiratory distress, discomfort and within a few minutes a giant urticaria on the face and neck spreading rapidly over the chest, abdomen and lower extremities. All this occurred about ten minutes after the injection. Administration of 7 minims of adrenalin hydrochloride intramuscularly promptly gave relief.

As concerns anatoxin, the remote risks of the order encountered with toxin-antitoxin are believed to be non-existent, and this for two reasons: (1) because the preparation contains no horse serum antigen, and (2) because sensitization reactions are strikingly specific, and only follow reinjections of the same foreign protein antigen. These reasons of themselves are sufficient to justify the present tendency to adopt anatoxin, instead of toxin-antitoxin mixture, as the instrument of immunization in diphtheria. But the present study suggests a possible remote risk of another order.

We have seen that sensitization may occur to the albumin of the anatoxin, or perhaps it would be more correct to say to the nutrient broth entering into its composition. Persons immunized by anatoxin, therefore, should they later in life become subjects for vaccine therapy (and there is no reason to anticipate the popularity of vaccines waning), will require vaccines rigorously free from the albumins of nutrient broth, otherwise accidents may occur during vaccine treatment. Fortunately allowance is already made for this point of view in most "makes" of vaccine, although perhaps not in all. Confirmation, moreover, of this outlook may be found in some recent work of Nicolas and Katrandjeff (1928). Those authors have established that the proteins of meat, after heat coagulation, redissolving in weak alkali, and neutralization, constitute excellent antigens, giving rise to antisera particularly rich in specific precipitins.

Concerning the initial risks of anatoxin immunization, the case here reported speaks for itself. The symptoms were fortunately mild, and gave no more need for alarm than would have done those of any simple case of serum sickness, which this case closely simulated. Its interest, however, mainly lies in indicating that if allergic accidents during the initial period of immunization are to be avoided, there is need to perfect both the preparation of anatoxin and the technique of its administration. It is well known that the birth of the allergic state ("altered reactivity" of cells) is a function of the sensitizing dose

of offending substance and of the time lapsing between its injection and reinjection. The possibility of allergic accidents should, therefore, largely disappear with the advent of anatoxin preparations of lower protein content—if that can be attained—affording protection by fewer injections (for example, two instead of three, as at present recommended) at shorter time intervals between the injections. Hopeful advances along such lines have already been signalled. Srodowski and Chalapina (1927), working with different diphtheria anatoxins of equal antigenic strength (Ramon), but unequal flocculating power, have found that the immunizing action is proportional to the rapidity of flocculation of the initial toxin. Working with such a preparation, they report immunization (Schick negative results) with a single injection in 88.8 and 93.6 per cent of cases, after three weeks and two and a half months respectively, and with two injections in 93.3 and 96 per cent of cases. These figures are based on a sufficiently large clinical material to be impressive: 27,000 children Schick tested, of which 4,600 were vaccinated by anatoxin, and in 1,861 the immunity produced was controlled by the Schick test.

SUMMARY

A case is reported—the first of its kind known to the writer—of allergic symptoms arising in connexion with the use of anatoxin in diphtheria prophylaxis, with general remarks on the risks attending our present-day methods of diphtheria immunization.

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A CASE OF GENERALIZED MENINGOCOCCUS INFECTION

BY

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THE following type of case of meningococcal pyæmia is of rare occurrence, and in one of its features—a double metastatic nido-choroiditis—would appear to be unique. The clinical facts are as follows:

On September 29th 1927, a female child aged 2½ years was admitted to Booth Hall Infirmary. The glands of the right side of the neck had been swollen for seven days and the mother had been massaging these with olive oil. She appeared to be quite well in general health and had been playing until two hours before admission when she vomited and became very ill.

On examination she was found to be in good general condition, but very pale, her temperature was 102° F. and the right cervical glands were moderately swollen, tender, and firm. Her throat appeared to be quite normal but a routine swab was taken and was found to show Klebs-Loeffler bacilli. By evening the temperature fell and the child became comfortable and slept. On the next day the cervical glands had subsided a little but the temperature began to rise, and at night the child was restless and noisy. No further signs or symptoms were discovered until October 2nd when both conjunctivæ became injected, the corneæ were hazy, and the next day there was pus in both anterior chambers. At the same time the small joints of the hands and feet became swollen and several petechial spots appeared on the hands, the lower part of the body and the legs and feet. By evening the elbows and knees had begun to swell and the temperature was high the patient being extremely ill and restless. On October 4th the eyes had improved slightly but the joints were still swollen and did not begin to subside until October 6th. Iris was present in both eyes. At no time was there any demonstrable splenic enlargement nor were there positive signs of meningeal involvement.

By the second week the patient was generally much better, but there was still inflammation of both eyes, and it was soon evident that she did not distinguish light from dark although mentally she was quite bright and intelligent again. The temperature remained above normal for nearly a month.

On October 3rd a sample of spinal fluid was collected but neither this sample nor subsequent ones showed any excess of cells or protein. On the two subsequent days pus was aspirated from the knee joints and found to contain in large numbers a Gram-negative organism having the microscopical characters of the meningococcus. On culture this organism fermented glucose and maltose but not sucrose; it grew freely on serum media at 37° C. but not at room temperature.

On December 8th she was examined by Dr T M Bride consulting ophthalmologist to the infirmary who reported that the right eye was quiet and the cornea clear, there was no keratitis punctata. The anterior chamber was shallow and the pupil irregular with posterior synechiae. The lens was clear but the vitreous was full of a yellowish white exudate. The condition in the left eye was similar to that of the right. Metastatic mottling was present.

Subsequently the child developed bronchopneumonia and recovered. She is now—one year from the start of her illness—quite well and is gaining weight. She is exceptionally intelligent for 3 years of age but is liable to sudden bursts of temper which quickly pass off. This like her mental state generally is no different from what it was previously. She is unfortunately, completely blind. There is no glandular swelling.

Cases of meningococcal septicaemia without meningitis have occurred not infrequently in adults, but apparently very rarely in children. I have noticed references only to two children. Pybus records the case of a girl, aged 3 years, who was taken ill with general septicaemia and died in thirteen hours. Blood cultures yielded a pure growth of the meningococcus, but there was no meningitis. The second case reported by Flach, is that of a child, in contact of a carrier and also of a clinical case who developed arthritis of the knee, which proved to be meningococcal. The cerebro-spinal fluid and the blood, in this instance, were both negative.

There are other instances in which these lesions complicate frank cerebro-spinal meningitis, and there is also an intermediate case in which meningitis developed secondarily, in point of view of time at least, to other meningococcal lesions. In this case a female patient exhibited multiple joint lesions, meningococci being found in the blood, she developed meningitis two months later, but ultimately recovered. It has been suggested in textbooks that septicaemia patients would develop meningitis if they lived, and while this is strongly supported in the case quoted above, it is equally tenable that they need not. It is twelve months since the acute stage of the case reported here, during this time the child has been under constant hospital observation, without showing any signs of meningitis. Careful questioning of the parents fails to reveal any meningitis prior to admission.

The adenitis is interesting in view of the fact that it is an unusual complication in the early stage of meningitis when the organism is presumably in the throat. In a series of cases of meningitis studied by Worster-Drought and Mills Kennedy only one patient developed adenitis, and this was late in the disease. Fairley and Stewart state that with them a few of the convalescent patients developed adenitis. To account for its occurrence in the present case we must presume that it was due to some other infection of the tonsils on which, later, the meningococcal infection was superimposed. From a consideration of the rash and the temperature chart in this case it would appear that the meningococcal infection occurred just before admission to hospital—that is, when the child suddenly became ill, possibly with a rigor. The rash was purely petechial and several of the spots suppurated. The face in this particular case escaped. The joint lesions were more widespread than is usual, and were of the nature of a synovitis. There was, after the neutenness diminished, a rapid complete recovery in all of them.

Irido-choroiditis occurs only in meningococcal meningitis and is usually unilateral. I have not been able to find any record of bilateral irido-choroiditis occurring in any case similar to this. Throughout the illness there was a varying amount of enteritis. The Klebs-Loeffler infection of the throat did not appear to give any special symptoms and persisted for many weeks. As soon as the nature of the infection was established specific treatment was commenced in the form of anti-meningococcal serum, given intrathecally and intramuscularly.

In view of the recovery, it is interesting to contrast this with the same disease in adults. According to Heringham the disease commences with "malaise not severe enough altogether to prevent duty, lasting from three to seven days" followed by a severe illness which is fatal in four days.

My thanks are due to Dr G D Dawson for permission to use the bacteriological reports, to Dr T M Bride for the report on the final condition of the eyes, and to the medical superintendent, Dr D Ewart for his assistance in connexion with this case.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL

STATUS LYMPHATICUS

I CONSIDER the two following cases of status lymphaticus, which occurred in the same family, so unusual as to merit being recorded.

On the evening of October 6th in response to an urgent summons I visited a young woman, aged 30 years, and on arrival found she had been extinct some fifteen minutes. Though I had attended other members of her family I had never before seen her—in fact was unaware of her existence. Owing to her nervous temperament and liability to epileptic attacks she was shunned by her family from all undue excitement. Her parents description of her epileptic fits of some years duration, and for which she had at one time received hospital treatment, lead me to conclude that they were of the nature of petit mal. She was of medium height, fat, and healthy.

In communicating with the coroner I explained that her epileptic attacks were too trifling to be an adequate cause of death so he ordered a post mortem examination, which revealed the following abnormal features. The persistence of a thymus gland over 1 oz in weight. An enlarged heart—13½ oz in weight—showing no sign of disease but an unusual amount of fatty infiltration. An enlarged spleen—8½ oz in weight—soft and hyperaemic. The brain and other organs were quite healthy and there did not appear to be any hyperplasia of lymphatic structures. Death was obviously due to status lymphaticus and accelerated by unusual excitement—a wedding that day in the family.

Sixteen months previously a sister aged 25 years, a quondam patient suddenly expired in a dancing hall in London. A necropsy at the Middlesex Hospital revealed status lymphaticus as the cause of death.

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RAT-BITE FEVER IN HONG-KONG

SINCE this case of rat-bite fever is the first of its kind to be reported in Hong-Kong it may be worthy of publication.

On September 25th a Chinese man aged 32 was bitten by a rat (*Rattus decumanus*) about the middle of the upper border of the left trapezius muscle, the bite was a small puncture. There were no symptoms till October 7th twelve days after the bite when the temperature rose and a raised violet-coloured circle appeared round the bite. On October 17th, ten days after the rise of temperature a rash developed. The patient was seen on the eleventh day of fever when his condition was as follows. The bite was represented by a callous ulcer 1 inch in diameter around it was a purple indurated ring 1½ inches wide. From the ulcer to the middle of the anterior fold of the axilla ran a purple streak 1½ inches broad. Under the anterior axillary fold were a few hard glands. Spread over the face, body, arms, and thighs was a rash which began as a faint pink raised macule about 1/4 inch in diameter in the course of a few hours it assumed a bluish tinge. It was most marked on the face, along each side of the spine where the spots coalesced in places, and over the shoulder blades and was very similar to that of typhus fever. The fever was of the continuous type between 100° to 103° F each day at its height there was usually vomiting and some sweating. Mental symptoms were marked there was some delirium at night and delusions that cockroaches were running over him. Pain was intense in the region of the bite there were also articular and muscular pains so severe that the patient expressed a wish to commit suicide.

A search was made in the blood for the spirochaete both in stained slides and with the dark ground but none was identified. 10 ccm of blood was cultured but no growth of organisms was obtained. There was no leucocytosis and the differential count was polymorphonuclears 69 per cent, large mononuclears 18 per cent, small mononuclears 7 per cent, large lymphocytes 6 per cent, eosinophils nil. He was too ill to postpone treatment and on the twelfth day of fever 0.45 gram of novarsenobenzol was given. Six hours later he was vomiting and the temperature was 103°, twenty-four hours after the injection he sweated profusely the temperature fell to normal and all pain ceased thirty-six hours after the injection the purple areola round the wound had gone and the lymphangitis over the pectoral muscle had nearly faded. The rash was still faintly visible and in many places had become a brown stain. He expressed himself as being perfectly well. This dramatic effect of arsenical injections is apparently diagnostic of the disease.

Hong Kong

G F AUBREY, M D, B S

Reports of Societies.

SPONTANEOUS RESTITUTION OF AN INVERTED UTERUS

At a meeting of the North of England Obstetrical and Gynaecological Society at Sheffield on November 23rd, the president, Mr H. LEITH MURRAY (Liverpool), in the chair, Professor MILES H. PHILLIPS (Sheffield) described a case of spontaneous restitution of an inverted uterus.

Professor Miles Phillips said it was generally conceded that it was highly dangerous to replace the recently inverted uterus while the patient was suffering from shock, but it was perhaps not so well recognized that the infected and inflamed inverted uterus should also be allowed to remain in its undignified position. Apart from the danger of lacerating the softened organ there was the risk of generalizing the septic processes by damaging the barriers to the spread of infection which nature had set up. Those who employed local applications, such as glycine or hypertonic saline solution, to the acutely infected endometrium would also recognize that it was by no means a disadvantage to have the uterus inside out. It was well known that involution would take place fully while the uterus was inside out. Experience had shown that there was another good reason for advocating this expectant attitude. In quite a number of cases spontaneous reinversion had taken place during the treatment. He reviewed the literature on the subject, and gave an account of his own case.

A primipara was sent to the Jessop Hospital on September 29th, the twelfth day of the puerperium, a lump having suddenly appeared at the vulva. Half an hour later her doctor returned it into the vagina and sent her to hospital as a case of inversion.

The patient looked acutely ill and profoundly blanched; she had a pulse rate of 150 and a temperature of 100.6° F. The completely inverted uterus filled the capacious vagina. It was covered by superficial grey sloughs. The scanty vaginal discharge was very offensive. It was arranged to pour a solution of glycine and glutamine into the vagina daily and next day she was transferred to the open air ward for puerperal sepsis at Norton Hall. On this day the temperature reached 103° F. A blood culture was found to be sterile but streptococci and staphylococci were recovered from swabs from the uterine surface. An intravenous infusion of half a litre of citrated blood was given.

On the next day a brisk haemorrhage occurred, it was impossible to see the bleeding point but the blood appeared to be coming from the vaginal vault. The house surgeon packed the vagina and gave 1 c.cm. of haemoplastin. Next day a second haemorrhage was treated in the same way. The vaginal discharge remained very offensive, and the glycine was replaced by hot saline douches. On October 9th a second blood transfusion (600 c.cm.) was given. Her colour improved but the temperature and pulse rate were still high.

On October 18th the house surgeon noted that the inverted uterus was certainly smaller and of a redder colour. A few hours later Professor Phillips examined the vagina with a Sims speculum and found a very great change; the body of the uterus had disappeared, the rim of the cervix was now visible, and within it lay a lobed mass of obviously placental tissue. He thought it wiser to leave this for the time being since the daily temperature still fluctuated between 99° and 101° F. but it was arranged that should another haemorrhage occur the placental fragments were to be removed. Next morning bleeding did occur; the patient was promptly anaesthetized and a lump of placenta was easily peeled off though firmly adherent just above the internal os anteriorly. The uterus could now be felt bimanually and was surprisingly well involutioned.

After this the patient steadily improved and was fit to go home three weeks later. It was not possible to get accurate details of her confinement and early puerperium, but she had had a quick and natural delivery of a large child. The placenta had followed soon after helped the doctor thought by "a slight push" and all seemed to be well. A few hours later however she had had two bad flooding bouts, the second accompanied by a lot of pain, possibly the inversion started then. During the next twelve days, apart from anaemia and a slight pyrexia she was thought to be going on well when while micturating, the inverted uterus suddenly appeared at the vulva.

The cotyledon of placenta which had been retained had not been met at the confinement possibly it was incarcerated. Being attached to an area immediately above the internal os it had lain hidden from view in the vaginal vault so long as the uterus was inverted.

Professor Miles Phillips added that if the routine daily measurement of the involutioned uterus had been made in the first week of the puerperium it was possible that the abnormal state of things would have been discovered sooner.

Sarcoma of the Vulva

Mr A. A. GEMMELL (Liverpool) described a case of sarcoma of the vulva.

The patient, a 2 para, aged 54, had been seen by him on February 15th, 1927, the menopause had occurred seven years previously. She complained of a lump in the vulva which had been present for fourteen months and was gradually growing larger. It had been painful for the last two months especially on walking. In 1924 she had had a tumour removed from the left labium majus. No pathological examination had been made of this but it was believed to be a Bartholinian abscess.

A mass the size of a tangerine orange was found in the lower part of the left labium majus, but lifting up its upper part and extending under the vaginal mucous membrane towards the urethra. This mass was attached deeply but the skin moved over it. There was a much smaller mass anterior to this, extending towards the inguinal canal in which there was a hernia. Posteriorly, in the interior part of the perineum on the left side, there was a third mass the size of a golf ball, which was mobile. There was no superficial ulceration and no involvement of lymphatic glands.

Eight days later the masses were excised. The main mass did not extend so close to the urethra as had been expected but had to be cut away from the pubic bone. The small anterior mass was excised with the main mass. During digital exploration of the posterior mass the finger slipped into a capsule and the growth shelled out with great ease. The patient left the hospital on March 20th 1927, with the wound well healed. She later developed severe headache and proptosis of the left eye and died in the following August.

Mr Gemmell said that sections of the tumours, which were all of the same nature, showed that the growth was obviously a sarcoma, spindle and polyhedral cells were arranged round blood vessels with degenerated areas in between the masses. The type of cells and their arrangement in places round vessels, the areas of necrosis, with other compact areas of tumour cells, corresponded with Ewing's description of a perithelioma and therefore Mr Gemmell considered it to be such. He had not been able to find any accounts of perithelioma of the vulva in literature. Ewing had stated that they might arise from the loose subcutaneous tissue of the perineal region, but in view of the history of a previous mass in the left labium in this case it would appear that the origin was definitely vulval. He could not offer any explanation as to why the posterior mass remained encapsulated.

An Unusual Face or Brow Presentation

Professor DOUGAL (Manchester) read notes of an unusual variety of face or brow presentation.

A primigravida aged 25, sent for the midwife at 2 a.m. on November 9th, when the membranes ruptured this being the first sign that labour had commenced. Pains were strong but as progress was unsatisfactory a doctor was called to see the case at 5.30 a.m. on November 10th. He found the os fully dilated but the presenting part high and indefinite. Twelve hours later the patient had made little progress, but he was now able to make out a face presentation. The face was fairly high in the pelvis and the child's mouth wide open and directed forwards and to the right side. The lower jaw of the child was out of reach and evidently held back by the pubic ramus on that side.

Professor Dougal saw the case about midday on November 11th, when the situation was practically the same except that the presenting part was rather lower in the pelvis. The patient was having violent pains, but her general condition was perfectly good. On holding back the perineum with the fingers it was possible to see the orbital ridges, eyes, upper lip, and open mouth of the child; the caput was well marked over the eyes, nose and upper lip, the last being much swollen and resembling a large polypus.

Careful examination under anaesthesia showed the head to be lying in the right mento-anterior position with the lower jaw firmly caught above, a little to the right of the symphysis.

Professor Dougal inserted his hand into the vagina, pushed up the presenting part and flexed the lower jaw, which came down with a distinct click. The presentation was now a simple face with the chin anterior and he was able to complete delivery with forceps quite easily. The child was alive and weighed 6½ lb. Its appearance was anything but prepossessing as there was a large caput over the face; the lower jaw was so much displaced backwards that the child appeared completely devoid of chin. The mother's pelvis was apparently normal.

Professor Dougal said there was doubt whether the case should be considered a brow or a face presentation. Face presentations were generally secondary and passed through the brow stage. Assuming that the brow presented in the first instance, there was an attempt at further extension into a face presentation, but owing to the chin catching on the pelvic rim and so extending the lower jaw, the full face was unable to descend, and labour was therefore obstructed. He had never met with a similar case before.

nor could he find any reference to the occurrence in any textbook. There was an illustration in Edgar's book showing a child presenting by the brow with the mouth wide open, but the head was not so extended and the jaw itself did not appear to be the cause of obstruction.

Unicornuate Uterus

Professor Dougal then showed a specimen of unicornuate uterus which was thought to be an example of a bicornuate uterus with a rudimentary horn, but the latter was so poorly developed that it could not be definitely recognized as such. Part of the specimen had been removed at operation; the remainder at the necropsy.

The patient had profound anaemia associated with profuse uterine haemorrhage, and hysterectomy was undertaken as a last resort. On opening the abdomen the uterine horn was found placed transversely in the pelvis with the fundus close to the right pelvic wall, and the right ovary and tube lying behind it. To the left of the horn was the convexity of the upper surface of the bladder and running across this towards the internal abdominal ring was a flattened band. The left broad ligament was absent. At the internal abdominal ring the band was joined by the lower pole of the ovary and then passed into the inguinal canal as a thick fibro-muscular structure. The ovary itself was much elongated, measuring $4\frac{1}{2}$ inches in length; it extended vertically upwards into the lumbar region, where it was attached to the posterior abdominal wall by a short mesovarium. Lying in close proximity to the upper pole of the ovary was an isolated tubal ostium surrounded by typical fimbriae. No other part of the left tube was visible. The left kidney and ureter were absent. The cervix and vagina were both single, and the external genitals were normal.

Haematocolpos

Professor Dougal also described a case of haematocolpos.

The patient was aged 12 years and 11 months and was admitted to the Royal Infirmary as an urgent case on account of abdominal pain. Menstrual haemorrhage had not yet appeared, but for the last six months there had been severe abdominal pain occurring at monthly intervals and accompanied by nausea and vomiting. The previous medical history was bad. The mental development was below normal at the age of 2 years; several toes had been amputated for gangrene and there was believed to have been some tuberculous disease of the lungs.

On examination the patient appeared to be quite healthy though below the average as regards mental development. Palpation of the abdomen revealed a small firm swelling in the mid line just below the umbilicus and recognized subsequently as the body of the uterus. Inspection of the external genitals showed them to be normal and fully developed, including the hymen. The vagina formed a cul-de-sac about $1\frac{1}{2}$ inches deep, and no cervix could be felt above there was no discoloration nor bulging and no palpable tumour. On rectal examination a cystic mass about the size of a foetal head was felt high in the pelvis and to the right and behind the rectum. On the top of this swelling was the firm mass previously made out on abdominal examination. The pathological lesion was evidently an atresia of the upper part of the vagina with retention of glandular secretions or menstrual blood and surgical intervention was obviously indicated.

At the operation soon after admission an attempt was made to reach the tumour from below by incising the upper end of the vagina. This was unsuccessful as the mass was too high and the amount of intervening tissue too great. The abdomen was then opened and a somewhat distended uterus was found perched on top of a large cystic tumour, which in turn rested on the pelvic floor. An incision was made into the anterior surface of the tumour just below the level of the uterus and about a pint of typical haematocolpos fluid evacuated. Another opening was made through the lower end of what was evidently the distended upper half of the vagina, but this was still above the level of the pelvic floor and well above the lower cul-de-sac. An assistant then pushed up a pair of forceps from below and by cutting down on the points of this instrument a way through was established and a length of gauze stitched to the lower end of the distended upper vagina brought down and through the vulva. The anterior opening into the upper part of the vagina and the abdominal incision were then closed and the patient once more placed in the lithotomy position when the upper part of the vagina was pulled down by traction on the gauze and stitched to the lower end of the canal. The operation was somewhat difficult and tedious but the patient made a good recovery. On examination under anaesthesia sixteen days later the complete vagina was found to be secure and patent and a finger could be passed up to the cervix.

Professor Dougal said that the case was an example of high haematocolpos with some degree of haematometra. The tubes were open and a certain amount of regurgitation of menstrual blood had evidently occurred into the abdomen, for the peritoneal surfaces of the tubes and peritoneal covering of the utero-vesical pouch were stained with old blood pigment. The interesting features of the case were:

(1) The early age at which the symptoms had developed, the menstrual function evidently commenced about the age of 12. Professor Dougal said he had operated on a number of haematocolpos cases, but usually between the ages of 15

and 18. (2) The high situation of the atresia, there was a bulging into the lower part of the vagina and it was impossible to reach the swelling from below. The speaker suggested that it was a mistake to regard all these cases as of developmental origin. Might they not be due to acquired atresia following inflammatory conditions occurring in the genital canal during early life?

Vaginal Cyst Causing Genital Prolapse

Dr O. P. BRYANT (Manchester) showed a specimen of vaginal cyst which had been associated with genital prolapse in a multipara. He said that the specimen had been removed from a single nulliparous woman approaching the age of 40, who also had a complete uterine procidentia, which at first sight appeared to be a typical example of classical prolapse of third degree. The anterior vaginal wall with the cyst was the first to present at the vulva, and was followed by the cervix; there was no elongation of the cervix and no cystocele, even after removal of the cyst. The specimen consisted of part of the cervix and the anterior vaginal wall, to which was attached the cyst. The incisions were those of the ordinary "Fothergill" colporrhaphy, namely a wide anterior racquet incision for amputation of the cervix. The only type of prolapse he had seen previously in a nullipara was the long cervix type. This case appeared to belong to the classical type, with the cyst playing the part of the usual cystocele. A chronic bronchitis provided in this case the factor of strain.

A Test for Patency of the Fallopian Tubes

Mr A. GORAN (Leeds) read a note describing a simple method of testing the patency of the Fallopian tubes. He said that the usual method of insufflation with gas (Rubin) required special and rather complicated apparatus. In the method he advocated saline solution was injected under its own hydrostatic pressure. Owing to the small calibre of the Fallopian tubes the passage of fluid through them was very slow, but it could be made evident with the help of a simple device. The apparatus could be employed in any operation theatre. It consisted of eight feet of rubber tubing with a funnel at one end and at the other end the conical nozzle of a Higginson syringe. About two feet from the nozzle the tube was interrupted by a "drop-counter." It was important that the various junctions should be perfectly tight, so as to allow no leakage. A jug of sterile normal saline solution at 105° F was required. With the patient in the lithotomy position the cervix was seized with a vulsellum and dilated up to No. 10 or so. An assistant, standing on a stool to attain the necessary height, took charge of the funnel and the jug of saline. The solution was poured in until it flowed out through the lower end. The operator tested the apparatus by blocking the nozzle with his thumb to satisfy himself that there was no leak; the nozzle was then firmly pressed into the cervix so as to make a water-tight junction. When the Fallopian tubes were blocked the fluid did not run, or, if at first a small amount entered, the flow soon ceased. If one or both tubes were patent the fluid was seen to drip steadily through the drop-counter generally at the rate of two or three drops per second. The pressure required might be from four to eight feet, corresponding to 100-200 mm of mercury. With this apparatus it was impossible to employ a dangerous pressure, since the pressure could not exceed eight feet of water.

DISORDERED NEURO-MUSCULAR COORDINATION IN CHILDREN

At a meeting of the Brighton and Sussex Medico-Chirurgical Society on December 6th, with the president, Mr GEOFFREY BITE, in the chair, Professor F. S. LANGMEAD read a paper entitled some disorders of neuro-muscular co-ordination in children.

Professor Langmead dealt with that group of disorders in which there was obstruction to a muscular tube at a certain level, and dilatation and hypertrophy of the tube above it, but for which no structural cause could be found. Within this group of "idiopathic" dilatations and hypertrophies he included arthropspasm (achnasia),

Hirschsprung's disease, certain cases of anal spasm, congenital hypertrophy, and dilatation of the bladder or ureters, and idiopathic hydronephrosis. He ascribed the various disorders to unco-ordinate action of nerve impulses, and gave reasons for supposing that they were analogous. It was interesting to speculate how often the nervous dysfunctioning was congenital, as a contribution to this aspect of the subject the speaker gave examples of cases starting at birth or in early life of each member of the group. Describing cardiospasm (achalasia of the cardia) he recounted two cases beginning at or near birth, in one of which complete symptomatic cure had followed treatment by suggestion and persuasion only, he referred to several other cases commencing in early life. Tetany had been recorded as occurring in idiopathic oesophagectasis and also in Hirschsprung's disease. As an example of the latter association he reported a case which had been under his observation for eighteen years, during the whole of which time there were facial irritability and recurrent attacks of tetany. The tetany must be regarded as secondary, for deficiency in blood calcium could not account for any excitability of sympathetic nerve endings and, consequently, spasm of striated muscle. Special stress was laid upon anal spasm as a not uncommon cause of obstinate constipation in infants, and one in which digital stretching of the internal anal sphincter was a completely successful treatment. In the urinary tract functional obstruction might occur in the urethra, resulting in dilatation and hypertrophy of the bladder and ureters, in the ureter, causing dilatation and hypertrophy of a ureter and the corresponding renal pelvis, and at the utero-pelvic junction, giving rise to congenital hydronephrosis. Infantile pylorospasm was then mentioned and regarded as coming within the same category, while congenital hypotrophic stenosis of the pylorus was defined as a congenital abnormality with added spasm, the spasm alone not being sufficient to explain the degree of hypertrophy met with, though it was responsible for the symptoms. Discussing the etiology of the various disorders dealt with he referred to the differing explanations of "achalasia" and spasm, and the arguments which had been advanced in favour of each. It could not be denied that there was spasm at the anus or in the rectum in cases of idiopathic dilatation of the colon where the dilatation and hypertrophy reached down to those levels, for the finger was tightly gripped. Similarly in the bladder cases, the catheter was gripped by the urethra. The bone of contention was a small one—namely, whether the obstruction was provided by a zone of muscle in normal tone or in hypertonia. In oesophagectasis and in Hirschsprung's disease inflammatory changes leading to destruction of Auerbach's plexus had been described, but it was difficult to understand how a paralytic lesion could lead to hypertrophy down to the zone of stricture or how so much hypertrophy could result from obstruction imposed by a zone of muscle in normal tone. Other difficulties in accepting this explanation as the solution in all cases were the incidence at birth or in very early life in some of them, the variability in the degree of obstruction and the periods of freedom from symptoms, the occasional sudden onset of the symptoms as the result of mental disturbance, the permanent relief in some cases by stretching and the freedom from symptoms produced in others by simple persuasion. There was also the positive evidence of gripping by the enema which was vouched for by some surgeons. If the rectal, anal, and urethral obstructions without organic change were legitimately included as belonging to the same group, there was also the definite gripping of the finger or the catheter

CLINICAL SOCIETY OF BATH

A MEETING of the Clinical Society of Bath was held on December 7th at the Royal United Hospital, with the president Mr A. DE V. BLATHWAY in the chair.

Dr WATERHOUSE read a short paper giving an account of five females and one male of ages ranging from 47 to 70 suffering from pernicious anaemia. In each one response to treatment by liver had been rapid and satisfactory. In one patient a red cell count of 1,150,000 with haemoglobin 26 per cent rose

at the end of six weeks to 3,430,000 and 50 per cent, and nine months later to 6,000,000 and 90 per cent, though a few megalocytes were still present. One patient experienced rapid and marked relief of distressing paraesthesia of the limbs. Complete achlorhydria was present in all the patients (four) to whom test meals were given, and was known to have been present in another thirty years previously. A history of sore tongue was obtained from four patients, and in one of these it had been severe enough to prevent the taking of solid food. Three of the patients complained of loss of flesh. In only one was the spleen enlarged.

Dr VINCENT COATES showed a case which he considered to be one of nigryia. There had been silver medication of the eyes. This diagnosis was criticized on the score of the marked localization of the pigmentation to the hands and the conjunctivae, and also because the pigmentation of the hand resembled rather that caused by sunlight than the shade of pigmentation usually seen in cases of nigryia.

Mr MONTAGNE showed a case of marked thickening of the bones of the skull in a young woman. There was a history of the removal under local anaesthesia of a cyst from the upper and outer side of the right orbit, which Mr Miles Atkinson thought had probably been a meningocele. The question of intracranial abscess was discussed, and, in view of the doubtful Wassermann reaction, Dr Waterhouse suggested a provocative dose of no arsenobillon and further blood examination. On account of the severe headache complained of, and the apparent smallness of the pituitary fossa in the x-ray photograph, Dr Thomson suggested a sugar tolerance test.

Dr WATERHOUSE showed a case of stomatitis which had resisted all forms of treatment for many months. Beyond the fact that the eosinophils were markedly increased there were no evidences of a constitutional cause. It was thought to be possibly of dental origin and the red vulcanite of the patient's denture was under suspicion.

Dr DELICATI showed a case of onychotrophic lateral sclerosis with bullar paronychia. As the Wassermann reaction was positive, Dr GONDON thought that the case might probably improve under antisyphilitic treatment.

Dr DUPONT and DOUGLAS MITCHELL and Mr J. S. LEWIS also showed cases.

Reviews.

ERYTHEMA NODOSUM

In a monograph of seventy-two pages Dr J. ODIER SYMES, consulting physician to Bristol General Hospital, summarizes the results of a thirty years' study of 250 cases of *Erythema Nodosum*. He states that in the past this affection has often been described simply as a skin disease, and has been neglected in textbooks of general medicine. Now it is being regarded more and more as a constitutional malady, and possibly even as a separate and specific disease.

Certain interesting facts regarding the incidence of the malady are brought out clearly. There is a definite sex incidence, females preponderating over males in the ratio of over 3 to 1. Most cases occur about puberty or in young adults, but no age is exempt. More cases occur during March and April than at any other time. Definite outbreaks have frequently been noted, the largest referred to by Symes being one of fifty cases in an urban district of Wales in a period of five weeks during August and September, 1920, there having been no previous cases in the area for fifteen years. The incubation period is indefinite, but seems to vary from eight to twelve days. The initial symptoms, before the characteristic nodal rash appears on the limbs, are very variable, but tonsillitis is by far the commonest complaint. The characteristic nodes appear first as bright red spots on the extensor surfaces of the legs and forearms, and come out in successive crops at intervals of three or four days. As they fade they change in colour like a bruise, and may be followed by desquamation. Pyrexia is usually always present, and lasts for a fortnight or longer. Joint symptoms are uncommon. Second attacks of the disease are rare, but one case is quoted in which seven distinct attacks occurred between the ages of 18 and 37 years. The belief that the disease is associated in some way with acute rheumatism dates apparently from a paper

¹ *Erythema Nodosum*. By J. Odier Symes, M.D. Bristol: J. Wright and Sons Ltd. London: Simpkin Marshall Ltd. 1928. (Cr. 8vo pp. 72 8 figures 5s. net.)

by Stephen McKenzie, and according to Symes this view has simply been copied from one textbook to another without any additional evidence. All of Symes's own records and observations, which he tabulates on page 44 of his monograph, are entirely against the view of a rheumatic etiology, or even of a frequent association of the two diseases.

The most important clinical part of the monograph deals with the possibility of a connexion between erythema nodosum and tuberculosis. The evidence is very incomplete, and consists chiefly of indirect observations such as close contact of cases of erythema nodosum with sufferers from active tuberculosis, and the development of tuberculosis within a few months after an attack. Direct evidence is lacking, and, in nodes which have been excised and examined, both histologically and by guinea pig inoculation, almost all the results have been negative. The results of tests such as the von Pirquet reaction in adults can be discounted, and there is really not a shred of evidence in favour of the view often suggested that erythema nodosum is a tuberculous bacillæmia. Symes gives his own observations, founded on a study of 102 cases. In 19 cases tuberculosis was present, in 11 at the time of the attack, in 8 a short time after convalescence. Symes admits that this proportion is by no means high, but nevertheless he feels positive that there is some connexion between erythema nodosum and tuberculosis. He does not consider that the malady is definitely due to tuberculosis, or (as has also been suggested) that it is the exanthem or first allergic sign of a developing tuberculosis. So strongly, however, does the author, from his long clinical observations, hold that there is some definite although subtle connexion between erythema nodosum and tuberculosis, that he recommends that all possible steps should be taken to increase the patient's resistance to tuberculous invasion for six months after an attack.

Information which must be new to most clinicians will be found in the account of the histological examination of the lesion of erythema nodosum, carried out by Professor Geoffrey Hadfield, and illustrated by excellent microphotographs. The lesion is shown to be essentially an inflammation of the small arterioles in the subcutaneous fat, resulting in localized necrosis of the fat. Giant cells appear in later stages which act as fat-phagocytes, and the appearances are really not unlike (although this is not remarked on) those of a subcutaneous rheumatic nodule. No evidence was found in favour of a tuberculous infection, and the conclusion was reached that the emulsion of some soluble toxin gave the best explanation of the lesion.

The last word on erythema nodosum has not been written in this carefully compiled monograph. The author has obviously devoted more time to the study of this disease than any of his contemporaries, and his opinion that a subtle connexion exists between erythema nodosum and tuberculosis must be respected and acted upon. Yet so many cases occur in the absence, before, during, and after the attack, of any other known disease that the possibility of erythema nodosum being an acute specific exanthematous disease, independent of all other diseases, must still be kept for investigation and experiment. With this view there is no doubt that Dr Odery Symes would agree.

CHEMISTRY IN RELATION TO MEDICINE

Recent Advances in Chemistry in Relation to Medical Practice,² by Dr McKIM MURRIOTT, will be found very useful by all students or graduates of medicine who desire to keep in touch with the rapid developments in biochemistry—a task that is difficult for all except specialists in this subject. As the author remarks, “So rapidly has the science advanced that much of the recent chemical literature is likely to be unintelligible to the medical graduate of a few years ago. Yet so important are the applications of chemistry to clinical medicine that a knowledge of recent chemical advances is almost essential to modern practice.” The book consists of six lectures, and

deals with the following topics: acidosis and alkalosis, the chemistry of the blood, food and metabolism, and the endocrines. In handling this material the author has turned to good account his gift for expounding clearly and shortly difficult biochemical problems. The size of the volume, which only contains 140 pages, prevents any attempt at exhaustive treatment of the subjects dealt with, but the author explains the fundamental principle of each and indicates the practical problems of disease to which these principles can be applied. The chapters on acidosis and alkalosis, and on the general principles of diet, are particularly good. The chapters on vitamins and endocrines suffer somewhat from compression. The author has, however, succeeded in his attempt to give a general survey of new work in medical chemistry that can be easily read and understood by those possessing a general knowledge of physiology, and the volume can be recommended to the many members of the medical profession who wish to keep abreast of recent developments in medicine, but who have had little special training in biochemistry.

HAAB'S ATLAS OF OPHTHALMOSCOPY

HAAB'S atlas of fundus drawings of the eye has been known to a succession of students, and has been valued. It was a comfortably small book, and so slipped into the coat pocket with ease. It presented a large number of fair sized fundus drawings of a somewhat diagrammatized order, so that they were more obvious and characteristic of the description of the lesions they purported to represent than anything we ever saw or could expect to see in the human eye. But they served their purpose. Once we had succeeded in seeing what our teachers said was to be seen in such and such a case, once the new world revealed by the ophthalmoscope was fairly entered, Haab's atlas became a useful notebook wherewith to revive impressions, and the impressions did not suffer by the crude realism of the drawings, for we had seen the real thing.

Now Haab's atlas has been reprinted by a society of sight testing opticians, the British Optical Association. Its form has changed, it is no longer a convenient pocket-book, it is a portentous and heavy volume. Yet it is the same Haab, or at least the pictures are the same as in the old edition, only now each small page of the original is gummed into a larger page of this optician's edition. The change in the environment of Haab's drawing is rather suggestive of a change in the uses to which the book may be turned. It is so large that it may bulk in the eyes of its owners to the exclusion of the real thing which to anyone outside the instruction of a genuine hospital for the reception of cases of disease of all kinds is almost certain to happen, they will see so little of the real that the simulacrum must make their world. An unreal “knowledge” of the appearances of disease in the fundus of the human eye will be only too readily obtained by any student of such a book who possesses an eye for form and for colour. He could memorize the series of illustrations and reproduce them at will with pencil and brush, and as easily “spot” another drawing of a fundus condition, since all drawings of the kind are subject to the same limitations of unreality, and yet the successful spotter may be scarcely able to see a fundus with the ophthalmoscope, much less to make any useful diagnosis from his examination of the eye. These are the facts of experience, and not suppositions. When, therefore, we read in the preface to this new edition, “It is earnestly hoped that the present edition will prove equally valuable to the optician of the future, who is now studying the technique of the examination of vision in such a way that he should be superior to his predecessors,” we cannot but fear the coming of a generation of opticians whose knowledge is derived from the copy and not from life, with results that have been too often illustrated in the decadence of an art or a science.

² *Recent Advances in Chemistry in Relation to Medical Practice*. By W. McKim Murriott, B.Sc., M.D. London: H. Kimpton, 1928. (6 x 8½ pp. 141, 12 figures + 10s. 6d. net.)

³ *An Atlas of Ophthalmoscopy*. By Dr O. Haab, Professor of Ophthalmology, University of Zurich. Translated and edited by W. B. Barlow, Fellow of the British Optical Association and published by this association at Clifford's Inn Hall, London, E.C.4, 1928. (6½ x 9½ pp. 230, 87 figures + 21s. net.)

GUY'S HOSPITAL REPORTS

THE last quarterly instalment of the *Guy's Hospital Reports* for the year differs somewhat from its usual character, for there are two long papers occupying two-thirds of the space, and then fourteen cases of interest reported from 'Clinical,' this sixth series being drawn from the first quarter of the year when the Editor and Dr Poulton were the physicians in charge. Dr J B Hance's article on malaria as an independent etiological factor in portal cirrhosis of the liver is based on twenty cases of cirrhosis observed in the North-West Frontier of India, in which other causes—for example, kala-azar—were eliminated. In his article of fifty three pages on hypochondria, its definition and nosology, and psychopathology, Dr R D Gillespie, physician for psychological medicine, first gives a historical sketch of the use of this word, and discusses the clinical criteria necessary to regard a condition as hypochondriacal; these are 'a mental pre-occupation with a real or supposititious physical or mental disorder, a discrepancy between the degree of pre-occupation and the grounds for it so that the former is far in excess of what is justified, and an affective condition best characterized as interest with conviction and consequent concern, and with indifference to the opinion to the environment, including irresponsiveness to persuasion.' Among the cases from 'Clinical' there are four of gastric haemorrhage due to the haemorrhagic diathesis, four cases recorded by Dr E M B West—namely, submucosal haemorrhage, subarachnoid haemorrhage, possible coronary embolism in a man aged 25, and haemolytic non-Addisonian anaemia with Hunterian glossitis and achlorhydria. The evidence against pernicious anaemia in the last case was the low colour index, the unusual profusion of normoblasts, and the type of the Price-Jones curve. A case diagnosed as splenic artery aneurysm, on the grounds that the left-sided pain is unusual in abdominal aneurysm and that the attacks were produced by taking food, is briefly recorded by Mr T G Scott. Very rapidly fatal suppurative syncope due to streptococcal septicaemia is described by Mr D Ellis, Dr Pitt-Rivers gives an account with skiagrams of transposition of the viscera with tuberculous pleurisy, and Mr L Graff a case of congenital cerebral aneurysm which lapsed on three occasions before the final fatal rupture into the substance of the brain. In the commentary it is pointed out that the *post-mortem* appearances of intracranial aneurysm were first described by Sir W Gull in 1859, and the clinical diagnosis by Dr C P Symonds in 1923.

BOOKS ON BACTERIOLOGY

SOME of our readers will be glad to have their attention drawn to recent arrivals in the steady stream of textbooks of bacteriology reaching us from across the Atlantic, even though we can only find space for a few sentences of comment. *The Physiology and Biochemistry of Bacteria* by R E BUCHANAN and E I FULMER, is a compilation and systematization of material relating to the physiology of micro-organisms, particularly of the bacteria, yeasts, and moulds. Students whose interest in bacteriology is purely medical might find this volume useful for reference on some special occasion, but will not need it in routine work. *An Elementary Text-Book of Microbiology*,¹ by WARD GILTSNER, is a good book for science students of bacteriology who wish to have an introduction to all the applications of bacteriological science. In this country it might be of interest to teachers for the D.P.H., but not to medical students. *Elementary Bacteriology*,² by J E and ETHELYN O'NEILL, is a book which we might recommend to satisfy the curiosity of educated laymen about what bacteria are and what they do. Its perusal, however, is a task not to be entered on lightly, and the book is evidently written for the serious-minded student.

¹ *Guy's Hospital Reports*, Vol 78 (Vol 8 fourth series) No 4 October 1928. Edited by Arthur E Hurst M.D. London: The Lancet Limited (Med 8vo pp 378-500 4 figures). Annual subscription £2 2s single numbers, 12s 6d net.

² *Physiology and Biochemistry of Bacteria* Vol I. By R E Buchanan Ph.D. and Ellis I Fulmer Ph.D. London: Baillière Tindall and Cox. Baillière The Williams and Wilkins Company 1928 (Med 8vo pp xi + 516 78 figures 34s net).

³ *An Elementary Text-Book of Microbiology*. By Ward Giltner. London: J and A Churchill 1928 (Med 8vo pp xxi + 471 99 figures 15s). ⁴ *Elementary Bacteriology*. By J E and Etheilyn O'Neill Ph.D. and Etheilyn O'Neill M.S. Philadelphia and London: W B Saunders Company 1928 (1st 8vo pp 506 129 figures 15s net).

NOTES ON BOOKS

The Human Body, by Dr LOGAN CLENDENING, is a work of some originality, treating of the anatomy, physiology and pathology of the body on unconventional lines. It is dedicated to a medical friend with whom the author had many a time sat in into the night and discussed pathological specimens temporarily secreted in their bath tubs, to the horror of their wives. From such gatherings the book, with its breezy conversational style, appears to have had its origin. As a text book of medicine it may not be rated very highly, but the author exhibits considerable erudition, and quotations abound, ranging from Hippocrates to G B Shaw, interspersed with anecdotes having reference mainly to the circumstances of early discoveries. Thus we are shown Vesalius in the dead of night cutting down his first skeleton from a gibbet outside the walls of Louvain, a figure of the fattest woman on record, an engraving of Alexis St Martin's gastric fistula, the title page of the book which first described the action of Epsom salts—a landmark in the history of mankind—a picture of old Aesculapian testing the contents of his wine cask by tapping it, from which his son deduced the method of percussion, and of Laennec watching boys at play, from whom he gained the idea of auscultation. These, with many anecdotes, such as that of the old Shropshire woman who cured the Dean of Brasenose of his dropsy by means of an infusion of foxglove, are to be found on almost every page. The following will give some indication of the author's style. The Princess Caroline (There never was a clever woman who was not a quack,' some scoffers observed) persuaded George I to pardon six condemned criminals who would submit to inoculation for purposes of punishment, all of whom thus escaped hanging, and after a mild case of small pox were free to pursue their customary vocations and avocations. In France Louis XVI was inoculated in 1774, and Marie Antoinette's milliner, Mlle Rose Bertin, in honour of the occasion, designed a special head dress, which was shaped like a small pox pustule, the royal patient was protected from small pox but he was not so successful as the English experimental animals from Newgate in escaping judicial extinction.

The well got up facsimile of *The Ordinal of Alchemy*, by Thomas Norton of Bristol,* reproduced from the copy of ELIAS ASHMOLE'S *Theatrum Chemicum Britannicum* (1652) in the Science Library of Clifton College, is introduced by a scholarly account of its history by Dr E J HOLVIAARD. Thomas Norton, whose father was Mayor of Bristol in 1413, studied alchemy early in life, and when 23 years old thought that he knew how to prepare the Elixir of Gold, he wrote two other works—*De Transmutatione Metallorum* and *De Liquidis Philosophicis*—which, however, were not published. Ashmole, in his annotations on the *Ordinal* (reproduced like the text in the original form), points out that the author's name and residence are revealed by taking the first word of the Proem and the initial letters of six following chapters, which provide the words Thomas Norton of Bristol.

The third volume of *Fortschritte der Sexualwissenschaft und Psychoanalyse*,¹⁰ of which the second appeared over two years ago (see *Journal*, January 16th, 1926, p 107), has recently been issued by Dr WILHELM STEKEL, assisted by Drs ANTON MESSRIEGLER and EMIL GUTHIEL. The volume contains seven original articles, including papers by the editor on the progress of dream interpretation and the psychology of self repression, and the psycho-analysis and forensic significance of kleptomania by Dr Mark Friedemann, nine shorter communications dealing with various aspects of psychoanalysis, abstracts from current literature, and notes on books.

The sixth volume of *Scientific Reports from the Institute for Infectious Diseases*,¹¹ at Tokyo, edited, like the previous issue (see *Journal*, April 7th, 1928, p 600), by Dr YONEJI MIYAKAWA, contains 53 papers, of which 32 are in English, 16 in German, and 3 in Esperanto, devoted to bacteriology, serology, pathology, biology, biochemistry, clinical medicine, parasitology and protozoology, and medical entomology. The subjects discussed include the Wassermann reaction in tuberculosis and leprosy, experimental nephritis, the origin of the oestrous hormone, the sanocrysin treatment of tuberculosis, culture media for spirochaetes, and prophylaxis of Weil's disease.

* *The Human Body* by Logan Clendening M.D. New York and London: A Knopf (6 x 9½ pp xxi + 399 102 figures 25s net).

* *The Ordinal of Alchemy* by Thomas Norton of Bristol. Reprinted from *Theatrum Chemicum Britannicum* with facsimile reproduction from *Theatrum Chemicum Britannicum* with annotations by Elias Ashmole. With an introduction by E J Holviah M.A. D Litt F.R.C. London: E. Arnold and Co 1928 (Demy 8vo pp viii + 125 4 plates 10s 6d net).

¹⁰ *Fortschritte der Sexualwissenschaft und Psychoanalyse*. Herausgegeben von Dr Wilhelm Stekel. Redigiert von Dr Anton Messriegler und Emil Guthiel. III Band. Leipzig and Vienna: F. Deuticke 1928 (6½ x 9½ pp 155 2 plates 12s).

¹¹ *Scientific Reports from the Government Institute for Infectious Diseases*. The Tokyo Imperial University for the year 1927 Vol 1. Edited by Dr Yoneji Miyakawa Tokyo: Shirokane-Daimachi, Shikibu 1928 (Cr 4to, pp 622 116 figures).

British Medical Journal.

SATURDAY, DECEMBER 29TH, 1928

MENTAL HYGIENE

From its inception five years ago the National Council for Mental Hygiene has chosen as its special task the building up of an enlightened public opinion in relation to mental disorder. The council seeks to improve the mental health of the community, and to this end it endeavours to combat the prevailing ignorance and superstition regarding the true nature of mental disorder which so seriously hamper the work of those concerned with the treatment of the mentally afflicted. It aims further, at securing a more important position for psychiatry in the medical curriculum, and a closer association between psychiatry and general medicine. Recognizing that factors both hereditary and environmental are responsible for the production of criminality, degeneracy, vagrancy, delinquency, and prostitution, the council, in its fifth annual report¹ maintains that these social evils can be effectively combated only if the relative significance and the mode of operation of the causative factors are adequately understood. Accordingly it proposes (1) to promote a critical study of the social habits, industrial life, and environments of the people, with a view to cradicking those factors which lead to mental ill health and unhappiness; (2) to investigate the various causes physical and psychological underlying failures of social adjustment; (3) to consider the extent to which clinical psychology may contribute towards the elucidation of the problems of habitual criminality, and, (4) from the standpoint of prophylaxis most important of all to study the mental hygiene of child life in relation to education and parental responsibility. Even with the knowledge now available it holds that the mental health of the community could be materially improved in three ways: by the establishment of special clinics and out-patient departments for the early treatment of mental disorder; by raising the standard of care and treatment in the public mental hospitals, and by removing legal formalities which tend to postpone the effective treatment of early cases.

The council's report on the early treatment of persons suffering from functional nervous disorders and minor mental maladies, as it might affect general hospitals is of special interest in view of the proposal of the Ministry of Health's Local Government Bill (1928) to transfer the responsibility for Poor Law administration from the existing authorities to the councils of counties and of county boroughs. This transfer of powers—if full benefit is to be gained from the reforms—should lead to the immediate allocation of a large number of hospital beds throughout the country, and hence it is especially important that administrative schemes relating to the use of available hospital and institutional accommodation should be precisely formulated. The Local Government Bill it will be noted, deliberately excludes the Lunacy Acts from the scope of its proposals, on the ground that these will be dealt with separately in pursuance of the report of the Royal Commission on Lunacy Law and Administration. Such exclusion however will not affect the type of case with which the National Council of Mental Hygiene is especially

concerned. At present there is but scanty provision for the institutional treatment of cases of incipient mental disorder. A questionnaire sent out by the Council to 155 general hospitals in Great Britain and Ireland, as to the facilities at present available for early treatment, elicited the information that not a single provincial general hospital has such in-patient accommodation, though many of them, when necessary, admit patients from out-patient psychiatric clinics to the general wards. Otherwise institutional treatment is not available until a case has become certifiable, and is in a condition to be removed to a special mental hospital. The council proposes in the course of the next few months, to devote itself to a campaign for bringing the needs of early mental and nervous patients to the attention of the councils of counties and of county boroughs. It holds that special departments of the institutions taken over by these authorities can, and should, be allocated for the treatment of these patients. Meanwhile the council has considered proposals for future legislation in relation to provisional treatment orders, the reception of patients who are being treated under any form of provisional order outside of institutions, the notification of borderland cases and of other persons who do not require restriction of their liberty, the adequate protection of the medical practitioner exercising his duties under the lunacy laws, and the after-care of mental patients.

Recognizing that the social inadequacy which results in the production of the unemployable, of the nervous invalid and of the mentally unbalanced may often be traced to the operation of noxious psychological influences in childhood, the council advocates wholeheartedly the extension of a child guidance movement in this country. A memorandum dealing with this problem, and published as an appendix to the report, is particularly opportune at a moment when the first large and fully equipped child guidance clinic is being established in London. Finally, the council realizing that there is no instruction in mental deficiency available for medical practitioners unable to leave their practices to attend a special course has arranged with the Fellowship of Medicine and Post Graduate Association to institute such a course, and to include it in the ordinary post graduate programme.

INTERNATIONAL PUBLIC HEALTH PROBLEMS

THE Office International d'Hygiène Publique has lately issued in pamphlet form a short summary of the proceedings of its Permanent Committee at the last session of that body in Paris in October. This plan of publishing a succinct account of the deliberations of the committee, and so enabling interested persons and bodies to maintain contact with its business has we think, much to commend it as an alternative to the more common practice, particularly among international bodies, of waiting until full verbatim reports are prepared before presenting the tale of their actions to the public.

At this meeting Great Britain was represented by Sir George Buchanan. British India by Colonel J. D. Graham. Australia by Dr C. L. Park, Canada by Dr H. B. Jeffs. New Zealand by Colonel S. P. James, South Africa by Dr P. G. Stock, and the Irish Free State by Dr Boyd Barrett. Representatives of about thirty other States and Dominions were present and in addition Dr Abt, director of the Office International. Dr Rajchman, medical director of the League of

¹ Fifth Report of the National Council for Mental Hygiene (Incorporated) 1927-28 London: 78 Chandos House, Palmer Street, S.W.1

Nations Health Organization, and the late Major C P Thomson, president of the Egyptian Sanitary Maritime and Quarantine Board, took part in the discussions. The special commission, consisting of the delegates of countries interested in the sanitary control of the Mecca pilgrimage, has been established as a permanent body, charged with the duty of examining all information about the pilgrimage each year, and of studying questions bearing upon its sanitary control. A report by this commission, embodying recommendations designed to secure co-ordination in this control, was approved by the committee. It has been decided to publish next year the first issue of an international maritime health annual, giving a comprehensive survey of port sanitary and quarantine administration. In the meanwhile, the encirculation of information relating to ports adequately equipped to carry out "decontamination," and therefore competent to issue the appropriate certificates, is being undertaken. The committee has also been engaged in an effort to abolish unnecessary consular visas on such certificates and on bills of health.

Other matters which have received consideration include the use of wireless telegraphy for quarantine purposes, the utility of rat guards, and the measures of sanitary defence which may usefully be taken in connexion with air traffic from infected countries. A valuable discussion was devoted to the recrudescence of yellow fever in various parts of Africa and in South America since 1926. Reference was made to the Anglo-French conference at Dakar in April last and to the agreement recently made between the Belgian Congo and Angola as examples of international co-operation which should be extended for the defence of Africa against yellow fever, in order, while lessening the possibility of the spread of infection to reduce to a minimum interference with international traffic. The Office International has established a commission to study the question, and it was urged that the health authorities in East Africa, in British India, and in the Far East should exercise the utmost vigilance to prevent the advance in the future of yellow fever in Asia. A variety of other epidemic diseases came under review, including cholera and dengue, and the discussions on post-vaccinal encephalitis, leprosy, the etiology of poliomyelitis, certain aspects of tuberculosis, infant mortality, and other subjects yielded much interesting matter of practical importance to world hygiene.

A NATURAL RESERVOIR FOR MANSON'S BILHARZIASIS

In various parts of Africa and South America, as well as in the Far East, we have found three species of blood flukes—the bilharzia worms—which in the endemic regions are exceedingly dangerous human parasites. The Far Eastern species, in addition to man, lives in a great variety of other mammalian hosts, domestic as well as wild. The African species, however, if we except a possible record from a monkey of what may have been *Schistosoma haematobium*, has not hitherto been found in any animal other than man. It is true that Professor Leiper was able experimentally to infect African and Indian monkeys as well as a variety of rodents, but until now man has been regarded as its sole natural host. In the current number of the *Journal of Hygiene* Dr. T. W. M. Cameron of the London School of Hygiene and Tropical Medicine, who has just returned from a research expedition to the Lesser Antilles, records the natural occurrence of *Schistosoma mansoni* in monkeys in St. Kitts. Curiously enough the monkeys there, and in several of the other islands, are of African origin, and were imported as pets many years ago. During

some of the frequent wars with the French the monkeys escaped to the hills, and there, with no natural enemies, prospered abundantly, and have now become, not only great pests to the planters through their natural predilection for destroying everything they cannot eat, but serious menaces to the health of the community. The relationship of monkeys and man is becoming more and more obvious as time goes by, and one by one the various diseases thought to be peculiar to man are appearing in his more humble relations. In recent years yellow fever has been transferred to Indian monkeys, and adequate research has thus been rendered possible. Now African bilharziasis has been added to the list, while Voronoff has found the monkey a valuable donor in his human rejuvenating work. We are approaching, in fact, a more rational conception of man's true place in the animal kingdom, and this new humility prepares the way for an understanding of much that had hitherto been obscure. The appearance of a reservoir host for *Schistosoma mansoni*—a possibility seen by Leiper twelve years ago, when he elucidated the life-history of these flukes in Egypt—has, however, other and more far-reaching implications. Various schemes for the eradication of bilharziasis in Africa have been mooted, but all fall into one of two classes—eradication in some way of the snail intermediary, or eradication of the adult parasites by the injection of drugs. The second plan, apart from various practical difficulties in its execution, postulates the absence of a reservoir host. The finding of one species of African reservoir host therefore shows that the adoption of such a plan is fraught with hitherto unsuspected pitfalls. It is more than probable that research will bring to light other such hosts in Africa, and, as Leiper pointed out in 1915, the ease with which rodents may be infected in the laboratory suggests that such reservoir hosts may not be confined to the primates. Accordingly, until the absence of such an animal in any locality is established, and until it is clear that such an animal cannot in the future enter the locality, eradication of schistosomiasis by treatment alone has very doubtful chances of success. The eradication of the snail intermediaries, however, strikes at a factor common to man and animals, in the absence of which infection is impossible. The methods of eradication employed—drainage, chemicals, rotations, and so on—will depend on local circumstances, but this method has obviously a much greater chance of success than one which neglects the presence of the parasite in wild animals.

THE PARATYPHOID OUTBREAK IN LONDON

A REPORT was made to the London County Council on December 18th on the serious outbreak of paratyphoid fever which occurred in London and adjacent districts last July. The first information received, on July 30th, was of 5 cases in a southern district of the county. On the following day further cases north of the river were notified. Immediate inquiry brought to light a number of other cases in the western area of London, and simultaneously the Council's attention was directed by the Ministry of Health to cases in adjoining districts outside the county. Action was at once taken, and the outbreak was speedily localized and stemmed. The number of London cases investigated was 282, of which 201 were identified as cases of paratyphoid B fever, 4 of these proved fatal. A report with statistics and full information on the cases has been submitted by Dr. J. A. H. Brincker, senior medical officer. The Public Health Committee records its appreciation of the ability and unremitting labour given to the conduct of the investigations, and of the close co-operation between the Council's officers, the Ministry of Health, and the medical officers of health of the districts concerned, without which the outbreak could not have been dealt with efficiently. The committee adds a brief reference to the question of prevention.

tives in food. The use of preservatives, including boric acid, in food is prohibited in the Public Health (Preservatives, etc., in Food) Regulations, 1925, which came into force in their entirety on July 1st, 1928. "The use of boric acid in food," says the committee, "is intended merely as a preservative and not as a germicide, even in considerably greater strengths than that formerly used; it has no germicidal action on disease-producing bacteria generally, and entire organisms in particular. Although the regulations of 1925 were at first regarded with misgiving by traders, it is now being increasingly recognized that preservatives are not necessary in good wholesome food, and that their presence in food is not beneficial to the consumer and may even be injurious, not only by their effect on the digestive system, but by concealing the unsoundness of food intended for sale. Proper care in the preparation and handling of food to minimize the risk of contamination, and the added safeguard of proper cooking, pasteurization, or sterilization, where applicable, constitute the best means of ensuring a sound and wholesome food supply."

"GO TO THE ANT"

PROFESSOR FOREL'S *Social World of the Ants*,¹ a translation of which by C. K. Ogden, the editor of *Psyche*, is now published, besides being a very fine treatise on the anatomy and physiology of ants, their species and geographical distribution, and their social organization, has the special advantage of being the work of an expert psychologist. It therefore contains a very able analysis of the sensory organs and functions and of the psychology of these insects, so far as it is possible to deduce it from a study of their behaviour, from this analysis the author shows that the characteristic form and perfection of social organization among ants follows as a natural corollary. The book is much more than a work on a branch of natural history, although considered in that light alone it is a very fine work. It is a study in sociology as well, and is rendered all the more interesting by a highly instructive comparison which the author draws between the ant society and human society. Professor Forel has taken an interest in ants from childhood, and his book contains the results of seventy years or more of uninterrupted study of their ways. He considers that the anatomical facts observed justify the opinion that ants possess nervous centres corresponding in a limited degree to our cerebral hemispheres, and that they are known to have the power of communicating their ideas by means of a primitive form of language, expressed by movements of their antennae. It is, then, not surprising that, in a community all of whose members appear to work together for good, acts which we should regard as virtuous are sometimes observed. It is difficult to interpret in any other way the following circumstance: an ant, seeing a friend in danger, endeavoured by gentle persuasion, such as pulling her limb, to entice her away, but, finding her entreaties unavailing, she finally seized her companion and carried her bodily into a place of safety. On the other hand, if ants can claim to possess some of our personal virtues, we must confess that we fall very far short of them in our appreciation of social duties. Every call for the performance of a social duty is immediately responded to by the ants, and the task is executed with efficiency: a breach in a wall brings the builders immediately on the scene, and the military will turn out should there be any danger of the workers being interrupted by enemies from without. The same promptitude and efficiency are observable in every detail of the social economy, and, what is particularly noticeable, the work is done spontaneously, without orders from anyone, the community is purely

anarchical. It would seem that so perfect a system might with advantage be adopted by ourselves, thus, however, Professor Forel shows to be a delusion—human and ant phylogeny have developed along different lines. The circumstances of their history through the centuries have resulted in the memory storage of ideas advantageous to the species in the case of the ants, and their actions are controlled by the instincts so acquired. The phylogenetic history of man is different, when he "came down from the tree tops some millions of years ago, he entered into conflict with the monstrous mammals of the Tertiary period, a time when force was the only law. Thus the primitive man learned to wage war upon other living creatures, including his fellow men. Courage, strength, and cunning were his prerogative"—in other words, his proclivities were individual, not social. Forel represents the matter, hypothetically, in mathematical terms: 60 per cent of more of man's actions, he suggests, may be considered to depend on his individual memory—on impressions acquired during his life-time—the rest being due to hereditary dispositions, while in ants 94 per cent of thought, will, and action may be attributed to species memory or instinct, hence their predominantly social disposition. "The hereditary social instincts of ants permit them to live without chieftains, guides, police, or laws, in an admirably co-ordinated state of anarchy, human beings are absolutely incapable of doing this, and if they attempt as much they at once fall back into such a triumphant state of bigandage that they are compelled to submit once more to the rule of chieftains." Such is Professor Forel's conclusion, it may be hoped, however, that man may in time develop an ideal of concord, and that the corresponding disposition may be transmitted. "Go to the ant—consider her ways and be wise."

LENTICULAR DEGENERATION IN INFANTS

PROGRESSIVE lenticular degeneration, described by S. A. Kinnier Wilson in 1912, has been found from time to time in children, and the onset of the disease when met with in adults may sometimes be traced back to childhood. T. H. H. and L. Harbitz have, however, carried the disease back much further in a recent paper,¹ where they describe a case of lenticular degeneration in an infant aged 8 months. The parents were first cousins, and two other children had died from convulsions in early infancy. There was no history of any nervous disease in the parents' families. The infant suffered from convulsions during the second week of life, and, according to the mother, had always lain very quiet in bed, hardly ever kicking, it had not lifted up its head or sat up. On admission to hospital there was considerable rigidity in the flexor muscles of the arms and in the abductors of the legs. The reflexes were brisk, and the plantar responses were both flexor. The pupils were equally large, and reacted to light. The day after admission the infant developed twitchings of various muscles in the four limbs. Lumbar puncture showed clear fluid, not under pressure, with 6 cells per c. mm. normal sugar, and no increase in protein. The infant died next day, with convulsions and a continuance of the twitchings. At the necropsy there was no obvious evidence of any disease on the surface of the brain, but, on section, the outer third of the lenticular nucleus on both sides was found to be porous, softened, and honeycombed, this was also well marked in the putamen and pallidum. The caudate nucleus and internal capsule were normal in appearance. Microscopical examination confirmed the fact that these degenerative changes were almost entirely limited to the region of the lenticular nucleus. The liver in this case was not abnormal. Here, at any rate, there seems to be clear evidence of a young infant with lenticular degeneration, but further striking confirmation was found

¹ *The Social World of the Ants*. By Auguste Forel. Translated by C. K. Ogden. In two volumes. London and New York: C. P. Putnam's Son, Ltd. 1928. (i) pp. 311, Vol. I, pp. xxx + 551. 25 figures, 9 plates. Vol. II, pp. xiv + 445. 42 figures, 14 plates. £3 3s. the two volumes.)

¹ *Acta Paediatrica*, viii, August 1928, p. 112.

in the fact that a previously born sister had died from convulsions on the fourth day of life, with marked degenerative changes in the neighbourhood of the right internal capsule and lenticular nucleus, and with no other change except oedema in the rest of the brain. The familial nature and the situation of the lesions in these cases make it very probable that they were examples of Wilson's disease. The absence of changes in the liver may possibly be explained by the very early age at which death occurred. The presence of curious twitchings not associated for the most part with any definite convulsions, and the rigidity without an extensor plantar reflex, seem to point to involvement of the extrapyramidal system. It is possible that careful examination of the basal ganglia of infants dying from convulsions with unusual clinical findings such as described in this case may lead to the discovery of changes in the lenticular nucleus, and confirm the occurrence of Wilson's disease at an early age.

THE NEEDS OF THE BLIND

THE necessity for increased support for the organizations which minister so devotedly to the needs of the blind is revealed in the annual reports for the year 1927-28 both of the National Institute for the Blind and of St Dunstan's, which provides for the care of blinded ex-service men. Subscriptions, donations, and the proceeds of collections received by the National Institute showed a further drop of nearly £10,000, following a decline of £15,000 in the previous year, while the expenditure of St Dunstan's was almost £5,500 in excess of receipts. It is unnecessary to give in detail any account of the activities of these bodies, both of which are widely known, although apparently suffering from an insufficient realization of their financial needs. The National Institute, which has the distinction of being the largest institution of its kind in the world, has played an extremely important part in developing the publication of embossed books, periodicals, and music in Braille and Moon type for the blind—a service of incalculable value. Particular attention is being paid to the requirements of students, and a special library has been formed for their benefit. Homes, hostels, and colleges are maintained, training is provided in a variety of callings, assistance is given in the form of grants and pensions, in securing employment, in the marketing of goods, and in a score of other ways. In recent years the Institute has become of increasing importance as a co-ordinating centre for the numerous local societies. The report, richly illustrated with photographs, gives an exceedingly interesting account of its multitudinous activities which should attract attention to its work and should, it is to be hoped, provoke a substantial inflow of money to its coffers. St Dunstan's, within the narrower limits of its own province, works along similar lines, its main preoccupation having been, in the thirteen years of its existence, the training and re-establishment of men blinded in the war. Those who have come under its care deserve especially the best aid the public can afford by reason of the circumstances in which they lost their sight, their training presents a special problem through the tragic fact that blindness came when they had already attained manhood. The work of St Dunstan's does not cease during the lifetime of its subjects, for the after-care department continues to provide advice and assistance for all who have passed through the establishment. There are further, many ex-service men whose sight has since the armistice, faded gradually through causes attributable to the war, nearly 900 such cases have already been added to the roll of St Dunstan's men, and to-day there are over 1,900 men—with dependants numbering almost 5,000—under the care of the institution. During the year the main establishment for the personal care of blinded men was removed to Brighton, the headquarters

remaining in London. The photograph given in the report to illustrate the progress achieved by men who have gone forth to take up an independent existence once more bears witness to the success achieved by St Dunstan's in rebuilding shattered lives. We trust that both these admirable institutions will speedily gain wider support from the public, who can assist most usefully by subscribing liberally to their funds, and also by purchasing goods manufactured in their workshops or made by blind craftsmen trading on their own behalf.

ELECTROCUTION IN THE X-RAY ROOM

A CASE is reported in which a child aged 8, while undergoing x-ray examination, was killed by an electric shock. At the inquest it was stated that a fluorescent screen was used, and three examinations were made during the third of these a nurse and the mother, standing on opposite sides of the x-ray couch, were holding the patient. The doctor, having completed his examination, was walking across the darkened room to switch on the lights when there was a sudden flash near the floor, the nurse was stricken unconscious, the mother was "lifted off the ground" and fell on the floor, and the child was found to be unconscious and suffering from burns on the forehead and limbs. Artificial respiration was applied to the child, but without avail. The mother and nurse recovered without any serious effects. The doctor felt a shock when he lifted the child off the table. It appeared from the evidence given at the inquest that the nurse had only once before been in the x-ray room, and having no idea of possible risks, was standing in the "danger zone," close to the high-tension leads which passed from overhead down under the couch, and close to a foot-switch controlling the current supply. The radiologist stated that he had no doubt that she was in such a position as to form an electric circuit from the high-tension leads through the child, and that this was the cause of the accident. He added that there was no practical method available for insulating the high-tension leads of the apparatus. The jury returned a verdict of "accidental death," and attributed no blame to anyone. The coroner said that the question of admitting inexperienced persons to the x-ray room might be considered by the hospital authorities concerned. This case raises several questions of importance. The dangers arising from electric currents, especially of high tension, have long been recognized, and, in so far as the public may be exposed to them, form the subject of legislation. There are, for instance, very stringent regulations about protecting the public against accidental contact with electric cables in the streets, while the Factory Acts provide for the efficient fencing of electrical machinery in factories and workshops. The wiring of premises for distribution of current from public supply mains is also carefully supervised, in order to minimize risks of fire and electric shock. There seems, however, to be very little control over the manufacture or sale of electrical appliances so as to ensure that these shall be reasonably safe for the purposes for which they are intended. Naturally the makers and vendors of such apparatus are sufficiently jealous of their reputation to take such precautions as they deem sufficient, but these may not be enough to render their products "fool proof." The dangers arising from excessive exposure to x-rays are now so widely known that nearly all x-ray tubes are provided with efficient devices for shielding the operator from the rays. In this matter the National Physical Laboratory has issued instructions which no manufacturer would venture to disregard. There is, however, a good deal yet to be done in the way of protecting the high-tension circuits used. When it is remembered that death has followed exposure to a current of only 50 volts, while the "secondary circuit" of an x-ray

apparatus carries a current of from 50,000 up to 250,000 volts, the danger of electrocution becomes obvious. As was stated at the request in this unfortunate case, it is not necessary to touch the wires, etc., carrying such a high potential—mere proximity will allow a dangerous electric discharge to take place from the conductor to the individual who approaches within a few inches of it, and when, as is usually the case, an x-ray screen examination is made in a room plunged almost into complete darkness, it is clearly necessary to provide that, as far as can be arranged, it shall be physically impossible for anyone present to receive a shock from the apparatus. The best apparatus undoubtedly fulfils these requirements, the whole of the high tension circuit being enclosed, either in some non-conducting material, or in some kind of cage which allows adequate inspection without involuntary palpation of the dangerous parts of the plant. There will, of course, always remain the human element, and ignorance or carelessness will claim an occasional victim. The only remedy for this lies in education. In this connexion it is, perhaps, not out of place to call attention to a rather dangerous kind of suggestion which is now being made by some manufacturers of electro-medical apparatus. These firms, in their advertising, let it be supposed that by the use of their x-ray apparatus any person without previous training can produce radiograms of the highest excellence, and set up as an expert radiologist. The suggestion that there is nothing to be learnt about x-rays will, it is hoped, not be taken too seriously.

MEDICAL EDUCATION IN SOUTH WALES

ALTHOUGH it is too early for optimism there appears now to be some prospect of ending the unhappy conflict between the Cardiff Royal Infirmary and the University College of South Wales, which has interrupted in some measure the clinical teaching of Cardiff students and has led to withdrawal by the English Conjoint Board of its recognition of the medical school. With a view to bridging the gap between the two contending parties a draft scheme of co-operation, which has been approved by the honorary medical staff of the Infirmary, is now to be considered by the council of the College. Provision is made for meeting the cost of structural alterations or additions to the hospital buildings, which may be necessary in the interests of both institutions, and for the payment of grants to the hospital in respect of special services rendered in connexion with the medical school. Beds are to be allotted in a definite proportion to the professors of medicine, surgery, and gynaecology, who would thus become honorary members of the hospital staff, and arrangements are outlined for representation of each institution on the council of the other, and on any joint standing committees set up in accordance with the supplemental charter of the University of Wales. It is proposed to establish a board of clinical studies to organize the clinical teaching at the Infirmary. This would be composed of all the recognized clinical teachers and part-time lecturers who are members of the honorary medical staff of the Infirmary, the professors of medicine, surgery, obstetrics and gynaecology, and pathology, the radiologist, and the lecturer in anaesthetics, one member of this board is to be appointed to represent it on the Board of Medicine. It remains to be seen whether the necessarily divergent points of view of the Royal Infirmary and of University College can be completely reconciled on such lines, even after modification, but the scheme may at any rate be welcomed as indicating a desire to examine as fully as possible the ways by which co-operation might be restored. The end of this long controversy will be applauded by none more readily than by the many members of the British Medical Association who enjoyed the hospitality of Cardiff at the last Annual Meeting. All will hope for a wise settlement of

old disagreements, and the defining of a basis of permanent harmony, which is vital to the cause of medical education in South Wales.

PROFESSOR MAX NEUBURGER

THE issue of the *Wiener medizinische Wochenschrift* for December 8th was devoted to the history of medicine, in honour of the sixtieth birthday of Professor Max Neuburger, who holds the chair of the history of medicine in the University of Vienna. Professor Neuburger is the corresponding member for Austria of the Osler Club, and on December 7th this club celebrated his birthday in a Malpighi evening. Dr J. D. Rolleston spoke of Neuburger as a medical historian, and emphasized the wide range of subjects covered by his pen, referring especially to his neurological studies and his papers on medical Vienna in bygone days. With this tribute Sir D'Arcy Power associated himself. Messages were received from the Austrian Minister in London and from Professor Arturo Castiglioni of Padua, the corresponding member for Italy. An exhibition of Professor Neuburger's most important works had been arranged. Papers on Malpighi, illustrated by slides and exhibits, were read by Professor W. E. Le Gros Clark and Dr J. B. Pulton. The Wellcome Historical Medical Museum had lent their portrait of Malpighi for the evening. The meeting was closed with a charming little speech by Dr A. P. Cawadas.

THE annual congress of the Ophthalmological Society of the United Kingdom will be held in London on April 11th, 12th, and 13th, 1929. Two general discussions will be held: the first, on "Heterophoria," to be opened by Mr F. Maddox, Group Captain Cecil Clements, and Mr Charles Coulson, and the second, on "The diagnosis and treatment of ocular tuberculosis," to be opened by Sir Arnold Lawson, Dr R. A. Young, and Mr S. A. Browning. Members who wish to take part in the discussions or propose to read papers should communicate with Mr M. H. Whiting, 51, Wimpole Street, W. 1.

THE Home Secretary has appointed Sir Arthur Keith, M.D., F.R.S., to be a member of the Advisory Committee on the Administration of the Cruelty to Animals Act, 1876, in succession to the late Sir Hugh Anderson, M.D., F.R.S.

THE KING'S ILLNESS

RECENT news from Buckingham Palace seems to have given the public a feeling of quiet confidence. The medical communiqué printed in our last issue at page 1151, and widely reproduced in the press, achieved its purpose. With more precise knowledge of the facts of the case doctors were able to form a better estimate of the probable course of the King's illness, and to help others towards a more composed frame of mind. The long bulletin issued on December 20th, after a comprehensive joint survey of the position, was equally opportune, and its tone of guarded hopefulness did much to steady opinion. Since then there has been little of moment to record. The fact that during Christmas week very brief bulletins have appeared at longer intervals than usual speaks for itself. We may reasonably infer that His Majesty, though not out of danger, is making as much progress as can be expected at this stage of his uphill journey. He has far to travel yet, and there may be further checks, but some ground has evidently been gained in the past ten days. Thus the indications so far as they go, are favourable.

Nova et Vetera.

THE HISTORY AND LORE OF CINCHONA.

BY

C J S THOMPSON, M.B.E.

"THIS medicine, the most precious of all those known in the Art of Healing, is one of the greatest conquests made by man over the vegetable kingdom" These words were written of cinchona by Lambert over a century ago, and his judgement on this invaluable drug is fully borne out to day. The mass of material dealing with the history of cinchona is so great that it is possible to give only a brief outline of it within the limits of a paper. For this purpose, therefore, it will be well to consider it from three aspects in its development during the past three hundred years—namely, the traditional, the empirical, and the chemical.

Although much has been written concerning the early history of the drug, our knowledge of the precise date when its remedial properties were first discovered, and of the manner of that discovery, is largely traditional, and is still enveloped in mystery. A picturesque story is related by Geoffroy of an Indian who, having lost himself in the dense forests of Peru, became stricken with fever, and at length collapsed from exhaustion beside a little lake. He drank eagerly of the water, into which a cinchona tree had fallen, and awoke, after a troubled sleep, to find that the fever had left him. There is, however, no foundation for this legend, which was not recorded until late in the eighteenth century. The same may be said of the tradition related by La Condamine in 1738, that the schifuge properties of the bark were discovered by the natives through watching the punas chew it in order to cure their fevers. As a matter of fact, the aborigines of South America, with the exception perhaps of the tribes in the neighbourhood of Loja, appear to have been quite ignorant of its medicinal virtues. Markham observes that it is also significant that the medicine bags or wallets carried by the native itinerant doctors, whose *materia medica* had been handed down from the time of the Incas, never contained cinchona bark.

Although Peru was discovered in 1513, and had submitted to the Spanish by 1550, no mention has been found of the bark earlier than the beginning of the seventeenth century. Joseph de Jussieu, who visited Loja in 1739, believed that the first knowledge of the properties of cinchona was derived by the Indians of Malacotas, some leagues south of Loja, a town founded by the Spaniards in 1546. He states that the use of the drug was first made known to a Jesuit missionary who, when suffering from an attack of intermittent fever, was cured by the bark, which was administered to him by an Indian chief at Malacotas in 1600, and La Condamine claims to have discovered a manuscript in the library of a convent at Loja in which it is stated that the Europeans of the province used cinchona about the same time. A similar story is related of Don Lopez do Canizares, the Spanish Corregidor of Loja, who is said to have been cured of fever by taking the bark in 1630. The fact, however, that its local name was "quina-quina," which means "bark of birds," seems to indicate that some special value was attached to it.

It is somewhat remarkable that, although the Indians of Peru strongly adhere to their traditional customs, they made no use of cinchona medicinally and even in more recent times actually had a prejudice against it in many

cases. 'Pobppig, writing in 1830,' says that 'the people of Huancua, who frequently suffer from tertian agues, have a strong repugnance to its use, while Humboldt declares that at Loja the natives would rather die than have recourse to what they consider so dangerous a remedy. Spruce makes a similar observation with regard to the people of Ecuador and Colombia, and says it was difficult to make the natives believe that their red bark could be required for any purpose other than for dyeing cloth.'

The first authenticated record of the therapeutic value of cinchona is in the year 1638, when the wife of Don Luis Gerónimo Fernandez de Cabrera, Bohrdilla y Mendoza, fourth Count of Chinchon and Viceroy of Peru, was stricken with intermittent fever in the palace of Lima. This lady's maiden name was Ana do Osorio, and she was the daughter of a noble family whose founder was created Marquis of Astorga by Henry IV, King of Castile. At the age of 16 she was espoused to Don Luis do Velasco, a grandson of the first Marquis of Salinas, who died within four years of their marriage.

The young widow, who was a woman of great beauty, became lady-in-waiting to Queen Margaret, wife of Philip III, and while at court she married for the second time. Her new husband was the Count of Chinchon, who was Lord of the Castle of Chinchon near Madrid, and of eighteen towns in the kingdom of Toledo. The count was appointed Viceroy of Peru in 1628, and with his countess made solemn entry into Lima on January 14th, 1629. When the news that the countess was suffering from fever reached Don Francisco Lopez do Canizares, the Corregidor of Loja (who had himself been cured of an attack by means of the drug), he at once dispatched a packet of the powdered bark to Dr Juan de Vega, physician to the countess, assuming him of its efficacy in the treatment of "tertiana." De Vega decided to give it to his patient, with the result that the countess made a rapid and complete recovery.

According to a manuscript by Hipolito Ruiz, the particular species from which the bark administered to the countess was taken was that known to the bark collectors of the time as—"Cascarilla de Chahuarguana," which abounds in cinchonidine. Howard points out the interesting fact that it was therefore to this particular alkaloid that the countess owed her cure. After her recovery the countess became an enthusiastic advocate of the remedy, and caused quantities of the bark to be collected, which she not only administered to her dependants, but distributed to those suffering from fever. Thus it came to be called the "countess's powder."

Hanbury declares that the bark was certainly known in Spain in 1639, a year before the countess returned to Europe, as on that date it was administered for the first time to a priest at Alcalá de Henares near Madrid. The countess came back to Spain in the spring of 1640, and brought with her a quantity of the bark, with the intention of distributing it among those suffering from fever on her husband's estate, where tertian fever was very common. When Dr Juan de Vega followed her, shortly afterwards, he brought with him a further supply, which it is said he sold at Seville for 100 reals a pound.

Little more is known of the bark until 1653, when Chifflet, physician to the Archduke Leopold of Austria and Governor of the Low Countries, wrote a report on the drug and its introduction into Europe. He says "Among the wonders of the day many reckon the tree growing in the Kingdom of Peru called Lignum Februm, whose virtues chiefly reside in the bark, which is known as China Tobris. During the last few years it has been imported into Spain, and thence sent to the Jesuit, Cardinal Joannes de Lugo at Rome."



THE COUNTESS OF CHINCHON
(From an alabaster effigy on her tomb)

In 1652 Chifflet's master, the Archduke, had been taken ill with fever and was treated with the bark, but although he recovered from two attacks he refused to take it in a subsequent one, to which he succumbed. The physicians of the time were divided in their opinions as to its value. Considerable controversy arose, and although it was admitted by many that it palliated the fever they insisted that it "fixed the humour," thus causing a relapse of some other dangerous disease.

Roland Sturm, a doctor of Louvain, who wrote a treatise on the new febrile in 1659, states that it was known in Brussels and Antwerp at that time as "pulvis Jesuiticus," because the Jesuit fathers used to administer it. They charged the rich the price of its weight in gold, but gave it to the poor who suffered from quotidian fever. It was more commonly known as "pulvis Peruanus" or "Peruvianum febriifugum." The fathers in Peru sent considerable supplies of the bark to Rome, and the methods of using it were explained to a congress of Jesuits assembled in that city. It was afterwards distributed to members of the community by Cardinal de Lugo, the Procurator General of the Order, who also gave it away to the poor who came to his palace. Thus it became commonly known in Rome as the "Cardinal's bark," or the "powder of the Fathers." Sturm states that he "saw twenty doses sent to Paris in 1656 which cost 60 florins and according to directions issued to the apothecaries of Rome for its administration it was to be given infused in white wine. Cardinal de Lugo, on visiting Paris found Louis XIV. suffering from an attack of intermittent fever and persuaded him to take the bark, after which he made a good recovery.

In spite of its success in such notable cases however, its medicinal value still remained a subject of dispute. Chifflet in Paris in 1653, and Plempius of Rome in 1656 both predicted the disappearance of the bark as a therapeutic agent and denounced its use as harmful, on the other hand, Badus of Genoa, in 1655, defended it and quoted 12,000 cures by its aid in Italy alone. The high price it commanded caused many worthless substitutes to be sold, and the Spanish merchants were charged with sending various other stringent barks into Italy, adulterated with aloes, to give them a better taste.

The bark does not appear to have been known in England until about 1655, the first mention of it occurring in the *Mercurius Politicus*, one of our earliest newspapers in 1658, a year in which an epidemic of remittent fever raged in this country. It is referred to as "The excellent powder known by the name of the Jesuit Powder brought over by James Thomson, a merchant of Antwerp." Brady, then professor of physic at Cambridge was one of the first to prescribe it, and Willis observes it as coming into daily use, but its general introduction seems to have been largely due to Robert Talbot, who may be said to have made his name and fortune by exploiting it as a secret remedy.

Robert Talbot, or Talbot as he was sometimes called, had a remarkable and interesting career. He was born in 1642 and after leaving school was apprenticed to Mr. Dear, an apothecary of Cambridge. Although entered as a sizar at St. John's College for five years, there is no evidence that he ever graduated. About 1671 he settled in Essex to practise medicine, where, he says, "I planted myself near the seaside where agues are the epidemical diseases." In the following year he published a little book called *Pyretologia, a rational account of the cause and cure of Agues*, in which he makes reference to his secret remedy for the fever, and states that it consisted of four ingredients, "two indigenous and two exotic." He alludes to Peruvian bark as follows:

'Let me advise the world to beware of palliative cures and especially of that known as Jesuit Powder as it is given by unskilful hands. Yet this powder is not altogether to be condemned for it is a noble and safe medicine and if rightly prepared and corrected and administered by a skilful hand other wise as pernicious a medicine as can be taken.'

Talbot's reputation soon increased, and he removed to London, where he set up his sign next door to Gray's Inn Gate in Holborn. The results of his treatment brought him rapid success and after having cured the daughter of

Lady Mordant of an attack of fever, he was summoned to Windsor to see Charles II, who had been seized with the same complaint. He was fortunate in being able to restore the King to health, and so secured the royal favour. Talbot was not a licentiate of the College of Physicians and had no qualification to practise, so, to save him from attacks from that quarter, the King caused a letter to be written to the College, restraining that body from interfering with him in his practice in London. On July 27th, 1672, he was appointed physician to the King, and later on received the honour of knighthood at Whitehall. By a patent issued under the Privy Seal dated August 7th, 1678, Sir Robert Talbot was granted an annuity of £100, together with the profits and privileges appertaining to a Physician-in-Ordinary to the Sovereign. Evelyn, in his diary, on August 22th, 1679, states that he had

'conferred with the Marquis of Normandy concerning the Quinquina which the physicians would not give the King at a time when he was in a dangerous ague. It was the only thing that could cure him (out of envy, because it had been brought into vogue by Mr. Talbot, an Apothecary) until Mr. Short to whom the King sent to know his opinion of it privately sent word to the King that it was the only thing that could save his life and then the King enjoined the physicians to give it to him, which they did and he recovered.'

From this it would appear that the active ingredient in Talbot's remedy was more than suspected at that time.

In 1679 Talbot visited Spain, and on his return through France stayed for some time in Paris, where he soon became a prominent personage. Madame de Sévigné alludes to him several times in her "Letters," and remarks "Nothing is talked of here but the Englishman and his cures." In November, 1680, when the Dauphin was seized with an attack of fever, Talbot, who had made influential friends at the French Court, was called in and undertook to treat him. Madame de Sévigné says, "the King, Louis XIV., insisted on Talbot preparing his wine in his presence before giving it to the Prince." The treatment was eminently successful and the Dauphin soon recovered. Talbot was made a Chevalier, but the King, determined to learn his secret, eventually induced him, for a sum of 2,000 louis d'or and an annuity of 2,000 livres, to reveal his method of treatment and the formula for his remedy, which, however, is not to be published until after his death.

After a further visit to Spain, where he cured the Queen of an attack of fever, Talbot returned to London, where he died shortly afterwards, in 1681 at the early age of 40. He was buried in Trinity Church, Cambridge.

The formula for his remedy was published in England in 1682 under the title *The English Remedy or Talbot's wonderful Secret for curing of Agues and Fevers*. According to this book he used several preparations of the bark. The first consisted of a strong infusion of the bark with a decoction of aniseed and juice of parsley, and after a day or two as much claret wine was to be added. This was allowed to stand for eight days and the liquid then strained off. He then made an infusion with the residue of the first one with equal parts of fresh bark in powder. This was again macerated with more claret for ten days, and, after being strained, formed the wine he generally administered. He also used a tincture, which he made by macerating two ounces of Peruvian bark in eight ounces of spirit of wine for fifteen days. It is interesting to note that this preparation is practically the same strength as the tincture of cinchona of the British Pharmacopoeia to-day. To it he would sometimes add red roses, lemon juice, fennel-root juice, smallage leaves, or parsley, and, when he thought necessary, a small quantity of tincture of opium. These were the preparations of cinchona, all excellent of their kind, by means of which Talbot became famous throughout Europe.

During the last illness of Charles II the bark was again administered to him twice. According to the record, on February 5th, 1684,

His physicians hearing that a species of intermittent fever was raging all over the city which commenced with severe convulsions but which was speedily cured by the use of Peruvian bark at intervals they all agreed to administer it to the King and draughts were prepared of the bark in powder with Syrup of Cloves and given in small doses throughout the day.

There is an interesting bill in the British Museum, dated 1675, in which Dr Charles Goodal offers to sell at the "Coach and Horses" in the Physicians College in Warwick Lane—

"a superfine sort of Jesuits bark ready powdered and papered into doses at 4s per ounce or £3 per pound, and for the excellency and efficacy of this particular Bark enquire of Dr Morton in Grey Friars

The same price for Jesuit's bark is quoted by Gideon Harvey in a list of drugs dated 1678

"When in the hands of the Jesuits" (says the author of the "English Remedy") "it was sold in Rome for 8 or 9s the dose which consisted of two drachms. Three or four years ago the best might be had for 40s the pound. Sir R. Lalor observing that Febrifuges were prepared which came very near his own, and fearing that least somebody at length might discover it resolved to buy up all the Quina-quina that he could find in Paris and the chief towns of England and France—a wise proceeding on his part

About 1675 Peruvian bark was accepted into the domain of regular medicine, and in 1677 it first appeared officially in the *London Pharmacopoeia* under the name of "Cortex Peruanus"

With reference to the preparations of the drug, mention should be made of Dr John Huxham, who was the originator of the well-known compound tincture of cinchona, the formula for which he published in his *Essay on Fevers* in 1755, and which was first included in the *London Pharmacopoeia* of 1788

We are indebted to the French for the early botanical studies on cinchona. The first attempt to transport any plants to Europe was made by La Condamine in 1743. He was assisted in his pioneer investigations in Peru by Joseph de Jussieu, who, after fifteen years of laborious work, was robbed of his valuable collection of plants, a circumstance which so affected him that he lost his reason.

In 1742 Linnaeus established the genus *Cinchona*, and in 1753 first described the species *Cinchona officinalis*, which he so named in honour of the Countess of Chinchou.

The reckless manner in which the natives of Peru collected the bark at this time, often destroying the trees, while making no attempt to plant new ones, suggested that there would soon be a shortage of the valuable drug. This possibility aroused attention in Europe, and prompted serious efforts to cultivate the tree on a large scale in countries where the climatic conditions were suitable. In 1839 Royle strongly advocated the introduction of cinchona into India, and after a long delay this was carried out through the efforts of Sir Clements Markham, but not, however, before the Dutch had commenced the cultivation of the trees in Java.

The success which attended the latter enterprise was chiefly due to Charles Ledger, a Londoner born in Bucklebury, whose story is not without an element of romance. After travelling in South America in the employment of the New South Wales Government buying alpacas, he succeeded in obtaining, through a native servant, some seeds of the *Cinchona calisaya* from Bolivia. Owing to the jealousy of the natives, who became enraged, he was afterwards so ill-treated that he died from the effects. Ledger sent the seeds to his brother in England, who first offered them to the British Government, but the offer was not entertained. He then sold half of them to a Ceylon planter, and the remainder to the Dutch Government for about £33. From these seeds 20,000 plants were raised in Java, and so the great industry, from which millions of money have since been made, was founded.

Until the beginning of the nineteenth century cinchona bark was still used in its crude state, although several unavailing attempts had been made to discover its active principles. It was not until 1810 that Gomez of Lisbon succeeded in unlocking the secrets of the bark and isolated its basic properties, which he called "cinchonine." A few years later Pelletier and Caventon, the French chemists, set out to study the whole chemistry of cinchona, and in 1820 they were able to prove that the "cinchonine" consisted of two distinct alkaloids, one of which they called "quinine" and the other "cinchonine." The next advance was made by Henry and Delondre, who in 1833 isolated quinine. This was followed by the discovery of cinchonidine by Winckler in 1844, while Pasteur produced the alkaloidal derivatives cinchonidine and quinine.

Since the discovery of quinine thirty alkaloids have been found to occur naturally in cinchona barks, and from these there have been many derivatives. Quinine, the most important of the cinchona bases, possesses the most powerful febrifuge properties of all, and is capable of completely neutralizing acids and forming crystallizable salts.

The sulphate, at one time so largely employed in medicine, is now being superseded to some extent by the more soluble salts, such as the disulphate, the hydrochloride, and the dihydrobromide, all of which are much more soluble in water.

Thus briefly in outline is the history of cinchona, a drug that has proved of inestimable value to mankind, and one that has provided the medical practitioner with the most effective and reliable weapon in his armamentarium, for the treatment of malarial and intermittent fevers.

MEDICAL MEMBERS OF LOCAL PUBLIC BODIES

The following list, containing the names of medical practitioners known to be serving as members of local authorities or their subsidiary public bodies in Great Britain, is supplementary to that published in the *Journal* of December 8th (p. 1057). Information relating to about 120 authorities is embodied in the two lists, the number of medical members mentioned being considerably more. In a substantial proportion of cases the office of mayor or its equivalent is held by a medical practitioner. The presence of medical men on public bodies—especially in the case of county and county borough councils—assumes a greater degree of importance at the present time than ever before, in view of the fact that the Local Government Bills now before Parliament introduce important changes in the administration of the Poor Law and of health services, and charge the larger authorities with the formulation of detailed schemes for the reorganization of this work in their areas. It is therefore desirable that contact should be established and maintained between medical practitioners associated with local bodies and their colleagues in order that the views of the profession may receive adequate representation and full consideration in the drawing up of administrative schemes under the bills.

ENGLAND AND WALES

COUNTY COUNCILS

Cheshire—Sir William Hodgson, Crewe (Alderman and Chairman, Chairman, Joint Sanatorium Committee for Cheshire and Stoke Boroughs). Dr H. D. Brice, Dukinfield, Dr W. I. Fern, Congleton, Dr John Somerville, Macclesfield, Dr Charles Wilson, Crewe.

East Suffolk—Dr H. N. Baron, Orford.

Hertfordshire—Dr J. S. Dockray, Bishop's Stortford Member, Higher Education Subcommittee for Watford, Dr C. Herbert Hall, Watford.

Lancashire—Dr George Scarr, Radcliffe (Chairman Midwives Acts Committee, Member Taberculosis and Public Health Committees). Dr Isaac Flack, Radcliffe.

Middlesex—Co-opted member of the Education Committee. Dr H. B. Brackenbury, Hendon.

COUNTY BOROUGH COUNCILS

Bath—Dr Preston King (Member, Health Committee). Co-opted member of the Maternity and Child Welfare Committee. Dr D. A. Mitchell.

Gloucester—Dr D. E. Finlay (Chairman, Health, etc., Committees, Member, Education Committee).

Leicester—Co-opted member of the Secondary Schools Subcommittee and Medical Services Subcommittee. Dr Astley V. Clarke.

Newcastle on Tyne—Dr G. D. Newton, Dr R. W. Simpson, and Dr J. W. Leach.

Newport (Mon)—Dr J. Lloyd Davies (Alderman), Mr John McGinn, F.R.C.S.I. (Alderman). Dr T. G. Lewis (Alderman).

York—Co-opted members: Maternity and Child Welfare Committee—Mr A. R. Lister F.R.C.S., Special Diseases Subcommittee—Dr G. W. Micklethwait and Dr H. E. H. Reynolds.

NON-COUNTY BOROUGH COUNCILS

Andover—Dr E. A. Farr (Deputy Mayor), Dr C. Edwards.

Hornsey—Dr H. B. Brackenbury, Hendon (Alderman, Member, Education Committee).

St. Alban—Dr J. W. Cleveland and Dr W. N. Puddicombe (Members, Subcommittee on Sisters Joint Hospital, etc.).

METROPOLITAN BOROUGH COUNCILS

Hampstead—Mr S A Bayd, 1 R.C.S., Belsize Park Gardens, N.W.3
St Pancras—Dr E A Gregg, Harrington Square, N.W.1

URBAN DISTRICT COUNCILS

Bishop's Stortford (Herts)—Dr J S Dockray
Hoddeston (Herts)—Dr W H Sturge
Pitchworth (Herts)—Dr N Macfadyen
Utcham (Surrey)—Co-opted member of the Maternity and Child Welfare Committee Dr G M Stoker
Ludcliffe (Lancashire)—Dr George Sevier (Chairman, Health Committee) Dr Isaac Black, and Dr William Browne
Royton (Herts)—Dr C J Windsor

RURAL DISTRICT COUNCIL

Newton Abbot (Devon)—Dr John Scott

PARISH COUNCILS

King's Langley (Herts)—Dr R Fisher (Vice Chairman)

BOARDS OF GUARDIANS

Newton Abbot (Devon)—Dr John Scott, Boxes Trac (Chairman), Dr J W Lee Newton Abbot
St Pancras (London)—Dr Max Thorne, Cordon Place, (Vice-Chairman), Dr E A Gregg, Harrington Square

SCOTLAND

COUNTY COUNCIL

Wigtownshire—Dr Ebenezer Shaw, Wigtown, Dr David Matthews, Glenluce

TOWN COUNCILS

Jeslie—Dr A R Wight (Provost)
Wigtown—Dr Ebenezer Shaw (Provost), Dr William Lihco
Whithorn—Dr J G McWhirter

EDUCATION AUTHORITIES

East Lothian—Dr D R Macdonald, Dunbar (Chairman)
Edinburgh—Dr W G Sym (Convener, Health Committee)
Dos and Cromarty—Dr Daniel Johnstone, Cromarty
Wigtownshire—Dr Ebenezer Shaw, Wigtown (Chairman), Dr David Matthews Glenluce

England and Wales.

Presentation to Professor Priestley Smith

In recognition of his distinguished services to the Queen's Hospital, Birmingham, to which he was for thirty years ophthalmic surgeon, Professor Priestley Smith, LL.D., F.R.C.S., was, on December 14th, presented with his portrait painted by Mr Harold Speed. The presentation was made by Sir Charles Hyde, president of the hospital, who said that, were he preaching a sermon, he would take for his text, "Let us now praise famous men." Priestley Smith was indeed a famous man, not only in Birmingham, but all over the world, his wonderful research work had received many tributes. As long ago as 1878 he was awarded the Jacksonian prize for his essay on glaucoma, in 1890 he received jointly the Middlemore prize of the British Medical Association, in 1898 he was elected Bowman Lecturer of the Ophthalmological Society, the Royal and Imperial Medical Society of Vienna made him an honorary member, he received the first award of the Netteship gold medal, and in 1905 was elected president of the Ophthalmological Society. In 1925 the University of Birmingham conferred on him the honorary degree of LL.D., and two years later he had the great distinction of being awarded the Lucan Howe medal of the American Ophthalmological Society. That was but a short record of his great work, he had lived a long life and a useful life—a life of devotion to his profession and to the service of mankind. It was in 1867, sixty-one years ago, that Priestley Smith entered the Queen's Hospital as a medical student. "His great achievements," Sir Charles Hyde concluded, "are rather like a fairy story, and, like the fancies, he does not appear to grow older and he still bewilders us in the magic circles of research." Professor Priestley Smith, in replying, reviewed the outstanding events of his career and of his work at the Queen's Hospital. He mentioned that before he became a medical student he was apprenticed for four years as a mechanical

engineer. It might be thought that was a bad start, but really it was the best thing that could have happened to him, because he picked up a rough working knowledge of mechanics, and some working knowledge of materials and of drawing. Also, he learned a good deal about the wonderful work which was done by skilled workmen, and about the workmen themselves. These things had been of the greatest benefit to him ever since. In conclusion, he asked the chairman to allow the portrait to become the property of the hospital and to be hung in the board room. Mr W E Adlard, who accepted the gift on behalf of the committee of management, spoke of the great help he had given the hospital apart from his medical work, and Mr B J Waid, chairman of the Medical Committee, said that Professor Priestley Smith was the greatest living authority on certain diseases of the eye, and that his work would live for all time.

Medico-Legal Society

The annual dinner of the Medico-Legal Society was held on December 14th at the Holborn Restaurant. The president, Sir William H Wilcock, in proposing the loyal toast, expressed the respectful and loyal sympathy felt for His Majesty in his trying illness, and admiration for the example set by the Queen and other members of the Royal Family in their fortitude and courage. Dr F G Crookshank, proposing "Medicine and the Law," said that the toast was so important that it was worth while discovering what it meant. Were they toasting medicine and the law, or medicine *versus* the law? Lay persons held strong views about two organisations known to them as the British Medical Council and the General Medical Association. He, on the other hand, was in doubt as to whether one should refer to Sir T R Hughes as Chairman of the General Law Society, or of the Bar Council Association. Sir T R Hughes, in his reply, repudiated any conflict between medicine and law, they were, he said, sister professions, both concerned with their duty to humanity. Medicine watched over the body and soul, law over the character, property, and reputation. The victories of medicine were without a shadow of disappointment. Those of law, however, were won only at the cost of another's loss. The aims and ideals of both professions were frequently misunderstood, both had to do their best work in face of the calumnies of a hard world. Dr Walter Carr said that the Medico-Legal Society was valuable in that it brought men together who were all the better for understanding each other's mentality. The doctor, in tackling his problems, tended to ignore laws and regulations. This could hardly be said of the lawyer. Difficulties naturally arose between professions so different in outlook, and a society which brought both together conferred great benefit on the public. Mr Justice Branson, in proposing the toast of "The Medico-Legal Society," said that everyone present was either a member or a guest. The medical and legal minds were not so completely opposed as Dr Carr had suggested. They both worked on much the same lines, were both engaged in discovering the known from the unknown, and in weighing the evidence of things which could be seen and heard in order to proceed to a knowledge of things which they could neither see nor hear. Responding on behalf of the society, the president said that there were few departments of human endeavour which were not associated in some way with medicine and the law. The society aimed at bringing the two professions into harmony, and, above all, at helping to dispel the suspicion so naturally felt by the doctor for the lawyer who was to cross-examine him. The toast of "The Guests" was given by Mr Justice Humphreys, and was responded to by Sir Leonard Kershaw, Registrar of the Court of Criminal Appeal, and Sir Malcolm Delevingne of the Home Office.

Dinner to Colonel J Graham Martin

On the occasion of his relinquishing the appointment of A.D.M.S., 55th (West Lancashire) Division, which he had held since 1920, Colonel J Graham Martin, M.B., T.D., Honorary Physician to the King, was entertained to dinner on December 13th at Liverpool by past and present officers of the Royal Army Medical Corps, and many others who had served with him before, during, and since the war. Colonel D C Leyland Orton, T.D., who has succeeded Colonel

Martin in his appointment, presided. The 6th Battalion the King's Regiment, to which Colonel Martin was formerly attached as medical officer, was strongly represented. Colonel R. Jackson, T.D., honorary colonel to the R.A.M.C. of the 55th Division, proposing the health of the guest, referred briefly to Colonel Graham Martin's long service, commencing in the South African war and later in France. Colonel J. B. McKaig, D.S.O., T.D., who seconded the toast, said that he had served with Colonel Martin for many years, and recalled several humorous incidents in their service. Colonel Martin, he said, as medical officer of his battalion (6th Battalion the King's Regiment), had become an institution, and was looked upon by all as the kindest and most careful of officers. He was exceedingly glad when Colonel Martin received the honour of K.H.P., and added that recognition had long been due to him for his excellent services at Ypres. The toast was further supported by Major-General H. W. Higginson, C.B., D.S.O., Commander 55th (West Lancashire) Division, and by Colonel J. F. Martin, C.M.G., C.B.E., D.D.M.S. Western Command. Both referred to the fine work which Colonel Martin had done, and spoke of their sorrow at losing him. Colonel Graham Martin then responded to the toast, and expressed his great appreciation of the kindness shown him by all present. He related several amusing incidents in his service, and concluded with a warm reference to the high character of all officers of the regular army with whom he had come in contact.

New Food and Drugs Act

The Food and Drugs (Adulteration) Act, 1928, which repeals and consolidates the provisions of the Sale of Food and Drugs Acts, 1875 to 1927, together with a number of other amending provisions contained in other statutes (notably the Milk and Dairies Consolidation Act, 1915), will come into operation on January 1st. Local authorities are reminded of this fact in a circular (No. 950) issued by the Ministry of Health, in which it is pointed out that the wording of the new Act is not in all respects identical with that of the older statutes. Attention is drawn particularly to the use of the terms "food and drugs authorities" and "sampling officers." The official memorandum as to procedure (Memo. 36/Foods) has been revised, and the Public Health (Preservatives, etc., in Food) Regulations have been printed in a consolidated form. In conclusion, the circular states that the Minister desires food and drugs authorities to continue the practice of sending copies of the public analyst's quarterly reports to the department as soon as they are received, and that, in particular, he hopes that copies of the reports for the fourth quarter of 1928 may be sent before the end of January, 1929. Copies of the circular and the memorandum of procedure (price 1d net each), and of the regulations (price 3d net), may be obtained from H.M. Stationery Office, or through any bookseller.

Annual Reports of Medical Officers of Health

The Minister of Health has issued a circular (No. 939) to local authorities of counties, boroughs (including metropolitan boroughs), and urban and rural districts reminding them of the duty imposed upon their medical officers of health of drawing up an annual report, and specifying the nature of the report to be prepared for 1928 for submission to the authority and to the Minister. Details are given regarding the form and content of the report in appendices to the circular, which also contains an announcement regarding the provision of vital statistics for the various areas by the Registrar-General, and a note on the duty of medical officers of health of district councils in connexion with reports to the Home Office on the administration of the Factory Acts in workshops and workplaces. Among matters which are required to be covered by reports for the first time or in which a substantial alteration has been made is information respecting clinics and treatment centres. Medical officers are instructed to insert the name, situation, and nature of accommodation of maternity and child welfare centres, day nurseries, school, orthopaedic, and artificial light clinics, tuberculosis dispensaries, and venereal disease treatment centres, and to state by whom they are provided. Details are also to be given regarding action taken by local supervising authori-

ties under Acts relating to the registration of maternity and other nursing homes, and additional information respecting water supplies is desired. Reports, farther, should include references to any arrangements made for the publication of information or dissemination of knowledge relating to health or disease, to action taken in connexion with food adulteration, and to the existence of, and nature of the work done at, any laboratories for the clinical and bacteriological examination of food. Particulars should be given of the prevalence of any animal or insect pests, and of the measures taken for their suppression, and also of any action taken for the prevention of blindness. It is stated that application is often made by individual medical officers of health to the Registrar-General for the figures of cancer, tuberculosis, and maternal mortality rates in England and Wales as a whole for inclusion in their reports, arrangements have therefore been made for the publication of these figures in the Registrar-General's weekly returns as soon as the necessary data are available.

Scotland.

Heredity and Disease

A LECTURE was delivered under the auspices of the Combe Trust on December 12th in Edinburgh by Professor F. A. E. Clew. Lord Sands presided. The lecturer asked his audience the question, Why do living things become ill or grow old and die? and suggested as answers that ill health and death were relatively new phenomena and were not inherent adjuncts of life, but only appeared because highly specialized tissues and functions had emerged in the course of evolution. The duration of life, the healthiness of the individual life, and the cause and time of death were determined by the combined action of heredity and environment. For each individual there was a specific duration of life, predetermined by the inherited constitution, and modifiable only within relatively narrow limits. The chief effect of environmental forces was to determine the rate at which the inherited endowment was used up. There were some five hundred or more abnormal states, defects, or derangements which could be transmitted from parent to offspring in an orderly fashion, of these many could be cured by the physician and surgeon, but it was better not to have them. Half of the patients in hospitals were the victims of ignorance and carelessness, others were persons who had inherited the seeds of disease, and who were doomed from the beginning, until the way to repair a poor inheritance should be discovered. Why, he asked, did an insurance company display a peculiar interest in the relatives of one about to be insured, and inquire how old these were when they died? It was because they knew the real recipe for a long life. This was not, as commonly suggested, abstinence in food or drink, or tobacco, or work, or play, for if one wished to live until one was 100 the secret was to be born into a family in which all four grand parents were centenarians. The problem of to-morrow would be largely concerned with the question of what to do with life, for it was probable that the duration of life would be greatly extended. Even now some inherited deficiencies in the endowment of individuals could be repaired by physical and chemical means. The cretin, the diabetic, and the infantile were being restored to health by the supply of what had been deficient. Thyroid extract, insulin, and ultra-violet rays were crude forerunners of a vast armamentarium which mankind would ultimately use for its own repair. As knowledge increased so would man's power grow over his physical environment, and people might remain permanently youthful and healthy.

Edinburgh Crippled Children

The annual meeting of the Edinburgh Crippled and Invalid Children's Aid Society was held on December 11th in Edinburgh. Sir John Findlay presided. The twenty-sixth annual report was submitted and showed that the number of cases treated for the past year had been 728. The majority of these were adolescents whose crippling conditions were more or less confirmed and who sought

help in the difficult problem of employment. With regard to children, it was noted that an increasing number required only temporary help and would, by the time of adolescence, in all probability, no longer be cripples. A number of patients had been provided with various surgical appliances, and some 400 persons were cared for in respect of various surgical, medical, industrial, or social needs. Much attention had been paid to providing work for cripples in their own homes, and it was proposed to appoint a teacher trained in craft work, thus should in time enable each worker to make a small regular income. The total cost of the society's operations for the year had been £4,106. The chairman remarked that the society represented an association of about 100 persons, who were actively and voluntarily engaged in devoting time and talent to the mitigation of disabilities in crippled persons. It was one of the few happy consequences of the war that during the last few years greater attention than before had been devoted to deformities, and the result had been the evolution of methods which twenty years ago were entirely unknown. He trusted that the power now attained would be still further increased. The great need of the present day was not surgery so much as after-care, which was a good deal restricted by lack of opportunity for looking after children subsequently. This work was one of the chief objects of the society. The outlook of the crippled child in Scotland was made brighter by the great scheme which had been recently launched for a large orthopaedic centre in Edinburgh, before long a hospital would be erected.

Presentation to Dr Allan Gray, Leith

To mark the completion by Dr J. Allan Gray of fifty years' practice in the town, the Leith Medical Practitioners' Association recently presented him with a barograph and a cheque to be expended on further gifts. The president, Dr H. G. Langwill, referred to Dr Allan Gray's many activities during his long residence in the town—his tenure of office as physician to Leith Hospital, his pioneer work as lecturer there to women medical students before Edinburgh Royal Infirmary admitted them, his arduous and often difficult duties as medical officer of health of the old burgh (before whole-time service was introduced) in seeking to institute more sanitary measures in the town, his services as examiner in medical jurisprudence and public health for the Royal Colleges, and, not least, his long continued connexion as surgeon to the Volunteer and Territorial Forces in the town, of which he was lieutenant-colonel—all in addition to the constant work of a busy practitioner. Dr Gray, in reply, spoke with feeling, thanking his fellow practitioners for their kind thoughts towards him, and recalling some of the difficulties he had to contend with as a part-time medical officer of health in bygone days.

Correspondence.

ROYAL MEDICAL BENEVOLENT FUND AND GUILD

SIR,—As 1928 closes it is fitting that a short account be given of the work of the Royal Medical Benevolent Fund and the Royal Medical Benevolent Fund Guild.

During this year the Fund has voted no less than 457 grants, amounting to £8,621. This has enabled those beneficiaries to buy food, clothing, and other necessities of life who would otherwise have gone without. The Guild, which is the ladies' branch, supplements the work of the Fund, and has granted from its own funds to cases recommended by the Fund monthly maintenance grants to elderly people amounting to £781, for coal £266, as well as invalid comforts and medical requisites £44, and other relief and maintenance amounting to £1,272.

In a letter it is impossible to give a true picture of individual cases helped, but many widows who have been left penniless have been supported. Boys and girls have been able to continue their education, which otherwise would have ceased at the death of their fathers. The Guild, whose especial care is education, has paid £1,124 in school and training fees, and expenses for forty-two

cases, besides investigating and recommending suitable schools and training centres, and arranging, when necessary, holidays. The visiting and personal service is greatly appreciated by the beneficiaries.

The Fund has also given annuities to 185 persons, amounting to £4,970. These annuitants are chosen from those who have reached the age of 60 and are either widows or medical men who, through illness and old age, have been unable to continue their active duties. The average amount of annuities is £40 per annum, but owing to a recent legacy the Fund has been able to grant six annuities of £100 each.

Both the Fund and the Guild depend entirely on voluntary subscriptions to carry on their work. A subscription of £1 from every member of the medical profession to the Fund and a similar subscription to the Guild from the wife of every medical man would enable the Fund and Guild respectively to carry on and extend their joint work.

The British Medical Association has done much to bring to the notice of medical practitioners the existence and objects of the benevolent fund of the profession, and has also very greatly assisted in collecting subscriptions. In acknowledging this help we appeal to all readers of the *British Medical Journal* to continue as generously as possible the support they have already given in the past, and ask those who have not contributed before to consider in 1929 whether they cannot help us in our work.

The Guild is in urgent need of clothing for men, women, and children. Subscriptions to the Fund should be sent to the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, Cavendish Square, London W 1 and to the Guild, to the Honorary Treasurer, Royal Medical Benevolent Fund Guild, 58, Great Marlborough Street, London, W 1—We are, etc.,

CHARLES J. SYMONDS,
Honorary Treasurer to the Fund
MARY SCHARLIEB,
Honorary Treasurer to the Guild

London Dec 1928

VACCINE TREATMENT OF PUERPERAL SEPSIS

SIR,—The paper by Dr R. R. Armstrong and Mr W. Shaw in the *British Medical Journal* of December 15th (p. 1032) is notable as a methodical attempt to estimate the value of vaccines of a particular kind and given in a particular way to combat puerperal infection. The results of vaccination given in treatment and for prevention of sepsis are not very clearly separated in the conclusions drawn by the writers. It appears, however, that the therapeutic method is declared a failure, and prophylaxis is believed to be of subsidiary importance and to have no demonstrable value. The first conclusion is in accordance with much modern experimental work, which suggests that in treatment vaccines for the most part do not act specifically, and that vigorous measures are needed if non-specific vaccination is to have much effect. The second conclusion seems unnecessarily pessimistic when it is remembered that only a single dose of one kind of vaccine was given, and that vaccine one treated with specific serum—a product which the authors themselves, in agreement with most other workers, declare to be of very doubtful value. The previous history and virulence of the culture used to make the vaccine are not stated, although probably these are of great importance. Sound aseptic technique is no doubt of great and fundamental value, but it is possible that specific prophylaxis may also have a place.

This letter is written with the object of pointing out that prophylactic vaccination, so far from having failed in the cases recorded, can scarcely be said to have been tried, and that a sound method of preventive vaccination deserves further trial on a large scale—I am, etc.,

The Lister Institute London Dec 18th JOSEPH A. ARKWRIGHT

PROPHYLAXIS OF PUERPERAL PYREXIA

SIR,—Will you permit me to make the following brief suggestions in connexion with the above subject. Axiom 1. Prevention is better than cure. Axiom 2. Sepsis is the highest factor in maternal mortality, it is a form of wound infection. Axiom 3. Wound infections go with

difficult labours, the avoidance of which is the principal key to the situation

Under the Puerperal Pyrexia Notification Act consultants have been appointed in many parts of the country to assist in its cure. Why not extend their function to preventive work in the form of ante-natal consultations? Smugly clean inductions in institutions are very safe when compared with difficult forceps cases, and although the judgement of experts in this realm is often faulty (and well it may be, for is there a branch of medicine that requires greater experience?) yet on the whole a fairly high percentage of difficult labours would be avoided. I have been assured that occasional help at the ante-natal clinics in the country over problematical cases would be welcomed—I am, etc.,

London W 1 Dec 6th

F. LAWTON MOSS

BREAST-FEEDING

SIR,—In your issue of December 15th (p. 1085) I notice with great interest the report of a presidential address delivered by Dr. H. W. Pooler to the Midland Branch of the British Medical Association on the subject of breast-feeding.

Dr. Pooler has interested himself in this subject for many years, as evidenced by his contribution to the literature, and from time to time other medical practitioners, obstetricians, paediatricians, and infant welfare workers contribute the results of their experience to the medical press. It is, however, noticeable in all the literature on this subject, whether in textbooks or in original articles, that there are still wide differences of opinion upon the physiology of normal lactation, and that, although considerable figures have been published from time to time, both on the Continent and in America, the work of collecting accurate records has been most sporadic. The chief difficulty in the way of satisfactory milk analyses has been that of extracting the milk from the breast in an entirely natural manner. The child's method of obtaining it is a double action: (1) Compression of the base of the nipple by the gums; (2) Suction action of the tongue and cheeks. Artificially we can only abstract the milk by one or other of the methods—namely, by hand expression or suction pump, but not by the two combined.

Recently Dr. Margaret Lowenfeld and Miss Sibyl Widdows, D.Sc., have been carrying out research work on the composition of normal human milk, first in the obstetric unit of the Royal Free Hospital, under Professor McIlroy, and now in the infant welfare clinic of the children's department at this hospital. Side by side with normal babies they are doing a certain number of abnormal cases—for example, those apparently suffering from fat indigestion—and they are getting some extremely interesting results. It appears, for instance, that although the protein, sugar, and ash percentages differ from mother to mother after the first three weeks, each individual has her own constant in these milk elements, whether the sample be taken before or after nursing early or late in lactation. On the other hand, fat acts quite differently from the other constituents and its percentage varies enormously, according to the time of collection, and—a most important point—according to the method of extraction. Papers have already been published by Dr. Lowenfeld and Miss Widdows,¹ and it is hoped that the work they are now carrying on will throw further light on the subject.

There has hitherto been far too much vague teaching about breast-feeding, and probably too great a tendency to regard human milk as a constant fluid dependent upon the state of nutrition rather than the individuality of the mother. It will be a step in the right direction if these two workers are able to collect some really reliable facts about the physiology of lactation—I am, etc.,

London W 1 Dec. 17th

HAZEL I. CHODAK GREGORY

¹ *Biochemical Journal* 1927 vol. xxi No. 1 p. 1 and *Journal of Obstetrics and Gynaecology of the British Empire* 1928 vol. xxxi No. 1 p. 3.

SO CALLED "WHITE ASPHYXIA" OF THE NEWBORN

SIR,—Mr. Aleck Bourne has performed a real service in calling attention to the treatment of so-called "white asphyxia," and in pointing out that the accepted methods are more likely to damage than assist the child's chances of recovery.

I think there is little doubt that most obstetricians will agree that the "white baby" is suffering from surgical shock and not asphyxia, and it is indeed high time that the term "asphyxia," in this connection, should be eliminated from the textbooks in use by our students and pupil midwives. So long as the words "white asphyxia" occur the student mind turns instinctively to methods of artificial respiration, and the present evil will continue.

Mr. Bourne says that he believes most examiners secretly agree with the teaching that artificial respiration in the case of "white asphyxia" is not only useless, but actually wrong, but teachers equally feel that they must teach artificial respiration in deference to the requirements of the forthcoming examinations. As a teacher and examiner I certainly never require a student to express what is manifestly unsound.

It is sincerely to be hoped that Mr. Bourne's views on this matter will receive the support they deserve and that when any future author feels the spirit move him to write a textbook of obstetrics let the term "white asphyxia" be eliminated and substituted by the correct nomenclature of "foetal shock"—I am, etc.,

BECKWITH WHITEHOUSE, M.S., F.R.C.S.

Birmingham Dec. 17th

SIR,—In his welcome protest against the use of artificial respiration in these cases Mr. Aleck Bourne instances "twilight sleep" babies in a way that may convey the impression that they all suffer from shock and oligopnoea due to being under the influence of morphine, but possibly he refers only to such as are "under the influence of morphine" at birth.

Dr. J. O. Greenwood, writing on amnesic narcosis in Dr. J. S. Fairbairn's *Practitioners' Encyclopedia of Midwifery and the Diseases of Women* (1921 edition), says (p. 789) "records show much less oligopnoea since the use of a second dose of morphine was discontinued."

My own experience of a considerable number of "twilight sleep" cases is that if the morphine is limited to the first injection, and if the dosage of scopalamine is individualized and limited to the production of amnesia (analgesia being avoided), white asphyxia is not common in normal labours; indeed, "twilight sleep" helps to lessen the frequency of this and other complications by rendering unnecessary the use of instruments on account of shock or exhaustion of the mother. When white asphyxia does occur it passes off without artificial respiration, but I have found most "twilight sleep" babies cry lustily as soon as they are born—I am, etc.,

London N.W. 8 Dec. 18th

J. CURNOW PLUMMER

ETHYL CHLORIDE ANAESTHESIA IN TONSIL AND ADENOID OPERATIONS

SIR,—Under the above title in the *British Medical Journal* of December 15th (p. 1113), Mr. Norman Barnett has given his views with regard to the advantages of that anaesthetic for the operations in question. I do not propose to reopen this evergreen topic of discussion, and will only say that for those who require a brief anaesthesia, as for the guillotine operation, ethyl chloride may suffice, whereas others who, like myself, always employ the "dissection" method, a more prolonged narcosis will be necessary—that is, if bleeding is to be effectually controlled before the patient is allowed to leave the operating table.

But it is the apparently light-hearted way in which Mr. Norman Barnett treats the question of haemorrhage which constrains me to join issue with him, for I fear that coming from such an authority the vonnger and less experienced operators may be encouraged to share in his opinion that "a great deal too much stress is laid on the loss of a little blood in these cases" (para. 3). If they should be

so influenced the bag of haemorrhage after tonsillectomy, which many of us have been trying to lay low, will probably take a new lease of life.

If one reads him rightly, I would like to ask Mr Barnett if he seriously contends that the occasional bleeding of "an exceptionally large and rigid vessel" can be safely and securely dealt with during the brief general anaesthesia and post-anaesthetic analgesia induced by ethyl chloride, and that "in the average case a little gauze pressure" will suffice to stop the bleeding effectually.

Furthermore, perhaps he will inform us if "the comparatively long post-anaesthetic analgesia period which succeeds the anaesthetic one" (of ethyl chloride) is sufficiently deep and prolonged to allow, say in the case of a child, for the consummation implied in the last sentence of the third paragraph. "It is always wise to reopen the gag, apply this pressure, and then do any toilet that may be required in the exceptional case."

I hope these are fair questions to ask on the subject of haemorrhage, because in the operation of tonsillectomy, by whatever method it is practised, the minimizing of the chances of post-operative bleeding is one of the chief duties of the surgeon. Its occurrence may be serious for the patient, is always alarming for the relatives, and will not infrequently present difficulties and anxieties to the operator. If such queries appear to be unduly critical it is because an experience of some thirty years has convinced me that unless definite and time-hallowed surgical measures are taken to prevent post-operative haemorrhage, this may occur in an otherwise perfectly executed tonsillectomy.

Even when every precaution has been taken the operator will occasionally have to meet this accident, but it will be a rare one compared with such as are likely to follow the practice of those who trust to less efficient measures, and in this category I should place "a little gauze pressure." Is it not probable that a fit of coughing or the act of vomiting will reopen a vessel so insecurely closed?

Surely there can be only one practically sure method of preventing haemorrhage after tonsillectomy, and that is by ligaturing the two chief arteries which supply the gland—namely, above, the tonsillar branch of the descending palatine, and, below, a branch from the ascending palatine, arteries. Frequently it will suffice to ligature only the first named, and the time required for doing so will often be less than eight to ten seconds.

It has been my practice for the last ten years to adopt this precautionary measure in every case operated upon, and the ages of the patients range from 1 to 72 years. In going through the list of those for whom I have been personally responsible the proportion of post-operative bleeding is just over 1 per cent. Before that period, and when one depended on pressure with gauze swabs, etc., the figure was nearer 10 per cent. It is with the hope that this easy and quickly applied surgical measure for preventing post-operative bleeding after tonsillectomy may be adopted more freely, that I again venture to urge its advantages.

In conclusion, and in opposition to Mr Norman Barnett's statement, it is my opinion that insufficient rather than a great deal too much stress is laid on the loss of a little blood in these cases"—especially if it continues or is "hidden" after the operation is completed—I am, etc.,

London W. Dec 17th.

HERBERT TILLEY

STRANGULATED FEMORAL HERNIA

SIR,—In connexion with the subject of Mr Hamilton Bailey's excellent article (December 8th, p 1033) it has always appeared to me that we require facts of a somewhat different order from those given before we can assess the relative values of the femoral and inguinal routes. The superiority of the inguinal route in strangulated cases is evident though excess of fat may make the operation difficult. We require to know from those who have had a large experience of such work what is the percentage of recurrence in cases of femoral hernia of which the neck of the sac was small and in those of which it was relatively large. When the neck of the sac is small the prognosis after operation by the ordinary femoral route seems to be much better than when it is large. A bad

anaesthesia, by causing the sac to retract, may unfortunately introduce a further variable tending to prevent success and to obscure the elucidation of the problem.

It has never been clear to my mind that our methods can convert what nature ordains as a likely recurrence into a non-recurrence. A comparative test may perhaps be found in a study of the results of the inguinal operation undertaken in the treatment of recurrence following the femoral operation performed in non-strangulated cases. One such case is known to me, and recurrence took place within six months after each operation. The neck of the sac was relatively large, and though the musculature was good the patient was obese—I am, etc.,

G. H. COLT, M.B., B.Ch., F.R.C.S.

Aberdeen Dec 10th

DIAGNOSTIC CLINICS FOR CANCER

SIR,—In the *Journal* of December 1st (p 1008) there is a letter from Mr Malcolm Donaldson on the subject of radii and cancer, in which reference is made to the need for diagnostic centres at which cases of cancer might be recognized in their earliest stages, in an editorial article in the same issue (p 999) you comment on the suggestion to the consideration of those concerned with the public health. It may perhaps be of interest to relate what is being done in the city of Leicester, where a cancer diagnostic clinic has been in operation since July of last year.

This clinic, which is officially known as the Cancer Control Clinic, was the outcome of representations made to the Leicester Health Committee by the Leicester Advisory Cancer Committee. Briefly, the arrangements are as follows. The clinic is run by the Leicester Corporation Health Committee with the cordial co-operation of the Leicester Royal Infirmary. It is held one evening a week in consultation rooms at the City Health Offices, and the leading surgeons in the city take it in turns to attend, their services being paid for by the corporation. Before the scheme was started it was submitted to a meeting of medical practitioners in the city, and received their warm approval. They were invited to send to the clinic any suspicious cases where an expert opinion was considered desirable, and, as a matter of fact, many of the patients attending the clinic have come in this way. The clinic has also been made known by advertisement in the press, by notices exhibited in factories and infant welfare centres, and by a notice which is exhibited weekly in all corporation tramcars. Attention has been drawn to its existence by public talks and lectures. It was decided to limit the clinic to women, and, in the first instance, to afflictions of the breast and uterus, the reason for this limitation being that it is in cancer of these two organs that the value of early diagnosis can be most easily demonstrated.

The total number of patients attending during the sixteen months that the clinic has been in operation has been 152, 82 having affections of the breast, 41 having affections of the uterus and allied parts, and 29 having affections of other parts. The cases are dealt with as follows:

1. If they are considered possibly malignant they are usually referred to our Royal Infirmary, by arrangement with this institution such cases are given preferential treatment as regards admission, and are admitted almost immediately—that is, within a few days.
2. If there is no evidence of malignancy the patients are reassured, or in some cases told to report again. No actual treatment is given at the clinic.
3. If thought desirable, cases are referred to their own medical attendant.

Of the 152 cases, 26 were admitted to the Royal Infirmary, and 11 of these definitely proved to be cancer.

The number of patients making use of the clinic is considerably less than could easily be dealt with in the one session a week, and, naturally, we should like to see a larger number of the public availing themselves of the facilities provided. Nevertheless, it is felt that the scheme has justified itself, and there is no intention of abandoning it, especially as there is so little that can be done by a local authority apart from propaganda in connexion with this disease. Incidentally it may be said that the existence of the clinic and the means taken to make it known are

in themselves a very important method of propaganda, bringing home to the public the vital importance of early diagnosis.

The advantage from the patient's point of view of the facilities provided by the clinic as compared with the out-patients' department of a general hospital are that the patient gets individual attention and the best possible advice free of charge, without the long wait among a crowd of other patients, and other drawbacks, which usually obtain in most of such departments. As the public come to realize these advantages it is probable that the clinic will be used more extensively. Indeed, patients are now beginning to come to the clinic on the recommendation of those who have already been there themselves—I am, etc.,

C KILLICK MILLARD,

Leicester Dec. 13th Medical Officer of Health, Honorary Secretary,
Leicester Cancer Committee

PAPULAR URTICARIA

SIR,—Your last three issues contain a good deal of controversial matter on this important subject. Leaving theory aside, the clinical evidence of both general practitioners and specialist is much to be welcomed. It should afford a practical basis for the treatment of these troublesome cases. Dr Rupert Hallam must be congratulated on his observation that residence in hospital alone, without special diet or drugs, is sufficient to clear, at least for a time, the eruption in children. I can confirm his results, but I should like to offer some possible explanations of these apparently strange events.

It is convenient, and probably not unscientific, to regard these vasomotor disturbances as a "habit." This habit appears to be maintained by a number of factors, although some of these only may operate in a given case. These factors include diet, autogenous toxins, physical and mental fatigue, even psychological conditions and external irritation of the skin. I place diet first as the commonest and sometimes the sole determining cause and I am at a loss to understand those who deny this as an agent. It must surely be common experience to find certain foods at fault. The list of these is legion. I have myself seen children who react after banana, as in the case quoted by Dr Bugess, but the offending food is often chocolate, egg, fish, etc., and removal of the offending agent does in most early cases cure the trouble. Hospital diet, it must be allowed, is simpler than in the average home, and is free from those "bit-bits from the table" so common in poorer households. Dr Hallam will pardon me if I suspect that those children who were housed in hospital but fed from home did not really receive a representative home diet. I shall still expect a child who reacts to fish at home to react to it in hospital, and I hope to make the experiment.

For a long time past I have found an essential condition for the cure of a chronic urticaria to be an initial rest, both physical and mental if possible. This is provided in hospital. Finally, there is the question of cleanliness and clothing, apparently small matters, but really of very great importance. My mind goes back to the case of a doctor's child in which a definite cure was only reached after the child was dressed in soft underclothing—not woollen. Relief was then prompt and permanent.

Space forbids my touching on other points, but I will conclude by asserting that many cases of papular urticaria in childhood can be cured by attention to the general health, dieting, cleanliness, and proper clothing. If I had the choice of one drug only it would be iohimbic acid and soda—I am, etc.,

Manchester Dec. 17th

G. H. LANCASHIRE

SIR,—Referring to the recent correspondence on the subject I should like to make it quite clear that I do not suggest that the skin reaction known as urticaria clears up when the patients are removed to hospital. I have admitted many chronic cases for investigation and cannot recall such a happy event. My statement applied only to the so-called papular urticaria—a definite clinical entity which is also known by the name of lichen urticatus and strophulus. Also, I was not including a transient

macular rash sometimes met with in young children, which then grandmothers, with enviable confidence, attribute to the evil effects of teething or to dietetic indiscretion. Papular urticaria was accurately described by Thomas Bateman more than a hundred years ago in the following terms:

"Its first appearance is in irregular inflamed wheals so closely resembling the spots excited by bites of bugs and gnats as almost to deceive the observer. The inflammation however subsides in a day or two leaving small elevated itching papules. When the first wheals are thus terminating, new ones continue to appear in succession until the whole body and limbs are spotted with papules which become here and there confluent in small patches. The eruption is peculiar to children it commences in some cases soon after birth, and sometimes later and continues with great obstinacy for many months. Both the wheals and papules are accompanied with intense itching which is exceedingly severe in the night occasioning an almost total interruption of sleep and considerable loss of flesh."

Mr Frank Coko adds other articles to the long list of foods which, during the last century, have been observed to excite attacks of urticaria. These lists, more or less complete, appear in all textbooks on dermatology, and in my opinion somewhat overshadow the fact that urticaria is not infrequently due to focal sepsis, and also that it may be the initial sign of serious systemic disease.

Again returning to the subject of papular urticaria, I may say that I have tried house dusts with negative results, but I do not regard this as conclusive, and shall still pursue the line Mr Coko kindly suggests.

Dr Bugess, apropos of my ten cases of breast-fed infants suffering from the complaint, quotes the latter half of a sentence from my original article in the *British Journal of Dermatology*. Taking into consideration that some of the children were eventually weaned and the rash continued, the complete sentence does not appear to me to be unreasonable. It is as follows:

"It is difficult to conceive that in all of these cases the mother's milk was responsible for the occurrence of the attack although admittedly a child may become sensitized to a protein through its mother's milk."

He also mentions that I quoted the work of Sidlek and Knowles (*American Journal of Diseases of Children*, 1922). These authors state that they cured three cases out of twelve by appropriate restrictions of diet. My previous letter explains why such claims may be valueless—I am, etc.,

RUPERT HALLAM,
The Skin Department, The Royal Infirmary
Sheffield

December 17th.

INJECTION OF VARICOSE VEINS WITH CARBOLIC ACID

SIR,—With reference to Dr Dalton's interesting memorandum (December 8th, p. 1037) on the injection of varicose veins with carbolic acid, I think he is to be congratulated in his endeavour to find the perfect sclerosing agent in this treatment, but I feel doubtful about some of the advantages claimed for this medium.

His essential claim for carbolic acid is that it is non-toxic, in that, having destroyed the endothelial lining of the vein, it is at once locked up in the clot which forms immediately, and thus remains entirely local. Knowing the volatile habits of carbolic acid I find it hard to understand how an amount of the undiluted B.P. preparation up to half a drachm should remain entirely local, and it would seem desirable that more definite evidence should be shown before this claim can be established.

It is difficult to understand how such a small dose as two to four minims can produce true sclerosis in such a large area of varix, and indeed when, as Dr Dalton says, "sometimes a week after injection it is difficult to find the remnants of the vein." I venture to question if sclerosis such as is seen after injection of the usual agents ever occurred, for with a successful result, using these, the vein remains hard and vein definitely demarcated for months.

With regard to perivenous injection, I have become convinced that it should be avoided in every case, except possibly for the fine dilated venules which one is sometimes asked to treat on cosmetic grounds. If a varix cannot be entered with the needle, I cannot think any result of

value is obtained by depositing one or two drops of solution outside it. I know only too well that some veins are most difficult to enter, but I am sure that, given experience and the will to "try again," any vein of greater diameter than the needle can be made to yield eventually—I am, etc.,

London W 1 Dec. 10th

RONALD THORNTON.

SIMPLE PHLEBITIS AND EMBOLISM

Sir,—The correspondence on this subject in the *British Medical Journal* of December 1st and 15th makes no reference to the theoretical side of the question.

Rowntree and Shonova (*Journal of Experimental Medicine*, New York, 1927, vol 46, pp 7, 13, 19, 957, and 963) have recently carried out a very ingenious series of experiments at the Mayo Clinic with the intention of making direct observations on thrombus formation, and their findings suggest to me that in the case of traumatic phlebitis—whether by accident or design, as in the injection treatment of varicose veins—there occurs first of all a deposition of white thrombus in the damaged section of the vein, and as long as the circulation through the vein is kept up no red clot forms. This white clot is very strong and firmly anchored to the endothelium. As soon as the impediment to circulation is complete there is a more or less sudden deposition of red clot blocking the vein for some distance, spreading chiefly in the direction of the normal flow. This is an additional reason why patients undergoing the injection treatment of varicose veins should be kept walking about—namely, in order that they may get a firm (comparatively) white thrombus as the foundation of their occluding clot.

It is the experience of most of us that quinine injections, comparatively painless at the time, cause tenderness and swelling at the site of injection twelve to forty-eight hours later. I would suggest that this probably coincides with the complete blocking of the vein by white thrombus and the subsequent rapid deposition of red clot. In this aseptic thrombus there is no trypsin ferment, so that the clot does not become softened, and, therefore, is not easily detached.

I recently injected a woman who returned to me two days later in great alarm because, as she said quite correctly, she had phlebitis in the injected vein, and she recognized it from the symptoms being identical with a previous attack she had had several years ago. However, I gave her my usual advice to keep going about, and nothing untoward has occurred.

The above suggestions are an application of Rowntree and Shonova's findings to what I have observed clinically, and I should be interested to hear whether others agree with my theories or not. My experience of the injection of varicose veins has convinced me that in a traumatic phlebitis where sepsis can be definitely excluded as a causative or contributory agent the patient should be kept walking about. I entirely agree with the views of Dr. Crichton—I am, etc.,

Hove Sussex Dec 15th

STGEORGE B. DELISLE GRAY

"THE RIGHT TO PRACTISE"

Sir—Surely Dr. Macqueen (December 8th, p 1067) has got rather confused about the "rights" of this question. Only a medical degree or diploma gives the "right" to practise. There is nothing in the *Medical Register* which, in itself, gives any such "right." The *Medical Register* is a list to give the public an opportunity of distinguishing between "qualified" and "unqualified" practitioners. It also gives the qualified man on the register a legal right to sue in court, to sign death certificates, and by custom it has practically made all public appointments open only to those on the *Register*. If a man is taken off the *Register* he still possesses the legal right to practise provided his university or other qualifying body has not taken away his degree or diploma, and if he has these he can practise, but loses the "rights" under the medical registration—I am, etc.,

St Leonards-on-Sea Dec 8th

A. G. NEWELL M.D.

DEFINITION OF DRUNKENNESS

Sir,—Many years ago, when I was a young surgeon serving in a man-of-war with masts and yards, I was requested to examine a bluejacket charged with being drunk on duty. I reported to my captain that, though the man had undoubtedly been drinking, I hesitated to say that he was actually drunk. "In that case," said the captain, "if I order him to the masthead, would you consider it safe?" "Certainly not, Sir," I replied. "Then he is drunk," was the captain's decision, and appropriate punishment followed—I am, etc.,

London W 4 Dec 17th

V. G. THORPE,
Surgeon Rear Admiral

Medical Notes in Parliament (FROM OUR PARLIAMENTARY CORRESPONDENT)

THE House of Commons adjourned for the Christmas recess on December 20th, having on that day approved Supplementary Estimates for the relief of distress in the mining areas amounting to £155,000 for England and Wales, and £20,625 for Scotland. Discussing the administration of this relief in Scotland, Sir John Gilmour said that the addition of a milk diet would be of material benefit to school children in many cases, as recent official experiments had shown. It would be necessary that applications should come through existing channels, including the child welfare and maternity authorities. In the course of the debate on the estimates Mr. John protested against a statement previously made by the Minister of Education to the effect that local authorities should feed the children if medical certificates were issued that this was necessary, this meant, he suggested, that a child had to suffer from malnutrition before the medical officer of health would decide that it was in need of nourishment. Mr. Boothby suggested that Durham and South Wales should be administered independently of the health insurance fund, as otherwise the actuarial surplus would be irreparably damaged.

The House will resume its sittings on Tuesday, January 22nd, when consideration of the Local Government Bill in committee will proceed. Four of the thirteen days allotted under the guillotine resolution to this stage of the bill have already passed, and the House after the recess, will discuss the complex proposals relating to rating, valuation, Exchequer grants, and other financial provisions, and to certain general questions.

Local Government Bill

Consideration in committee of the House of Commons of the Local Government Bill was continued on December 18th, which was the third allotted day under the guillotine resolution.

Clause 13 enacts that as from the appointed day it should be the duty of every county council and county borough council and other local authority to recover from any person who has been maintained by them in any hospital, maternity home, or other residential institution in which accommodation is provided by the council other than a person who had become an inmate of an institution for the purpose of receiving treatment for infectious disease or from any person legally liable to maintain that person the whole of the expenses or such part as the council are satisfied they can pay.

Mr. Wren moved to omit the words "it shall be the duty of" which made it obligatory on the council to present the bill for the full amount. He said that the full amount as the clause stood appeared to include the whole cost of all the medical treatment, however expensive that might be. The North Middlesex Hospital, which was under the administration of the Edmonton Board of Guardians had just obtained the sanction of the Minister of Health for an expenditure of £6,000 on radium to bring its equipment up to date. It was better equipped than a good many voluntary hospitals in many respects. The practice here was to recover from the patients as much as the board of guardians thought it could recover up to the total limit of cost and in that connexion no question arose. The total cost last year was 49s. a patient per week. If the institution was handed over to the Middlesex County Council as it would be the bill would require the county council to make a charge of 49s. a week on every patient who used the institution although in the case of the board of guardians only about 15 per cent of the patients paid any contribution and in 85 per cent practically nothing was recovered. It would be a very serious change to make if instead of presenting a bill for 5s. 10s. 20s. or up to 49s. according to the means of the person in 15 per cent of the cases the local authority should be required to make the full charge of 49s. in all cases. If everyone who went into that hospital was told that he or she would receive a bill necessarily at the rate of 49s. a week with some prospect of the amount being reduced it would be he was informed by medical people concerned, a very serious deterrent to people going into that hospital at the earliest possible date. It would not be in accordance with the Minister of Health's intentions or desires to make this emphatic change and to insist that

instead of the bill being graduated according to the patient's means the full amount in each case would have to be presented.

Mr. PETERICK LAWRENCE seconded the amendment and drew the attention of the Minister to the case of the unmarried mother. He said that at present whether she was treated in a voluntary hospital, a special nursing home or an institution under a local authority, great care was taken to preserve the secrecy which might be necessary in these cases. Under the clause, however, if the woman herself was unable to produce any money, application would be made at once to members of her family—to her father or whoever might be responsible in law for her. The result of that would be that these women would not go into a home or institution to be treated. To day we recognized the full of not helping people to fight against infectious and venereal disease. Could it be suggested in regard to cancer, maternity and child welfare that the position was different?

Mr. CHAMBERLAIN in reply said that if the amendment were carried we should be exactly where we were now. Local authorities had this power at present. There was nothing in the bill which said, as Mr. Webb suggested, that the local authority must present a bill for the whole of the expense to a person receiving treatment. It was not contemplated that the local authority should do anything of the kind. They would do precisely what was done now in other cases. They would through their officers find out whether a person was able to pay anything and if so how much, and they would make those inquiries before sending in their bill. The object of the clause was to have one rule for both kinds of institutions. If there was not a provision of this sort the position would be that in the case of a destitute person treated under the Poor Law, it would be the duty of the local authority to recover the whole of the costs from him, or such part as he was able to pay, but in the case of a person who was not destitute and was able to pay there would be a discretion with the local authority. That was an anomaly which was being removed by this clause.

Mr. GREENWOOD supporting the amendment said that the Opposition did not so much regard the mere collection of the money as obnoxious but held that the new duty which was imposed on local authorities was bound to be a deterrent and would lead numbers of people who ought at an early stage seek institutional treatment to postpone it or not to go at all.

Dr. VZAVOR DAVIES said that Mr. Greenwood showed extreme lack of knowledge of the subject on which he had been speaking. Perhaps the hon. member would allow him (Dr. Davies) as an old medical officer of the Poor Law as a hospital official and as a general practitioner to let him know what really happened. In the majority of cases a person who was sick went first of all to his private doctor without any thought of what it was going to cost. The doctor examined him and if the case required treatment in an institution sent the man to the institution. In some of the large towns they would find occasionally that a patient instead of going to a doctor went to the out-patients department of a voluntary hospital and got some attention there without cost to himself. For Mr. Greenwood to say that the Government by the bill was trying to prevent people seeking medical assistance at the earliest possible moment was to say what was not true, and to put a false construction on the bill. The people of this country had known for years that they could always get medical assistance either from hospitals, Poor Law institutions or doctors, without any thought of the ultimate cost. Let them take the case of a general practitioner in an industrial district in the huge majority of cases. That doctor did not ask a patient

Where is your fee and then I will tell you what is the matter with you. (Opposition cries of Oh.) Labour members might speak from rumour or hearsay but their attitude was a distinct reflection and libel on a most honourable profession. He maintained without fear of contradiction that no man or woman in this country need delay for one moment in getting the most expert advice and the most expert treatment through fear of poverty or of the cost and there was nothing in the bill which would hinder them in the slightest degree. It was absolutely wrong for an hon. member on the Opposition front bench to make the statements which they had heard that afternoon but he asked the House and the people of the country to notice that this was the policy of the Labour party and that the destitute poor should be charged for medical attention but that the public health authorities need not make a charge. They were asking for this—to charge the destitute poor but not to allow the public authority to do so—and that was a scandal.

After considerable further discussion the amendment was rejected by 236 votes to 130. Miss BOWFIELD then moved an amendment to remove maternity homes from the operation of the clause and particularly from the operation of the uniform enforcement of the provision which had just been discussed. The work in connexion with maternal mortality, she said, was still in an experimental stage and anything which shook the present position was bound to act to the detriment of the service. For instance the psychological effect of making a provision so that the operation of the financial arrangements in regard to municipal maternity centres were on precisely the same lines as those of the Poor Law would be a deterrent so far as a great many women were concerned.

Sir KINGSLEY WOOD while agreeing as to the importance of making due provision for maternity and encouraging as many mothers as possible to enter maternity homes said that if Miss Bowfield thought that under this clause we were swapping horses and altering the present practice she was greatly mistaken. The provision which was being insisted in the clause generally was already the invariable practice so far as maternity homes both municipal and voluntary in the country were concerned. The clause so far from making any alteration really set out what was the universal practice of the voluntary maternity hospitals

and homes. Some sixty or seventy municipal maternity homes recovered appropriate contributions unless they were satisfied, having regard to the circumstances of the inmate that nothing could be paid. Therefore there was no ground for saying that there was any alteration in the practice or for anyone being frightened away from the maternity homes of the country by the application of the clause.

Replying in further debate, Mr. CHAMBERLAIN said that they were faced with the fact that there were not a sufficient number of maternity homes. They wanted more provided, but there would be still greater difficulty in getting local authorities to build more in future if they were faced with the prospect that when they had built them they were to be a heavy charge because they would not be able to recover expenses. The amendment was defeated by 250 votes to 145.

Mr. REKIE SMITH moved an amendment providing that the term infectious disease used in the clause should be stated to include tuberculosis and venereal disease. Sir KINGSLEY WOOD said that the Ministry's legal advisers had stated that both tuberculosis and venereal disease could be regarded as coming within the meaning of the clause relating to infectious diseases and that the amendment was therefore unnecessary. Dr. VZAVOR DAVIES said the Minister was now taking a rather important step. If they were to say that infectious diseases were to include in all cases tuberculosis and venereal disease how were they going to keep out infantile paralysis, encephalitis lethargica and influenza? The CHAIRMAN pointed out that the Minister had merely stated that these words as a matter of definition would include certain complaints. Sir HENRY SLESSER said that there was no definition at all of infectious disease in the bill. He wanted to know where the committee stood in the matter of definition? Was there no Act that defined infectious disease? Sir THOMAS INSKIP said that the committee never wanted the legal arguments if a little common sense would solve the problem. The words 'infectious disease' were words which meant that a disease was infectious and which so long as people were at large might result in injury to other persons. The result was that people who suffered from what were in fact infectious diseases were required in the public interest to go into an institution for treatment. It was better to leave the question of what was an infectious disease to be solved by proper evidence of fact if ever such a question arose. He had very little doubt that those questions of fact would be solved by the common sense of the doctor and authorities without any necessity to resort to a court of law.

Dr. FREEMANTLE said that he dissented from the reading which the Attorney General had just given. He could foresee his colleagues of the medical profession having to administer the Measure and they must know what cases they were dealing with, and what cases they were not dealing with under it. In the ordinary terminology of public health the phrase 'infectious disease' had a definite meaning. It was defined by an Order of the Ministry of Health interpreting certain Acts of Parliament in relation to infectious diseases. There was a specific catalogue of the diseases which were included in this definition. It was easy to administer a Measure of this kind on those lines, but if his hon. and learned friend had the good fortune to belong to the medical instead of the legal profession and, as a medical officer had to try to work the administration of Acts relating to infectious diseases on the lines which he himself had suggested, he would find it an impossible task. They must have it laid down what diseases were to be regarded as infectious diseases. For practical purposes venereal disease was not called an infectious disease and certainly nobody had ever suggested that cancer was an infectious disease. He (Dr. Freemantle) suggested that the Minister of Health might reconsider this question in order to insert in the definition clause something regarding the words 'infectious disease' being definitely associated with the term as generally interpreted in other Acts. Sir KINGSLEY WOOD after further discussion said it was not a question of his own opinion but of fact as to whether a disease was infectious or not. If his own opinion was of any value he should say that certainly tuberculosis would be included but that was only his opinion. The advice given to the Department was that the amendment was unnecessary. The committee rejected the amendment by 258 votes to 145.

Under the guillotine resolution the clause was agreed to by 270 votes to 147. Clauses 18 to 28 were afterwards agreed to under the guillotine without discussion. Clauses 18 to 24 dealt with registration. Clause 26 with roads and town planning and Clause 28 with the transfer of classified roads in urban districts to the county council. The committee then adjourned until the following day.

On December 19th the House of Commons was again in committee on the Local Government Bill. During prolonged discussion on the clauses dealing with control of highways and the alteration of boundaries of authorities brief allusion was made to the effect the bill might have on town planning schemes. Several clauses of medical interest subsequently came under the guillotine. Clause 45 regulating the relations between county councils and county district councils in respect of public health functions was approved without amendment. Clause 46 provided that county councils, after conferring with district councils shall formulate schemes for securing the appointment of whole-time medical officers of health. The clause provided that every county council making such arrangements should send a copy of the scheme to the Minister and to the councils of the districts affected. Mr. CHAMBERLAIN now moved to provide that every such council should be at liberty to make representations on the scheme to the Minister. The amendment was carried and the clause as amended was added to the bill. Clause 47 authorizing regulations to prescribe the qualifications of medical officers and

health visitors appointed under the Maternity and Child Welfare Act the Public Health (Tuberculosis) Act or under regulations for the treatment of venereal disease, was added to the bill. Clause 48 gave the Minister power, when satisfied that his action would conduce to more efficient administration to transfer any services under the Maternity and Child Welfare Act to the council which was the local education authority. Mr CHAMBERLAIN moved to substitute the word 'effective' for the word 'efficient'. This amendment also stood in the name of Dr VERNON DAVIES. The clause was carried so amended. Clause 49 giving the Minister power to declare that the Notification of Births Act should apply in an area whose council had not adopted it was carried. Unamended. Clause 50 sets out the conditions under which a district council may apply to be made local supervising authority under the Midwives Acts in place of the county council. Mr CHAMBERLAIN moved an amendment to provide that the Minister should consult with the county council before granting such an application. The clause thus amended was added to the bill by 258 to 118 votes. Clause 51 dealing with the provision of accommodation for infectious diseases and with the formulation by county councils in consultation with district councils of schemes for that purpose was carried by 251 to 119. Clause 52 authorising the Minister to empower the transfer of functions from the London County Council to metropolitan borough councils was also added to the bill as was Clause 53.

On January 22nd when the House again goes into committee on the Local Government Bill the clauses relating to rating and valuation will be considered.

Preservation of Infant Life Bill

In the House of Lords on December 18th the Preservation of Infant Life Bill was read a third time. Following the third reading Lord DARLING moved three amendments to Clause 1. The clause originally read

Any person who with intent to destroy the life of a child capable of being born alive by any wilful act causes a child to die before it has an existence independent of its mother shall be guilty of felony to wit child destruction and shall be liable on conviction thereon to imprisonment to penal servitude for life provided that no person shall be convicted of an offence under this section if it is proved that the act which caused the death of the child was done in good faith for the purpose only of preserving the life of the mother.

Lord DARLING said that on the committee stage it was pointed out that there were occasions in which it was necessary at the confinement of a woman in order to save her life that the child about to come into the world should be destroyed. He feared that it must be very rare that that should be done in good faith but it was stated that it might arise and that a third person might be indicted though having acted in good faith. That was provided by the proviso in the clause beginning with the words provided that no person shall be convicted and so on but it was then pointed out that it might be said that the onus was upon the person—who would be a third person—who had destroyed the child to prove that he acted in good faith for the purpose of saving the life of the mother. He would therefore move three amendments which would place the onus on the prosecution so that it would be necessary for the prosecution from the start to prove—or else there would be no case to go to a jury—that the person who was accused of destroying the child had not done so dishonestly and in good faith. His amendments would make the proviso read

Provided that no persons shall be guilty of an offence under this section unless it is proved that the act which caused the death of the child was not done in good faith for the purpose only of preserving the life of the mother.

Lord PARMEER expressed his satisfaction with the amendments which made it quite clear that the onus of proof was on the prosecution. The LORD CHANCELLOR said that Lord DARLING had produced the amendments partly after seeing him to make it quite clear that the burden of proof had been shifted. He thought that the amendments did so.

The amendments were agreed to and the bill was passed, and sent to the House of Commons.

Medical Directors of the Services: Tenure of Office

Sir L. WORTHINGTON EVANS stated in reply to Sir H. CAYNOR on December 18th that the appointment of Director General of the Army Medical Services was for four years but an extension was permissible. As the present Director General had held office for two and a half years only no question of extension had arisen in it of Medical Director General of the Navy was normally for three years but this period might be extended if the Board of Admiralty thought it desirable. The present Medical Director General was appointed on July 1st 1927 and the question of an extension therefore did not yet arise. Sir S. ROBERTS stated that the tenure of the appointment of the Director of Medical Services in the Royal Air Force dated from November, 1921. An extension had recently been granted until November 1930. The question of any further extension would be considered on its merits when necessary in the light of the circumstances then existing.

Merchandise Marine Health Committee

On December 18th Sir P. CUSSETT LISTER told Lieut. Commander Kenworthy that the personnel of the Joint Standing Committee set up by the Ministry of Health and the Board of Trade on matters affecting the health of the mercantile marine was made up of the Board of Trade Sir Charles Hipwood (chairman), Mr C. E. Baker, Mr A. S. Hoskin and Mr C. J. Oves (clinical secretary) representing the Ministry of Health Sir George Buchanan, Dr H. A. Macerwan, Mr M. Heseltine, Mr R. H. Crooke and Mr M. T. Morgan (medical secretary).

Milk Supplies to Expectant Mothers.—Sir H. ASLEY WOOD on December 18th told Mr. March that no request had been made to authorities to cut down the supplies of milk to expectant mothers and children who were attending the maternity and child welfare centres but in the case of some local authorities suggestions as to procedure were made last March with a view to enabling them to keep their expenditure on milk during the present financial year within the amounts which the Minister of Health was able to approve for grant. The Minister had received communications from forty-eight authorities requesting that these amounts should be increased and, in reply, he had explained that the reduction in grant—which was purely temporary—had to be made in order to keep the grants paid by the department for the health services within the amount voted by Parliament.

Post neonatal Pneumonia.—Mr. BRINT asked Mr. Chamberlain on December 13th whether he would direct the Registrar General to make a note in his next annual report in regard to the deaths from post neonatal pneumonia since 1922 which were brought to the notice of the Andrewes and Rolleston Committees though not so certified at the time the deaths occurred. Mr. CHAMBERLAIN said the classification of deaths in the Registrar General's statistics was in all cases based on the cause as certified by the medical practitioner or the coroner. A departure from this practice would not be justified.

Artificial Light Treatment Centres.—Sir H. ASLEY WOOD told Sir Robert Thomas on December 19th that 237 centres for administering artificial light treatment had been approved by the Ministry of Health or by the Board of Education. Establishment of such centres was primarily a matter for the local authorities and steady progress was being made with it. Sir ROBERT THOMAS recalled a statement that 53 per cent of the children of the nation suffered from rickets or its effects. Sir H. ASLEY WOOD said this figure was given in the annual report of the chief medical officer of the Ministry of Health for 1926. It related to a portion of a comparatively small sample of the 1,000 children who were specially examined and included all who showed the slightest signs of rickets.

First-aid Equipment on Road Vehicles.—On December 18th Mr. RANDELL asked leave to bring in a bill to regulate the first aid equipment of public passenger service vehicles on roads. He said that the object was to ensure that on all public passenger vehicles such as motor omnibuses and charabancs there should be carried a first aid outfit and that there should be someone on the vehicle competent to use it. The bill would not apply to railway carriages, trams, or trolley vehicles. The regulation as to the outfit and by whom it should be carried would be left to the Minister of Transport. Leave was given to introduce the bill and it was read for the first time. Dr. Drummond Shiels was one of the backers of the bill.

Maternity and Child Welfare Grants.—Mr. CHAMBERLAIN stated that the grants paid for maternity and child welfare out of the Ministry of Health Vote in 1927-28 were approximately £1,040,000 which included about £16,000 for training of midwives and health visitors.

Deaths from Gaseous Poisoning.—In a reply on December 19th to Mr. BOWERMAN, Mr. HENDER WILLIAMS said that in 1913 there were registered in England and Wales 89 accidental deaths from gaseous poisoning, 40 being from coal gas and 160 suicides by gas, 150 being by coal gas. In 1927 the comparable figures were: Accidental deaths from gas 195 (148 from coal gas), suicides by gas 998 (994 from coal gas). Mr. BOWERMAN asserted that since the war the percentage of carbon monoxide in coal gas had been raised from 7 per cent to 15 or 20 per cent. He asked whether steps could be taken to ensure thermal efficiency in some manner less dangerous to the public. Mr. WILLIAMS replied that the increase in the content of carbon monoxide was due to the increased use of water gas a development which had many advantages. The possibility of safeguards against carbon monoxide had been considered by various committees and by the gas industry but the problem was far from easy.

Veneral Disease.—Answering Mr. Ellis Davies on December 19th Sir H. ASLEY WOOD said that in England and Wales during 1927 cases of venereal disease dealt with for the first time at treatment centres equalled 21.5 per 10,000 of the population. In the county of Carnarvon the proportion was 6.5 per 10,000. These figures included large numbers who had been infected some time before they attended at a treatment centre.

Mortality of Disabled Ex-service Men.—Mr. TAYLOR told Lord Soudon on December 13th that there was no record of the mortality of ex-service men at large as distinct from the general population. The death rate for the whole body of disabled officers and men was estimated for the current year at about 15 per 1,000. This was probably higher than the death rate among the general male population of similar age as would be expected.

Votes in Brief

Sir Laming Worthington Evans reports that the numbers of men discharged from the army because they were suffering from tuberculous disease were in 1924 174 in 1925 227 in 1926 223, in 1927 201. The last two figures include men discharged from the Reserve or Territorial Army for the same reason. The number of cases accepted as attributable to military service and awarded pensions was in 1924 43 in 1925 26, in 1926 67, in 1927 53.

Sir H. ASLEY WOOD stated on December 19th that on December 1st more than 21,000 patients were receiving residential treatment for tuberculosis from local authorities in England and Wales. On that date 2,541 persons had been awaiting such treatment for more than ten days.

Dr. Elliot states that so far as national health insurance is concerned it has never been the practice to publish Scottish

decisions, but that the whole question of appeal procedure under the Health Insurance and the Widows' Pensions Acts will shortly come up for review.

The Home Secretary is advised that he has no power to give retrospective application to the regulations for granting compensation to men disabled by silicosis.

There is not sufficient evidence to warrant a general conclusion about the effect on health of work in basement rooms by clerks and warehouse staffs, and Mr Chamberlain cannot promise a special investigation at present but he remarks that local authorities have power to deal with insanitary conditions.

Obituary

JOSEPH PRIESTLEY, M D, D P H,

Late Medical Officer of Health to the Borough of Lambeth.

THE public health world in particular and his many friends heard with deep regret of the death of Dr Joseph Priestley on December 15th.

Joseph Priestley, who was a descendant of the discoverer of oxygen, was born in 1859, and received his medical education at Edinburgh, where he graduated M B, C M, in 1883, obtaining the diploma M R C S Eng in the same year. He proceeded M D with honours in 1886, and four years later became D P H Camb. He devoted himself at first to clinical practice, and held the posts of house surgeon to the Royal Infirmary at Manchester, clinical assistant to the Brompton Great Ormond Street, and Royal Westminster Ophthalmic Hospitals, and intern at the Rotunda Hospital, Dublin. After a period of private practice at Twickenham he went to Cambridge as medical officer of health, and subsequently became medical officer and public analyst to the borough of Leicester. There he made a name for himself by courageous and effective reforms, and so reached Lambeth in 1895 with a reputation already high.

Here, for thirty-two years, his exceptional energy and ability found suitable outlets in the control, or development, of many great health measures. He was prominent in stamping out a serious small-pox epidemic, which invaded the metropolis in 1902, in so far as Lambeth was concerned. He took an active part in closing many dilapidated and worn-out properties, and attending, as an expert witness, various public inquiries with regard to condemned areas. He promoted the establishing of dispensaries for tuberculosis, and conducted investigations with regard to food poisoning. He brought about the provision of many welfare centres throughout the borough, and also a maternity home and a milk depot. When he retired last year he was presented by his medical colleagues and friends in Lambeth with a silver salver as a token of their warm regard for him and high estimation of his services.

Naturally profoundly minded, he had a wide range of interests. He was a foreign member of the Society d'Hygiene, and a Fellow and lecturer of the Royal Sanitary Institute. He had also held the appointments of assistant examiner in hygiene, South Kensington, lecturer on hygiene to the Jenner Institute, honorary secretary to the Society of Medical Officers of Health, and lecturer to the St John Ambulance Association. His work lives on in the memory of his many admirers, and Lambeth is his best testimonial.

THE LATE DR J McASKILL HENDERSON

DR H E MAGEE (Aberdeen) writes.

THE untimely death of Dr John McAskill Henderson has spread a gloom over a wide circle both in this country and in Kenya and has cut short a life full of great promise. As a student in the University of Edinburgh he had a distinguished career graduating in arts, science and medicine. He was prominent in the social life of the University and was for varying periods president of the SRC, the Union and of the Celtic Society. During the war he was employed as a chemist in a munition factory, having been rejected for military service. After graduating in 1922 he engaged for some time in general practice in Glasgow and then decided to take up research as a career. He came to the Rowett Institute at the end of 1923, and worked on the effects of ultra violet light on

metabolism, and on problems connected with lactation. He had just begun to investigate the metabolism of iodine when he went out to Kenya with other medical and agricultural graduates from Aberdeen, in charge of the medical team to conduct an inquiry into nutritional problems in that colony. His work there was characterized by the same enthusiasm, thoroughness, and sound judgement as had been the case in Aberdeen, and it has thrown a new light on many problems concerning the health of the native. He had just concluded his experiments, and was about to leave for Aberdeen to attend to the publication of his results, when he contracted the disease which proved fatal. While his results remain as a contribution to medical science, the ideas derived from them by a foreseeing and constructive mind he buried with him. Henderson had a remarkable flow of English at his command, both in its written and spoken form. He was always precise and lucid. His published articles are a delight to read, and his ability as a speaker will be long remembered. He was a man of extremely wide interests and of great broadness of mind. He was well versed in literature, music, and art, and was himself no mean exponent with the brush and pencil. His ready wit, his great fund of anecdotes and amiable personality will be missed in the many social gatherings he attended. Great sympathy is felt for his young widow and his relatives.

Dr FRANCIS W T HARE died at Beckenham on December 9th at the age of 72. He was born in Dublin, and from Lettes College, Edinburgh, went to study medicine in London, first at St Thomas's Hospital and afterwards at St Mary's. He obtained the M R C S Eng diploma in 1879, and the M B degree of the University of Durham in 1884, proceeding M D in 1891. After some years in Australia, where he acted as medical superintendent of Charters Towers Hospital, resident medical officer of the Brisbane General Hospital, and inspector of civil hospitals in Queensland, Dr Hare returned to England in 1904 and became medical superintendent of the Norwood Sanatorium, a post he held for over twenty years. The fruits of his wide experience in the care of patients suffering from alcoholism and drug addiction were set out in a book published in 1912 under the title *Alcoholism Its Clinical Aspects and Treatment*. An earlier work from his pen, the *Food Factor in Disease*, was published in two volumes in 1905.

We regret to announce the death of Dr DONALD CLARK, at Sydney, on October 12th. Dr Clark, who received his medical education at Glasgow, and graduated M B Ch B in 1908, settled in Salonika after the war, where he was consulting medical officer to the British consul. He devoted himself unsparingly to the medical supervision of the large number of refugees who went to this town, particularly after the Smyrna disaster, and was appointed director of the Harman Koni Hospital, which was opened for them. The incessant strain of the work and chronic malarial disease took a heavy toll of his strength, and he never regained full health, though he was able to do a certain amount of medical work when he left Greece and went to live in Sydney two years ago.

The Services

THE Royal Naval Volunteer Reserve Officers' Decoration has been awarded to Surgeon Commander L S Ashcroft.

ROYAL ARMY MEDICAL COLLEGE PRIZES

THE following prizes have been awarded to the officers of the last Junior Officers Class at the Royal Army Medical College.

Herbert Prize (for highest aggregate) Lieutenant F S S Lucas I M S (St Thomas). First Montefiore Prize in Military Surgery Lieutenant E S S Lucas I M S. Second Montefiore Prize in Military Surgery Lieutenant C L Grieve R A M C (Glasgow University). Ronald Martin Prize in Tropical Medicine Lieutenant M R Sinclair I M S (Cambridge and St Bartholomew's). Parkes Memorial Prize in Hygiene Lieutenant G L Grieve R A M C and Lieutenant H W Farrell I B S (University College Dublin) (equal). Talbot Memorial Prize in Pathology Lieutenant A T H Marsden R A M C (University of Durham). Farrer Memorial Prize in Pathology Lieutenant V E M Lee I M S (R C S Ireland). Marshall Webb Prize (Medical Administration) Lieutenant A T H Marsden R A M C.

Universities and Colleges

UNIVERSITY OF OXFORD

A Wan Memorial Medical Scholarship at University College has been awarded to B B Hlokey

UNIVERSITY OF CAMBRIDGE

At a congregation held on December 19th the following medical degrees were conferred

M B. D. Cunn—M T. Clegg
B. Cunn—L R. Jones

The following candidates have been approved at the examination indicated

Tamp M.R.—(Part I Surgery, Midwifery and Gynaecology) C M Barker F S G Bucker J A Broad C J M Dawkins I I Edmundson J S S Fairley W R Forrester Wood J C Gordon A O do B Holmo C Hill J H Hopper M C Hounsfield T A A Hunter L R Jones W F Joseph P G S Kennedy R W Knowlton O L Lauder J F A Lart G F Lewis T K S Lyle I H McCay A D Morton E J Nell W G Oakley I A Locock W Radcliffe G L Robinson J W Shackleton D M Stera H Taylor A Thorne Thorne G W Wilcox A W Williams I A Willis G N Wood B Wright Women—A B Field F Ram B M Willmott h Wilson (Part II Principles and Practice of Physic Pathology and Pharmacology) M L Albany H F Balemar C J Brookington I Bush E Clayton-Jones A J Dix Perkin R M Dowdeswell A G Eddison W A Eustice L Foulds G A Francis J L Franklin R Gallimore E L Graft J M Graham I T Hilliard R Hodgkinson S D Isaacs W F Joseph J O F Lloyd Williamson A Maberly H Mallinson J K Moore J R Murray J D R Murray J L Nowman E A F Palmer L S Penrose G W Plimblett J H Richmond G L Robinson J I Sapprell S W Savage C W Shaw W H Simmonds F T O Slater C F Stott H S Taylor Young L C C Tcharoff W E Underwood J H Wafarrecht F H Ward G W Wilcox L B Winter Women—M H D Carr J R Lees

UNIVERSITY OF LONDON

The degree of D.Sc. in Medical Statistics has been conferred upon Professor Major Greenwood I.R.C.P. for a thesis entitled "Laws of mortality from the biological point of view"

UNIVERSITY OF LEEDS

The following candidates have been approved at the examinations indicated

FINAL M.B. Ch.B.—(Part II) T G Clarke J Donovan I B Flather H T Knowles Margaret F Robert on S Simon (Part III) T L Owen J Pycroft J O Terry S G Redford J Bregman A Dwyer J Donovan Dorothy Hesketh C R Hiles H Hopkins son W E L Lawson R J H Rafter D R Riddell Doreen M Robertshaw L Smith
D.P.H.—Fannie Hirst W A D Lawson
D.P.M.—D K Bruce D Perk

* With second-class honours

The West Riding Panel Practitioners Prize in Medicine has been awarded to T L Owen

UNIVERSITY OF SHEFFIELD

The following candidates have been approved at the examinations indicated

M.D.—D Guest

FINAL M.B. Ch.B.—(Part II) Doris Butler Dorothy Colver J D Gray (Part II) W H Carlisle F Ellis R B Gould Iris M Woods (with distinction in Forensic Medicine) T H Pellar (with distinction in Forensic Medicine and in Public Health) I Slesnick, Ethel H Waddy J H Wilbourn

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Six Munterian lectures on the anatomy and evolution of the human brain will be delivered by Sir Arthur Keith F.R.S. in the theatre of the Royal College of Surgeons of England, Lincoln's Inn Fields W.C. on Mondays Wednesdays and Fridays at 5 p.m. commencing on January 14th 1929. The first lecture will consist of a sketch of the present knowledge regarding evolution of the brain in higher primates, the second will deal with the growth of the human brain and a discussion as to the significance of the mass, the third will define the present state of knowledge concerning the cortical areas of the human brain the fourth will be devoted to recent studies of the brains of men of outstanding ability and a survey of the general results obtained by such studies the fifth will comprise a study of the brains of the microcephalic idiots and what can be learned therefrom and the last lecture on January 25th 1929 will discuss endocranial casts from fossil skulls and the light they throw on the evolution of the brain of man

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

The following 31 candidates out of 89 entered who passed the requisite examinations were admitted Fellows on December 18th

B. Adlington L T Barclay J A Bingham J G Bogie E H Boy A W Bowles W G S Brown C L Bultin D Cameron S Davall D Fettes H W Fitzgerald J C Forsyth J A E M Hadley Constance J Ham Muriel G Henderson D Lamont I Macdonald T G Millar Paul E Roy C D Read B W B Riles C P Robin son G Saint T B Seed S S Sen F L Sergeant H K L Valda R h White T V Woods

Medical News.

ACTIVE steps are being taken by the Asthma Research Council, with the approval of the Ministry of Health, to organize research into asthma and the diseases commonly associated with it, including hay fever, eczema, and urticaria. It is estimated that there are over 200,000 sufferers from asthma in Great Britain, in at least 50 per cent of cases the disease begins in childhood. The "Halley Stewart" Trust, which was founded in December, 1924, to advance religion and education and to promote charitable objects, has made a grant of £2,500 to the Asthma Research Council for the establishment of special asthma clinics at Guy's Hospital and Great Ormond Street Hospital for Sick Children. The Lord Mayor of London will preside at a meeting at the Mansion House on January 15th, at 3 p.m., to inaugurate a national fund to provide and endow asthma research clinics at other London hospitals and in many of the large provincial towns, including Manchester, Liverpool, Glasgow, Birmingham, Bristol, Leeds, and Belfast. The meeting will be open to asthma sufferers and their relatives and to others interested in the subject, those desiring to attend should communicate with the Secretary, Asthma Research Council, London Clinic, Rauceigh Road, S.W.1

THE Central Midwives Board for England and Wales met on December 6th, with Sir Francis Champneys in the chair. A special session was followed by the ordinary monthly meeting. Consideration was given to the Local Government Bill, 1928, as it affects the supervision of midwives. The dates for meetings for 1929 were arranged for the first Thursday in each month, with the exception July 18th, no meetings will be held in August or September. The secretary reported that there were 14 per cent of failures at the last examination.

THE National Council for Mental Hygiene has arranged a series of eight lectures, to be delivered on successive Wednesday days, at 5 p.m., at the rooms of the Medical Society of London, 11, Chandos Street, Cavendish Square, W.1. The first lecture, entitled "Dangerous Ages—Childhood," will be given by Dr J A Hadfield, on January 23rd, 1929. Tickets (price 1s 6d each, or 10s for the course) may be obtained from the Secretary, National Council for Mental Hygiene, 78, Chandos House, Palmer Street, S.W.1

THE Mental After Care Association, which was founded in 1879 and is the only charity of its kind in the United Kingdom, is appealing for funds to carry on the work of caring for mental convalescents. Last year the association dealt with about 2,000 cases, and its work is expanding steadily, as an increasing number of persons are being referred to it by the committees and medical superintendents of mental hospitals. Local associations are being set up in many parts of the country. The association arranges convalescent accommodation where required, provides material assistance, secures employment, reports upon cases, and in other ways assists in the rehabilitation of persons discharged from mental hospitals. Information may be obtained from the Secretary, Miss L D Vickers, Church House, Westminster.

THE Home Secretary announces that in pursuance of the International Opium Convention of 1925 he has made new regulations under the Dangerous Drugs Acts. Consolidated regulations, replacing those now in force and including the drugs brought in by the Convention, will come into force on January 1st, 1929. On and after that date, in addition to drugs which are already controlled, coca leaves, Indian hemp (including the resins, extracts, and tinctures), and preparations containing less than 0.1 per cent. of diacetylmorphine (heroin), can be dealt in only by persons licensed or authorized by the Secretary of State.

As a result of the four performances of Dr John Ferguson's comedy, *Healing Waters*, given in the Athenaeum Theatre, Glasgow, in November, a sum of £250, the amount realized after paying expenses, has been handed over by the Albany Players to the Glasgow Branch of the Royal Medical Benevolent Fund Guild. The play was a marked success, the theatre being crowded throughout the production. Members of the medical profession constituted a large part of the audience.

A POST GRADUATE course to be held in Vienna from February 18th to March 2nd will deal with diseases of the digestive organs and of the metabolism. At the conclusion of the course six days will be devoted to special clinical instruction. Other courses to be held next year include surgery, orthopedics, ante-natal treatment, gynecology, and urology, in the first fortnight of June, the latest developments in medicine, in September and October and a course on the internal secretions from November 25th to December 8th. From May 21st to June 29th there will

be a course in English of systematic training in neurology and psychiatry at Professor Wagner von Jauregg's neuro-psychiatric clinic and at the Neurological Institute of Professor Marburg, under the auspices of the American Medical Association of Vienna. Further information may be obtained from Dr E Spiegel, Falkstrasse 3, Vienna I.

THE International Labour Office has published five more leaflets, Nos 129 to 133, dealing with noises, the timber industry, explosives, metal grinding and polishing, and radium and radio active substances. They may be obtained from the director of the London office of this organization, 12, Victoria Street, S W 1.

THE first International Hospital Congress will be held at Atlantic City, U S A, from June 12th to 19th 1929, and will be attended by hospital doctors, nurses, superintendents, architects, and engineers. The subscription is five dollars. Further information can be obtained from Dr René Sand, 2, Avenue Velasquez, Paris.

THE nineteenth congress of the Italian Phreniatric Society will be held at Ferrara in 1929, when the following subjects will be discussed: temperament and character in psychiatry, introduced by Montesano and Kolyinsky, and fresh problems in psychiatry, with special reference to mental hygiene, introduced by Beranini, Modona, and Tumati.

BERLIN had a slight excess of deaths over births in 1926, and the excess was greater in 1927, when the total number of births was 42,696 and of deaths 48,742. Owing, however, to the excess of immigrants over emigrants, who amounted to 81,132 last year, the city continues to grow.

THE centenary of the foundation of the Psychiatric Institute of Palermo, of which Professor Giovanni Dotto has been the director for the last thirty years, has recently been celebrated.

PROFESSOR ADOLF WINDAUS of Göttingen, the discoverer of ergosterin, has been awarded the 1928 Nobel prize for chemistry.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W C 1**.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W C 1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS as well as orders for copies of the Journal should be addressed to the Financial Secretary and Business Manager.

THE TELEPHONE NUMBERS of the British Medical Association and the *British Medical Journal* are *MUSICAL 9361, 9362, 9363, and 9364* (internal exchange four lines).

THE TELEGRAPHIC ADDRESSES are **EDITOR of the British Medical Journal, Antology Westcent, London**.

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MEDICAL SECRETARY, *Mediscera Westcent, London*.

The address of the Irish Office of the British Medical Association is 15 South Frederick Street, Dublin (telegrams *Bacillus, Dublin*) telephone 62550 (Dublin) and of the Scottish Office 7 Drumshugh Gardens, Edinburgh (telegrams *Associate, Edinburgh*), telephone 24361 (Edinburgh).

QUERIES AND ANSWERS

TREATMENT OF MEMBRANOUS COLITIS

"A COUNTRY DOCTOR" asks for suggestions for the treatment of a long standing case of membranous colitis in a woman aged 33. Repeated doses of castor oil by mouth and olive oil and plain water enemata give relief but only temporarily. All forms of dieting suggested have been tried, including one of milk and bananae only. The attacks usually last four to five weeks they are followed by eight to ten days of good health and recurrence ensues without apparent cause. The patient is otherwise fit and not of a neurotic type.

INCOME TAX

Obsolescence Allowance

J C" refers to a reply to an inquiry from him which appeared in our issue of November 10th (p 378) and enclose the Inspector's reply to his further communications.

The Inspector has referred the point to his headquarters and the Inland Revenue Department evidently intend to stand

firm on the strict verbal construction of the rule—that is, in the case of an obsolescence claim regard can be had only to "the cost of the car replaced," even when that represented a temporary falling off in the standard of car equipment of the practice. The result in such circumstances is inequitable, except that the depreciation allowance which can be simultaneously claimed will restore the equity over a period of years. We cannot advise "J C" to carry the matter further.

LETTERS, NOTES, ETC

THE CIVIL POPULATION AND CHEMICAL WARFARE

DR T R HUMPHREYS (Wokingham) has prepared for the use of the St John Ambulance Association a pamphlet on the *Protection of the Civil Population in Chemical Warfare*, which has received the approval of the Chemical Warfare Research Department at the War Office. The pamphlet, which is of a practical nature, discusses the protection rendered by gas tight rooms, and the first aid measures for gassed or wounded civilians. Interesting information is given about the way in which ground, houses, food, and clothing may be contaminated by poison gas and details of decontamination processes are supplied. Although it is not easy to anticipate all the various difficult conditions which would result from gas attacks on large towns yet this pamphlet can be recommended to the attention of medical practitioners who would in such circumstances find themselves faced by exacting duties and puzzling situations. The pamphlet (price 3d) may be obtained from the St John Ambulance Association, St John's Gate, Clerkenwell, E C 1.

SODIUM NUCLEINATE AND PNEUMONIA

DR S A MONTGOMERY (Cleethorpes) writes: Having seen the virtues of sodium nucleinate praised from time to time by contributors to the *British Medical Journal* I tried it in one of my own patients in the hope that it might shorten a lobar pneumonia and possibly prevent an empyema from developing. The first injection of 3/4 grain was given about twenty four hours from the onset, and then similar amounts at four hour intervals till 3 grains in all had been injected. Morphine and strychnine 1/60 grain were also given for the first three or four nights to ensure rest and sleep. Far from there being an early crisis, even at the end of eleven days there was no sign of the temperature falling to normal. The patient's condition began rapidly to deteriorate with marked falling off of appetite, a spasmodic coughing, and retching, yet no purulent material appeared in the sputum. The presence of pus in the pleural cavity was not confirmed by needling various interspaces with a long serum needle. As the patient's condition was growing steadily worse, a rib was resected, on opening into the pleural cavity several adhesions were found, but still no pus, so it was decided to insert a drain and leave it. After another three days purulent material poured out through the tube the temperature rapidly fell to normal and the condition quickly improved. Dr Muir of Hull who saw the patient, agreed that it was a case of interlobar empyema. The patient was a strong athletic man, aged 40, and in perfect health prior to the onset of pneumonia.

THE CAMPAIGN AGAINST TUBERCULOSIS

DR A W CRAWFORD (Bolton) writes: In your report on October 20th (p 714) of the Conference of the National Association for the Prevention of Tuberculosis I noticed that the American Indian suffered from tuberculosis in epidemic form but there was no word about the origin or how the bacillus was propagated. This was surely an opportunity lost. We have not yet found any means by which the disease once established, can be eradicated, so that all our methods of treatment are simply tentative. I suggest that the following points should receive some attention: Do human beings pass on the disease from one to another? Do the lower animals do so? Do human beings transmit the disease to the lower animals? Do the lower animals return it to the human? To settle these points in my opinion, would be a step towards the eradication of the problem. Our present methods are like plucking the leaves off a tree and allowing the tree to grow.

1929 MOTOR LICENCES

To assist motorists the Automobile Association has issued a book, *Your Motor Tax at a Glance*, which shows the amounts due for licences, according to horse-power, either for the year or shorter periods. Information is also given concerning rebates obtainable in respect of old cars, refunds for surrendered licences, and the procedure for renewing licences. It is well to remember that the authorities are granting fourteen days' grace for the renewal of licences, and that vehicles used during this period of grace become liable to taxation. Copies of the booklet may be obtained upon application by postcard to the Secretary, the Automobile Association Fanny House, New Coventry Street, W 1, or to any of the A.A. area offices.

VACANCIES

NOTIFICATIONS of offices vacant in universities, medical colleges and of vacant resident and other appointments at hospitals, will be found at pages 34, 36, 37, 39 and 40 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 38 and 39.

A short summary of vacant posts notified in the advertisement columns appears in the Supplement at page 250.

THE
British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

EPITOME

OF

Current Medical Literature

JULY TO DECEMBER, 1928.

F W W GRIFFIN, M.D.,
SUB EDITOR.

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EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

1 Meningitis in Numps

J. LAFFIENS (*Rev. Méd. Suisse Rom.*, April 25th, 1928, p. 420), who records a personal case, illustrates the rarity of this complication by the fact that he found only 37 other cases on record. Of those, only 3 were adults, aged from 19 to 23, 2 being soldiers. Of 19 cases in which the sex was stated 15 were males. In another 19 cases in which the date of onset was stated the meningelial symptoms preceded the parotitis in 5, accompanied it in 4, and followed it in 10. The symptoms may be mild or very severe. In 25 cases in which lumbar puncture was performed a moderate or slight lymphocytosis was found. In only 3 instances was note made of the amount of albumin, which was increased in each case. The prognosis is generally good, only 2 of the cases were fatal. The necropsy of one of the latter, recorded by Acker, showed congestion of the convexity of the brain, hydrocephalus, and layers of fibrin at the base. No changes were seen in the spinal cord. Laffiens's patient was a boy, aged 12, in whom the meningelial symptoms and parotid swelling appeared on the same day. A slightly turbid cerebrospinal fluid showing lymphocytosis was removed under pressure, and rapid recovery ensued.

2. Paroxysmal Tachycardia Flutter and Fibrillation

E. GÉRAUDEL (*Arch. des Mal. du Cœur*, May, 1928, p. 273) recapitulates the generally accepted views concerning paroxysmal acceleration of the heart's action. Such paroxysms have been regarded as being of three kinds—sinus or nodal tachycardia, auricular flutter, and auricular fibrillation. The author considers, however, that the first group, in which a ventricular response follows every auricular contraction, is identical with auricular flutter, and supports his contention by two series of electrocardiograms taken over several years. The cases described were those in which periods of tachycardia, of quiescence and of variable irregularity succeeded each other from time to time. Electrocardiograms taken during each of these periods showed that during the attacks contractions were originating from either the normal pacemaker or an ectopic one. During quiescence the tracings proved the presence of 2:1 auricular flutter, and in the times of variable rhythm brief periods of 2:1 flutter alternated with groups of rapid contractions representing 1:1 flutter. The stages of transition between one condition and another were also demonstrated by the electrocardiograph. This conception of the true nature of paroxysmal tachycardia has been tested by the study of 97 cases during the last four years. No case of sinus or nodal tachycardia was found which did not conform in type to the cases described, always there was shown to be present at times a 1:1 auricular flutter. In his consideration of the relationship between auricular fibrillation and flutter Géraudel adduces evidence to show that the difference between the two states is merely one of degree—the essential feature in each case is rapid auricular action, this is easily demonstrable in flutter, and it is believed that absence of P waves in the electrocardiogram of fibrillation is misleading in that their absence does not necessarily indicate failure of auricular contraction, since the form of P like that of the ventricular complex, may be influenced by other factors than alteration in muscular activity. Both paroxysmal tachycardia and fibrillation seem, therefore, to be of like origin, arising from a condition of rapid auricular contraction which may be either regular or irregular.

3. The Late Results of Sanocrysin Treatment.

KJER PETERSEN and V. PETERSEN (*Ugeskrift for Læger*, April 12th, 1928, p. 347) have collected the sanocrysin statistics of various Danish hospitals and sanatoriums during the past four years, and of 136 cases they have eliminated 38, either because the patients had no tubercle bacilli in the sputum, or they could not be traced, or they had received only one or a few injections, or the treatment was still being continued. Of the remaining 98 only 12 were improved, 21 were classified as unchanged, 28 as worse and 37 as dead. With the exception of a few cases of fibrotic disease of long standing, the prognosis for which is relatively good, most of the patients classed as improved belonged to Turhan's first and second stages—that is, stages in which the chance of recovery is comparatively good in ordinary circumstances. The authors conclude that there is no case in their series showing such results from sanocrysin treatment as to

warrant its being credited with any therapeutic virtue, and they consider that the hope that sanocrysin would result in patients getting rid of the tubercle bacilli in their sputum and ceasing to be infectious has proved to be illusory.

4. Precordial Pain and Epidemic Encephalitis

J. C. M. LOURNIER, A. GARRA, T. ROCCA, and J. MONESTIER (*Bull. et Mem. Soc. Méd. des Hôp. de Paris*, March 15th, 1928, p. 450) state that pain is a well recognized symptom in lethargic encephalitis. It may be localized in certain viscera and simulate various affections, such as appendicitis, renal colic, or intestinal obstruction, until somnolence or the appearance of hiccup or myoclonic movements in other muscles than the diaphragm reveals the true nature of the disease. These pains show a predilection for the abdominal organs, but have also been noted in the thoracic region by Esbach, who has recorded a case of retrosternal pain, and Lanby one with symptoms of angina pectoris. The present authors' case was that of a man, aged 44, in whom the onset of epidemic encephalitis was preceded for three days by a sort of sensory aura consisting in precordial pain which radiated along the left ulnar nerve. The recurrence of the same symptoms and with the same duration when the patient had a relapse of the encephalitis excluded the possibility of a mere coincidence.

5. Diphtherial Infection of the Scrotal Contents

G. MARTIN (*Journ. Amer. Med. Assoc.*, April 7th, 1928, p. 105) reports the case of a man who for twenty-six years had had a scrotal swelling without its causing him any inconvenience. A week before admission to hospital it became acutely inflamed and signs of suppuration appeared, 140 c.cm. of pus was withdrawn and a pure culture of virulent diphtheria bacilli obtained. Subsequently 50 c.cm. of sanguino-purulent matter was evacuated and greyish membrane protruded from the sinus, 15,000 units of antitoxin were given intramuscularly and considerable improvement ensued. No similar cases appear to have been recorded in urological literature. There had probably been two infections within the tunica vaginalis, diphtheria being superimposed upon an older one which had reached the scrotum through the blood stream.

Surgery.

6. Kümmell's Disease

W. H. M. TELLING and G. F. WALKER (*The Caduceus*, February, 1928) describe the train of events which constitute Kümmell's disease or post-traumatic spondylitis, a delayed slow collapse of a vertebral body subsequent to injury. From a study of twelve cases it is shown that the initial injury to the back, either direct or indirect, can be extremely varied in nature and severity. After a short period of rest and slight disability, a latent period, averaging six months, supervenes in which the patient experiences no disability whatever. This is followed by the collapse of a vertebral body the symptoms of which begin insidiously with pain in the back, progressively becoming worse, it is associated with girdle pains due to the unhinging of the bony column, and with paraplegia, sensory loss, and sphincter disturbance due to interference with the cord. The collapse of the vertebra in the form of a wedge produces an angular kyphosis. The differential diagnosis of this condition from Pott's disease rests on the fact that the patient is otherwise quite healthy and that there is no abscess formation nor any change associated with granulomatous disease, the diseased body, viewed laterally, is sharply wedge shaped without any signs of erosion or irregularity or cartilage invasion. Treatment consists in supporting the falling vertebra by a leather or plaster jacket the prone position on a Bradford frame, or, in selected cases, a spinal bone graft. Prognosis is difficult to assess, but if orthopaedic treatment is adopted at the outset the authors consider that the inability to do full work will last for about two years.

7. Appendicitis in Middle Age.

E. M. FITCH (*New England Journ. of Med.*, April 8th, 1928, p. 348), who has collected 37 cases of appendicitis in persons more than 50 years of age, maintains that the disease is as common in people over 50 as in children under 10, and about the same as in the age group 40-50. Of the 37 patients, 24 were males and 13 females. In very few cases was there a history

of direct traumatism from outward violence. In a series of 765 cases of appendicitis at all ages only one definite foreign body was found. Eight patients died—a mortality of 21.6 per cent, one death occurring between 50 and 60, six between 60 and 70, and one over 70. The cause of the relatively high death rate was the much greater severity of the attack, in which the pathological findings were more extensive and the circulatory changes pronounced.

8 Permanent Colostomy

C. H. MAYO and C. F. DIXON (*Annals of Surgery*, May, 1928, p. 711) believe that a permanent colostomy is a fairly common surgical procedure. The ideal stoma is one which can be seen and is easily managed and cared for, the anterior stoma has been found to be more satisfactory than any other type. They describe an operation which provides sufficient control without cumbersome apparatus or the risk of hernia. An incision is made just to the inner side of the left anterior superior spine parallel with Poupart's ligament. The descending colon is brought out and the peritoneal pocket lateral to the sigmoid mesentery is closed with a purse string suture, thus preventing herniation of the small intestine. The cut edges of peritoneum are then sutured together through the mesocolon, and a muscle flap from the lateral oblique is sutured through the gap to the edge of the rectus. After sewing of the external oblique a skin flap is cut and brought through the mesocolic opening and sutured in position. Three days later a small opening is made in the bowel to allow the escape of gas, and on the seventh day a wedge-shaped piece of colon is removed. Irrigation can be carried out through both openings, the muscle flap gives satisfactory control, and there is usually one action of the bowels each morning.

9 Trismus Due to Scar Formation

J. BECKER (*Med. Welt*, May 5th, 1928, p. 631) describes a case of trismus which was not due to temporomaxillary synostosis and which did not require resection of the bone. The patient attempted suicide by shooting himself. The bullet entered just above the right zygoma and was removed at a point about 2 cm. behind the outer commissure of the left eyelids, having traversed the lobe of the left ear, of which about 4 cm. was removed. There was no visible defect nor evidence of injury to the nervous system. During treatment severe trismus developed, so that the mouth could not be opened more than 0.75 cm. Before the operation the incisors could not be separated more than 3 mm., but after operation this was increased to 6 mm. The final result was that the incisors could be separated to the normal extent and the mouth could be opened fully. It was found that the temporal muscle had been so injured that a large mass of scar tissue interfered with its action. On the left side masticatory movements did not produce a definite muscular swelling. The operation was quite simple. Through an incision parallel with the lower border of the zygoma the osseous process was exposed, this was divided with a chisel and the tendinous portion of the temporal muscle was removed. This permitted free masticatory movements, and the patient made a complete recovery.

10 Renal Tuberculosis

H. BLANC (*Journ. de Méd. de Bordeaux*, April 25th, 1928, p. 29) believes that renal tuberculosis is more common than is generally supposed, unless the urinary symptoms can be otherwise explained it should always be considered a possibility. Most of these patients, at any rate in the early and therapeutically most hopeful stages, do not look ill and are often well nourished. The symptoms may be those of cystitis (eight out of the ten cases), pyuria, haematuria, or lumbar pains. Each case of spontaneous, relapsing, and resistant cystitis should be suspected of being tuberculous and indicative of cystoscopy, except in acute menorrhagic cases. The irritability of the bladder is generally reflex from the kidney and is not due to tuberculous disease of the bladder. Inability to find Koch's bacilli in the urine does not exclude a tuberculous kidney. Having decided that the kidney is tuberculous the only treatment is nephrectomy, unless this is contraindicated for other reasons. Although the disease may become quiescent no real cure ever occurs, the symptoms may subside owing to destruction of the affected kidney. Blanc adds that there is room for medical treatment in what is called medical tuberculosis where there is a tuberculous infiltration of the organ without open lesions or pyuria, or in bilateral tuberculosis where nephrectomy is impossible, or after nephrectomy as a prophylactic. In the rare cases of renal tuberculosis in children medical treatment is possibly advisable. In addition to measures of general hygiene and diet (not exclusively milk) the author speaks highly of methylene blue, not only internally, but locally as an instillation for the bladder.

Therapeutics.

11 Treatment of Diphtheria Carriers.

ACCORDING to G. P. LINGENFELTER (*Colorado Medicine*, March, 1928, p. 92, L. C. Donnelly, in 1922, was the first to report a large series of diphtheria carriers treated by ultra violet rays, which were projected on to the tonsils through a hollow metal applicator for from three to five minutes. Of 40 cases, 20 were rendered sterile by one application, 16 more by two, and the remaining 4 by three. In treatment of the nose 10 to 15 drops of a 10% solution of chlorid solution were applied to the mucous membrane and the nasal applicator used for ten minutes, during which time it was slowly inserted and withdrawn. Subsequently F. C. Turner obtained successful results by ultra violet treatment, either alone or combined with mercuriochrome. Lingenfelter himself has treated 44 carriers aged from 5 to 57 by a combination of water cooled applications with general body radiations from an air cooled lamp, exposing the entire person daily and gradually increasing the dosage so as to build up resistance and increase metabolism. Of the 44 cases, 42 were released with negative cultures after three to twenty seven treatments ranging from two and a half minutes' initial exposure to twenty minutes' final exposure with the air cooled lamp, to fifteen seconds to two and a half minutes with the water cooled lamp. The results appeared to be superior to those obtained by x-rays, and very much better than those following any other local applications. It is said to be essential, however, that the treatment should be performed in hospital, where sanitation and personal hygiene can be supervised.

12 Plasmochin in Malaria

COMPARING the effects of plasmochin and quinine in the treatment of malaria, P. V. KARAM CHANDANI (*Indian Med. Gaz.*, May, 1928, p. 249) gives a summarized account of eleven cases of malaria in which plasmochin was given with a view to studying its effects on the leucocytes, the gravimetric, patients showing an idiosyncrasy for quinine, and on intractable cases when quinine administration had little effect. Since this drug causes leucopenia, which should be avoided in pneumonia, two cases of lobar pneumonia complicated with benign tertiary malaria were selected and treated the one with plasmochin, the other with quinine. After three days' treatment no parasites were found in the former, while they still persisted in the latter. Sodium molybdate injections had also been given to raise the leucocyte count. In two cases of heavily infected malaria, the one treated with plasmochin and the other with plasmochin tablets, the blood became parasite-free in five and three days respectively. In one case of pregnancy with co-existent malaria, which had proved to be either idiosyncratic or intractable to quinine, were successfully treated by plasmochin with no ill after effects. In a case of severe malaria and two of a chronic type which had not yielded to quinine treatment, the administration of plasmochin gave excellent results. The author mentions thirteen other patients whose ages ranged from 16 days to 60 years, and who were successfully treated with this drug. In no case did cyanosis or any other untoward symptom occur. The daily dose of plasmochin for adults was never more than 0.6 gram, smaller doses according to age being prescribed for the younger patients.

13. The Subdural Injection of Antitoxin in Tetanus

R. GOEDECKE (*Centralbl. f. Chir.*, April 28th, 1928, p. 1027) describes nine cases in which tetanus was treated by the subdural injection of antitoxin. After lumbar puncture 20 ccm. of cerebro-spinal fluid is withdrawn, followed by the subdural injection of 100 units of antitoxin, both parietal regions are trephined and a subdural injection of 100 units of antitoxin serum is given on each side. The subsequent medicinal treatment follows the usual lines—namely, the administration of antitoxin, magnesium sulphate solution (usually subcutaneously), and sedatives such as chloral hydrate and morphine or scopolamine. In addition to the parietal subdural injections in two severe cases 100 units of antitoxin were injected into the cisterna cerebello-medullaris, after the withdrawal of 20 ccm. of cerebro-spinal fluid. One of those patients recovered from tetanus, but developed Jacksonian epilepsy. Several years later the general health was good and intelligence was unimpaired, but the epileptic fits recurred every eight or nine weeks. Goedecke reports that of the nine patients four were cured, one died later from sepsis, and four died from tetanus. This series corresponds generally with the majority of those published already on this method of treatment. All writers report occasional recoveries, but Goedecke concludes that there is no evidence that the subdural injection of antitoxin is superior to the older methods of treatment.

14 Treatment of Pruritus Ani

M F CRIADO (*La Med Ibera*, April 7th, 1928, p 387) states that the local treatment of pruritus ani varies with the following types of lesions (1) complete absence of any objective lesions, (2) eczematization, (3) lichenification, (4) fissures. In the absence of any obvious lesions the parts should be kept scrupulously clean, but it should be remembered that soaps, especially those strongly alkaline, are injurious. Before defecation the patient should smear the parts with some greasy preparation then wash them with a slightly astringent solution, carefully dry them with a towel, dust them with an inert powder, apply an ointment, and place a slip of gauze between the buttocks. In cases of eczematization the vascular condition should be relieved by application of inert powders, such as zinc oxide, boric acid, or talc, or, if these powders are not well tolerated, ointments such as zinc oxide or vasoline should be applied. In lichenification, preparations of tar, green soap, or chrysophanic acid are indicated, and in very obstinate cases the application of x rays. Fissures are best treated by cauterization with silver nitrate in 5 to 10 per cent. solution.

Dermatology.

15 Carbon Dioxide Snow in Blastomycosis

H M HEDGE (*Journ Amer Med Assoc*, April 28th, 1928, p 1367) advocates the use of carbon dioxide snow in the treatment of blastomycosis, and he reports two localized cases which yielded rapidly and completely, remaining without any sign of recurrence for over a year. A cylinder of carbon dioxide is laid at an angle with the valve down wards, over the valve is fitted a square of chamois skin shaped like a receiving bag, and the gas is collected in this in the form of snow when the valve is opened. This snow is then packed into an ear speculum and tamped down into a firm pencil which can be held with a small piece of chamois skin and applied firmly to the surface of the lesion for from ten to fifteen seconds. In the cases reported, one with a lesion on the cheek and the other on the right foot, this method was tried after various others had failed, with the result in each case that a crust formed in a few days, leaving a clean granulating ulcer on removal at the end of a fortnight. It gradually healed with only a slight scar, and without any sign of recurrence after more than a year had elapsed. Hedge considers that these results justify the inclusion of this method among other approved treatments for the condition.

16. Anomalous Forms of Recklinghausen's Disease.

J J ELLER (*Arch Derm and Syph*, May, 1928, p 648) refers to the previous article on this subject by F. Wise and J. Eller (see *Epitome*, 1926, vol 1, para 228), and reports further cases. He concludes that there is no doubt that an abortive incomplete, or pre tumour type, of Recklinghausen's disease exists, pigmented areas appearing in place of the skin tumours in one case and together with them in another. He adds that this variety of the disease is usually encountered in one or more children of a family in which either parent has the typical neurofibromatosis of the skin, but a pigmentary eruption, without tumours, may also occur in adults. It is suggested that as the disease progresses tumours eventually make their appearance.

17 Trichophytic Dermatitis

P RAVIET, BASCH, and RABEAU (*Presse Med*, May 16th, 1928, p 609), describe an epidemic of dermatitis due to the *Trichophyton necans radicans* which occurred among a number of female clerks. In all the cases, 99 in number, the cutaneous lesions were limited to the glabrous regions of the body, especially the uncovered portions of the neck the summit of the thorax, and the arms. The primary source of infection apparently was a cat, and the epidemic was evidently propagated by the interchange of office apparel and dissemination through clothes disinfected during work hours, this accounting for the seat of the eruption. Fifty seven of the cases presented typical forms of herpes circinatus the lesions consisting of red or reddish brown infiltrated patches, often showing vesico-papules or a folliculitis in different stages of development the latter resembling pityriasis keratosis. In some patients only one lesion occurred, and in others many, often differing in aspect from each other. The remaining 42 patients presented multiple forms differing from the typical trichophytic type, and simulating psoriasis, pityriasis, and lichen planus. The striking points in this outbreak were the rapidity of evolution and limitation of the lesions the grouping of the constituent elements, the absence of generalization, and very often the presence of intense

pruritus. In all the cases the diagnosis was confirmed by smear and cultural examinations, and by the cutaneous reactions following intradermal injections of trichophytin. The authors emphasize the diagnostic value of the latter test, and refer to Sabouraud's law relating to the specificity of trichophytin, which these cases apparently verify.

18 Lichenification due to a Trichophyton Infection.

In a case of lichenification in a woman, aged 38, reported by MILIAN and T. PHOTIROS (*Bull de la Soc Française de Derm et de Syph*, March, 1928, p 212) the eruption first appeared on the lower right side of the neck as a very irritating small red spot the size of a pea. Three or four days later larger squamous patches developed, which itched intensely, causing much scratching. On examination the eruption was found extending to the clavicles on both sides of the neck, and consisted of rose red patches as large as the palm of the hand. On the edges some small bright papules, simulating lichen planus, were seen. After two days two large dark red patches, covered with small scales and surrounded by disseminated papules, appeared in the left axilla, and a similar patch in the right one. A diagnosis of trichophytic lichenification was now made. Tincture of iodine was applied to the left side of the neck as a test measure, and two days subsequently, though there was great improvement in these lesions and the itching had completely ceased, some red, itching papules were seen on the extensor surfaces of both forearms. Iodized alcohol in 1 per cent strength was now used with apparent improvement, this was replaced by an ichthyol paste, and later by a tar ointment. Cure was effected, and when last seen the patient complained only of the slight irritation caused by the tar. At the age of 5 the patient had an attack of pityriasis. At the present time she was living alone, owned no domestic pets, and none of her fellow workers suffered from a like affection. *Trichophyton granulosum* was isolated from the scales, and a possible cause of infection was a new fur which had been worn some three months previously to the appearance of the eruption. Brocq distinguishes two forms of lichenification primary, without any visible, local, cutaneous cause, and secondary, the result of tegumentary reaction to some affection, as prurigo or eczema.

Obstetrics and Gynaecology.

19 A Dental Source of Puerperal Infection.

According to H. SACHS (*Zentralbl f Gynä*, April 21st, 1928, p 991) it is of importance that the laity should be disabused of the popular notion that dental treatment during pregnancy is fraught with danger to mother or foetus, on the contrary, treatment of dental and oral sepsis at this time is of the greatest importance in the prophylaxis both of morbid renal conditions and of puerperal infections. Such sepsis may act as a source of infection by the blood stream or may lead to direct infection of the genital tract by the patient, nurse, or physician. The case is related of a woman who, four days after spontaneous delivery, during which neither rectal nor vaginal examination was performed, showed signs of endometritis and pyrexia. These continued until the twenty third day and the lochia contained *Streptococcus viridans* and *Staphylococcus haemolyticus*. The temperature fell and the patient improved after the extraction at this time of several carious teeth, which gave issue to pus containing the same organisms as were present in the lochia. The infant suffered from rhinitis, and a nasal swab also contained the same cocci.

20. Vaginal Hysterectomy

R. PETIT (*La Gynécologie*, March, 1928, p 129) reports 123 consecutive successful cases of vaginal hysterectomy. He describes his own technique in detail, illustrating the stages of the operation by photographs. He enumerates the advantages of this method as (1) minimum amount of shock, obviated because there is no manipulation of the intestine, (2) reduction of the danger of infection because the operation is extra peritoneal, (3) after the seventh day the patient can get up and walk, (4) absence of external scar and therefore prevention of ventral hernia, (5) reduction of the possibility of adhesions, (6) rapidity of the operation. Of his 123 cases, 75 were fibromas, 17 fibromas with non suppurating adnexa, 11 with suppurating adnexa, 4 prolapse, and 16 neoplasms of varying degree. All these patients were able to be up on the seventh day, and they recovered from the operation without incident. The author considers vaginal hysterectomy the operation of choice in elderly patients who have been weakened by previous haemorrhage, especially where there is infection of the adnexa, for fibromata when the size is not excessive, and in complete prolapse of the uterus after the menopause. The operation is contraindicated when the

fibromas are too large to be delivered without cutting into them, when multiple adhesions are expected, especially in connexion with the appendix, and when myomectomy is required. With regard to the sixteen cases of neoplasm reported, the number was too few to allow any definite conclusions to be drawn, but it is stated that all the patients recovered from the operation without shock and had remained well for varying lengths of time.

21 Appendicitis complicating Pregnancy

G. I. MILLER (*Med. Journ. and Record*, May 16th, 1928, p. 552) states that, owing to the large amount of lymphoid tissue in the appendix and its dependent position, this organ is a constant reservoir of bacteria, and during gestation the patient may have a primary or recurrent attack of appendicitis. In pregnancy a recurrence is more likely to occur because the body generally is weakened and has lessened resisting powers, moreover, the progressively enlarging uterus causes traction on existing adhesions and pressure on the appendix. An infection in a remote part of the body will predispose to a bacterial invasion of the appendix, thus a pre-existing alveolar or tonsillar condition may become activated, virulent streptococci reach the appendix, and a local inflammation ensues. The diagnosis of appendicitis during pregnancy is usually simple, but the condition must be distinguished from pyelitis, renal colic, ureteral stricture, hydronephrosis, ovarian cyst, and ectopic gestation. The blood picture may not be a great aid, since a leucocytosis of 12,000 is not pathological, but when a high total count is coupled with a high polymorphonuclear count the diagnosis is definite. After other abdominal lesions have been excluded, pain in the right lower quadrant of the abdomen during any stage of pregnancy is an imperative indication for immediate operation. The prognosis is good for both mother and child when the operation is performed without delay and before suppuration and rupture of the appendix, and in the absence of these there should be no mortality. The operation is much easier during the first half of pregnancy before the ovum and appendix have become displaced. The ideal time to operate is before conception has occurred, but if pregnancy is present the period of gestation should not influence prompt operation, the acuteness and virulence of the infection being the determining factor. Abortion and maternal death depend on the virulence of the infection, the period of gestation, and prompt surgical intervention. The operator should confine himself to the appendix alone, and avoid handling or even touching the uterus and adnexa. Miller details his results in 59 cases of appendicitis complicating pregnancy, 37 being intrauterine and 22 extrauterine.

22 Diathermy in Gynaecology

G. GELBHORN (*Journ. Amer. Med. Assoc.*, March 31st, 1928, p. 1005) discusses the employment of diathermy in gynaecology for pelvic inflammations, gonorrhoea, non-infectious gynaecological conditions, and cancer of the uterus. In pelvic inflammations he uses an outer ribbon electrode encircling the waist of the patient and a vaginal electrode surrounding the cervix, occasionally a rectal electrode was found more suitable. He warns against starting with a too intensive application, and suggests that, as a general rule, a temperature of 115°F., registered by the thermometer within the vaginal electrode, is the standard to be aimed at. Each application lasts from twenty to thirty minutes, and the treatment is repeated at intervals of three days. The method is contraindicated in acute infections, and even in subacute and early chronic stages care is necessary, the patient's temperature being watched, and the treatment stopped if there is any rise. The author suggests that diathermy might also give assistance in the treatment of chronic salpingitis. In two cases of gonorrhoea which had resisted all therapeutic efforts prompt and permanent cure followed urethral and intracervical diathermy. Gelborn emphasizes the importance of using this powerful remedy with great caution.

Pathology.

23 Changes in the Blood in Scarlet Fever

J. SABRAZÉS (*Arch. des Mal. du Cœur*, April, 1928, p. 193) states that leucocytosis is the rule in scarlet fever, especially in malignant forms. Even in moderate attacks the total number of white cells not infrequently exceeds 15,000 to 20,000. This leucocytosis, which occurs to a less degree in mild attacks, is chiefly manifested by an increase in the number of the neutrophil polymorphonuclears. As the temperature falls the number of leucocytes diminishes but does not become normal until desquamation is finished. Not infrequently a few neutrophil myelocytes appear in defer-

rescence. The polymorphonuclears often show toxic changes in their nuclei and cytoplasm. It is in scarlet fever that basophil inclusion bodies, first described by Barralou in 1910 and later by Döhle and many others, are very frequently found in the cytoplasm. During the first few days of the disease 95 per cent. of the polymorphonuclears may show from one to three inclusion bodies. In mild cases they persist for four to six days, and in severe attacks for three to four weeks. Their duration may be prolonged by the appearance of complications. The inclusion bodies described by Anato are much less frequent. During the first few days the eosinophils are normal or decreased in number, but subsequently they show a considerable increase in proportion to the rise in the leucocytosis. In fatal cases eosinophils may be entirely absent. As regards the red corpuscles, marked anisomiasis is not exceptional, and occasionally nucleated red cells are found. The sedimentation rate is increased during the first few days of the disease, and then gradually becomes normal by the end of the fourth week. The surface tension of the plasma, as von Koss (*Labor.*, January 28th, 1928, para. 107) has shown, falls more or less during the first week.

24 Local Vaccination against Rabies.

P. REMLINGER and J. BAILLY (*Ann. de l'Inst. Pasteur*, April 1928, p. 349) remark that neither the cellular nor the humoral theory of immunity is altogether satisfactory in explaining immunity to rabies. Though in general there is a parallelism between the development of rabid animal bodies and the establishment of immunity, there are exceptions. Some persons who have been bitten and have been treated fail to develop immune bodies, and yet do not contract the disease, conversely, there are persons who develop immune bodies, and who yet die of the disease. Similarly, while there are animals, such as the cat and the viper, which are refractory to rabies, their serum destroying the virus, there are others such as the tortoise, which are naturally resistant to rabies, though the serum has no rabicidal action. The authors, therefore, asked themselves whether immunity was possibly a local phenomenon, as is largely maintained by Borodko. To test this they proceeded to vaccinate a number of guinea pigs cutaneously with dried or etherized virus, and subsequently to test their resistance to cutaneous or intra-muscular injection of fixed or street virus. In the process of vaccination the abdominal skin was shaved and the virus was rubbed in vigorously for some minutes with a tooth brush, the animal was then maintained in the recumbent posture for half an hour to allow the virus to dry on to the skin. The results were not very satisfactory. The authors obtained evidence that cutaneous vaccination, if repeated seven or eight times, did increase the resistance to inoculation with active virus but the superiority over the controls was not very marked. They consider that the local vaccination should be not of the skin but of the brain. In support of this they quote Mario and Maternich's results, which showed that rabbits vaccinated by the meningeal route became, after three injections completely refractory to intra-cerebral inoculation with fixed virus.

25 The Relation of *Leptospira autumnalis* to *L. icterohaemorrhagiae* and *L. hebdomadis*

ACCORDING to G. J. STÉFANOPOULOU and S. HOSoya (*C. R. Soc. de Biologie*, May 18th, 1928, p. 1317) the autumn fever of Japan, sometimes called "akiyami," occurs in epidemic form in certain districts during the months of August to October. Clinically it is characterized by fever, muscular pains, anisæmia, insomnia, conjunctival congestion, a mild degree of jaundice, and slight general lymphadenitis. The fever lasts for five to eight days, and subsides by lysis. Two types of spirochaete have been recovered from patients with the disease, these are known as *L. autumnalis* A and B. To distinguish between them it is necessary to resort to serological and pathogenicity reactions. The authors find that *L. autumnalis* resembles *L. icterohaemorrhagiae*. It produces a very similar disease in guinea pigs and is agglutinated, though only to a low titre, by the serum of patients suffering from Weil's disease, moreover, a serum prepared by injection of a rabbit with the A strain agglutinates *L. icterohaemorrhagiae* to about a fifth of the titre *L. autumnalis* B, on the other hand, closely resembles *L. hebdomadis*, the spirochaete that is responsible for the "seven day fever" of Japan. It is only slightly pathogenic for the guinea pig, and a serum prepared against it agglutinates *L. hebdomadis*. There is apparently no group relation between *L. autumnalis* A and *L. icterohaemorrhagiae* on the one hand, and *L. autumnalis* B and *L. hebdomadis* on the other. The authors conclude that two distinct types of spirochaete have been recovered from patients with autumn fever. Type A is closely allied to *L. icterohaemorrhagiae*, but can be distinguished from it by Pfeiffer's reaction, the other is identical with *L. hebdomadis*.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

22. Rocklinghausen's Disease of Syphilitic Origin

J. L. DE LA PORTILLA and L. DAUDEN (*La Med Ibera*, March 3rd, 1928, p. 229) record the case of a woman, aged 49, who for the previous nineteen years had presented the molluscum tumours and café au lait patches corresponding with those seen in Rocklinghausen's disease. In view of the fact that her only child had died at the age of 18 months and that she had an abortion at five months, the Wassermann and Winkler tests were performed and proved strongly positive. Under specific treatment with mercury, salvarsan, and bismuth rapid disappearance of the skin lesions and an improvement in the general condition took place.

27. Concurrent Herpes and Varicella.

J. B. SHELMIRE and B. SHELMIRE (*Arch Derm and Syph*, May 1928, p. 687), discussing the association of herpes zoster and varicella, adopt the classification into four groups: (1) herpes zoster in one patient followed by varicella in others exposed, (2) followed by varicella in the same patient but not in others exposed, (3) also in those who were exposed, and (4) varicella in one patient followed by herpes zoster in others exposed. Two cases, in a father and daughter, are reported. In the father, during the course of herpes zoster of the right fifth nerve distribution, a generalized extensive vesicular exanthem resembling varicella developed, the daughter, who had no history of exposure to chicken pox, acquired a fortnight later typical varicella with lesions of the scalp and mouth. In the father's case the herpes involved the right half of the tongue and right buccal mucous membrane, with motor paralysis of the right half of the face, infratemporal in type, while the subsequent generalized varicella-like eruption involved the glabrous skin of almost the entire body and oral mucous membrane with the exception of the scalp and those parts not already the seat of herpes. At the necropsy pathological changes were found in the right Gasserian ganglion similar to those found in the spinal root ganglion in cases of herpes of dorsal root distribution. The authors emphasize the importance of obtaining a detailed history and inquiry as to exposure in every case of zoster and varicella. It is generally accepted that the vesicle contents in herpes zoster are not virulent for rabbits, and in the case reported the results of inoculation of a scarified cornea were negative.

28. Osteo-arthritis of the Hip Following Paratyphoid Fever

J. MADIER and R. DUCROQUET (*Bull Soc de Pédi*, March 20th, 1928, p. 157) record the case of a boy, aged 5 years, who, on the fifteenth day of a febrile attack, developed arthritis of the right knee and ankle. The limb was put in plaster and the arthritis subsided but on the thirtieth day pain and swelling of the right hip developed. An x-ray examination revealed a destructive lesion of the neck of the femur. Under treatment with rest in a plaster apparatus the pain disappeared, but a skilgram taken five months after the onset showed a complete disappearance of the head of the femur. The Widal test was positive in 1 in 50 for *B. typhosus*, negative for *B. paratyphosus* A, and positive in 1 in 800 for *B. paratyphosus* B.

29. Combined Immunization against Diphtheria and Scarlet Fever

D. J. H. POT, sen (*Nederl Tijdschr v Geneesk*, March 17th, 1928, p. 1311), states that simultaneous active immunization against diphtheria and scarlet fever were first employed in 1925 by J. Parlane Kinkoch, the medical officer of health for the city of Aberdeen, who had 1,305 school children so treated, the scarlatinal toxin being injected into one arm and diphtheria toxin antitoxin into the other. No bad effects were noted. In 151 of these cases the Dick and Schick reactions were examined later, with the following results: In 80 per cent the Dick test was negative, feebly positive in 11 per cent, and distinctly positive in 9 per cent; while the Schick test was negative in 54 per cent, feebly positive in 25 per cent, and distinctly positive in 21 per cent. In the course of the eleven months following immunization six of the children developed scarlet fever and two diphtheria. Professor Aldershot of Utrecht has recently prepared a mixture of scarlet fever toxin with diphtheria toxin antitoxin, under the name of "difo," which has been employed on a large scale at The Hague Noordwijk Dordrecht and other places in Holland, with satisfactory results and little, if any, reaction.

30

Curable Typhoid Arteritis

L. RAMOND (*Presse Méd*, March 10th, 1928, p. 315) records the case of a man, aged 43, who, on the tenth day of typhoid fever, was suddenly seized with severe pain and complete loss of power in the lower limbs, which became cold and discoloured, especially at the extremities. Within twelve hours, however, considerable improvement occurred, and on the following day the appearance of the lower limbs was absolutely normal. Although the patient complained of tingling in the palmar aspect of the right hand, especially in the last three fingers, the skin was not cold or discoloured. The symptoms lasted three days and then disappeared. Subsequent recovery was uneventful. The case is considered an example of the non-obliterative parietal arteritis occurring in typhoid fever, of which instances were described by Vulpius in 1883 and later by Tholozan and Riblanc.

31

Prevention of Measles by Goat Serum

L. J. HALPERN (*Journ Amer Med Assoc*, April 7th, 1928, p. 1109) reports on 50 measles contacts who were given an antibacterial and antitoxic serum from goats which had been immunized with the diplococcus regarded by Sundeblom as the cause of measles. Five died three to ten days after inoculation, not of measles but of the disease (pneumonia or malnutrition) for which they had been admitted. Of the remaining 45, 28 (63 per cent) entirely escaped an attack, and the majority of the 17 who developed the disease had it in an attenuated form, none had any complications or any serum reaction.

32

Meningococcal Septicaemia

G. MAHIEU (*These de Paris*, 1928, No. 16), who records seven cases in patients aged from 20 to 54, states that within recent years meningococcal septicaemia appears to have become more frequent than cerebro-spinal meningitis. It was for a long time confounded with other forms of septicaemia and various skin disorders of a purpuric type, but is easily distinguished at the present day by a triad consisting of fever which is often of an intermittent type, eruptions the commonest of which resembles erythema nodosum but which may be also morbilliform or scarlatiniform, and arthralgia and myalgia. The diagnosis is often confirmed by a positive blood culture. A negative examination, however, does not contraindicate treatment by antimeningococcal serum, which should be given subcutaneously, intramuscularly, intravenously, and, if necessary, intraspinally. In refractory cases fixation abscess or shock therapy should be employed.

Surgery.

33. Phrenico-exalresis in Pulmonary Tuberculosis.

J. GRAVENSEN (*Ugeskrift for Læger*, April 12th, 1928, p. 333) has treated thirty cases of pulmonary tuberculosis at the Vejle Sanatorium in Denmark during the past four years by means of phrenico-exalresis, the principle of which—paralyzing half the diaphragm so as to limit the excursions of the base of one lung—was first advocated in 1911 by Stuerz. The author has found this operation of little value in association with an artificial pneumothorax on the same side, but he has found it beneficial as a supplement to thoracoplastic operations in certain cases. By practising phrenico-exalresis as a preliminary to a thoracoplastic operation he has been able to reduce the severity and extent of the latter operation. Such a preliminary step assures a more gradual collapse and thus minimizes the injurious effects on the other lung and the general condition. The subsequent thoracoplastic operation is rendered less dangerous, as the risk of an aspiration pneumonia of the lower lobe following a partial thoracoplasty of the upper part of the chest is reduced. Phrenico-exalresis was performed in ten cases without any supplementary operation in the remaining twenty cases it was employed in conjunction with some other form of collapse treatment, which consisted of artificial pneumothorax in three cases and thoracoplastic operations in seventeen. At first sceptical, the author has come to regard phrenico-exalresis as a useful supplement to thoracoplasty in certain carefully selected cases, but he insists that a statistical advocacy of this procedure would be useless so far as his own material is concerned, both because of its smallness and of its lack of uniformity. He adds that the operation is so easy technically, and causes the patient so

little discomfort, that it may well be attempted in suitable cases. It is, however, useful rather as a supplement to other methods of treatment, general, specific, and operative, than as a totally independent measure.

34 Naevus Carcinoma and Melano sarcoma.

K VOLKMANN (*Zentralbl f Chir*, May 26th, 1928, p 1299) records the case of a married woman who had had for eighteen months a reddish spot in the upper part of the right breast, apparently a naevus. In less than a year a small wart appeared which grew to the size of a penny. It was chafed by the clothing, but was otherwise painless. The wart was excised and the skin was sutured. Six months later an axillary tumour appeared, which was not diminished by inunction. In the upper and outer quadrant of the right breast there was a painless well healed half inch scar, the breast appeared otherwise normal. In the axilla there was a painless tumour larger than a walnut, when excised the macroscopic appearance was very suspicious, and some hard cords could be felt running towards the breast. The tumour consisted of a group of enlarged lymph glands, embedded in fat. On section the appearance was that of medullary cancer with old and recent haemorrhages and infarcts. Histologically, the lymphoid tissue was replaced by neoplastic tissue, and apparently it was a non-pigmented naevus carcinoma. The patient died a few weeks later from melano-sarcoma. Volkmann observes that similar apparently non-malignant tumours are excised so frequently by general practitioners that it is seldom considered necessary to obtain a pathological report. This case shows that all such tumours should be examined histologically, since an early recognition of the malignancy of a tumour, followed by prompt radical treatment, may save a patient's life.

35 Electro-cardiography and Surgical Operation.

W WACHSMUTH and G EISMAYER (*Deut Zeit f Chir*, May, 1928, p 145), in the course of a large series of operations on the head, thorax, and abdomen of dogs and human subjects, studied the action of the heart in the various stages of the operation by means of the electro-cardiograph. The changes observed, such as disturbance of conduction and automatism of subordinate centres, were found to be exclusively due to the anaesthetic and had nothing to do with the actual operation. No practical value, therefore, could be assigned to electro-cardiography during an operation, and the authors maintain that the old clinical methods, such as observation of the pulse and blood pressure, are sufficient to prevent accidents. They prefer anaesthesia by inhalation of ether, owing to its slight tendency to affect the heart. Administration of cardiac tonics such as camphor and caffeine before operation in patients with normal hearts is unnecessary, while a similar employment of digitalis is dangerous. The purely scientific value of electro-cardiographic tracings during an operation is considered doubtful, as there are numerous sources of error. Apart from the movements which may stimulate arrhythmia caused by the patient himself or those taking part in the operation, and apart from the disturbance of the current caused by the instruments in the field of operation, even the experienced cardiologist will have difficulty in recognizing disturbances in the heart's action in tracings made during the operation.

Therapeutics.

36 Insulin Therapy in Diseases of the Liver

C DREYFUS (*Paris Méd*, May 19th, 1928, p 456) describes a series of cases of parenchymatous disease of the liver, and discusses treatment. He finds that considerable benefit follows the administration of insulin carbohydrates in 5 unit doses with rectal injections of 4 per cent glucose serum. The increased resistance of the hepatic cells thus produced may be the cause of the benefit observed, and Nitzesku and Dobreff have stated that insulin is a remarkable chologogue. On the other hand, Motter has called attention to the good effects of insulin in progressive wasting, which is one of the principal symptoms of hepatic insufficiency. Dreyfus suggests that the combined treatment with insulin and carbohydrates affords a means of therapy in those cases where snob has been absent in the past. He gives details of cases of cirrhosis with enlarged spleen and simple jaundice treated successfully in this way.

37 Oral Administration of Pollen in Asthma.

J H BLACK (*Journ Lab and Clin Med*, May, 1928, p 703) compares the results obtained by oral and by hypodermic pollen therapy, and concludes that oral treatment has certain definite advantages, though satisfactory protection is secured

less often. None of the patients receiving pollen by the mouth suffered from asthma, hay fever, or urticaria as the result of treatment. The patients, with three exceptions, suffered from sensitiveness to a grass or a ragweed, or the two combined. For hypodermic therapy he used an initial dose of 0.1 c.c. of a 1 in 10,000 solution of an extract of the pollen made with 45 per cent glycerol and 7 per cent sodium chloride. The initial dose in oral treatment was 10 drops of a 1 in 20 extract, each succeeding dose being increased by 10 drops until 60 drops were being taken at a dose. The treatment was given three times daily, so that the maximum dose was reached within forty-eight hours. The extract was taken in a glassful of water, milk, or other beverage, usually before meals but not invariably. Black states that the oral administration can be employed during the season of infection, no prolonged pre-seasonal treatment being required, it can also be conducted at home. Systemic reactions do not occur, and the pain of injection is avoided. A disadvantage is that the pollen in the amount usually required is expensive, thus negating its employment in many cases of asthma. It has, however, been used with advantage as a preliminary to hypodermic treatment. The pollen of timothy grass and ragweed, being relatively inexpensive, are said to lend themselves well to this form of therapy. The percentage of complete failures is higher than in hypodermic treatment, and the author suggests that some method is required to determine in advance whether the patient is likely to respond to it.

38 Liver Treatment of Pernicious Anaemia.

G R MINOT, L J COHN, W P MURPHY, and H A LAWSON (*Amer Journ Med Sci*, May, 1928, p 539) report the treatment of more than 160 cases of pernicious anaemia by the daily feeding with adequate amounts of potent liver extract, which, it is claimed, acted specifically and simplified the treatment. In 9 to 18 grams of the standardized extract which they used there was an equivalent of 300 to 600 grams of liver. The patient was given an adequate well balanced diet containing no liver or kidney, and it is stated that the striking and rapid symptomatic improvement was comparable with that reported for cases treated with whole liver. The authors believe that the active principle in liver appears to stimulate particularly the formation of red blood cells, haemoglobin increased rather more slowly. Importance is attached to the concurrent employment of a diet rich in sources of iron and of foods which accelerate haemoglobin regeneration. It is emphasized that the continued ingestion of some source of the active principle effective in pernicious anaemia is necessary to prevent relapse.

39 E H MASON (*Journ Amer Med Assoc*, May 12th, 1928, p 1527) alludes to recent work on the dietetic treatment of pernicious anaemia, and reports a case in which the patient was kept for approximately four years on a diet containing a daily amount of 150 to 200 grams of liver. There has been no recurrence, and considerable improvement in concurrent lesions of the spinal cord has been observed. Shortly after admission to hospital the red cells numbered 880,000 per c.c. mm and the white cells 2,200, the haemoglobin was 20 per cent, and marked polikocytosis and anisocytosis were present. Nine weeks after the commencement of liver feeding the red cell count rose to 4,200,000 per c.c. mm, the haemoglobin to 79 per cent, and the leucopenia had disappeared. At the present time the blood shows 4,600,000 erythrocytes and 5,000 leucocytes per c.c. mm, haemoglobin 87 per cent, colour index 0.95, and moderate anisocytosis, but no polikocytosis, polychromatophilia, punctate basophils, or nucleated red cells. The improvement in the cord changes was marked. When the liver treatment was started the "position sense" of the toes was lost and the "vibration sense" was diminished in the right leg and absent in the left one, knee and ankle jerks were absent, with bilateral plantar extension. When walking the left foot dragged, and there was slight rombergism when standing. At the time of reporting this case practically all the subjective symptoms had disappeared, although the patient was conscious of weakness in the left leg. Objectively, the deep reflexes have returned, but a slight bilateral extension still persisted. There is considerable improvement in the vibration sense in the right leg, the gait has greatly improved, but there is still slight rombergism on standing. Achlorhydria has persisted unchanged throughout the disease.

40 Malarial Treatment of Cerebro-spinal Syphilis

C A PORTEOUS and E C MENZIES (*Canadian Med Assoc Journ*, May, 1928, p 536) describe in detail their method of treating cerebro-spinal syphilis by malarial inoculation and a trypanamide. Malarial blood is injected intravenously in a dose of 2 c.c. clotting being obtained by adding 0.2 per cent of sodium citrate, occasionally, also, a subcutaneous injection

of 3 oom of blood is given. During the febrile stage the urine is examined on alternate days, and slight albuminuria has been found in about half the cases. The tendency of nurses to sponge the patients during the pyrexial period has to be carefully checked, such sponging is not allowed until the temperature is definitely falling. Headache may be greatly relieved, or even cured, by an icebag, phenacetin or aspirin is never given, since it interferes seriously with the fever. Stimulants have not been found necessary, but a tonic containing iron is often administered during the fever, and invariably when the high temperature ceases. Patients are encouraged to drink fluid freely, and nourishing solids are given if they are desired. Should a sedative be required, hyoscin or paraldehyde does not appear to lower the fever materially, but they have seldom been found necessary. After eight to twelve chills, depending upon the condition of the patient, the fever is ended by giving 10 grains of quinine hydrochloride by the mouth in capsules three times a day for two days, followed by 5 grain doses three times a day for five days. In some cases intravenous injections of $\frac{1}{2}$ grain of quinine urea hydrochloride are given instead at daily intervals for three or four days. It has been found quite easy to stop the malaria, and there has never been a recurrence of the fever. In nearly every case a series of ten to fifteen doses of tryparsamide is given with the quinine, and a course of bisulphite is usually administered simultaneously, these courses are usually repeated within two or three months. Salvarsan and mercury are not given. In two parotic cases where the tabetic signs other than crises persist the spine is treated with galvanism and diathermy. Malarial inoculations have been employed in the presence of mild heart lesions and slight albuminuria without ill effects. The authors report that malarial treatment has greatly decreased the death rate of cerebral spinal syphilis and has produced many gratifying remissions, patients of the oxipansiv grandiose type in about the fifth decade of life responding most readily to the treatment. Optic atrophy occurred in the malarial series much less frequently than when tryparsamide was given alone.

Neurology and Psychology.

41

The Narcoleptics

S. A. KNIER WILSON (*Brain*, March, 1928, p. 63) considers that it is erroneous to describe any of the disorders of sleep as diseases. Narcolepsy is but a clinical manifestation of some morbid or diseased condition as yet unrecognized and includes all states of recurring diurnal sleep whatever the etiology may be. Five cases of narcolepsy, one of the larval or incomplete type, are described, in which the sleep seizures were associated with attacks of "tonelessness" in the limbs under the influence of emotional stimuli. Owing to lack of knowledge only a tentative classification of the various types of this affection can be made, and Wilson suggests the following: (1) recurring diurnal attacks of sleep, associated with attacks of "tonelessness," or without "toneless" attacks, (2) sleep attacks of prolonged duration, day and night sleeps running into each other, and continuous sleep. Cases belonging to the first subdivision are rare. Numerous cases belonging to the second subdivision have been reported, and in many an association with a definite pathological state such as encephalitis syphilitica or hysteria has been established, though there was no affinity between the narcolepsy and any one specific invariable disease. Prolonged sleep seizures of the second group occur under equally variable pathological circumstances. As many narcoleptics present only the appearance of sleep, but are in reality aware of their surroundings though unable to move or speak it is doubtful if narcoleptic sleep can be compared in all respects with normal sleep, it is possibly merely a syndrome linked with other psycho-pathological conditions. The "toneless" attack combines diminution or loss of volitional power and of muscle tone, consciousness is fully conserved during its course, and its exciting cause apparently resides in a stimulus of the emotional series. From a consideration of the transitions and substitutions of the two types, Wilson believes that some inhibitory mechanism is responsible for the "sleeping" and "falling," and discusses the relations between narcolepsy and other clinical syndromes, such as myoplegia, catalepsy, epilepsy, and Oppenheim's "Landschlag." The causal factors of narcolepsy are provisionally arranged as follows: traumatic, psycho-pathological, endocrine, epileptic, toxic infective, circulatory, pressure and unknown. In discussing the pathogenesis and pathology of this condition, the author states the general view that physiological centres related to the floor of the third ventricle and the region of the lter Sylvii are connected with the process of sleep, and deduces from the evidence derived from epidemic encephalitis that lesions in the vicinity of the

third ventricle are responsible for the disorders of sleep occurring in that disease. Wilson states that the many analogies between narcolepsy and epilepsy indicate a more or less similar physiological basis for each, and that various idiopathic phenomena exhibit close affinities to those of both catalepsy and epilepsy, he suggests that greater significance, from the point of etiology and of pathogenesis, attaches to the tonoloss, powerloss, motionloss awareness of numerous cases, both in the "sleep" and cataleptic attacks, than to actual sleep.

42. The Abdominal Reflexes in Epidemic Encephalitis

A. PAKODY (*Deut. Zeit. f. Nervenheilk.*, May, 1928, p. 309) examined the abdominal reflexes in 15 acute and 56 chronic cases of epidemic encephalitis whose ages ranged from 15 to 52 years. Most of the patients were aged from 15 to 30, only 8 being over 40. The reflexes were explored with a needle, which the author regarded as a more reliable method than the use of the finger or the handle of a reflex hammer. The results were as follows. Among the 15 acute cases the reflexes were normal in only 5, and weak or absent in all the rest. Relatively much fewer abnormalities of the reflexes were observed in the chronic cases. In 36 they were completely normal, in 10 they were exaggerated, and in 5 they were singular. Partial or complete absence of the reflexes was present in 6 cases. The site of the lesion causing the anomalies of the reflexes varied although it could not be exactly determined. As none of the patients showed peripheral sensory disturbance, paralysis of the abdominal muscles, or absence of tendon reflexes, the lesion was probably due to damage of the supraspinal reflex tract. In many of the acute cases, but by no means in all, the absence of abdominal reflexes was accompanied by symptoms of damage to the pyramidal tract, such as exaggeration of the tendon reflexes, ankle clonus, and transient or persistent Babinski or Oppenheim signs. The same symptoms, however, were found without any anomalies of the abdominal reflexes. Many of the chronic patients showed an absence of the cremaster reflex on one or both sides associated with the absence of the abdominal reflexes. The knowledge of the anomalies of the abdominal reflexes is of diagnostic importance. In one acute case the absence of the reflexes might have led to it being mistaken for disseminated sclerosis. A diagnosis, however, was made of epidemic encephalitis, and subsequently proved correct.

Obstetrics and Gynaecology.

43. Placenta Praevia in Exophthalmic Goitre.

D. DEUTSCHMAN (*Med. Journ. and Record*, May 16th, 1928, p. 555) believes that sufficient clinical data have been reported to support the opinion that mildly affected thyroid glands may become activated during pregnancy and may give rise to serious complications during labour, the most interesting of the latter being placenta praevia, he fully reports a case in illustration. The patient at the age of 20 had suffered from paroxysmal attacks of hiccup associated with choking sensations, which were attributed to a thyroid goitre. The symptoms subsided after tying the thyroid, but, contrary to advice, the patient married. In three succeeding pregnancies attacks of acute thyrotoxicosis developed, and in each pregnancy placenta praevia was present, the uterus itself being fibrotic. The author remarks that treatment, while not basically differing from that of an uncomplicated thyroid condition, should eliminate all strain on the damaged cardiovascular system. Four important procedures are the control of haemorrhage, the termination of pregnancy, either by Caesarean section or per vaginam according to the case, the production and insurance of haemostasis and the combating of the resulting anaemia. According to Dentschman, this case illustrates the following points. There exists a family predisposition, generally spoken of as a thyroid diathesis in the causation of exophthalmic goitre. Pregnancy may aggravate the condition of exophthalmic goitre by bringing on latent symptoms of an otherwise quiescent syndrome. This is probably caused by toxic hormones disturbing the physiological balance or normal equilibrium existing between the pituitary body, the ovary and a previously affected thyroid gland. The pathological condition of the latter appears to be an etiological factor of placenta praevia. This is probably brought about by ovarian hormones, which predispose to the formation of a few uterine fibroids, and these in turn prevent a normal decidua reaction with subsequent abnormal implantation of the fertilized ovum. He adds that, despite the frequently reported favourable results a patient suffering from toxic adenoma with hyperthyroidism or from exophthalmic goitre, should not be permitted to continue pregnancy, lest her life be jeopardized by complications during labour.

44. Torsion of the Fallopian Tube.

A MANDELSTAMM (*Zentralb. f. Gynak.*, April 21st, 1923, p. 1009) records two cases illustrating the diagnostic difficulties which may be caused by torsion of the Fallopian tube. In the first case a 2 para, aged 26, suffered after seven weeks' amenorrhoea from abdominal pain and vaginal bleeding. Puncture of the pouch of Douglas, which contained an elastic tumour, gave issue to dark blood with small clots. Operation showed the tumour to be the left tube, rotated through 360 degrees, it contained blood, and chorionic villi were found microscopically. The peritoneal cavity was free from blood. It was doubtful whether the abortion preceded or followed the rotation. The second patient, a 5 para, aged 35, suffered from pain and pyrexia ten days after an attempted induction of abortion following six weeks' amenorrhoea, an inflammatory adnexal condition was diagnosed. During the ensuing weeks pain persisted, and was accompanied by obstruction of the rectum. A tumour in the pouch of Douglas was regarded as either a retrocervical myoma or a retrouterine haematocoele from ectopic pregnancy. Successive punctures of the pouch of Douglas gave vent to clear fluid, blood stained fluid, and thick blood respectively. At operation (which for this reason and because the erythrocyte sedimentation was accelerated was expected to reveal an inflammatory or twisted ovarian tumour) it was found that the twisted tube contained the ovum of an uninterrupted sixteen weeks' gestation. R. SCHREINER (*ibid.*, May 5th, p. 1139) describes the case of a 2 para, aged 40, who at an interval of twelve months had two attacks, each following a sudden exertion, of acute pain in the lower abdomen, there was pyrexia and a tender tumour in the posterior fornix. After fourteen days' conservative treatment the fever disappeared, but the pain persisted. An operation revealed a right parovarian cyst, and on the left an adnexal tumour composed of a cyst, probably parovarian, and the Fallopian tube irreducibly twisted through 720 degrees.

45. Ergot Poisoning in the Puerperium.

H. L. MOSKOWITZ (*Amer. Journ. of Obstet. and Gynecol.*, April, 1923, p. 549) alludes to three cases of ergot poisoning following self administration of ergot for the induction of abortion. As evidence that certain patients evince idiosyncrasy for the drug, he states that one drachm of the fluid extract has caused morbid symptoms to appear, while ounce doses have been followed by nontoward effects. It must be remembered, however, that ergot preparations vary widely in their content of active principles. Moskowitz describes the case of a 2 para, aged 35, delivered in hospital after a thirty six hours labour, who, in consequence of puerperal pyrexia associated with foul, scanty lochia and soft, large uterine, was given 2½ ounces of fluid extract of ergot, in drachm doses three times daily, from the first to the sixth days post partum. On the sixth day she fainted and collapsed, having complained of coldness, numbness, tingling, and weakness in all the limbs. Pulsation was found to have disappeared in the radial, popliteal, and dorsalis pedis arteries of both sides. Headache, nausea, vomiting, and morbid mental symptoms followed, and on the eighth and ninth days gangrene of both feet appeared to be impending. Pulsation returned in the radial arteries on the ninth day, and in the popliteal arteries on the day after. Superficial areas of gangrene were noted on the dorsum of the left foot and toes. Pulsation of the dorsalis pedis on this side returned on the twenty seventh day, and the necrotic patches had healed seventy five days after childbirth.

Pathology.

46. The Inheritance of Tuberculosis.

C. MÖNCKEBERG, E. ONETTO, and J. VERGARA (*Bull. Soc. d'Obstet. et de Gynecol. de Paris*, March, 1923, p. 217) have investigated 22 cases with a view to obtaining evidence of the hereditary transmission of tuberculosis. They never found tubercle bacilli in the infant's blood or organs, nor in the placenta, but inoculations from the blood of the umbilical cord were positive in five cases. Inoculated guinea pigs, killed one month later, showed nothing except glandular swellings containing tubercle bacilli, but two animals killed at the end of five months exhibited typical tuberculous lesions. Only one of the mothers in this series suffered from generalized tuberculosis, in all the others the lesions, although serious, were pulmonary only. The authors conclude that a tuberculous mother may, and frequently does, infect her child with tuberculosis. The child may survive, and may develop normally, at least for one year. Infection does not necessarily occur during parturition, since in two cases Caesarean section was performed, the infection may therefore occur during pregnancy, and is not due to

placental tears and admixture of maternal and foetal blood. The fact that tuberculous lesions cannot be demonstrated in the infant appears to show that there is a pure tuberculous blood infection, which may account for the progressive emaciation described by some writers. The appearance of local tuberculous lesions may be a question of time and of the child's resistance. In any case, the present investigation is held to have shown that the theory of non inheritance of tuberculosis is untenable. Onimotto and his coadjutors have injected filter passing non acid resistant bacteria in guinea pigs, and have found typical acid fast tubercle bacilli in the progeny. The present authors inoculated an animal with foetal blood or placental extract, both containing tubercle bacilli, a month later the animal was found to have typical tubercle bacilli in the regional lymph glands and the abdomen, and the fluid or pus from these lymph glands contained tubercle bacilli. The viscera appeared to be healthy. It would seem that the occurrence of typical tuberculous lesions is only a question of time. The authors claim that their experiments confirm those of French observers, and that, although not final, they have shown the possibility and frequency of transmission of tuberculosis.

47. The Complement Fixation Test in Well's Disease.

SINCE some workers have stated that patients with Well's disease sometimes give a positive Wassermann reaction, and others that syphilitic patients sometimes give a positive fixation reaction with guinea pig liver containing *Leptospira icterohaemorrhagiae*, A. BESSMANS and P. NÉLIS (*C. R. Soc. de Biologie*, May 4th, 1923, p. 1234) decided to investigate the specificity of these reactions. They collected a number of serums from normal persons, syphilitic patients, persons suffering or convalescing from Well's disease, and from several animals which had been inoculated with cultures of the organism concerned. They used three separate antigens for the Wassermann test, and for Well's disease they employed a watery and an alcoholic extract of infected guinea pig's liver, and pure cultures of *L. icterohaemorrhagiae*, as controls they used watery and alcoholic extracts of normal guinea pig's liver, and uninoculated serum control medium. In the neutral test they used a fixed dose of complement and decreasing doses of serum. In all, thirteen serums from patients with syphilis giving a strongly positive Wassermann reaction were tested. None of these reacted with the leptospiral or the control cultures, and none with the watery extract of infected liver, one reacted with the watery extract of normal liver. Only eight were tested against the alcoholic liver extracts, six of these reacted positively, either with the infected or the normal liver extract. Serums from twelve normal persons gave negative reactions with all antigens, with the exception of two which reacted with normal and infected liver extracts. Four Well's serums were tested and yielded negative Wassermann reactions, they gave a positive reaction with the alcoholic extracts both of normal and of infected liver. With the pure leptospiral antigens three of the four reacted positively. The authors conclude that both the Wassermann test in patients with Well's disease and the icterohaemorrhagic complement fixation test in syphilitics remain specific and trustworthy. They suggest that the irregular results of previous workers were due to the use as antigens, of liver extracts, which often give non specific reactions.

48. Streptococci in Complications of Scarlet Fever.

P. NOBÉCOURT, R. MARTIN, and P. R. BIZE (*Presse Méd.*, February 11th, 1923, p. 177) record their researches into the nature of the streptococci isolated from certain suppurative complications in seven cases of scarlet fever—namely, cervical abscess, suppurative arthritis, otitis, and serum abscess. Although the streptococci were haemolytic like *Streptococcus scarlatinae*, they differed from it in the following respects: (1) most of them were not agglutinable by the corresponding serum, (2) they had no erythrogenic power—that is, they could not produce a Dick reaction, and (3) they were not affected clinically by scarlatinal antitoxin either prophylactically or therapeutically. This triple bacteriological, histological, and therapeutical argument is held to prove that the complications in question were due to secondary infection and not to the localization of *Streptococcus scarlatinae*. All the complications studied by the authors were of a suppurative character, and it is possible that other complications, such as simple adenitis, scarlatinal rheumatism with or without endocarditis and pericarditis, and possibly some cases of nephritis, are really late localizations of *Streptococcus scarlatinae*. It is added that the practical outcome of these investigations is that scarlet fever antitoxin should not be used for suppurative complications, which should be treated either by stock or autogenous streptococcal vaccines.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

42 Transient Pulmonary Congestion

J FELIX (*Wien Arch f inner Med*, May 15th, 1928, p 309) describes a condition which has attracted considerable attention during recent years—namely, a retrogressive obroulo pneumonia. Influenza has been responsible for many cases of chronic pulmonary infiltration, although a similar condition has been described by many writers under various titles—"spleno pneumonia," "massive pneumonia," "congestive pneumonia," "disquadrato pneumonia," "quiet pneumonia" (Vlechow), and "prolong pneumonia." It was definitely described by Laennec as "golatuous pneumonia." It has also been termed "pulmonary paratuberculosis," "tuberculous spleno pneumonia," and "specific retrogressive infiltration." Felix holds that the most appropriate description is "chronic transient pulmonary congestion." J Hasberg and Nonland term a similar condition "optuberculosis"; they consider that it is a definite pathological entity, found among tuberculous children, and consisting in a chronic non-specific pulmonary infiltration. In spite of the grave clinical symptoms the prognosis is usually favourable, all signs of infiltration disappearing generally after a few months. The disease develops insidiously. The patient's general condition is but slightly affected and usually there is little or no fever. The respiration is normal and cyanosis is absent, though there may be slight cough. The chest is symmetrical. On percussion the affected side (usually the right) is very dull especially over the upper lobe, but the auscultatory signs are very slight, there may be bronchial breathing, but rales are few or absent. The dullness is not due to pleural effusion, since exploratory puncture is negative. Skiagrams reveal homogeneous moderately dense shadows, usually extending over the entire lobe from the hilus to the periphery. The sputum is scanty and of glairy consistency, tubercle bacilli are never found. All the children under observation had a positive Pirquet reaction and some had tuberculous lesions of the skin or bones. In every case the spleen was enlarged. For several months the physical signs remained unchanged and then they disappeared gradually. Skiagrams showed that the infiltration cleared from the periphery and only an increased hilus shadow remained, this was probably due to enlargement of the bronchial and parabrachial glands. Finally, in the majority of cases, the physical and radiological signs disappeared entirely. Felix records five cases in adults whose ages ranged from 20 to 38, two had slight haemoptysis. One woman, aged 38 eventually developed chronic fibrotic pulmonary tuberculosis, another woman, aged 21 had slight haemoptysis, and subsequently developed tuberculosis, and a woman, aged 22, had all the symptoms described for two months and then recovered completely. A man, aged 24, of phthisical appearance, had a slight haemoptysis at the onset and the physical and radiological signs described previously, persisting for five months, at the end of seven months all infiltration had disappeared. In the remaining patient, a man aged 20, the physical signs on admission were suggestive of early pneumonia, but the urinary chlorides were normal. On aspiration no pleural effusion was found. The cough persisted for three or four months, and the physical signs were as described. The left upper lobe was very dull, there was bronchial breathing but there were no rales. The hilus shadows were enlarged on both sides. After four months there was no change in the physical signs, the patient was lost sight of. The author concludes that the differential diagnosis is of great importance. Influenza broncho pneumonia may be recognized by the sudden onset, thickly coated tongue, fever, and a high leucocyte count.

50 Asthma, Adrenaline, and the Blood Pressure

W KREMER (*Nederl Tijdschr v Genees*, April 14th, 1928, p 1795) as the result of observing nineteen cases of asthma in patients aged from 16 to 72 comes to the following conclusions. Injections of adrenaline, even when given daily for a long period do not raise the blood pressure, but are often accompanied by a fall in pressure as was illustrated by four of his patients. It is possible that in these cases the fall of blood pressure was caused by living in an allergen free chamber and regulation of the diet. Asthmatic patients do best with a low blood pressure, while a deterioration of their condition is associated with high blood pressure. Sometimes a rise of blood pressure is followed by an asthmatic attack and sometimes a fall of pressure is followed by improvement.

51 The Significance of Carabelli's Tubercle

J M P URDAPILLETA (*Arch med, cir y esp*, March 10th, 1928, p 337) has made a study of patients showing Carabelli's tubercle, which is a more or less well developed protuberance on the inner aspect of the upper second molar on one or both sides. It is the rudiment of a supplementary cusp, and, according to Sabouraud, its isolated presence justifies the diagnosis of inherited syphilis (see *Epitome*, 1926, vol 1, para 182). This view has met with much opposition, especially from Cubanne, who maintains that the tubercle is frequent, being found in 40 to 60 per cent of all persons, and possesses a well marked hereditary character, as he had always been able to find it in the descendants, descendants, and collaterals. Urdapilleta records sixteen cases, in ten of which Carabelli's tubercle was present, while the Wassermann reaction was negative, whereas the remaining cases, in which the Wassermann reaction was positive or there was undoubted clinical evidence of syphilis, did not present Carabelli's tubercle. Most of the patients showed disturbances of development and of the endocrine glands. Urdapilleta comes to the conclusion that Carabelli's tubercle does not possess the importance attributed to it by Sabouraud, and that it is merely an atavistic feature or a sign of mal development.

52 Hypersensitiveness in Five Generations

A E SMITH (*Arch Intern Med*, April 15th, 1928, p 472) records his observations on a family of 94 persons and five generations with regard to allergic manifestations such as asthma, hay fever, vasomotor rhinitis, urticaria, angio-neurotic oedema, and eczema. No fewer than 56.2 per cent were found to be allergic, as compared with only one in a family of 23 controls. Smith concludes that these results support the contention that allergy is familial in distribution and that special allergic manifestations are found to be prevalent among closely related persons.

53 Acute Tuberculous Pericarditis

M L BLATT and J GREENGARD (*Amer Journ Dis Child*, April, 1928, p 631) report a case of acute pericarditis in a boy, aged 9, whose the pericardial fluid gave positive reactions for tuberculosis on inoculation into guinea pigs, though there was no other evidence of tuberculous infection. The condition improved with weekly pericardial tapplings of 100 to 850 c cm for three months, 5,130 c cm being withdrawn in those punctures. The boy was discharged two months after the last tapping with an enlarged heart and diminished heart sounds, but no murmurs or friction rubs. He died in a sanatorium ten months later with generalized tuberculosis. At the necropsy evidence was obtained that prior to the pericarditis the boy apparently had a tracheo bronchial tuberculosis, unrecognizable clinically.

Surgery.

54 Periosteal Transplants in Delayed Union

H E MOCK (*Surg, Gynecol. and Obstet*, May, 1928, p 641) advocates periosteal transplants in the repair of delayed union, ununited fractures, and loss of bone substance, and shows from a summary of the literature that it is the periosteum alone of all the bone layers which plays a definite part in bone regeneration. From his own observations upon the value of periosteal osteogenesis he concludes that the periosteum is necessary for the regeneration of bone, and that therefore in cases of delayed union, ununited fractures, and loss of bone substance properly adjusted periosteal transplants will result in reconstruction of the defect. It is not suggested that such transplants are always superior to osteo-periosteal transplants or to autogenous bone grafts, because there are cases in which a certain amount of cortex removed with the periosteum or an autogenous graft may be superior to a pure periosteal transplant. In the cases reported, however periosteal transplants entirely free from any cortical substance resulted in union where this was delayed and in the repair of ununited fractures and in bridging over large bony defects, in each case the new bone formation was shown by x-ray examination to have started and continued from the transplanted periosteum. The best results were obtained the more completely the shaft at the site of the fracture was covered by the transplant. Its aim being to replace as far as possible the osteogenetic layer of

the periosteum of which the fragments have been doubled. Mock considers external splinting in alignment to be better than any method of internal fixation by means of plates, etc., and that where it is necessary to bridge over a considerable bony defect the osseous periosteal transplant is probably superior to a pure periosteal transplant, though, whatever method is adopted, more rapid and better results will follow if the shaft at the site of the defect is surrounded by a large piece of periosteum.

55 Poisoning following the Use of Hexamine and Salicylic Acid.

H EDELMANN (*Zentralbl. f. Chir.*, May 19th, 1928, p. 1230) reports an instance of poisoning following the use of hexamine and salicylic acid in a case of anuria following a surgical operation. Each ampoule of the preparation used contained 2 grams of hexamine, 0.8 gram of sodium salicylate, and 0.2 gram of caffeine sodium salicylate. The patient was a boy, aged 7, who had undergone operation for bilateral inguinal hernia. On the fourth day after operation he was making good progress and passed urine without difficulty, but subsequently anuria occurred suddenly, with restlessness, vomiting, and a rise of temperature to 103.4° F. The operation wounds appeared to be healing well. The anuria persisted for three days, when diuresis occurred. In the hope that a preparation of hexamine would increase diuresis, half an ampoule was injected intravenously. The child collapsed immediately, profuse sweating, cardiac arrhythmia, and severe rapidly increasing dyspnea ensued, and terminated fatally in fifteen minutes. Edelmann remarks that hitherto such a dose of hexamine had not been regarded as excessive in the case of a child aged 7. Our author has recommended a dose of this size for infants, and another reports having given a larger one to a child aged 3. The author suggests, however, that possibly in the present case the patient's renal disturbance and consequent non-elimination of toxic substances induced severe symptoms of fatal salicylic acid poisoning.

56. Arachnodactyly

H U KALLIUS (*Deut. Zeit. f. Chir.*, May, 1928, p. 256), who records an illustrative case, states that hitherto only twenty-four cases have been recorded of the condition to which Achard gave the name of "arachnodactyly" in 1902, after Marfan had described it under the name of "dolichostenomelia" in 1896. The condition consists in a spider-leg-like prolongation of the extremities in their distinct segments, particularly the fingers and toes, accompanied by other malformations, especially the triad of macrophthalmos, enlargement of the lobe of the ear, and hypoplasia or aplasia of the adipose tissue. Other malformations may also be present, such as congenital valvular defects, an abnormally wide foramen ovale, auricular asymmetry, deformation of the thorax, macroglossia, abnormal length of the intestine, and precocious development of the sexual organs. Kallius is inclined to attribute the condition to an intrauterine disturbance of the correlation of the glands determining growth, and particularly a disordered function of the hypophysis.

Therapeutics.

57 Dietetic Treatment of Chronic Ulcerative Colitis.

J W LARIMORE (*Journ. Amer. Med. Assoc.*, March 17th, 1928, p. 841) reports five cases of chronic ulcerative colitis, which were considerably benefited by the administration of a diet rich in vitamins. All the cases showed a definite healing reaction in the rectal mucous membrane as revealed by proctoscopic observation, and radiological investigation indicated progressive improvement. The earlier the treatment was started the quicker and the more pronounced was the benefit. Tomato juice and cod liver oil were found particularly useful, and other vitamin-containing foods employed were lettuce and peaches. The author discusses the etiological problems raised by these observations, and suggests that the usual practice of limiting the diet in this condition, thereby causing vitamin deficiency, militates against the cure of the ulceration.

58 Sulfarsenol as a Preventive of Puerperal Infection

P DELMAS and BREMOND (*Bull. Soc. d'Obstét. et de Gynéc. de Paris*, April, 1928, p. 433) advocate the use of sulfarsenol in the prophylaxis of puerperal infection, this treatment, first instituted by Riviere, has been systematically employed at the Montpellier Maternity Hospital since the end of last year in all accouchements when there was doubt as to sepsis. The drug is injected into the subcutaneous cellular tissues of the external surface of the thigh in doses of 12 cc (about 1½ grains). At first one injection was given on the day

of the confinement only. In a second series of cases the injections were administered on each of the four days following labour. No better results were obtained by the latter method, and it need only be employed in the cases most exposed to infection. A summary of the results obtained in 67 cases is given, no death occurred, and all the patients benefited from the treatment. In some, pain and swelling appeared round the point of injection, but these were infrequent and of no gravity, and in only one case were there toxic manifestations. These symptoms lasted about forty-eight hours, and were noted chiefly in non-albuminuric cases, the injections were well tolerated by the albuminuric patients.

59 The Treatment of Coll Bacilluria.

BLIEVING that coll bacilluria is a general infectious malady, G LUXS (*Bull. et Mem. Soc. Chir. de Paris*, May 18th, 1928, p. 401) maintains that treatment, in order to be efficacious, must have a triple application—namely, intestinal, bacilic, and genito-urinary. The principal one of these is the first-named, and a careful examination should be made, therefore, for underlying intestinal conditions. Lesions such as colitis and enteritis must be treated, and a strict dietetic regime is often beneficial. Constipation must be combated, the chief drugs for this purpose being paraffin oil or castor oil, holanthiasis should be looked for and appropriately treated. Diseases of the liver and gall bladder require medical or surgical attention, while hepatic, pancreatic or intestinal deficiency often yields to adequate caloric therapy. Intestinal malformations and adhesions call for the surgical intervention indicated by radiocopic examination. Finally, all infective foci, either endogenous or exogenous, such as lesions of the mouth, rhino-pharynx, tonsils, and teeth should be strictly attended to. Haemolysis treatment entails the use of vacuolus. Luxs remarks that autogenous vacuolus, being much more efficacious than stock ones, should be employed, and any of the following will prove beneficial bacterial suspensions in physiological saline, the coll soda vaccine of Mauté, the bacillon vaccine of Gaehlinger and Bécart, and the bacteriophage of d'Horelle. Genito-urinary treatment should be both general and local. General measures comprise rest and suitable diet, the taking of abundant watery fluids, urinary asepsis by means of methylene blue combined with euphoric acid or urotropine, and urine acidification. Local treatment varies with each case, and a close examination should be made to ascertain the presence of lesions in the urinary organs. Conditions that may be present and need appropriate attention are pyonephrosis or hydronephrosis, pyelonephritis, cystitis, prostatitis, spermato-cystitis, epididymitis, urethritis, strictures of the ureter, and calculi in the various organs. Luxs insists on the need of early treatment, since complete cure is much more likely when treatment is commenced on the appearance of the first symptoms.

60 Tryparsamide in Neurosyphilis.

W T LORENZ (*Journ. Amer. Med. Assoc.*, April 21st, 1928, p. 1235) reviews the treatment of 317 patients with tryparsamide and mercury. Of these, 152 were noted as having recovered completely after the time of treatment (1920-21), 4 of these have since died and 14 have returned for hospital care. Thus 134 patients have remained permanently restored to physical health and mental efficiency for periods of from five to six years—87 per cent of satisfactory results. Many other patients in this series, although far from cured, are reported to be well enough for discharge from an institution or were more fitted than previously for active life, thus affording further evidence of the therapeutic efficacy of the tryparsamide method of antiluetic treatment. It is stated that the younger the patient is at the time of treatment and the less prolonged the duration of syphilitic infection the better is the prognosis, moreover, those cases which present the grosser mental aberrations run, in many cases, a more favorable course under treatment. Although serologically and neurologically there is no definite guide to prognosis, yet alteration of the gold curve from the parietic to the meningovascular type occurs early in certain cases and is of favorable import, as also is a strong Wassermann reaction in the spinal fluid. Increase in the body weight occurs in favorable cases. Lorenz considers 3 grams a good routine dose, but individual cases require considerable variation within the range of 1 to 5 grams. The same applies to the intervals between the doses, suitable periods being once a week, twice a week, or once in two or three weeks in different cases. Eye complications, age, body weight, and serological tests help to decide the degree of treatment in particular cases. The therapeutic total dosage has been found to vary from 48 to 1,500 grams, and the duration of time under treatment from six months to two years. Very little irritation is caused by the drug, 160 grams having been injected into the same vein during four months. Lorenz concludes that in view of these latter results it can hardly be

doubted that this treatment offers a convenient and efficient therapeutic measure in neuro-syphilis, and that clinical and serological criteria without therapeutic experiment will not give information as to the efficacy or otherwise of this treatment in any one particular case. He insists that each case must be dealt with on its own merits.

Laryngology and Otology.

61. Correction of Depressed Nasal Bridge.

J. N. ROY (*Arch. Internat. de Laryngol.*, February, 1928, p. 166) reviews the different agents, such as metals, ivory, and collinoid, which have been used in rhinoplasty. He has no doubt that the method of using a graft of cartilage is the one of choice, and, in his opinion, the first floating rib is the most satisfactory site from which to obtain the graft. This rib is particularly accessible, and the removal from it of a piece of cartilage causes the patient very little pain or discomfort afterwards. The technique of the operation is as follows. After injection of novocain and adrenaline an incision is made through the mucous membrane on the left side on the lower margin of the cartilaginous septum, and a tract is prepared for the graft. Care is taken to prepare a socket close to the tip. The patient is then anaesthetized and a portion of cartilage is removed from the first floating rib, this graft is carefully shaped and placed under the skin of the bridge. All blood is removed and the incision closed with silk. The nose is lightly and carefully packed and the whole face bandaged. These dressings are retained for seven days and then removed. The patient, as a rule, leaves the hospital on the sixteenth day.

62. Peritonsillar Infection

S. D. GREENFIELD (*Arch. of Otolaryngol.*, March, 1928, p. 239) relates his personal experience of about 190 cases of peritonsillar infection. He thinks that the anatomy of the tonsil and its bed predisposes to the collection of inflammatory products between the tonsil and the neighbouring structures. In the majority of cases the pus collects in the supratonsillar fossa and provides the outstanding feature of bulging and swelling of the soft palate, with an *oedematous uvula*. In two other types of case the pus collects between the tonsil and the posterior pillar, with forward displacement of the tonsil, and between the tonsil and the superior constrictor. Difficulty in opening the mouth is most marked in this latter type of case, whereas dysphagia is most marked when the pus accumulates behind the tonsil. Pus may pierce the superior constrictor and collect in the pharyngo-maxillary space; the great vessels may be implicated. Pus may gather round a carious last upper molar and simulate peritonsillar abscess. Recurring peritonsillar abscess may be multiple or multiloculated on account of the formation of fibrous partitions. There is also the latent abscess, which is only discovered as a collection of pus during tonsillectomy. Bilateral peritonsillitis is otherwise typical, but tends to occur after very acute tonsillitis. The differential diagnosis is from retropharyngeal abscess, especially in children, from diphtheria, especially the septo type, and from sarcoma of the tonsil, especially before it has reached the ulcerated stage. The complications of peritonsillar abscess may be very dangerous and include general sepsis, which, unexpectedly, is comparatively rare. It is more likely to occur in those cases where the superior constrictor is pierced. In one of the author's cases this condition progressed to a fatal meningitis. In the same group of cases the vessels in the pharyngo-maxillary fossa may be involved and give rise to very violent haemorrhage. The author has had one case of acute oedema of the larynx in a patient whose abscess cavity he packed with gauze. Other complications are cervical gland abscess, polyarthritides, and acute endocarditis. As to treatment, the author urges, most strongly, early and adequate incision.

63. Perforation of the Pituitary Fossa.

F. A. PICKWORTH (*Journal of Laryngol. and Otol.*, March, 1928, p. 186) describes the *post mortem* findings of a case of epilepsy and insanity associated with a perforation of the pituitary fossa by a septo lesion of the sphenoidal sinus. The patient had suffered from fits for four years, and recently from delusional insanity. Suppurative parotitis occurred just before death. At the necropsy, scoliosis, cardio-vascular degeneration, and broncho-pneumonia were found, there was also a lesion of the right sphenoidal sinus, pituitary fossa, and adnexa which consisted of a depression in the diaphragma sellae, anterior to the stalk of the pituitary. This gland was surrounded by a thickened and somewhat ragged capsule, which was not adherent to the floor of the fossa, as is generally the case but was separated from it by a quantity of grey mucinous fluid in the posterior part, while anteriorly

it was attached to a thickened bony ridge. The mucinous fluid was seen to be draining away through a hole 2 by 1½ mm, this communicated with the right sphenoidal sinus, which also contained similar fluid. Histological and bacteriological examination of the mucinous material revealed no definite organisms, but histological examination of the pituitary gland showed a large number of granule cells in the anterior portion, which also contained masses of colloid. There were areas of small but not very recent haemorrhages in the capsule. Near the larger masses of colloid, and more sparsely in other parts of the capsule, were numbers of bodies resembling organisms which apparently filled the minute lymphatic vessels or cerebro-spinal fluid spaces. They were smaller than the usual cocci, but the author has no doubt that they were attenuated diplococci of an originally virulent type, which had been strongly inhibited by the patient's natural defences. Pickworth considers that the value of this case lies in the fact that the macroscopic bone lesion draws attention to the method by which micro-organisms invade the central nervous system. Careful investigation shows that an identical process can occur without such macroscopic lesion, the bony walls merely acting as a sieve to chemical substances, micro-organisms and their products. Infective lesions of the sphenoidal sinus are often found in cases of mental disorder and in such diseases as encephalitis lethargica. It is probable that in cases of sinusitis micro-organisms and their toxic products penetrate the bony wall and produce disturbances of pituitary function, which in their turn give rise to mental disorder and epilepsy. In an appendix the author describes a method of staining those altered Gram negative bacteria.

Obstetrics and Gynaecology.

64. Vesico Uterine Fistula.

G. K. SIMS (*Journal Amer. Med. Assoc.*, March 10th, 1928, p. 759) describes a case of spontaneous healing of a vesico uterine fistula, and mentions the scanty reports in the literature of this apparently rather rare condition. He believes, however, that these fistulas probably occur more frequently than is suspected, a small opening being formed and healing spontaneously without the symptoms being observed. All the instances reported followed labour in three forceps had been applied, in two others pituitrin had been administered before delivery, and in the remaining six cases there was a history of prolonged labour in which the uterine contractions were unusually strong. The foetal membranes had invariably been ruptured several hours before delivery. In Sims's case inability to retain urine was observed on the fifth day after difficult delivery, following catheterization and irrigation of the bladder, water was observed to come from the vaginal vault. On instillation of methylene blue in the bladder a small stream of the solution escaped from the cervical os. Cystoscopic examination revealed an area of trauma in the region of the left ureteral orifice. After catheterization and irrigation of the bladder each morning for five consecutive days, a silver iodide preparation was instilled. On the fourteenth day after delivery the patient was discharged from the hospital with urine still trickling at intervals from the vaginal vault, ten days later this leakage ceased, and a fortnight afterwards recovery was complete.

65. Operative Treatment of Tumour of the Adnexa.

According to W. SIGWART (*Med. Welt*, April 28th, 1928, p. 637) it is unanimously agreed that in the acute stage of any inflammatory process of the ovaries or tubes conservative treatment is essential, but opinions differ as to the stage at which the condition should be considered healed. The author finds that recurrence is frequent, and believes that few complete cures result from conservative treatment. Indications for operation are as follows: long standing cases in which conservative treatment has failed and it is probable that the tumour will be reasonably easy to remove, recent cases where medical treatment has been unable to relieve the symptoms, and cases with atypical haemorrhages caused by a tubo-ovarian tumour, or with severe disabilities from the tumour and adhesions. Sigwart remarks that an operation should not be undertaken until after prolonged clinical observation, the temperature must be steady and not above normal, and any fall in the red blood count must not be abrupt. As regards the operation, many of these patients are young; it is therefore advisable to preserve the ovaries or any sound ovarian tissue, any bleeding points must be secured and all raw surfaces peritonized. No drainage is used, and the uterus is ventrally fixed to prevent retroversion by adhesions. The author has treated 546 cases, 164 by operation, there were three deaths, all from peritonitis, in old standing cases where peritonization was

difficult, there were no fatalities in the very severe cases with large pus tubes. He adds that the best results are obtained if operation is undertaken as soon as conservative treatment has been given a fair trial. The after results are best in those in whom menstrual function has been preserved, of these, five patients became pregnant subsequently.

65

Pernicious Anaemia of Pregnancy

A POHL (*Zentralbl. f. Gynäk.*, June 2nd, 1928, p. 1384) reports an only case of the pernicious anaemia of pregnancy, and remarks that these are rarely seen owing to absence of symptoms, while the uncertainty of the blood picture renders its diagnosis from a simple anaemia difficult, this is the more regrettable since treatment, to be of any use, must be commenced early. Pohl's patient was admitted to hospital at the third month of pregnancy suffering from pyelitis, the anaemia being a secondary consideration. Her haemoglobin was 50 per cent and did not improve with iron and arsenic, indeed, at the sixth month it fell to 42 per cent, the dosage was increased and the haemoglobin percentage rose but sank again. There was no oedema, jaundice, or splenic enlargement, the colour index was never over 1, there were no enucleated red cells, leucopenia, or lymphocytosis, but polychromasia and anisocytosis were present. Pregnancy was artificially terminated. During convalescence normoblasts and megalocytes appeared, but three and a half months later the blood was entirely normal. With regard to diagnosis, Pohl remarks that an anaemia getting worse in spite of treatment is suspicious, as also are oedema, enlarged spleen, urobilin in the urine, jaundice, and retinal haemorrhages. This anaemia is usually held to belong to the second half of pregnancy, but in this case, and probably in others, it began much earlier and remained stationary until the sixth month, when it grew progressively worse. The author states that marked polychromasia distinguishes the pernicious from the chlorotic anaemia of pregnancy, the other blood changes are seen in normal pregnancy and in the toxaeasias, and these may pass on to the pernicious form with its very serious prognosis. There are two factors in the etiology—namely, haemolysis, often present in pregnancy, and a poor constitution, with involvement of the bone marrow resulting from disturbance of the internal secretion, or from overwork of the marrow leading to haemorrhage, or from an infection, especially syphilis. Recurrence may follow if pregnancy occurs soon after recovery. The best treatment, according to Pohl, is termination of the pregnancy if the diagnosis is made early enough. Blood transfusion and injection have not given good results, but are useful in hastening convalescence and preventing death in the puerperium. Liver treatment has not yet been tried.

Pathology.

67

Cardiac Hormones

DURING the last few years various workers have isolated substances to which they have ascribed a hormone-like action on the heart. Thus Asher obtained from liver an extract which was at first thought to be a specific cardiac stimulant, but was subsequently found to consist of minimal quantities of bile salts. I FISHER, E. A. MÜLLER, and G. ZUELZER (*Med. Klin.*, April 13th, 1928, p. 576) have been able to show that substances free from protein and salts, and not decomposed by boiling, can be isolated from the liver, and that these produce dilatation of coronary vessels and improve the tone of such mammalian hearts as those of the cat and dog. G. ZUELZER (*ibid.*, p. 571) performed experiments with a preparation called *entoton*, obtained by special methods of extraction from the liver, whether this is related to the preparations used in the treatment of pernicious anaemia is not stated. He found that 1 to 2 day old frogs' hearts which refused to beat when irrigated with Ringer's solution contracted regularly again when one or two drops of the *entoton* solution were added, the pH of the Ringer's solution being carefully controlled meanwhile. In Starling's heart lung preparation (dog) the coronary oroluation gradually diminishes under ordinary conditions, but on the addition of *entoton* the coronaries dilated and the cardiac tone improved. Zuelzer also treated 100 cases of impaired cardiac function with intramuscular injections, and came to the general conclusion that improvement in motion and amelioration of symptoms resulted. He adds that his cases are too few to draw definite conclusions as to which type of cardiac disease is most benefited by the preparation. It was, however, found useful during convalescence from influenza pneumonia. The effect on the blood pressure seems to have been variable, in some cases of heart failure with low blood pressure a rise of 10 to 20 mm. of mercury was recorded, while in others with

a high blood pressure a fall of 30 to 40 mm. occurred. HABERLANDT (*ibid.*, p. 577), working with an extract prepared from the apex of the bullock's heart, found that in rabbits ventricular fibrillation induced by strong faradic stimulation could be abolished again by injection of a dilute solution of his preparation, the blood pressure raised by adrenalin was lowered, and in rabbits in which the blood pressure had been lowered by venesection it was raised. R. RIGLER (*ibid.*, p. 574) considers that this so-called cardiac hormone is chemically closely allied to histamine on the one hand and vitamin B on the other. He thinks that it belongs to a group of non-specific products of metabolism which have an effect on cell activity either by altering permeability or by causing a change in the distribution of ions.

68. J. MOUNON (*Presse Méd.*, May 9th, 1928, p. 582) refers to the attempts of many investigators to discover a cardiac hormone. Some observers claim that beneficial results have followed the injection of extracts of heart muscle or of nodal or neuro-muscular tissues, others have recorded similar results after the employment of extracts of liver or lung. It would appear that some of these substances are either derived from glycogen or that glycogen is necessary to their formation. Certain experiments appear to indicate that the active substance "antomatine" or "cardiac hormone" is identical with histamine, a powerful vaso-dilator found in many organs and tissues. It has also been suggested that "antomatine" is closely related to vitamin B, and that the absence of this substance may account for the grave cardiac disturbances associated with beriberi. Mounon concludes that it is premature to employ myocardial extracts or any other animal organ products in the treatment of heart disease.

69

The Cerebro-spinal Fluid in Children

D. STEWART (*Arch. of Dis. in Child.*, April, 1928, p. 95) examined fifty children with a view to defining the normal characteristics of the cerebro-spinal fluid in early life. The youngest child was 7 days old and the oldest 12 years. Twenty-eight were under the age of 2 years. The children were all healthy. Stewart found that pressure studies were only of negative value, but they proved the uselessness of manometric readings in young children, where so many disturbing factors may upset the calculations. They showed also how very inaccurate is the estimation of the fluid tension by observation of the rate of flow. The cell count was found to be normally from 20 to 30 per cmm. in infants, and to decrease gradually as the age increased, becoming identical with that of adults (3 to 7 per cmm.) at the age of 10 to 12 years. The total protein content was found to be similar to that in adults, but varied in the lumbar region, in the cisterna magna, and in the lateral ventricles. The sugar content of the fluid in children varied directly with the blood sugar. Stewart remarks that in order to assist the clinician the estimation of the sugar in the fluid should be associated with determination of the blood sugar. The chloride content seemed to vary from 630 to 760 mg. per 100 cmm.—a variation of 130 mg.

70

The Reticulocyte Response to Liver Therapy

G. R. MINOT, W. P. MURPHY, and R. P. STETSON (*Amer. Journ. Med. Sci.*, May, 1928, p. 581) discuss the response of the reticulocyte (a cell intermediate in maturity between the nucleated erythrocyte and the adult red blood corpuscle) to liver therapy in over 150 cases of pernicious anaemia. It is held that the anaemia of pernicious anaemia is primarily dependent on the failure of the primitive cells in the bone marrow to differentiate towards mature erythrocytes. In this disease the administration of large amounts of liver, kidney, or potent fractions of liver causes a prompt and pronounced but temporary increase of the reticulocytes in the peripheral blood, which is not the case in normal subjects. This response is ascribed to the specific active principle promoting the growth of the primitive cells in the bone marrow, accompanying it other immature bone marrow elements may appear in the blood, and the leucocytes and platelets increase in numbers. The percentage increase of reticulocytes is in inverse relation to the level of the red blood cells, and cases with more than three million erythrocytes per cubic millimetre never exhibit more than a slight response. In all cases treated with adequate amounts of active principle the red blood cells rapidly increase to normal while small amounts or complications of the disease may cause only a slight reticulocyte rise, which may be delayed, and a weak response may not soon be followed by a significant erythrocytic increase. A reticulocyte response to liver therapy may occur in other anaemias, but is absent or slight in ordinary cases of secondary anaemia. Some cases of anaemia in pregnancy have shown a marked response, and this has also occurred in spure

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

71. Schilder's Encephalitis

C P SIMMONS (*Brit Journ Child Dis*, April-June, 1923, p 83) states that this disease, otherwise called "encephalitis periaxialis diffusa," which was first described by Schilder in 1912 was probably unknown except to a few neurologists until the appearance of papers by Bonman and Collier and Greenfield in 1924, since when interest in the subject has been widespread and much has been added to the clinical and pathological features of the disease. Schilder's encephalitis usually occurs in children and young subjects with no tangible causal factors or antecedents. The onset is a few days, the course progressive with some remission to a fatal issue, and the duration from a few months to three years. The chief early sign is cerebral blindness, which becomes complete, and is followed by mental retardation and increasing spastic paralysis. Unsteadiness from periorbital involvement and deafness may be conspicuous. The condition is usually bilateral, but may commence on, or be confined to, one side. The disease may begin in the occipital lobes or in some other part of the brain. The optic nerves are occasionally involved. In several cases a familial incidence has been noted, which indicates an infective cause with occasional congenital infection, or suggests the notion of an inherited atrophy. Naked-eye examination shows areas of softening in the cortical white matter of the affected lobes. Histologically, there is general infiltration of the brain with round cells engaged either in the removal of myelin or the formation of glial fibres. The vessels are surrounded with fat-laden granular cells, phagocytes of glial origin, and small round cells of the size and shape of lymphocytes.

72. Transient Insulin Hypoglycaemic Hemiplegias

J M RAVID (*Amer Journ Med Sci*, June, 1923, p 756), discussing the symptoms observed by various authors in insulin hypoglycaemic reactions, states that these are indicative of some involvement though temporary, of the central or peripheral nervous system. He reports a case of diabetes in a man, aged 34, who had three different attacks of complete hemiplegia during such a reaction. The attacks were transitory, lasting from three to seven hours, were followed by complete recovery and left no sequelae of the paralysis. Arterio-sclerosis and cardio-renal disease were excluded, and in the three periods of hemiplegia a definite hypoglycaemia was demonstrated, the blood sugar ranging from 0.028 to 0.015 per cent. The hemiplegias were not commensurate with the degree of general symptoms, the entire symptom complex being comparatively mild. It was shown that this new phenomenon was not a syndrome *qui generis* but belonged to a fairly common group of transient pareses and hemiplegias, such as sometimes occur in tuberculosis, alcoholism, and uraemia. Ravid discusses the views and experimental data regarding the mechanism and nature of the action of insulin and concludes that, apart from all other effects of insulin in hypoglycaemic reactions, there is always a definite action on the central or peripheral nervous system, and that this is of a functional character, no actual anatomical lesion but only a temporary disturbance being produced. He advances the hypothesis that this action may be initiated directly by the insulin itself or by the still unknown products of carbohydrate metabolism which it originates, creating, as it were, a "vacuum" for glucose in the nerve tissues (Krogh's theory), or a process similar to this. The resulting effect may manifest itself by alteration of function of either the nerve elements themselves or the blood vessels supplying them.

73. Vincent's Angina.

V JELINEK (*Acta Otolaryngologica*, 1927, vol II, Fasc 4, p 533), who has investigated the occurrence of Vincent's angina in the Jugo-Slav army, discusses its etiology. The first theory advanced is that it is due to vitamin deficiency. It was found to occur, however, in well nourished troops on liberal and varied diet and to attack one regiment where another escaped, though the rations were similar. The second theory is that it is an infection set up by irritation of the molaris. Jelinek has observed that it usually occurs in some position other than that of proximity to the molars and he can see no connexion between the two conditions. The third theory attributes the disease to a specific infection of the Plant Vincent spirochaeta and *B fusiformis*. These organisms are consistently found in this condition, its

infectiousness is shown by the way in which it spreads through a regiment of young healthy soldiers, and by the way in which secondary infections occur, especially on the fingers. Surgeons in attendance, dentists, and other patients in the same ward all tend to be infected, but other regiments in the same garrison or division often escape entirely. Jelinek considers that the spirochaeta of Plant Vincent is the specific organism which originates the inflammation and ulceration, while the bacillus acts as a parasite and continues the ulcerative processes. The author's method of treatment consists in applying an ethyl chloride spray to the affected parts, protecting healthy tissue, and especially the teeth, with wool, iodine rubber, or, in some cases, with his own or an assistant's finger. Alternatively, and especially for ulcers of the tonsil, he sprays ethyl chloride on a piece of cotton wool, allows it to freeze, and then applies it to the ulcer. He sometimes substitutes a piece of ice for this purpose. Gargles of potassium chlorate or permanganate, and later hydrogen peroxide, are used, and after the ulcers are healed the mouth is rigorously cleaned, with the removal of tartar and carious teeth. The treatment is not at all painful, and may have to be repeated several times.

74. Influenza in Infants

L RAUCH (*Thèse de Paris*, 1923, No 95), who records thirteen illustrative cases, remarks that on exposure to infection infants are as susceptible to influenza as adults. The pandemic of influenza of 1918-19 seriously affected infants in both private families and in crèches. The mortality was particularly high among the cases with influenza laryngitis, broncho-pneumonia, encephalitis, and choleraic diarrhoea. From 1918 to 1922 the mortality ranged from 0 to 66 per cent, according to the epidemic. Influenza sometimes assumes special forms in the infant, such as those resembling whooping cough and others associated with emphysema and croup. Ever since 1918 small epidemics of influenza in infants have occurred every winter and often assume a grave form, which may be cerebral, pulmonary, or of the choleraic type. The principal features of these severe forms is a profound intoxication, which appears at the onset of the disease. The most successful treatment appears to be transfusion of blood in the toxic forms, oxygen in the pulmonary forms, and strychnine and sparteine in the adynamic forms.

Surgery.

75. Diverticulum of the Duodenum.

A J BRNGOLEA (*Bull et Mem Soc Nat de Chir*, May 26th, 1923 p 726) reports a case of a woman, aged 46, who had jaundice preceded by pain and with no pyrexia, this disappeared in two months after treatment with alkalis and cholelago. Two years previously she had been vomiting a liquid like saliva, always about 10 p.m. After two further attacks of jaundice a radiological examination showed a big stone in the gall bladder and in the duodenum a round opaque spot which disappeared after forty-eight hours. A diagnosis of gall stones with intermittent obstruction of the biliary ducts was made and the patient was operated on, the gall bladder was found to be distended and full of a white fluid, the wall being slightly thickened. Retrograde cholecystectomy was performed and the biliary ducts were found to be free, the intestines and duodenum being normal. Convalescence was without incident, but after two months jaundice recurred, and a further radiograph showed a duodenal diverticulum near the ampulla of Vater. The author considers it probable that the jaundice was due to intermittent obstruction of the bile duct by the retention of intestinal contents in the diverticulum. This condition could not be relieved except by removal of the diverticulum, which, however, was only discovered after operation by a more careful x-ray examination.

76. Treatment of Cold Abscesses

I MARIAN (*Zentralbl f Chir*, June 9th 1923, p 1420) states that during the last three years a mixture of chloroform and iodine has been used for injection at the Bucharest Clinic for infantile surgery and orthopedics. Its composition is as follows: metallic iodine 6 grams, glycerol 10 grams, chloroform 60 grams, and oil of almonds 40 grams. The dose to be injected depends upon the amount of pus evacuated and the age of the patient, 1 to 2 c.c. being the dose for

children under 5 years of age, and 8 to 10 c cm the dose for adults. The abscess is punctured after local anaesthesia with ethyl chloride, and the injection is given after complete evacuation of the contents. The evacuation and injection should be repeated at intervals ranging from every two or three to every five to seven days until the fluid is of a chocolate brown colour, when further injections are unnecessary. If too large a dose of the mixture is given at short intervals signs of iodine poisoning may occur in the form of an eruption, severe thirst with a burning sensation in the larynx, vomiting, hemilia, emaciation, cardiac palpitation, and albuminuria. On the occurrence of these symptoms the treatment should be discontinued, and only resumed after their disappearance, when smaller doses should be given.

77 Surgical Treatment of Typhoid Perforation

C BIFULCO (*Stadium*, May 20th, 1928, p 191) reports three successful cases of operation for perforation in typhoid fever. The statistics collected from the large hospitals of England and the United States show a percentage of 34.36 of deaths from perforation, while in Venice the percentage is only 15.15. He thinks there is reason to believe that the infecting organisms vary in virulence in different parts of the intestine. That cure may take place after perforation is possible, in one of the author's cases operation showed two unhealed perforations and one recently healed, but such an event must be looked upon as a surgical curiosity. Bifulco adds that the earlier the operation is performed the better it is for the patient, it is preferable in the pre-perforative stage, when peritonitis is just starting. The difficulties in the diagnosis of this early stage are fully discussed. Sgambati's urine test is not considered very reliable. The operation itself should be performed as speedily as possible, and without lavage of the peritoneal cavity.

78. The Transmissibility of Cancer

C REGAUD (*Bull de l'Acad de Méd*, June 5th, 1928, p 617) asserts that the seeming infectivity of cancer is due to its transmission by various factors and not to contagion. He recalls that the cancer rate among the medical and other attendants in general hospitals is no higher than that of the general population. Since this might be due to the excellent hygiene maintained in these institutions, and to the fact that the slow development of cancer renders impossible the denial of a previous bed infection, statistics were obtained from certain hospitals in Paris and other towns devoted to the care of women, especially those afflicted with cancer, the returns show no increase in the cancer rate among the attendant staffs and patients, despite the prolonged cohabitation of cancerous with non-cancerous individuals and the absence of all prophylactic precautions. Moreover, no greater frequency of the cancerous degeneration of old conditions, such as lupus and burns, was noted. Discussing cancer in rats Regaud lays stress on the heredity factor, and refers to the work of Maud Slye, which proves that the disease is more frequent only in the progeny of cancerous animals and in repeatedly cross bred stock. Other experimenters have reported that malignant growths can be produced in rats by the larvae of certain worms that infest the cockroach and the intestines of cats. Regaud maintains that only the cancerous agent is transmissible and not the neoplasm itself, that many etiological factors—familial and racial heredity, irritating agents used in work, the habitual use of tobacco and alcohol, and various infections, such as syphilis—account for the occurrence of cancer in various groups of individuals, and that there is not the slightest evidence, in human beings or animals, of the contagiousness of this malady.

Therapeutics.

79. Treatment of Cholera by Acid and Cresol.

F J PALMER (*Indian Med Gaz*, May, 1928, p 259) refers to a previous paper (*ibid*, April, 1925) in which the treatment of cholera with sulphuric acid and cresol is fully described, though only a few cases had then been treated, the results were such that the method has been continued during the cholera seasons of the past three years, the only change being a gradual and cautious increase in the acid dosage. The dose now employed is for patients from 1 to 3 years old cresol 1 min., sulphuric acid 3 min. aromatic water 1 oz., this ranges up to cresol 4 to 5 min., acid 10 to 15 min., water 4 oz., for patients of 12 years and upwards. The higher dosage according to age and size is secured by increasing the amount taken in proportion to the bowel area and not the strength of the cresol. The quality of the cresol is said to be of importance the preparation should make a perfect emulsion and those forming thin watery, very slightly milky

fluids should not be used internally. In severe cases the doses should be given at least every half hour for six or eight doses, and thereafter every hour for twenty four hours, being continued at two- and three hourly intervals for the second and third days respectively, when the treatment is stopped. The guiding idea is that if the specific bacilli can be hindered from rapidly multiplying at an early stage necrosis of the mucous membrane will not occur to any great extent, and time will be given for the production of natural protective substances, the treatment is stopped at the end of three days to counteract the evolution of a cresol and acid fast organism in the bacilli which may survive the early intensive treatment. Relapses can then be dealt with more successfully by the original method. In initially milder cases less frequent doses are indicated. If vomiting or retching is constant tr opii or tr chloroformi et morphinae co may be given, and opium is sometimes useful in the restlessness of late cases, but this should be used only in very special cases and if it is evident that the bowel has been completely emptied. Since marked thirst is present in the early stages, plenty of tepid water should be given between the medical doses. Care must be taken to raise the patient's head slightly, since a fatal issue may result from fluid entering the lung. In dry cholera cases with rapid collapse an injection of pituitrin may be given, if this does not produce prompt evacuation it may be followed by euterin or calomel. If stimulation is necessary adrenaline and camphor may be administered, but not more than three doses of either stimulant should be given. Palmer has also used this treatment, slightly modified, with beneficial results in bacillary dysentery, diarrhoea, and sprue.

80 Ether Inhalation in Tuberculous Peritonitis.

W E SAVAGE (*Anaesthesia and Analgesia*, May-June, 1928, p 137) observes that the cures obtained in tuberculous peritonitis by surgical intervention are out of all proportion to the work done, and enumerates the various theories advanced to account for this. A case which occurred some six years previously is cited, in which a patient with undoubted general tuberculous peritonitis showed immediate improvement with a rapid and uninterrupted convalescence and complete recovery after operation. This simple procedure would not of itself produce such a result, and the usual theories did not seem to apply in this case, hence, the only curative factor seemed to be the anaesthetic. As the result of this experience Savage has treated seven cases of this disease by ether anaesthesia, with six recoveries and one death. In three of these cases convalescence was apparently arrested, but after a second administration of the anaesthetic recovery was rapid. Savage suggests that one depends on the vascularity of the tubercle, and defines three stages in peritoneal tuberculous infection: a primary one of passive congestion, a secondary, in which the tubercles are small, isolated, and glistening, and a tertiary, or the stage of the large grey tubercle which tends to caseate and coalesce. The primary and secondary stages are vascular, and are apparently relieved by anaesthesia. In the case of recovery reported above the tubercles were found to be in the second stage, and in the fatal case in the tertiary. The author believes that chloroform will act equally as well as ether, and the other anaesthetic gases to a less extent, and that localized tuberculous peritonitis will also benefit by this treatment. He maintains that the cause of the relief or cure in these conditions is the anaesthetic and not the surgery, that if anaesthesia does not afford relief none need be expected, that it is of great prognostic value, and that the earlier in the disease it is employed the better.

81 Treatment of Mumps with Salvarsan

B DI LEONARDO (*Il Policlinico*, Sez. Prat., June 4th, 1928, p 1048) states that Kermorgant in 1925 isolated spirochaetes from the saliva of patients with mumps and found that injection of them into animals produced characteristic parotitis with localization in the testes in the course of forty eight to ninety six hours. Subsequently Pedro Ferreras obtained very good results in the treatment of mumps by the use of arsenobenzol and stovarsol in doses of 10 to 45 cg. Di Leonardo now records two personal cases, in a boy aged 13 and a girl now records two personal cases, in a boy aged 13 and a girl aged 16, in which the intravenous injection of 30 cg of neo-salvarsan in the former and 15 cg of "919" in the latter was followed by a rapid disappearance of the parotid swelling and other symptoms of mumps.

82. Influence of Synthalin on Glycaemia.

E TORRES (*La med Ibera*, June 9th, 1928, p 646), who records five illustrative cases, states that synthalin is a drug which produces hypoglycaemia, the degree of which is more marked in patients with large quantities of glucose in their blood than in those with mild diabetes and in normal individuals. Synthalin may be of special value in helping

patients to take a diet which would otherwise produce glycosuria, since its action on glycosuria is similar to that on glycaemia. Its therapeutic action may be summed up by saying that it produces all those effects which can be expected from its hypoglycaemic action, with the advantage over insulin that its action is slower and more persistent, and in therapeutic doses never produces hypoglycaemic coma. Moreover, the fact that it can be given by the mouth is considerably in its favour. Its influence, however, as an anti-diabetic is very doubtful, and its action on acidosis *in* *synthallu*, therefore, is chiefly indicated in mild forms of diabetes, in which the urine can be kept almost free from glucose and the patient allowed a fairly generous diet. In severe diabetes, however, *synthallu* cannot be entirely substituted for insulin because the doses required to remove the sugar from the urine would exceed the therapeutic dose. Torres concludes that the use of *synthallu* is restricted by its toxic action.

83 The Use of Convalescent Measles Serum

C. WESSELHOFF and F. J. GORDON (*New England Journ. of Med.*, May 24th, 1928, p. 752) proved by the following experiments that single doses of 5.0 cm of convalescent measles serum were efficacious in reducing the severity of a measles epidemic in scarlet fever and diphtheria wards. Among 76 patients exposed 25 controls were given no serum and all developed measles, 16 having severe attacks. Of 51 exposed with no history of measles who were given convalescent serum 14 (27.4 per cent) contracted measles, but only one of those had a severe rash. Broncho-pneumonia occurred twice in the control group and once in the group treated by serum. Intubation for measles laryngitis was necessary once in each group. Of these two patients the one in the control group died of broncho-pneumonia, and the serum-treated patient recovered without broncho-pneumonia.

Anaesthetics.

84 Mortality in Nitrous Oxide Oxygen Anaesthesia.

G. A. HAVEMAN (*Journ. Amer. Med. Assoc.*, May 26th, 1928, p. 1692) discusses the factors reducing mortality in nitrous oxide-oxygen anaesthesia, the condition of the patient, the measures taken to prevent shock and post-operative complications, and the effect of the anaesthetic being among the most important. From an experience based upon 3,057 thyroidectomies and 326 ligations the value of pre-operative treatment is emphasized, so that measures which are usually adopted after operation—such as transfusion, saline infusions, and the prevention of acidosis—should often be employed beforehand. Suggestions for the elimination of psychic shock whereby fear of the anaesthetic may be avoided are outlined. Nitrous oxide oxygen, where an inhalation anaesthetic is given, should be the choice, as being free from danger if the patient's colour is kept healthy and the heart is watched especially during induction, since there may be a tendency then to dilatation. The surgeon can give warning directly he notices the slightest change in the colour of the blood from bright scarlet, the anaesthetist can at once remedy the condition by giving more oxygen. The average time of the operation for thyroidectomy was thirty-seven minutes, and Haveman considers that the short time the patients were on the table had much to do with the low mortality rate of 27 deaths (0.88 per cent) of the 3,057 thyroidectomies. In the series of 326 ligations there were 4 deaths (1.22 per cent) all due to thyrotoxicosis, in none of the fatalities was the method of anaesthesia contributory, the 27 following thyroidectomy being mainly due to such conditions as acute thyrotoxicosis, haemorrhage, and malignancy.

85 Choice of Anaesthetics

L. MAIDITSCH (*Deut. Zeit. f. Chir.*, June, 1928, p. 287) states that during the last three years 11,400 operations have been performed at von Haberer's surgical clinic at Graz with ethyl chloride, ether, lumbar anaesthesia, local anaesthesia, and conduction anaesthesia, as well as combined local and splanchnic anaesthesia. His conclusions as to the value of these various methods are as follows. Ethyl chloride is excellent for short operations on septic cases but the anaesthesia should not be continued for long. Ether only was used for general anaesthesia, preceded by the open gas method, its dangers are generally exaggerated. In a large number of operations and individual cases it cannot be replaced by any method of equal value. Lumbar anaesthesia proved unreliable, and should, in Maiditsch's opinion, be used only in cases of emergency. Local and regional anaesthesia with cocaine avoided the drawbacks of general anaesthesia in a large number of cases. This particularly applied to operations on the upper part of the abdomen, which could be

performed under local anaesthesia of the abdominal wall combined with splanchnic anaesthesia according to Brann's method, with almost complete avoidance of any pain. As regards the incidence and mortality of pulmonary complications following operations on the upper part of the abdomen, combined local and splanchnic anaesthesia were found to offer no advantages over general anaesthesia. In most operations, Maiditsch adds, the choice of the anaesthetic should be determined by the special circumstances of the case in preference to a rigid schematization of anaesthetics for the various kinds of operations.

86

Spinal Anaesthesia

B. RAPPOPORT (*New England Journ. Med.*, April 19th, 1928, p. 447) records his observations on spinal anaesthesia, with a report of 500 cases. Slight failure is due to some error in technique, only experienced anaesthetists should practise spinal anaesthesia. Its use is contraindicated in children, young adults, the nervous, and patients suffering from shock, old people respond well, and a low blood pressure is not necessarily a contraindication. After a preliminary hypodermic injection of morphine, with the patient in a sitting posture and the head bent forward, the third and fourth interspaces are selected, and the needle is inserted into the fourth interspace for operation on the lower extremities, perineum, and rectum, into the third for bladder operations, into the second for abdominal operations below the umbilicus, and into the first for all upper abdominal operations. After allowing 5.0 cm of spinal fluid to escape the anaesthetic solution is injected slowly, and after withdrawal of the needle the patient is put on his back in a slightly Trendelenburg position. Analgesia should appear in from two to fifteen minutes, but should it fail to be present in twenty minutes the process may be repeated with the same dose in the next interspace. The author finds that a dose of 0.075 gram novocaine generally suffices, dissolved in 5.0 cm saline solution. Serious complications rarely arise, and there is usually no headache or unpleasant after-effects. Rappoport considers that when employed by a competent anaesthetist thoroughly conversant with the technique spinal analgesia is ideal for many patients with heart, kidney, or lung trouble, for those suffering from diabetes or sepsis, and for the aged.

Obstetrics and Gynaecology.

87

Diabetes of Ovarian Origin

CARNOT, TERRIS, and CAROLI (*Bull. et Mem. Soc. Méd. des Hôp. de Paris*, May 17th, 1928, p. 738) describe the case of a married woman, aged 36, in whom diabetes had not been relieved by anti-diabetic diet. The glycosuria amounted to approximately 100 grams daily, acetone and diacetic acid were sometimes present. The blood sugar was never more than 2 grams. The patient lost more than 22 lb in weight in two months and became much weaker. Two preparations of insulin were administered without result, except that diacetic acid disappeared from the urine. Prior to the first symptoms of diabetes menstruation was delayed, scanty, and finally absent, but before it ceased altogether it was noticed that the glycosuria increased a few days before the period. Apparently the ovarian endocrine action reduced the quantity of blood sugar. An ovarian extract was injected in doses of 1.0 cm every second day. After the second injection a rapid fall in the glycosuria occurred, and the patient's ovarian pain disappeared. The general health improved rapidly, and the patient gained 11 lb in ten days, menstruation reappeared normally after an absence of three months. The patient lost the saccharine taste in her mouth and her excessive hunger. Some days after the last injection of ovarian extract glycosuria increased, but it was reduced by a further series of hypodermic injections. The authors conclude that there is a close relationship between ovarian disturbances and diabetes, and that ovarian extract may reduce glycosuria and hyperglycaemia when insulin has failed.

88

F. RATHERY and M. RUDOLF (*ibid.*, p. 741) state that insulin seems to play an important part in ovarian function. Recent researches have indicated that a close connexion exists between the internal secretions of the pancreas and of the ovary. The authors confirm the observation that insulin relieves menorrhagia and emaciation when accompanied by amenorrhoea, it also relieves the intractable vomiting of pregnancy. They have conducted a number of animal experiments and also made clinical observations. They conclude that during the menstrual cycle in diabetic patients there appears to be a period when patients are especially sensitive to insulin, that period is the premenstruum and the first days of menstruation, when folliculine is very abundant in

the blood. Combined insulin folliculin medication has produced in two patients a reduction in glycosuria and a distinct diminution in the excretion of acetone and ketone bodies, in one case the blood sugar was also reduced. When both patients received large doses of folliculin the contrary effect was produced. In a third patient, a child who had never menstruated, the treatment had no effect on the glycosuria, and but little on the acetone. The blood sugar increased definitely. The authors agree with Carnot, Terris, and Catell that in diabetic women folliculin influences carbohydrate metabolism.

89 Latent Sepsis in Pregnancy Toxaemia.

FRANCES IVENS (*Journ. Obstet. and Gynaecol. Brit. Emp.*, Summer No. 1, 1923, p. 307) regards the toxæmias of pregnancy—namely, oedema, albuminuria, hyperemesis, accidental haemorrhage, jaundice, and eclampsia—from the standpoint of general pathology as probably bacterial in origin, and records the results of bacteriological examination of the urine in such cases. Coliform organisms, usually associated with pus and sometimes with blood, were present in thirteen cases with albuminuria and oedema, in two with pernicious vomiting, and in two with jaundice and hyperemesis. In two cases of accidental haemorrhage coliform organisms and streptococci were found, and staphylococci and streptococci in two others, while in a fifth, in which there was suppression of urine, coliform organisms and streptococci were recovered from the placental tissue. The author considers that the part played by autogenous infection, especially when associated with the trauma of delivery or with a lowered resisting power during pregnancy and the puerperium, is important, since the richly vascular retro-placental areas constitute a favourable site for the rapid multiplication of organisms should a latent infection become active. It is suggested that the jaundice of pregnancy, and even of acute yellow atrophy, may be due to the spreading of *B. coli* to the bile ducts, and that it may also be responsible for the haemorrhagic vomit of the terminal stages of pernicious vomiting, which resembles that seen in *B. coli* septicaemia.

90. Utero-salpingography

J. JARCHO (*Surg., Gynecol. and Obstet.*, June, 1923, p. 752) reports further studies on the action of the "tubal sphincter", he also describes a syringe for transuterine injection, and discusses the therapeutic use of iodized oils within the uterus and Fallopian tubes. It has been shown by Henser that the uterine cavity possesses a salpingo-uterine sphincter, and that the muscular contraction of the tube extends to the uterine cavity, thus causing iodized oil in the peritoneal cavity, after absorption by the tube through capillary attraction, to be expelled into the uterine cavity. This sphincter remains open when there are remnants of placenta, thus accounting for ascending infection. In order that the danger of forcing septic material through the ambricated extremity may be avoided, Jarcho adds that the oil should be injected slowly and carefully under fluoroscopy, using a syringe specially adapted for the transuterine injection of iodized oil, and having a manometer attachment. A pressure of 30 to 40 mm. of mercury is sufficient, and the amount required to fill the uterus and tubes averages 4 to 5 c.c. The procedure is said to be safe and harmless, it supplements, and frequently supplants, the insufflation of gases in gynaecological diagnosis, in some cases affording exact information as to the condition of the genital tract which cannot be obtained by any other means. Diagnosing occlusion of the tubes with localization of the site being the most valuable use of utero-salpingography, Jarcho considers that the transuterine injection of iodized oil has also a definite therapeutic value in subacute and chronic conditions of the tubes, he describes a case in which utero-salpingography showed dilatation and occlusion of both tubes, though ten months later the picture was normal, a result which he attributes to the therapeutic effect of the slow liberation of iodine within the tubes.

Pathology.

91 Lymphadenoid Goitre.

REFERRING to a previous paper in which an experimentally produced goitre, unrelated in its origin to iodine deficiency, is described, R. MCCARRISON (*Indian Journ. of Med. Research*, April, 1923, p. 909) discusses a further series of experiments which were undertaken, partly to confirm his previous observations, and partly to ascertain whether deficiency of manganese plays any part in the production of this type of goitre. In 1925 Williamson and Pearce described a like condition in man, and defined lymphadenoid goitre as the hypertrophic reaction of a physiologically insufficient organ with which there occurs a preponderance of lymphocytosis

aggregates, fibrosis, and a peculiar atrophy of the parenchyma. The condition can be focal and non-follicular, and, in contrast with the toxic symptoms of Graves's disease, is associated with symptoms of myxoedema. In the present experiments rats were employed, these were fed on three different diets, all of which were deficient in both manganese and vitamins. Lymphadenoid goitre, similar to that described by Williamson and Pearce, was produced in these animals, and McCarrison believes that this disease is not due to deficiency of iodine in the food, but to an insufficiency of vitamins of the A, B, C, and D classes associated with a deficiency of certain inorganic elements, of which manganese appears to be one. In man it may be expected to occur in young and growing persons who subsist on diets composed largely of white flour poor in manganese and vitamins or other vitamin poor carbohydrates, protein, and fats, with a paucity in, or absence from, the diet of fresh fruits and green leafy vegetables. Such diets, judging from their effects on rats, induce in the thyroid gland a state of physiological subnormality which is the basis of lymphadenoid goitre.

92. Tuberculin Sensitivity and Immunity to Reinfection.

M. NASTA (*C. R. Soc. de Biologie*, May 21st, 1923, p. 1462) infected a number of guinea pigs with 0.001 mg. of bovine tubercle bacilli, the inoculations were made subcutaneously in front of the shoulder. At intervals afterwards ranging from six to forty days the intradermal tuberculin test was performed on the skin of the abdomen, and 0.01 mg. of the same strain of tubercle bacillus was injected into the skin of the thigh. One set of guinea pigs was exposed to ultra violet rays from the date of the first infection up to the time of reinfection. In the non-irradiated animals the tuberculin test became positive after about seventeen days, when a positive reaction was obtained with a dilution of 1 in 50, the sensitivity increased, till after forty days the injection of only a 1 in 500 dilution resulted in actual necrosis. The reaction to reinfection, marked chiefly by abscess formation, ulceration, and tendency to spontaneous cure, was strongest during the second, third, and fourth weeks, subsequently it diminished in severity till after forty days only a small non-ulcerating nodule followed the reinfection, though a larger dose of tubercle bacilli, 0.1 mg., resulted in a typical Koch's phenomenon. At the same time as the severity of the reaction diminished, the time at which the reaction appeared decreased from nine to two days. Nasta concludes that the maximum reactivity to reinfection occurs earlier than the maximum hypersensitivity to tuberculin, and therefore believes that the tuberculin test is no index of immunity. The animals exposed to ultra violet radiation developed a much lower degree of sensitivity to tuberculin, and on the whole reacted less to reinfection.

93 The Mechanism of Infection in Anthrax.

G. ROYDA and E. SCHWARZ (*Lo Sperimentale*, June 16th, 1923, p. 173) discuss the question whether it is possible for infection in anthrax to occur by the intestinal tract. They recall the views of different workers. Pasteur held the view that the spores gained access to the body through minute lesions in the buccal and pharyngeal mucosa, Koch believed that the spores passed through the stomach, developed into vegetative bacteria in the intestine, and then passed through the intestinal mucosa into the blood, Besredka teaches that anthrax spores or bacilli are harmless unless they come into contact with lesions of the skin, and Sanarelli denies that the spores are able to germinate in the intestine or to pass through the intestinal mucosa. The present authors have performed a number of experiments to ascertain which of these views is correct. Forty guinea pigs were infected by the direct injection into the oesophagus of a suspension of anthrax bacilli, the injection was made by a semi-rigid catheter, care being taken not to harm the mucosa. The suspension of anthrax consisted of a third of a twenty-four hour agar culture in 5 c.c. of saline. The guinea pigs were infected in the fasting condition, but directly afterwards were put on to a normal diet. At times varying from two to seventy-two hours after infection cardiopuncture was performed on each animal, and cultures made from the blood. Of the 40 animals 25 survived, 3 died from cardiopuncture, 4 died without anthrax bacilli being found in the blood at the necropsy, and 8 died with bacilli in the blood post mortem. Only one animal gave a positive blood culture during life. In another series of twenty guinea pigs the animals were given one or two preliminary doses of ox bile; in this series only two animals died in which bacilli were found in the blood post mortem. The authors conclude from these experiments that anthrax bacilli are unable to traverse the intestinal mucosa, and that primary intestinal anthrax does not occur. They think that the deaths from anthrax septicaemia following the introduction of the bacilli into the oesophagus are probably due to the entrance of bacilli into the respiratory tract and their subsequent invasion of the blood.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

97 Variations of the Blood Pressure in Tabes Dorsalis

A DUMAS, R TROUVET, and Milo MERCIER (*Journal Méd de Lyon*, June 5th, 1928, p 303) remark that in tabes dorsalis frequent variations in blood pressure occur, apart from gastric or other crises. A considerable instability of blood pressure is also found during examination: this appears to be due to sympathetic disturbance. It is assumed that this abnormal fluctuation of arterial tension in tabetic patients is connected with the abolition of reflexes which normally permit the heart to adjust itself to the varying conditions of the peripheral circulation. This is supported by the fact that the hypodermic injection of adrenalin produces in tabetic patients an abnormal fall of blood pressure, in three of the authors' cases this fall amounted to 70 mm of mercury. In other diseases of the central nervous system involving the sympathetic centres in the medulla, such as syringomyelia, a similar instability of blood pressure is observed occasionally, resembling that found in tabes dorsalis. The authors have fifteen tabetic patients under observation. They find that these frequent variations are not connected with the occurrence of painful crises, and that they are present in many patients who do not suffer from such crises. They conclude that among the usual cardio-vascular symptoms of tabes must be included the abolition of the oculo-cardiac reflex: this is particularly striking in patients who have frequent attacks of tachycardia. They observe that it would appear that the cardio-vascular system fails to act in such cases in accordance with the laws of Marcy.

98 The Spleen in Alcoholic Cirrhosis.

H DUFOUR and BOURGEOIS (*Rev Méd Franç*, June, 1928, p 455) review the literature and record observations on forty-five cases of cirrhosis of the liver, with special reference to the question of enlargement of the spleen in alcoholic cirrhosis. Their conclusions are as follows: In alcoholic cirrhosis the spleen is not increased in size in at least one-third of the cases, the part played by obstruction to the circulation is very slight and cannot by itself explain the splenomegaly. The splenic enlargement is the result of an acute or chronic toxic infection, which may be specific (malaria, tuberculosis, or syphilis). In alcoholic cirrhosis, if there is not an obvious coexistent infectious disease, the presence of a large spleen is in favour of coexistent syphilis.

99 Pleurisy as a Complication of Pulmonary Tuberculosis

J F BRATT (*Tidsskr f d Norske Lægefor*, May 1st, 1928, p 408) has analysed the 3,380 cases of pulmonary tuberculosis treated at the Vossnes Sanatorium in Norway during the past ten years with reference to the frequency with which this disease was complicated by pleurisy before and during residence in the sanatorium. In 1,031 cases, or 30.5 per cent, there was a history of pleurisy; the incidence of which on the two sides was approximately equal. As a rule the pleurisy occurred on the side most affected. In 3.01 per cent the pleurisy was bilateral, and in 1.6 per cent there was more than one attack of pleurisy. It was serous in the overwhelming majority of cases, and it was dry in only about 20 per cent. It was more frequent in men than in women, 34 per cent of the men and 26 per cent of the women suffering from this complication. In a chart showing the relation of the outbreak of an attack of pleurisy to the first clinical appearance of pulmonary tuberculosis the author indicates how the frequency of these attacks increased with the approach of the clinical manifestation of pulmonary tuberculosis. In many cases the outbreak of the pleurisy and the diagnosis of pulmonary tuberculosis were synchronous. The months in which attacks of pleurisy were most frequent were December and April and the periods during which the average gain in weight of all the patients was least were those in which the attacks of pleurisy were most frequent. Most of the patients were between the ages of 15 and 25. With regard to the prognosis, the cases of pleurisy were classified according as the patients were sputum positive or sputum negative, and their subsequent fates were compared with those of the patients without pleurisy in the same two classes. The mortality and fitness for work from one to ten years after discharge were practically the same for the sputum positive patients, whether they had suffered from pleurisy or not. But the sputum negative patients without a history of pleurisy fared considerably better than the sputum negative patients with such a history.

57 Physical Signs in Bundle branch Block.

T T KING (*Amer Heart Journ*, June, 1928, p 505) has investigated the possibility of diagnosing bundle branch lesions without the aid of electro-cardiography. From a review of the literature on experimental heart block in dogs, and as a result of critical analysis of the clinical findings reported by various observers in established cases of bundle branch block, the following hypothetical clinical picture was constructed: visible and palpable reduplication of the apical systolic thrust, muffling of systolic sounds at the apex and reduplication of the first sound at the apex, or a single first sound with an asynchronous systolic murmur, or, sometimes, asynchronous apical systolic murmurs. These signs are of greater significance if the blood pressure is normal. One hundred unselected cardiac cases were examined for bundle-branch lesions on the basis of the signs described. Such lesions were subsequently shown by the electro-cardiogram to be present in nine patients, and of these six had been recognized at the bedside, while two of the remaining cases were diagnosed correctly by a majority of observers. In only four of the aforesaid cases proved not to have bundle lesions were the typical signs found, and two of these with marked hypertension were considered to have presystolic gallop rhythm. The authors find that in doubtful cases reduplication of the systolic apical thrust may be rendered visible through the medium of a cloth laid over the chest. Factors in the differential diagnosis from hypertension with presystolic gallop rhythm are elevation of blood pressure and loud heart sounds which occur in the latter condition while soft, almost inaudible, apical systolic sounds, with sometimes reduplication of the second sound, are characteristic of bundle-branch lesions.

99. Diphtheria of the Penis.

J F PRINZING (*Journ. Amer Med Assoc*, May 19th, 1928, p 1620), who records a personal case, illustrates the rarity of the condition by his having found only two previous cases on record—reported by Cochrane in 1920 and Bode in 1921 respectively. Prinzling's patient was a man, aged 28, who developed considerable swelling of the penis and a tight phimosis on retraction of the prepuce severe balanoposthitis was found. Cultures for diphtheria bacilli were positive for the penis, but negative for the throat. Antitoxin treatment was given, 20,000 units being injected intramuscularly and 10,000 locally. Immediate improvement followed, and although secondary infection of the penis occurred six weeks after admission, recovery resulted. Cultures from the vagina and throat of his wife were positive, she was given 10,000 units of antitoxin. No sequelae are reported.

Surgery.

99 Complete Excision of the Right Cerebral Hemisphere.

OWING to the impossibility of diagnosing the exact limits of a malignant cerebral tumour, J LHERMITE (*L'Encephale*, April, 1928, p 314) believes that the logical surgical treatment of these growths is complete excision of the hemisphere, and not merely a localized exceresis. Dandy of Baltimore, who first attempted this radical measure, has shown that many patients with neoplasms of the right hemisphere can undergo considerable resections of the temporal or occipital lobes without any pronounced lessening of the mental functions, and that, since these patients usually suffer from left hemiplegia, complete excision of the hemisphere should cause no greater disorders than if the tumour were left to evolve untreated, or attempts at incomplete removal or radiotherapy were made. Removal of the right hemisphere is alone possible, the left being the seat of the intellectual powers. The great danger of the operation is said to lie in haemorrhage from the cerebral arteries and sinus venosus, the possible subsequent complications of secondary haemorrhage and infection can be avoided by a perfected technique. Dandy's method is described, and five of his cases are reviewed. One patient died three months after operation from a recurrence of the growth. One in forty-eight hours from haemorrhage, due to the suture on the middle cerebral artery becoming loose, and one in two weeks from pneumonia. Another patient survived for three and a half years, and then succumbed to a recurrence due to the leaving of a fragment of the tumour at the base of the brain. In none of these

cases was there any mental disturbance. In the remaining case the tumour lying deeply in the hemisphere and entirely surrounded by normal tissue, was removed *in toto* at the operation. This patient is still living, and may be regarded as cured. The following facts have been noted following the operation. The homiplegia of the left side of the face is only relative and the force of the masticators is unaffected, that of the limbs remains flaccid or is very slightly spasmodic. Differential sensibility is abolished on the trunk and all the extremities, the patient correctly perceiving only profound and intense stimuli. Sensation is much better preserved in the face, and it would appear that the atbrokinetic sensibility is much less affected than other kinds. Gustatory sensations are present on the anterior two thirds of the tongue, and addition remains unimpaired but left hemianopsia is absolute. This relative or perfect conservation of certain perceptions can be explained by two hypotheses: either sensation and perception is effected by the left hemisphere or the optic thalamus possesses a function of elementary conscious sensibility. The author believes that both these factors come into play. The patient shows no disorders of the mental or vegetative functions, and no muscular atrophy, arthropathy, or scarring. This case is held to prove that the seat of all conscious activity does not lie solely in the cortex, but is concerned to an equal extent with the subcortical centres, and that the higher faculties are associated, not with any particular centre, but in the entire brain.

100 Perforation in Carcinoma of the Stomach

J CHAVANNAZ and S RADOVITCH (*Rev de Chir*, No 2, 1928, p 111) remark that perforation of a gastric ulcer is frequently seen, but that perforation of a carcinomatous growth of the stomach into the peritoneal cavity seems to be but seldom recognized. He records 47 cases of perforation of malignant growths of the stomach, and the following conclusions are drawn. This rare complication usually occurs in elderly patients and in males, who appear to be more commonly affected with cancer of the stomach. The perforation is always found in the anterior aspect of the stomach and near the pylorus. The symptoms in many cases are similar to those of perforation of a simple ulcer. On the other hand, the signs may be much less marked, the condition may be entirely unrecognized, and the fact of perforation be only discovered after death. When the condition is detected early the ideal treatment is gastro-pylorectomy. The mortality in cases of perforation is about 50 per cent.

101 Prognosis in Cancer of the Breast

R LEROUX and M PERROT (*Bull de l'Assoc Franç pour l'Etude du Cancer*, April, 1928, p 180) publish records of twenty-seven cases of cancer of the breast, with special reference to the reaction of the tissues to methyl carmalum stain and the histological appearances of the connective tissue stroma. They believe that cases in which the tissues stain well with carmalum have a better prognosis than those which do not take up the dye. In favourable cases the stroma shows abundant lymphoid infiltration, good staining of the intercellular substance, and fibroplastic metaplasia of the fat, while the reverse of this is to be seen in unfavourable cases. Illustrations are given of the histological appearances in the two types of case.

102 Hydatid Cysts of the Lungs

H GABRIELLE and PAITRE (*Lyon Chir*, March-April, 1928, p 176) report a case of two hydatid cysts of both lungs. The patient was an Algerian soldier, who was admitted to hospital suffering from coughing attacks, loss of weight, and respiratory difficulties which led to a diagnosis of tuberculosis. Further examination showed signs of pleurisy at the base of the right lung and diffuse congestion of both lungs. As the result of tapping and examination of the fluid drawn off, which showed no trace of tubercle bacilli, the diagnosis was in doubt. The cough grew less, the temperature fell, and the expectorations were less evident, though the difficulty with breathing remained. New symptoms then appeared—namely swelling of the face, dilatation of the jugular veins, and enlargement of the thorax, which on the right side showed a definite bulging at the base. Further examination revealed signs of pulmonary consolidation, which, with other symptoms, indicated the possibility of hydatid cysts one in the lower lobe of the right lung and the other in the upper lobe of the left lung, which was confirmed by the removal of typical hydatid fluid. Surgical intervention on two separate occasions revealed two large cysts, which were both evacuated. Drainage was employed and the patient made a satisfactory recovery. It is concluded that hydatid cysts are more common among soldiers than among the civil population, that they can remain dormant for some time and that they may cause compression of the lung and the superior

vena cava, with slight swelling of the face and dilatation of the veins of the neck. Diagnosis from tuberculosis is difficult, radiographic examination being the most reliable test, in conjunction with an exploratory tapping, though the latter aggravates the symptoms considerably. As regards the operation a local anaesthetic is sufficient, and the approach should be made through an intercostal space after the removal of a rib. A drain should be left for a few days, particularly in the case of suppurating cysts.

Therapeutics.

103 Injection Treatment of Varicose Veins

S WIDERÖE (*Tidsskr f d Norske Lægefor*, April 15th, 1928, p 360) has treated 140 patients suffering from varicose veins, giving them intravenous injections of a 25 or 30 per cent solution of sodium salicylate, or one of the preparations in common use for this purpose, such as quinine with urethane. The injections were given under ambulatory conditions, and their total number was 295. Several patients received only one injection, and the greatest number of injections given to the same patient was eleven. This patient was an unmarried woman, aged 40, whose bilateral varicose veins had existed since she was 18. Some of them were as thick as a finger. The results were excellent, and she was able to remain at work throughout the treatment. In every case the injections provoked complete or partial obliteration of the veins, and the smaller veins often became obliterated without thrombosis. An ascending phlebitis of the thigh occurred in several cases, and in 2 it was so painful that the patients experienced some difficulty in walking, one of them had to remain in bed on this account. Necrosis at the site of injection was a sequel in 6 cases, in 5 of which the injected substance was sodium salicylate. In 4 cases the necrosis was quite slight, and the patients were able to attend to their work, they felt no discomfort, neither the necrosis itself nor the subsequent repair of tissues being painful, but in 2 cases the necrosis was severe enough to entail the patients' admission to hospital, recovery requiring three weeks in one case, and four in the other. In no case was the necrosis complicated by phlegmon or fever, and pulmonary embolism was never observed. In 5 cases the patients suffered from varicose ulcers, which were comparatively small, and which healed during or after the treatment. In 2 out of 3 cases of eczema this condition cleared up completely. Five of the 140 patients had previously been operated on, the cure effected by the injections in these relapsing cases was complete. None of the patients re-examined since the author began this treatment in January, 1926, showed any sign of relapse. The youngest patient was 21, the oldest 68. In several cases the treatment was undertaken for cosmetic reasons, the present fashions of mixed bathing and short skirts with silk stockings having rendered the possession of varicose veins more distressing than heretofore.

104 Antipneumococcal Serum in Lobar Pneumonia

W H PARK and GEORGIA COOPER (*Journ Amer Med Assoc*, April 28th, 1928, p 1349) discuss the method of administration and dosage of antipneumococcal serum in lobar pneumonia. They consider that the best route for administration is undoubtedly the intravenous, because the whole amount of antibody injected becomes immediately available, whereas if given intramuscularly a period of one or two days is required for its gradual absorption. The latter method is only useful when for any reason there is danger in giving the refined or unrefined serum intravenously. The authors advise that each patient on admission should receive 10,000 units of Type I and of Type II antibody, these doses should be repeated every eight to twelve hours so long as the temperature remains high or if septicaemia is present. When the type of the pneumococcal infection has been determined a monovalent serum may be substituted for the polyvalent one, and if the pneumonia is due to a Type IV pneumococcus treatment should stop with the third injection. Should the temperature after falling rise again to 102° F the injections should be repeated unless abundant antibodies are shown to be present or the rise is obviously due to complications such as serum sickness, streptococcal abscess, or other conditions not likely to respond to antibody injections. J G M BULLOWA (*ibid*, p 1354), in a consideration of the use of antipneumococcal refined serum in lobar pneumonia, outlines the data necessary for a comparison between cases treated with serum and those not so treated, and insists on the importance of having a good control series. Such an adequate and comparable series can be obtained by alternating patients and rating their severity on admission, the size of the series requisite for correct conclusions to be drawn is determined by a consideration of the standard error. In alternating patients the order of arrival in the ward alone determined

whether serum was to be given or not. It was found in such a controlled investigation that not only did serum treatment reduce the mortality but it shortened the illness of those who recovered, the advisability of administering polyvalent serum as early as possible without awaiting the result of typing was clearly shown.

Radiology.

105 Treatment of Angina Pectoris by Deep X Rays

F C ARRILLAGA (*Bull et Mém Soc Méd des Hop de Paris*, Jan 7th, 1928, p 949) has treated eight patients suffering from angina pectoris with deep x rays, and reports good results from the method. The cases selected for treatment were all of severe grade and had previously resisted the usual therapeutic measures. The first patient, whose blood pressure and valves were normal, was given five precordial applications over a period of six weeks. In the eighteen months following this treatment there was no recurrence of attacks. Another patient was relieved of attacks which previously followed even slight exertion. Radiation was applied in each case from the front and back over an area corresponding to the heart and aorta. The first series of radiations was followed, thirty or forty days later, by a second, generally, at the time of the latter, no further attacks were occurring. The author believes that these results are due to diminution of excitability or physiological action of the third cervical and the stellate ganglia and their ramal communications. Although the usual sequelae, such as headache, nausea, and prostration, are not uncommon, electrocardiography has revealed no myocardial changes in those subjected to deep x rays, nor have microscopic abnormalities been observed in experiments upon animals. Clinical and experimental evidence also goes to show that deep x rays in the doses used on these patients cause no notable effect upon the blood. General therapeutic measures, including anti-spasmodic drugs and dieting, should be continued during treatment, as also should the specific treatment of syphilis if this disease is present.

106 Radiological Diagnosis of Pelvic Disease.

F L STONE (*Amer Journ Obstet and Gynecol*, May, 1928, p 662) advocates the use of lipiodol with x rays as a diagnostic aid in gynecology. He gives the warning, however, that lipiodol injection into the uterus and tubes necessitates rigid asepsis, while the possibility of forcing material into the pelvic cavity must be borne in mind, though this danger is not so great as might be thought. Acute conditions of the cervix must be first treated, and bleeding patients, if injected at all, require cautious handling. An inflammation may precede the injection, depending on the information desired. An all glass, or Record, 10 c cm syringe filled with lipiodol is attached to the cannula used for insufflation, and sufficient pressure is exerted against the cervix to prevent any back flow. When the uterus is freely movable it may be necessary to pull it down with a tenaculum against the rubber acorn in the cervix. Patency of the tubes can often be determined by the ease with which the oil passes in, but as the material fills the uterus, especially when there is occlusion, some pain may be felt, this passes off if the pressure of the injection is delayed for a short time, after which the procedure can be completed without discomfort. Two skiagraphs, one taken immediately after injection and the other soon after this and before removal of the cannula, will show the progress made in tubal filling, while a third, taken after removal of the instrument, demonstrates the rapidity with which the uterine cavity empties. Stone considers that the method has no equal as a means of determining tubal patency, he adds that it will aid in diagnosing functional conditions and in deciding when surgical relief is indicated in many cases of sterility.

107 Standards of Protection against X Rays.

A MUTCHELLER (*Radiology*, June, 1928, p 468) lays it down that the stray radiation dose to which the average radium or x ray worker can safely be exposed should not exceed one hundredth of an erythema dose. A dental film wrapped in black paper and carried by the operator under his clothes on the front part of his chest for about one week is then developed and compared with a control film, this procedure provides the operator with a simple method of testing the erythemic dosage to which he is exposed in his work. The total thickness of lead recommended for adequate shielding of the tube is as follows, (1) For radiography, not less than 2 mm. (2) For fluoroscopy, not less than 2 mm. (3) For superficial therapy, not less than 3.25 mm. (4) For deep therapy, not less than 5.6 mm. When the x ray tube is only partly enclosed stray radiation intensity is so great that only one tenth of the amount of work possible with a completely enclosed equipment can be attempted.

Obstetrics and Gynaecology.

108 Scopalamine Anaesthesia in Obstetrics

DISCUSSING the disfavor into which narco anaesthesia produced by injections of scopalamine and morphine has now fallen, BERTHA VAN HOESSEN (*Anaesthetes and Analges*, May-June, 1928, p 151) states that the method is supposed to cause asphyxiation of the newborn, but in her view the morphine is entirely responsible for this. Formerly, narco anaesthesia was produced by injecting 1/4 grain of morphine with 1/150 grain or even less of scopalamine. The method now followed by the author is to give, as soon as labour starts, 1/100 grain of scopalamine alone, and to repeat this dose twice at intervals of half an hour. This dosage is said to be sufficient to produce anaesthesia with complete unconsciousness. If the anaesthesia is to be maintained for an indefinite period, these doses should be given at two-hourly intervals from the last of the three initial doses. In twenty six cases of narco-anaesthesia, eleven being primiparae and fifteen multiparae, all the babies were in excellent condition at birth with the exception of one—a breech case—which needed resuscitation. In the primiparae the average length of labour was seven and a half hours, and in the multiparae three and a half hours. The average loss of post-partum blood was 90 c cm. The advantages of this method are the shortening of labour and decrease in the loss of post-partum blood, the anaesthesia brings about perfect unconsciousness, stimulation of the uterine contractions, and relaxation of the sphincters, the administration of the anaesthetic does not require constant personal attention, and the patient awakens with a sense of well being and freedom from pain and fatigue. The risk of the patient, owing to her unconscious state, disturbing sterile wrappings at the time of delivery, is averted by suitably and comfortably securing her legs and arms, the objection that one half to three quarters of an hour are consumed in producing narco-anaesthesia can be satisfactorily met by giving nitrous oxide during the pains until the scopalamine has had time to take effect.

109 Inflammation of the Pouch of Douglas

J L HENROTAY (*Braz Méd*, June 3rd, 1928, p 1007) reports a case with the object of directing attention to the fact that inflammation of the pouch of Douglas is a definite entity which, according to him, was first studied by R Condomin and his school. The condition is characterized by a retraction of the utero-sacral ligaments and the ultimate disappearance of the posterior vaginal cul de sac, associated with definite genital pain. A predisposing factor in inflammation of the pouch is that it is the lowest part of the abdominal cavity, and that therefore all the exudative secretions of the abdominal organs gravitate there. The author admits that it is doubtful whether the inflammation of the subserous cellular tissue is due to a primary form of infection in the adjoining uterus or cervix, or to the absorption of infectious or irritant fluids which have accumulated in the serous sac above. Nevertheless a condition of progressive retraction of the cellular tissue and the utero-sacral ligaments is clinically demonstrable. It is always associated with much pain, which is the first complaint made by the patient. In Henrotay's case the patient complained of intolerable pain radiating towards the rectum and anus. Various medical treatments had been tried for three months without success. After examination an adenoma, beginning to involve the rectum was suspected, though nothing definite was detected. When the abdomen was opened the pouch of Douglas was found to contain a lemon coloured serous fluid. The peritoneum covering the rectum and posterior surface of the uterus was covered with tiny points of subserous effusions of blood. There was no growth, and the adnexa were normal. Total hysterectomy seemed to offer the only chance of cure, and was therefore performed. The patient left hospital at the end of fourteen days entirely relieved of her former pains. This was the procedure advised also by Condomin for cases unrelieved by medical means.

110 Sarcoma of the Uterus

R H MILLER and H ROGERS (*New Eng Journ Med*, June 21st, 1928 p 927) observe that most cases of uterine sarcoma are only discovered during or after an operation for fibroid tumours. They review the literature on the subject, and analyse 2 043 cases of fibroma occurring in the Massachusetts General Hospital during thirty years, of these, 25, or 1.2 per cent, proved to be sarcoma. The average age of the patients was 46, the oldest being 64 and the youngest 28. The spindle celled variety was present in almost half of the cases, other forms found being the myxosarcomatous, the round and spindle-celled, and the round celled, which is considered the most malignant. The usual site of sarcoma

is the fundus, only about 12 per cent being found in the cervix. Seven, or 28 per cent of the cases had local metastases, or extension of the growth, outside the uterus. The parametrial tissues, great omentum, and peritoneum of the small bowel were the structures involved, but no distant metastases were noted. Mitosis, according to Evans an indication of the malignancy of sarcoma, was present in only 4 cases. In 9 (36 per cent) there were concomitant fibroids, and it is assumed that sarcoma may, but not necessarily, originate in a pre-existing fibroma. Uterine sarcoma presents no pathognomonic symptoms and is usually mistaken for myoma. The authors advise that any rapidly growing fibroid should be suspected of being sarcomatous, every specimen should be carefully examined at the time of operation, and, if found sarcomatous, the operation should be very radical. The *post mortem* report in one case is given, and a striking and typical case of great malignancy is also reported.

111 Exploratory Puncture of the Vagina.

ACCORDING to F. MONTUORO (*Riv. d' Ostet. e Ginecol. Prat.*, April, 1928, p. 150) puncture of the vagina is an easy and safe manoeuvre in cases in which it is desired to ascertain the nature of an exudate in the pouch of Douglas or the parametrium, or of the contents of a tumour situated in either of these places. A 5 or 10 c. cm. syringe should be used having a wide needle at least 5 cm. long. The patient should lie on her back with widely abducted thighs, pressure on the hypogastrium by an assistant increases the visibility of the swelling and adds to the simplicity of the operation. If blood, serum, or blood stained serum is obtained the needle is withdrawn and a sterile tampon applied. If, on the contrary, pus is found the needle is left in position as a guide to the incision, which should be transverse, and be widened if necessary by means of a guarded bistoury. Puncture of the lateral fornices is indicated whenever suppurative exudate of a purulent parametritis or paracolpitis. In performing lateral colpotomy the ureter has sometimes been damaged, and it is important that the incision be transverse, not longitudinal. As examples respectively of the uses and limitations of exploratory vaginal puncture Montuoro describes the two following cases. A woman who had suffered from malaria, gonorrhoea, and adnexal inflammation had a swelling in the pouch of Douglas with signs of peritoneal irritation and acute anaemia. The recent history suggested a diagnosis of ectopic pregnancy, and the remote history one of gonococcal pelvic peritonitis. Exploratory puncture gave issue to sero-sanguineous liquid, and laparotomy confirmed the diagnosis of tubal pregnancy. In the second case the patient, whose menses had been retarded a few days, had pain in the lower abdomen, vomiting and fever, a tender swelling was palpable in the pouch of Douglas. Ruptured tubal pregnancy was suspected, but anaemia, vaginal bleeding, and expulsion of the decidua were absent. An exploratory vaginal puncture gave vent to blood stained serum, and an operation was performed for ectopic gestation. The opened abdomen, however, showed a multilocular ovarian cyst twisted on its pedicle, the needle had punctured one of several loculi which contained serous fluid into which blood had been effused.

Pathology.

112. Etiology of Yellow Fever

A. PETTIT and G. STEFANOPOULOU (*C. R. Soc. de Biologie*, June 29th, 1928, p. 256) examined the blood serum of fourteen patients with yellow fever in Senegal six of the patients were at the height of the fever when the serum was taken, and eight were convalescent or cured. A number of control serums were examined at the same time. The following spirchoetes were used as antigens: *L. icteroides*, *Sp. ictero haemorrhagiae*, *Sp. pseudo icterohaemorrhagiae*, *Sp. hebdomadis*, *Sp. autumnalis* A 1 and *Sp. autumnalis* B 1. The results were quite definite: no agglutinations, lysins, or preventive bodies were demonstrable in any of the yellow fever serums to any of the spirchoetes tested. Those results cast grave doubt on the etiological role of *L. icteroides*. A. PETTIT, G. STEFANOPOULOU, and C. AGUESSY (*Ibid.*, p. 258) record some experiments on the virus of yellow fever. Nineteen monkeys (*Macacus rhesus*) were inoculated with a strain of virus received from Sellards in West Africa. The inoculations were made subcutaneously, intraperitoneally, or into the liver. Under these conditions yellow fever developed in four to six days. At necropsy no jaundice was observed, the subcutaneous tissue was congested, the liver friable and of chocolate colour, the kidneys were congested, and the stomach contained coffee ground material. Fatty degeneration of the liver was very marked, and tubular

nephritis was apparent. A. PETTIT, G. STEFANOPOULOU, and C. KOLOCHIN (*Ibid.*, p. 260) confirm the observations of other workers on the susceptibility of *Macacus rhesus* for the virus of yellow fever, and the immunity of African monkeys to this virus. Thus five African primates—two *Cercopithecus griseo viridis*, two *Cynocephalus hamadrya*, and one *Cynocephalus papion*—proved refractory to inoculations of the virus. Working with *Macacus sinicus* they found that the immunity of this animal was variable. One after inoculation developed a mild infection and recovered, another developed a severe infection, and died in four days with characteristic lesions at necropsy.

113. The Organic Content of Human Enamel.

E. SPRAWSON and F. W. BURY (*Proc. Roy. Soc. B*, vol. 102, 1928) comment on the fact that previous analyses of enamel show many discrepancies in their results, particularly in relation to the presence of organic matter, after reviewing previous work on this subject they describe a number of tests by which they endeavoured to estimate the total carbon and nitrogen in human enamel after the removal of carbon dioxide. They considered "organic matter" as meaning compounds of carbon (other than carbonates) and nitrogen, such as are found in living tissues. The difficulties and possible sources of error in previous investigations were guarded against, with the exception of "unavoidable contamination" due to the presence of steel particles from the files used in obtaining the samples. The authors found that human enamel contains a small quantity of organic matter. The maximum amount of protein present, calculated from the highest nitrogen content, was 0.15 per cent, and from the highest carbon content 0.21 per cent, but in the latter the presence of free iron giving carbon in the "unavoidable contamination" must be taken into account. The organic content appeared to be independent of the age of the teeth or the dentition (deciduous or permanent). The high carbon/nitrogen ratio of 0.1/0.027—that is, 3.7/1 instead of 3.3/1, the usually accepted figure for protein—may be explained by the fact that the samples used for the estimation of carbon were not entirely free from iron, which contains about 1 per cent of carbon in combination. These findings confirm the work of Tomes in 1836, who stated that he found no organic matter in enamel, or not enough to amount to a weighable quantity, though he qualitatively found a trace amounting to less than 0.25 per cent.

114. Udder Infection with Streptococci of the Scarlet Fever Type.

F. S. JONES and R. B. LITTLE (*Journ. Exper. Med.*, June, 1928, pp. 945 and 957) report two cases of mastitis in cows apparently due to infection with the scarlet fever streptococcus. Attention was drawn to the first cow by the outbreak of scarlet fever in a small town, the outbreak had the usual characteristics of a milk borne epidemic. 159 of the 200 cases occurring within five days. Haemolytic streptococci were recovered from a human case of scarlet fever on the suspected farm and from a milker who just before the outbreak had visited a child with the disease. Examination of the cows on this farm revealed the presence of two with mastitis, from one of these—an animal suffering from very severe disease—a haemolytic streptococcus was recovered. After being kept in artificial culture for six months, this organism was injected into the left hind quarter of the udder of a normal cow, the dose used was one millionth of a cubic centimetre of an eighteen hour serum broth culture, and the injection was made into the teat by means of a tube. Two days later a very severe mastitis developed, which was accompanied by fever and other constitutional symptoms, and which led to atrophy of that quarter of the udder. Haemolytic streptococci were recovered from the milk in enormous numbers. The second case of natural infection of a cow with haemolytic streptococci was not accompanied by any obvious increase in the incidence of scarlet fever in the human population consuming its milk, though the conditions were apparently not suitable for determining this point exactly. A study of the two strains of streptococci recovered from the cows, together with those recovered from the throats of the two human carriers, was then undertaken, these were compared with each other, and with two stock strains of known scarlet fever origin. A non-haemolytic streptococcus of bovine origin and three strains of *Sirep. epidemicus* were included. The tests employed were the final hydrogen ion concentration in dextrose broth, the pathogenicity for rabbits, the precipitin test, and the formation of a toxin producing a reaction in a Dick positive person. To all these tests the strains from the cows responded like true scarlet fever streptococci. It would appear, therefore, that cows may suffer from a natural infection of the udder with streptococci of human scarlatinal origin.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

115. Clinical Varieties of Paroxysmal Hypertension

F. DONZETOT (*Paris Méd.*, July 7th 1928, p. 19) classifies the paroxysmal types of arterial hypertension into three groups. The first consists of those cases of paroxysmal hypertension which are grafted upon a permanent hyperplesia. Although no symptoms may be experienced, such manifestations as headache, transitory paralysis, and loss of memory, speech, sight, or hearing are not uncommon. While cerebral angiospasm accounts for these symptoms a similar arterial phenomenon affecting the peripheral and splanchnic blood vessels may cause pain and tingling in the limbs and abdominal colic. The danger of cerebral haemorrhage and of left ventricular failure depends largely upon the usual blood pressure level. The second group contains those cases in which paroxysmal hypertension is associated with a known clinical syndrome. The author quotes as illustrations of this group two cases in which mechanical irritation of the pharyngeal plexus and of the vagus nerve by new growths was related to the onset of typical paroxysmal hypertension. These instances constitute the clinical demonstration of the well known physiological result of stimulating the central end of the cut vagus nerve. The third and last group is that of essential paroxysmal hypertension, of which the literature contains but four examples. In these patients, all young adults, the blood pressure would rise abruptly in the attacks from a usual level of perhaps 130 mm. of mercury to the neighbourhood of 250 mm., and at the same time cramping, pains in the limbs or violent constricting pain in the epigastrium or thorax would be experienced. Such events as retinal haemorrhage, oedema of the lung and severe abdominal colic were related to some of the attacks, and in the three patients on whom necropsies were performed tumours were found related either to the suprarenal gland or the abdominal sympathetic ganglia.

116. The Incubation Period in Gonorrhoea.

M. A. SAIGRAJEFF and E. I. LINDE (*Derm. Woch.*, May 26th, 1928, p. 695) investigated the incubation period of 388 patients who had had one or two attacks of gonorrhoea, and found that of 270 patients who became infected with gonorrhoea for the first time 207 (76.5 per cent.) did not have a longer incubation period than four days, while one of five or more days was noted in only 63 cases (23.5 per cent.). Of 118 patients who had a second attack of gonorrhoea, 95 (80 per cent.) had an incubation period of four days, and 13 (26 per cent.) one of five days or more. There was therefore no difference in the incubation periods of first and second attacks. As regards the question of the influence of mixed infections on the duration of the incubation period, it was found that among 88 patients in whom there were other organisms besides gonococci the incubation period did not exceed four days in 63 (75 per cent.), and only in 25 cases (18.5 per cent.) was it longer. It is well known how difficult it is to obtain a pure culture of gonococci, although the greatest care is taken to avoid contamination with other micro-organisms. The conclusion derived is that if non-gonorrhoeal organisms exert any influence on the incubation period this must be quite exceptional. In three cases the incubation period was very long—namely, eighteen days in one case and forty days in two. In these cases the attack was characterized by the formation of deep infiltrations in the urethral tissue. The occurrence of relapses and reinfections did not appear to have any relation to the duration of the incubation period.

117. Agranulocytosis.

C. AUBERTIN and R. LEVY (*Arch. Mal. du Cor. des Faisanceux*, June, 1928, p. 359) have collected a number of cases of this disease recorded by various authors. Agranulocytosis is an infection which runs a rapid course, occurring usually in middle aged, apparently healthy women but occasionally found in males. Jaundice is usually present, and the disease is accompanied by necro-accrotic lesions of the mucous membranes of the cheeks and pharynx and occasionally of the genitals and anus. Blood films show a very definite leucopenia, with complete, or almost complete, disappearance of polymorphonuclear leucocytes. The disease is usually fatal, but there is an occasional recovery. One woman recovered after an illness lasting six weeks, the blood picture becoming quite normal. Two years later she had another attack of agranulocytosis, and this proved fatal in fifteen days. There is no sign of pathological changes in the

hemopoietic organs except the disappearance of polymorphonuclear leucocytes from the bone marrow. In the majority of cases there is no alteration in the number of red corpuscles nor of the blood platelets. There is no evidence of the haemorrhagic diathesis, but in a certain number of cases haemorrhages and anaemia occur. The lesions of the mucous membranes show no signs of healing. Treatment seldom arrests the rapid progress of the disease, but occasional successes have followed antitoxic and anti-infective treatment. Injections of acridine, trypanflavine, mercurochrome, and colloidal silver have been tried. In a case due apparently to streptococcal infection specific serum therapy appeared to have a favourable influence. In another case protob therapy was employed. Radiotherapy of the bone marrow, in small dosage, has been successful in four recent cases, a few hours after irradiation clinical improvement occurred, with increase in the number of leucocytes and of young granular myelocytes, further irradiation was followed by rapid recovery, but in another case of a severe septicæmic type this treatment failed, though combined with frequent transfusions of blood. In cases of pure agranulocytosis, and also in cases associated with anaemia and haemorrhage, transfusions of blood appear to have been ineffective, although theoretically they should assist the bone marrow to recover its functions and increase the patient's resistance to the toxic infective process, especially when transfusion is combined with radiotherapy. In the treatment of the necro-accrotic lesions local application of mild antiseptics is recommended. Arsenobenzenes have been used with success in certain forms of agranulocytosis. It is advised that they should be prescribed as routine treatment in all cases. The authors refer to several cases of syphilis in both sexes in which agranulocytosis followed arsenobenzol treatment. Only one of these patients, a woman aged 22 recovered. After the fourth injection of arsenobenzol she had moderate fever, bucco-pharyngeal lesions, and haemorrhages. The blood showed extreme anaemia, and the leucocyte count was only 2,800, with absence of polymorphonuclears.

118. Encephalitis in Paratyphoid B Infection.

G. TH. WAIT (*Monatsschr. f. Kinderheilk.*, June, 1928, p. 271) records a case of paratyphoid B fever in an infant, aged 11 months, in whom the diagnosis was confirmed by the presence of the organism in the blood and stools and a positive Widal reaction. The disease commenced suddenly with high fever and convulsions. Lumbar puncture was performed and the convulsions ceased, but right hemiplegia developed. The cerebro-spinal fluid apart from hypertension was normal. Almost complete recovery followed.

Surgery.

119. Carcinoma of the Rectum.

L. J. HIRSCHMAN and M. S. ROSENBLATT (*Journ. Amer. Med. Assoc.*, May 26th, 1928, p. 1697) report an early case of colloid carcinoma of the rectum which emphasizes the importance of sending all tissue for laboratory diagnosis regardless of how innocuous it may appear to the naked eye. A man, aged 47, had noticed for seventeen years a reducible protrusion from the rectum on defaecation which was frequently accompanied by haemorrhage. For the last three years he had not been able to reduce the prolapse, from which there had been considerable mucous discharge. There was nothing in his past history or present condition pointing to malignancy. Three tumour masses present were removed with a wide margin of tissue. These were sent as a matter of routine for examination and showed colloid carcinoma. Convalescence was uneventful, and the patient was given vigorous X-ray after treatment over the pelvis and abdomen with radium at the site of the lesion. The case appeared to be a very early one, as there was no ulceration of the mucosa, the lumen of the rectum was not constricted, there was no affection of the general health or blood count, and there were no signs of any metastases. The prognosis is considered good owing to the early and wide removal and the subsequent radium and X-ray therapy. The authors emphasize the point that despite the careful examination the diagnosis of carcinoma was only made in the laboratory. Since at the operation it appeared to be a clear case of prolapsing thrombotic haemorrhoids they might have been tempted to discard the tissues without such examination thus showing the importance of submitting every case to laboratory diagnosis.

120 Congenital Cystic Kidneys.

R J WILLAN (*Newcastle Med Journ* April, 1928, p 117) records an analysis drawn from personal observation of 22 cases of congenital cystic or polycystic kidneys, 15 occurred between the ages of 30 and 49, and 13 of the patients were females. He states that the kidney may attain an enormous size, one recorded case weighing 16 lb., while the condition in a foetus has been known to obstruct labour. The disease is bilateral though usually more advanced on the left side, and in every instance there was a palpable tumour in one or both flanks. Macroscopically the appearance is that of a semisolid bunch of grapes, the individual cysts of which do not communicate with each other, nor with the hollow portion of the kidney, they contain a clear albuminous non-urinary fluid, and it is usually impossible to detect any normal renal tissue. Microscopically the cysts are lined with flattened epithelium, a surprising amount of renal secreting tissue being seen between them. Usually symptoms are absent until early middle life, but when they arise they are those of a chronic interstitial nephritis with later uraemic manifestations. Pain may be absent, but in 6 there were attacks of acute renal colic, one without any haematuria, and the other 5 without visible clots. None of the patients with clot retention had acute renal colic, showing that the colic was not due to a clot passing down the ureter. In 12 there was no haematuria. The chief physical sign is the presence in each flank of a well defined tuberoso tumour of firm consistence and moving on respiration. A double pyelogram showing the normal hollow portions of the kidney elongated vertically and to a lesser degree horizontally, definitely establishes the diagnosis and the treatment is entirely diietetic. In urgent haematuria he advises the free use of Contrexéville water haemopoietic injections washing out the pelvis of the kidney through a ureteral catheter with 1 in 10,000 hot silver nitrate solution, and finally blood transfusion.

121 Subluxations of the Vertebral Column

GOURDON (*Journ de Med de Bordeaux et du Sud Ouest*, June 25th 1928, p 501) believes that vertebral displacements are much more frequent than is supposed and that they are the cause of a great number of vertebral and paravertebral pains to which various terms have been applied. These subluxations are due to some mechanical cause such as a blow, fall, or violent muscular contraction and are most often situated in the more mobile regions of the column—namely, the cervical and lumbar. The condition caused by an antero-posterior or lateral gliding of the vertebra, or a combination of both, occurs immediately after the traumatism. The symptoms, which sometimes come on rapidly, sometimes very slowly, are always the same: functional trouble, projection of one or, more rarely, two spinous apophyses, and pains radiating into the shoulders, arms, or lower limbs. An erroneous diagnosis of Pott's disease is generally made, though the symptoms of this are entirely different. In subluxations the spine is not completely immobilized by the muscular contraction, the pain is not intense on pressure, patients show no need of supporting the head or of walking carefully to avoid the least obstacle and the neck is not shortened but rather elongated, the lordosis being straightened and sometimes even changed into kyphosis. Radiographs of Pott's disease show a settling of the affected vertebral bodies and effacement of the intervertebral discs while those of subluxations reveal a spinal integrity with a rapprochement of the spinous apophyses. According to Still the troubles noted in these conditions are due to the repercession of the vertebral displacement on the immediately adjoining tissues, particularly the ligaments and muscles, which tend to contract and become painful. Old subluxations may cause slight compression of the nerve roots. Vertebral subluxations respond readily, with an immediate cessation of all symptoms, to orthopaedic treatment. Gourdon describes three cases of cervical and one of dorsal subluxation thus treated, and refers to several cases of dorsal and lumbar subluxations reported by Lavezzi.

122 Mixed Tumours of the Thyroid Gland

A L. HERTZLER (*Arch of Surg* June 1928, p 1187) regards the so-called adenoma of the thyroid gland as a mixed tumour which is rather a true neoplasm than a goitre. It is comprised of acinar more or less characteristic of immature thyroid tissue. It is of slow growth, and although benign in the early stages may undergo unaided degeneration or become malignant. Sometimes the acini develop colloid and lead to toxicity but this is of a mild degree. It may occur in young persons usually in the absence of enlargement of the gland proper. It is generally solitary, ovoid in shape, and firm to the touch unless degeneration has occurred when it may be soft or fluctuant. As these tumours are unaffected by medical

treatment, their removal by surgical means is advisable owing to the danger of malignancy developing in later years, or haemorrhage into their substance causing the death of the patient. The toxicity of a mixed tumour never reaches the degree of a true exophthalmic goitre and eye signs are never produced. Permanent cure follows removal if effected before the invasion of the capsule.

Therapeutics

123 Prophylaxis of Rabies.

M J ROSENAU (*New England Journ Med*, May 31st 1928, p 787) discusses recent improvements in the treatment of wounds with reference to the prevention of rabies. While cauterization of the wound and the Pasteur prophylactic treatment afford efficient measures for the individual, Rosenau believes that the best method of controlling and preventing the disease is the compulsory impounding of all stray dogs and the supervision of licensed dogs. He adds that all parts of a suspected wound, including pockets, recesses and the edges of the skin should be thoroughly cauterized with a glass rod dipped in strong nitric acid. The incubation period ranges from fourteen days to a year or more, with an average of forty days the length depending upon the virulence of the virus and the site of the wound, the most dangerous regions being those having a rich nerve supply. Prophylactic treatment by the Semple method is rapidly becoming the method of choice on account of its simplicity and the relative infrequency of paralytic complications. The material for injection is prepared from fresh fixed virus in the brain, medulla, and spinal cord of rabbits, ground up in sterile salt solution containing 1 per cent carbolic acid, which kills the virus after being kept at 37°C for twenty-four hours. Further dilution follows with equal parts of sterile normal saline solution so that the preparation finally contains 4 per cent of the dead virus in 0.5 per cent carbolic acid normal saline solution. 2.5 c.c. of this is injected subcutaneously in the abdominal wall once daily for fourteen days. Rosenau adds that treatment should be commenced at once when the dog is known to be mad or shows suggestive symptoms. It being only allowable to await diagnosis when prompt laboratory facilities are available. After exposure to infection from being licked by a rabid dog or from washing the mouth of a rabid horse protective treatment should be advised since it has been shown to be possible to infect animals by rubbing the virus on the shaved skin.

124 Oleothorax in Pulmonary Gangrene.

T LUCHERINI (*Il Politecnico*, Ser Prat. May 7th, 1928 p 643) discusses the induction of collapse in a gangrenous lung by introducing oil into the pleural cavity. Oleothorax has been stated to be useful in bacillary pleural effusions, with or without secondary infections and is employed to bring about the collapse of loci resistant to the action of gaseous pressure. It acts mechanically, persistently compressing the lung while maintaining freedom of movement of the pleural surfaces. Bernou concluded that since the injection of air had to be so frequently repeated for the purpose of maintaining collapse of the lung it was better to employ oil. A vegetable oil is usually recommended although kerosene prefers pure paraffin oil which is strictly neutral, practically anhydrous and of high viscosity. In either case it is usual to add some antiseptic in weak solution preferably gomenol from 2 to 4 per cent on account of its balsamic action in lung disease. Villaret and others have obtained good results by using an oil subjected to irradiation with ultra violet rays, employing as much as 500 mg., but never more than 600 to 650 c.c. Lucherini has taken the opportunity of treating four female patients all aged about 20, with pulmonary gangrene on the side for the purpose of comparison. In two collapse was brought about by air and in the other two by oil. All presented much the same symptomatic and clinical characters and none had any pleural or general complications. The purest olive oil was used, sterilized, with the addition of 3 per cent gomenol and it was introduced by means of a large syringe graduated to 100 c.c. into the fourth intercostal space in the anterior axillary line. To control the intrapleural pressure during the introduction of the oil a second puncture was made in the intercostal space above. This second needle was attached to a manometer. Before the oil was introduced about 50 c.c. of air was admitted so as to avoid injecting oil into the parenchyma of the lung. Not more than 75 c.c. of oil was introduced at a time. It was warmed to 100°F. This was given three times at intervals of twenty-four hours for three days and after three days cessation the procedure was repeated. After seven days three more injections, each of 50 c.c., were given at intervals

of four days. In the first patient the expectoration diminished at first and also the fever, but she did not improve, there were always cough and fever and sometimes haemoptysis and vomiting. She continually grew worse, and died two months after admission. The second patient was treated similarly, the expectoration and the fever diminished, but she also did not improve. The irritating cough and fever continued with occasional haemoptysis, and she died within six weeks of admission. The first of the two patients treated by pneumothorax for the purpose of comparison received 450 c.c. of air and continued to improve steadily until discharged from hospital two and a half months later, she was in very good health two months afterwards. The fourth patient was treated by pneumothorax, she also steadily improved, and was discharged completely cured. Luchner, who supplies radiographs of these cases, concludes that the frequent repetitions necessary to maintain a pneumothorax are not to be considered in view of its relative success, and that the use of oil instead of air is both clumsy and unjustifiable.

123. Whey as a Therapeutic Agent.

M. RILAUD (*Bull. Soc. Méd. des Hôp. de Paris*, May 24th, 1928, p. 801) draws a distinction between milk as a food and milk as a medication, and points out that its therapeutic value lies in the serum. Eliminating the casein and fats, he uses the whey, having determined experimentally that this is an excellent cholagogue and diuretic. Illustrations in colour are supplied of fluid withdrawn from the stomach before and after administration to demonstrate the increased flow of bile. He also gives tables indicating the diuretic and eliminative effect on the kidney, both healthy and diseased, as compared with pure water. Not only is there an increase in the volume of urine passed, but it is also more concentrated, especially in diuretic kidney. As compared with milk the whey was found to be less effective.

Disease in Childhood.

126. Tonsillar Hypertrophy in School Children

P. HERTZ (*Acta Paediatrica*, Supplement April 29th, 1928, p. 97) examined 1,185 children 639 of whom were boys and 546 girls, in two schools at Copenhagen shortly after admission, and found that 134 had hypertrophy of both tonsils, 9 hypertrophy of the left tonsil only, and 8 of the right only. The frequency of hypertrophy—roughly 13 per cent. of all the children—was about the same among the boys as among the girls. Most of the children were 6 or 7 years old, and very few were over 8 years of age. Subsequent examination showed that in 34—that is in nearly 25 per cent. of the tonsillar hypertrophy entirely disappeared in the course of a year. In some and in others somewhat later, while it was obviously diminished in 17 others. During the period of investigation tonsillectomy or tonsillotomy was performed on 21 children. Hertz found that most children with tonsillar hypertrophy which remained unchanged many years were not inferior to other children either bodily or mentally, and did not seem to be more susceptible to disease than others.

127. Infantile Epilepsy

R. DUPRE (*Gaz. Hebdomadaire de Bordeaux*, June 3rd, 1928, p. 3-6) reports a case of infantile epilepsy which showed no improvement from medical treatment but responded markedly to a ketogenic diet. The patient, a boy aged 5, suffered from convulsive fits which were ushered in by precursory sensations, and caused collapse and loss of consciousness. Sometimes all the limbs and the face sometimes only one or two members, were the seat of convulsive movements. During the fits a little froth appeared on the lips, but there was no biting of the tongue or evacuation of urine. The following symptoms also were absent: hydrocephalus, hereditary syphilitic stigmata, exaggeration of the reflexes and clonus of the feet and patellar Babinski's sign, paresis and contracture of the limbs, paralysis of the cranial nerves and ocular troubles. The gait was not affected and in the intervals between the seizures the patient was normal though psychological disturbances of ebullient and turbulence were exhibited. The seizures lasted for about five minutes, and their frequency increased from one to three or four per hour. They occurred during both the night and day. The cerebrospinal fluid was normal, though the Wassermann reaction was doubtful in both the child and parents. Specific treatment with mercuric iodides combined with epileptic therapy first with bromides and then with gardenal had no appreciable effect though the doses of the latter were increased. Finally a diet was instituted consisting of meats, fish and fatty foods with a minimum of bread, starches, vegetables and fruits. At first medical treatment was continued, but was

abandoned in a month. After three months' dieting the fits ceased and the physical and psychological condition also greatly improved. The diet was well tolerated, only a slight ketosis was produced, as evidenced by more traces of acetone in the urine. Dupré reviews the work of American investigators, most of whom claim that only essential infantile epilepsy, and not the symptomatic or adult type, will benefit from this treatment—a view with which the author does not agree. Various theories are held as to the action of a ketogenic diet in epilepsy. Helmholz believes that it causes a metabolic alkalosis of the fats, and Wilder that the diacetic acid exerts an anesthetic effect on the nervous system. Bliss's theory is most generally held, that the crises occur when there is a tendency in the blood to alkalosis. No accidents have been reported from the use of this treatment, and the only contraindications are intestinal cases with hepatic or pancreatic deficiency.

123. Broncho pneumonia in Infancy

FOLLOWING a recent experience of 50 cases of broncho-pneumonia in infancy, A. BOCCINI (*La Pediatria*, May 15th, 1928, p. 507) reviews Nassan's classification of this condition into six types—namely, the simple pulmonary, cardio-vascular, atonic, alimentary, meningitic-cerebral, and the septic. While not accepting this classification as indicating separate types, but rather as defining cases in which there is greater or less predominance of various symptoms, he has adopted, with good results, Nassan's therapeutic suggestions for each type. In the simple pulmonary type he trusts mainly to fresh air and sedatives such as urethane. In the cardio-vascular type he has found much benefit from the use of glucose injection coupled with adrenalin. In the meningitic type lumbar puncture frequently repeated often does much good, while calming measures such as warm baths and the administration of chloral or sulphate of magnesium are useful. In the grave toxic type often fatal in thirty-six hours, no treatment seemed to be of much avail. Where a large extent of lung was involved with much dyspnoea, a free use of oxygen was indicated. Poultices were found to be of doubtful value.

129. The Heart in the Normal Child

EDITH M. LINCOLN and R. SPILLMAN (*Amer. Journ. Dis. Child.*, May, 1928, p. 731) have found that normal hearts in children fall naturally into four groups which correspond exactly to the four types of adult hearts described by Hirsch and Shapiro. These writers described a type of heart which is characteristic of each one of the four main types of body build—the short, broad heart of the person with a hypersthenic habitus, the long thin heart of the person with an asthenic habitus, the true 'drop' heart of the person with a hyposthenic habitus, and—the most common type of all—that belonging to the person with a sthenic habitus. The types of hearts in children, however, do not bear a constant relation to the type of body build. Changes from one type to another are uncommon. Until the age of 7 the girls' hearts are smaller than the boys', but after 11 this condition is reversed. There is a closer correlation between height and the size of the heart than between age and the size of the heart. Approximately one third of the heart lies to the right of the mid line in children from 4 to 13 years of age. The transverse diameter of the heart is approximately one half of the width of the chest in children from 2 to 13 years of age, and there is no change in this relation with increasing age or height.

Obstetrics and Gynaecology.

130. Pelvic Tuberculosis in Women

SANTY (*La Gynécologie*, June 1928, p. 354) recommends the combination of surgery and heliotherapy at high altitudes in generalized or localized tuberculous peritonitis in women. He advises that preliminary exploratory laparotomy should be performed with or without evacuation of effusion, and the ablation of easily operable lesions. In some cases it is necessary, after a course of heliotherapy, to perform a second operation on residual lesions. He describes six cases in which success was thus obtained. One woman aged 30, who had borne two children had suffered for three months from abdominal swelling, rapid emaciation, and a nocturnal temperature of 102°F. She was cachectic, with distended abdomen and a large kidney like tumour in the left hypochondrium, another tumour in the left iliac fossa extended downwards into the pelvis. Both tumours were encysted collections of peritoneal exudate. Laparotomy showed all the viscera studded with small yellowish tumours, causing numerous adhesions of the small intestine. The ascitic fluid was evacuated and a tuberculous ovary removed. A month

lateral abdominal heliotherapy was proscribed and caused progressive improvement. Eight months later the abdomen was soft, but the Fallopian tubes remained enlarged and hard. Two years later the improvement was still maintained, but subsequently the temperature rose to 101.3°, and the tubes were painful and fluctuating. A second laparotomy showed that all the tubercles had disappeared, but the pelvis was looked by adhesions between coils of small intestine and the tubes. Total hysterectomy resulted in complete relief. Another woman, aged 25, had pelvic peritonitis in 1923. Eleven months later the left ovary and tube were inflamed; removal of the ovary was followed by improvement. Nine months afterwards her temperature rose to 102.2°F, and laparotomy disclosed a generalized tuberculous peritonitis, the tube being removed with difficulty. The patient had a subsequent attack of pleurisy necessitating an intensive course of heliotherapy at a high altitude in 1925, but regained good health. Santy believes that tuberculous lesions of serous membranes react well to heliotherapy.

131 Sarcoma of the Vulva.

H. S. MORGAN (*Amer. Journ. Obstet. and Gynecol.*, June, 1928, p. 861) records in detail a case of unpigmented sarcoma of the vulva occurring in a girl aged 16. This type being rare, sarcoma of the vulva is a very malignant, rapidly growing tumour with early metastasis to distant organs, the melanotic form being much more malignant, and metastasizing much earlier than the unpigmented. The tumours are usually composed of polymorphous cells, varying in type from spindle to round. Sarcoma of the vulva is usually fatal; early diagnosis and excision followed by intensive x-ray treatment offer the patient the best chance. All growths about the vulva, particularly fibromas and hard tumours in the region of the Bartholin glands, should be removed immediately to eliminate the danger of sarcomatous degeneration.

12. Hysterectomy in Uterine Inversion

FOR the operative treatment of uterine inversion U. STAMATOPOULOS (*Bull. Soc. d'Obstet. et de Gynecol. de Paris*, June, 1928, p. 558) advocates a method combining abdominal with vaginal hysterectomy. A partial (fundal) hysterectomy is performed abdominally at the constriction of the invagination, and the uterus, probably infected, is extracted per vaginam, closing of the cervix and peritonization being secured as in subtotal hysterectomy. Many advantages are claimed for this method. It is said to be (1) rapid, (2) always easy, (3) without danger, since the site of the incision is far from the ureters and bladder, (4) aseptic, since the infected uterus is not handled, and thus a septic operation is converted into an aseptic one, and (5) it is not a blind procedure. It can be employed with advantage in recent inversions, in chronic cases with peritubal adhesions, and in inversions complicated by submucous tumours of the fundus. Spinal anaesthesia, when not contraindicated by anaemia or hypotension, will prove advantageous. The author contrasts this procedure with the usual operative measures. Total abdominal hysterectomy involves danger of infection by removal of the infected uterus abdominally and of injury to the ureters. It occupies more time and leaves the vaginal wound open, thus prolonging post-operative treatment. Subtotal hysterectomy after abdominal reduction without colpo-hysterectomy is applicable only in cases of recent inversion where reduction is easy. It may cause fatal syncope during reduction, and it exposes patients to the same risks as does total hysterectomy. Vaginal hysterectomy is not always easy, even in recent inversions; it is a blind method and consequently dangerous, and it is septic. Moreover, it cannot be employed in cases where the invaginated constriction lies high and is fixed by endo-perimetritic adhesions. A case is described in which this operation was performed for a complete inversion immediately following delivery.

133. Treatment of Tuberculosis of the Uterine Appendages and Peritoneum

T. KELLER (*Gynecol. et Obstet.*, April, 1928, p. 286) reports the results obtained in 69 cases of tuberculosis of the adnexa, 37 being associated with tuberculous peritonitis (53.6 per cent.), and 47 cases of tuberculous peritonitis not associated with disease of the uterine appendages. He recommends that in cases diagnosed as genital tuberculosis x-rays should be employed. When the diagnosis is uncertain and only established after operation, post-operative irradiation will assist in the cure. In chronic exudative tuberculous peritonitis, especially with much ascites, laparotomy is indicated, a solution of colloidal silver with methylene blue is introduced into the abdominal cavity, and it is possible that very small doses of radiation afterwards applied to the abdomen have an enhanced effect due to secondary radiation of the metal over the whole surface of the peritoneum.

Pathology.

135 Reducing Powers of the Tissues in Tuberculosis.

FERRLEIRA DE MIRA (*C. R. Soc. de Biologie*, June 1st, 1928, p. 1611) estimated the reducing powers of the tissues of guinea pigs by means of an inditobenzol. This substance in the oxidized state is white and insoluble in water, in the reduced state it is yellow and is soluble in water. The muscle and the liver were finely divided, and 1 gram was added to a tube containing 10 c.c. of distilled water and 0.4 gram of the powdered indicator. After twenty-four hours at room temperature the mixture was filtered, and the colour of the indicator was estimated in a Duboseq's apparatus. Taking the reducing power of the tissues of the normal guinea pig as 100, it was found that in generalized tuberculosis this figure was reduced to between 80 and 90 as a rule in the early stages of the disease when only the focal glands were affected, the reducing power of the tissues was about normal.

135 Serum Proteins in Epilepsy

In a series of 136 epileptic patients F. FRISCH (*Wien. klin. Woch.*, June 14th, 1928, p. 838) found that the average serum protein content was considerably higher than that recorded for 147 other persons chosen at random. Thus 76 per cent. of the epileptics showed a protein value of 8 to 9 per cent. and only 1.4 per cent. had less than 7 per cent., while in 59 per cent. of the controls the percentage of serum proteins was less than 7, and in 7.4 per cent. of them it was 8 to 9. It was also found that in the pre-paroxysmal phase there was generally a relative increase in albumin, while in the post-paroxysmal phase the proportion of globulin was raised. Various investigators have reported in certain acute febrile conditions such as pneumonia, typhoid fever, and the exanthemata, which are associated with a relative or absolute increase in globulin, that the epileptic fits cease during the febrile attack. It has also been shown that there is an alteration in protein metabolism with diminished excretion of nitrogen, especially in the pre-paroxysmal phases of epilepsy. The suggestion has been made that this is due to a lowered metabolism in the cells which increases their irritability to whatever stimulus initiates the fit. In dogs, when the globulin was increased by injections of ichn or by starvation, fits were less readily induced by faradic stimulation through a trephine opening than previously or as compared with controls. Attempts to produce artificially an increase in globulin in human subjects by injecting various antigens were not always successful. It was found, however, that in those cases of epilepsy in which it was possible to increase the proportion of globulin to albumin—as, for example, by the injection of diphtheria toxin—a marked effect on the incidence of fits resulted. One patient who had suffered from fits for ten years, and had had about ten in the previous three months, received ten injections of diphtheria toxin between November 21st, 1927, and January 17th, 1928, which resulted in febrile reactions and painful swelling at the point of injection. He remained free from fits from November 27th to February 10th. On the other hand, in a number of cases in which treatment produced no effect on the serum proteins it also had no effect on the fits. Frisch suggests that various operations advocated from time to time—inflammatory reactions and even the old-fashioned seton—probably produce their effect by a non-specific increase in the globulin content of the blood, though the mechanism by which this is brought about is still unknown. Though these results suggest an etiological line of treatment he gives the warning that the methods at present available for increasing the proportion of globulin have the disadvantage that during the reactionary phase albumin is again increased.

135. Immunity to Diphtheria in Measles.

In order to determine whether measles reduces the immunity to diphtheria G. RAYMOND and C. ZOLLER (*C. R. Soc. de Biologie*, March 9th, 1928, p. 679) estimated the antitoxin in the blood on the first day of the eruption, and on the same day gave the patient an injection of 0.5 c.c. of diphtheria antitoxin. Ten days later the antitoxin titre was estimated again. In ten patients examined it was found that the titre rose from one tenth to one third of a unit after injection of antitoxin, as would occur in a healthy subject. In case the difference in the two titres should be due to a fall in the antitoxin value during the febrile stage, followed by a return to a higher figure, two successive estimates with an interval of ten days between them were made on another series of ten subjects without giving them an injection of antitoxin, and it was found that no change occurred in the antitoxin titre. The rise in the first series was therefore due to stimulation by the antitoxin injected.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

137 Symptomatic Facial Neuralgia due to Dental Caries

CAVATTE (*Gaz. Hebdomadaire de Bordeaux*, June 10th, 1928, p. 370) relates the case of a man, aged 43, first seen by him in April, 1928, complaining of facial pain occurring every night. Since August, 1927, violent crises of pain began about 7 p.m. and lasted fifteen to twenty minutes beginning at the external auditory meatus and extending along the course of the inferior maxillary nerve to the lower incisor teeth on the right side, the pain passed to the corresponding teeth of the upper jaw and returned to the ear, being followed by a dull ache, lasting all night and preventing sleep. A previous radiological examination had revealed no abnormality, and extract of opium had been found to prevent the attacks, though they recurred at once on its withdrawal. At the examination of the patient in April, 1928, no abnormality of skin sensation on the right side of the face was found, and there was no tenderness on pressure over the bony foramina of the fifth nerve. Caries of the neck of the second lower molar on the right side was noted, associated with a vestibular gingival fistula. There was no pain on probing the carious part of the tooth, but pain was produced by vertical pressure on the crown. An x-ray examination showed the presence of root sepsis, and removal of the tooth, followed by extraction of the socket, brought almost immediate cessation of pain. This case is considered noteworthy because of the absence of pain over "pressure points", the complete control of pain by opium, without increasing doses, the mixed nature of the pain—paroxysmal and continued, and the fact that cases of symptomatic neuralgia are frequently thought to be of idiopathic origin for lack of systematic search for a focus of irritation.

133. Subacute Interstitial Tuberculous Myocarditis

ACCORDING to L. GALLAVARDIN and L. GRAVIER (*Arch. des Mal. du Cœur, des Vaisseaux et du Sang*, July, 1928, p. 472) it is exceptional to find subacute interstitial myocarditis in young subjects who have died from progressive cardiac failure, and still more unusual to discover that the lesions are tuberculous. They report the case of a man, aged 33, who had been discharged from the army eleven years previously on account of bronchitis and haemoptysis, and, during the last seven years of life, had had numerous attacks of peritonitis. At the autopsy the dominant lesion was an extensive subacute myocarditis, chiefly involving the lower half of the left ventricular wall, with extensive confluent fibrous plaques, visible to the naked eye. There was no vascular or valvular lesion. A healed tuberculous scar was found at the apex of the left lung, and there were extensive peritoneal adhesions. The authors have collected the records of several previous cases, the ages of the patients ranging from 25 to 35. They remark that it would be useless to describe the symptoms, for this variety of subacute myocarditis cannot be distinguished from other forms due to different causes. The comparative youth of the patients permits elimination of many other causes of myocarditis, usually found in later life. The authors add that the possibility of this form of myocarditis must be borne in mind in the case of a young patient who is suffering from progressive cardiac failure without evidence of vascular or valvular lesion.

139 Fever in Gastric and Duodenal Ulcer

S. BANG (*Arch. Int. Med.*, June, 1928, p. 808), in his investigation of pyrexia in peptic ulcers, shows that this symptom is by no means uncommon. His observations are based upon 358 cases diagnosed as ulcer and suffering from no other disease. Of these cases 50 per cent showed elevations of temperature lasting several days, the high percentage in this series as compared with those of other workers being due to the relatively more acute lesions in the former group. Among the 138 cases in which manifest haemorrhage occurred fever was present in 90 per cent, those patients having principally acute ulcers or acute exacerbations of old ulcers. Anaemia is discounted as the cause of fever since it may persist long after the temperature has become normal, even if it was originally elevated and may also be present in severe degree without any pyrexia. The possibility of absorption or decomposition of blood in the bowel giving rise to fever is discussed, and it is shown that this symptom is generally delayed one to four days from the onset of oesophageal haemorrhage, while it is not uncommonly absent after severe bleeding from

gastric ulcer. Further evidence of the independence of temperature and blood absorption is the demonstration of thirteen cases showing fever but complete absence of blooding. In his search for the cause of pyrexia the author turns to the pathological material obtained at gastrocotomy operations by other observers. Their researches showed that marked inflammatory reaction of the mucous membrane surrounding the ulcer is demonstrable in most fresh specimens. Microscopic examination of such inflamed areas reveals small haemorrhagic erosions, oedema, and perivascular infiltration of leucocytes, it is considered that such gastritis is the probable cause of any fever present. That this pathological change in the mucous membrane is the precursor of the typical ulcer is suggested by its presence in certain cases in which operations were performed for gastric or duodenal ulcers and neither of these conditions was found.

140 Autonomous Typhoid Cholecystitis.

I. NOZARI (*Thèse de Paris*, 1928, No. 130) discusses the important part played in the dissemination of the disease by masked typhoid infections, as illustrated by localization of the typhoid bacillus in the gall bladder, he collected eleven cases in patients aged from 13 to 60. The cholecystitis, which may be catarrhal but is more frequently suppurative, is accompanied by considerable constitutional disturbance, though there is no true typhoid state or any sign of typhoid fever. The diagnosis can be made by laboratory methods only. Blood cultures rarely give any help, but the Widal reaction is always positive. The diagnosis is established by direct culture of the bile or by duodenal intubation. Although the bile forms an excellent culture medium for typhoid bacilli, and therefore plays an important part in the persistence of the organisms, the author is opposed to the view that latent or manifest infection of the gall bladder predisposes to cholecystitis, as most authorities have maintained.

Surgery.

141 Arterial Resection in Obliterating Arteritis.

P. STRICKER (*Rev. de Chir.*, No. 3, 1928, p. 214) divides chronic arteritis into two distinct anatomical groups: scleroses, characterized by an alteration in the vascular walls on which thrombi can be secondarily engendered, and chronic juvenile forms in which the chief factor is a primary thrombosis without any important change in the artery itself. The former group includes diabetic and syphilitic scleroses, a form described by Mönckeberg in which the calcification is confined to the media and is noted chiefly in the arteries of the extremities, and obliterating arteritis following repeated traumatism. The pathology of these various forms is discussed. Stricker believes that many different diseases can cause the same sclerosis and degeneration in an artery as in other organs, and an anatomical classification is difficult. This is true also of the second group, and though the thrombus is the primary agent, secondary changes in the arterial walls supervene so rapidly that it is often impossible to state whether these occurred prior or subsequent to the thrombosis. Two problems present themselves in considering the treatment of obliterating arteritis—namely, its pathogeny, and the localization and extent of the lesion. In diabetic and syphilitic arteritis the etiological diagnosis and treatment are evident. In the vast majority of cases however, the etiology is not clear, and, while waiting for diagnosis some efficacious and yet more conservative treatment than amputation should be instituted. Stricker divides these cases into two groups: those in which the arteritis is generalized in more than one limb, and those in which from various local causes, such as traumatism, compression, or limited frost bite, it is localized in one member. Leriche has shown that in generalized cases local surgical measures (sympathectomy and arterial resection) are useless, but that great benefit results from their use in localized conditions. He has also demonstrated that arterial resection, which in reality is a sympathectomy, is followed by a vaso dilatation, and that excision of an obliterated arterial cord causes a cessation of the vasomotor and trophic troubles due to a periarterial sympathetic lesion. Stricker advocates an extensive resection in which the whole obliterated portion of the artery is excised to a point where the thrombosis no longer exists, and where sclerosed is replaced by healthy tissue. Such treatment has given surprising results in cases of localized

juvenile and presenile arteritis, and amputation should be avoided if possible. In such cases are reported, and also three cases illustrating the inefficacy of this procedure in scule subjects.

142 Differential Diagnosis of Acute Appendicitis and Epididymitis.

J. BAUMANN (*Med. Welt*, June 9th, 1928, p. 872) describes two cases of acute epididymitis in which an erroneous diagnosis of appendicitis had been made. The first patient was a powerfully built young man who was sent to hospital for immediate operation for acute appendicitis. On admission his temperature was 105.4°F. The patient said that the pain was not increasing and there was no abdominal tenderness or rigidity on pressure. On further examination the right side of the scrotum was very red and the right testis was swollen to the size of a goose's egg, there was a copious purulent urethral discharge and the condition was evidently severe gonorrhoeal epididymitis. The second patient was a healthy looking young man who had complained, since the previous evening, of increasing pain in the right hypochondrium. Vomiting was absent and the temperature was 102.2°F. In the appendix region there was tenderness on pressure, especially immediately below McBurney's point, with muscular rigidity. The patient was prepared for operation, when a swelling of the right testis was discovered, he had been treated, four weeks previously, for gonorrhoeal urethritis, and he still had a profuse discharge. The epididymis and testis were swollen to the size of a hen's egg. Next day the temperature was normal, and there was a definite leucocytosis. The epididymitis subsided rapidly, but the abdominal pain and subhepatic tenderness persisted for four days. The spermatic cord was not tender or swollen. The author refers to four previous cases recorded, in which the differential diagnosis of appendicitis or epididymitis was difficult. In two of these the spermatic cord was more or less inflamed, swollen, and painful. In Baumann's cases the spermatic cord was not involved, although the abdominal symptoms were very definite. It is probable that these were due to lymphangitis and lymphadenitis in the portal fissure. In another case a small malignant tumour of the testis was followed by extensive metastases in the retroperitoneal lymph glands, leading to an erroneous diagnosis of gastric carcinoma. In many pelvic diseases, such as salpingitis, oophoritis, and parametritis, tenderness in the region of the portal vein may give rise to an erroneous diagnosis of cholecystitis. In contrast with these cases of epididymitis with abdominal symptoms Baumann mentions that cases of appendicitis have occurred in which pain was referred to the genital organs, with increased cremaster reflex and swelling and tenderness of the right spermatic cord, he adds that these manifestations are due to local oedema and peritonitis involving the spermatic cord.

143. Prostatism without Prostatic Hypertrophy

P. S. ROSENBLUM (*Urol. and Cut. Rev.*, June, 1928, p. 376), who records two illustrative cases, states that patients who present symptoms of prostatism do not always have hypertrophy of the prostate. Cystoscopy has shown that the following lesions may produce these symptoms—namely median bar, hypertrophy of the trigone, diverticula, which are usually situated near the urethral orifices, and sometimes at the vertex, stone in the bladder, chronic prostatitis, and urethral stricture. Cystoscopy is a valuable aid in discovering the cause for the persistence of symptoms after prostatectomy, such as a tag of tissue left attached to the internal urethral orifice, a urethral polyp developing in the prostatic bed, incomplete removal of the prostatic adenoma, the formation of a nodule in the prostatic cavity, and occasionally the prostatic urethra growing together and becoming finally closed. Post-operative prostatism can usually be avoided by careful pre-operative diagnosis, attention to the technique of enucleation, and post-operative care.

Therapeutics

144 Cardiac Therapy in Pneumonia.

In view of the frequent occurrence of cardiac failure in pneumonia E. E. CORNWALL (*Med. Journ. and Record*, June 20th, 1928, p. 637) emphasizes the importance of protecting the heart against overstrain and mechanical, nervous and toxæmic disturbances. Rest, if possible in the horizontal position, should be maintained from the onset of the disease until at least a week after defervescence. In cases of cardiac weakness or organic disease this period should be prolonged. The patient should be permitted to roll over in the most comfortable position. In cases of severe cardiac dyspnoea some elevation of the head and chest may be required. Bradycardia necessitates strict rest in the

horizontal position. The alimentary system requires attention, since mechanical pressure from tympanites, dilatation of the splanchnic blood vessels, reflex vagal stimulation, and intestinal toxæmia may cause danger. Purgation is to be avoided, since moderate constipation is less dangerous to the heart than the routine artificial induction of evacuation of the bowels. Morphine as an anodyne and nerve sedative is often useful in restlessness and insomnia, caffeine is a respiratory and vasomotor stimulant. Cornwall prefers atropine to any other direct heart stimulant, he gives it on the first appearance of symptoms of myocardial failure in carefully graduated amounts, since large doses may exhaust the heart in the early stages of the disease. He starts with 1/1000 grain every four hours, increasing if necessary to 1/500 grain doses, and rarely to 1/250 grain. The effect is carefully watched, and the dose reduced or the drug discontinued at the earliest possible moment. It should not be given as a rule by the mouth, but by hypodermic or intramuscular injection. The author believes that the daily administration of 30 grains of calcium chloride or lactate acts as a direct heart stimulant. He also uses strychnine, caffeine, morphine, and alcohol as heart regulators, he considers that digitalis might be indicated in cases complicated by arrhythmic fibrillation, but he has seldom found it was required. Strychnine is given early when the blood pressure is unduly low. Alcohol is a cerebral sedative and vaso dilator, but the writer seldom uses it except in cases of elderly or alcoholic patients.

145 Sanoecrysin in Tuberculous Meningitis.

J. V. LAMBE and P. A. BULLA (*Arch. med. et chir. y. esp.*, June 30th, 1928, p. 815), who record an illustrative case, maintain that the intraspinal injection of sanoecrysin should not be used in the treatment of tuberculous meningitis, since it produces an intense meningeal reaction and precipitates a fatal issue. Their patient was a man, aged 25, who was admitted to hospital with symptoms of meningitis. Lumbar puncture was performed and a solution of 8 mg. of sanoecrysin in distilled water was injected. Twelve hours later there was considerable aggravation of the symptoms, shown by acute delirium and considerable increase in the meningeal rigidity. The following day paralysis of the sphincters occurred, and death followed in coma. The cerebrospinal fluid withdrawn before treatment was under hypertension and clear, it showed a lymphocytosis and contained 0.25 per cent of albumin. At a second puncture a few hours before death the fluid was turbid and escaped with difficulty. The cell content was greatly increased and the albumin was 0.45 per cent, there was also a considerable quantity of bilirubin and some urobilin.

146 Postural Treatment of Arterio-sclerotic Gangrene.

ADVOCATING a more conservative method of treating gangrene than by amputation, L. A. REGNIER (*Minnesota Med.*, July, 1928, p. 455) adopts Buerger's classification of gangrene, and defines this condition as the death of tissues due to impaired or absent blood supply, and asserts that it can only be prevented by establishing an adequate collateral circulation. The conditions influencing its development, and the symptoms signaling its onset, are enumerated. Pathologically, diabetic gangrene does not differ from the arterio-sclerotic type, many clinical symptoms of impaired circulation may be absent in the former, but the arterial changes are the same, the large arteries alone being affected. To develop collateral circulation in the small arteries Regnier employs both postural and thermal (moist and dry) measures. Patients should be treated prophylactically, if possible, by the avoidance of long walking or standing, and exposure to cold and trauma. Postural treatment aims at producing ischaemia by elevation of the limb, this is followed by lowering of the limb to set up hyperaemia, and alternated with the horizontal position. This treatment, being drastic, is contraindicated in cases of extensive gangrene or where cellulitis or thrombophlebitis is present. Thermal treatment consists in keeping the limb as warm as comfort will allow by dry heat during elevation. This produces capillary hyperaemia, and is maintained for fifteen to forty-five minutes. The patient then sits up and the leg hangs down in a water bath at 50° to 105°, or, if ulcers, abrasions or moist gangrene are present, in saline solution or 2 to 4 per cent boric solution at the same temperature. This increases the hyperaemia of posture, maintains heat, and combats infection. After fifteen to thirty minutes with the limb in the dependent position the patient rests with the leg horizontally placed for an hour. Each treatment occupies two to three hours, and three or four are given daily. If patients cannot endure such long periods of treatment, these are shortened and the rest period lengthened. All foci of infection and systemic diseases, such as syphilis and diabetes, are actively treated. Five case reports showing the results from this therapeutic method are appended. Regnier maintains that amputation is a last resort, and can be prevented in many cases by a diligent local treatment such as has been described.

Neurology and Psychology.

147 Subacute Combined Sclerosis

M. J. BUBERT (*Journal Amer Med Assoc*, March 24th, 1928, p. 903) remarks that Russell, Batten, and Collier have attempted to prove that subacute combined sclerosis is not the result of, and not closely linked with, the anomaly of pernicious anaemia. Though this total dissociation is not accepted, their work shows that the neurological condition does not necessarily follow but may precede the usual pernicious anaemia picture and that the two conditions are probably results of the same, or closely allied, etiological factors, which are at present unknown. The pathology of subacute combined sclerosis consists of a focal destructive and a systemic lesion. In the former the changes lead to fibrosis with scarring and loss of all structure in the medullated sheaths and axis cylinders, the systemic degenerative process affects the long tracts of the cord, and eventually also leads to fibrosis and scarring. In view of the general pessimism as to the prognosis in pernicious anaemia complicated with spinal cord changes, Bubert reports an example which shows that in certain cases that have not progressed too far improvement follows dieting with liver. This case early associated with neurological symptoms, has been observed for nearly five years during the first part of which period, under the treatment then in vogue, the progress was steadily downwards. Early in 1926 the neurological condition was rather far advanced, as was evidenced by numbness and tingling in all the extremities, inability to appreciate the number and character of objects, extreme loss of equilibrium with resultant wobbly gait, which necessitated the use of two canes to permit of even halting walking, and complete loss of the patellar reflexes. The patient was depressed and irritable, he complained of failing memory and of his eyesight becoming dim. After one year of the Murphy diet the patient became bright and alert, and was able to walk briskly. His equilibrium became much better, as was shown by a negative Romberg sign and his ability to climb library ladders for books. The patellar reflexes returned, although they were hyperactive, the sensory disturbances entirely disappeared in the hands and arms and while still present in the lower limbs, were definitely improved. The condition of the blood was also markedly benefited.

149 The Nature of Ankle-clonus.

R. S. LYMAN (*Brain*, June, 1928, p. 168) declares that although usually associated with a pyramidal lesion, ankle clonus may occasionally have a physiological or functional etiology, and discusses the distinction between the organic and functional varieties. The varying opinions of many authorities as to whether ankle clonus occurs only in cases where an organic change in the cord exists or whether it is due to any one of several possible causes are cited. The flexion reflex implies as a rule, a definite organic lesion of the cord, but it is known to occur, in a somewhat altered form, physiologically in normal persons, according to Babinski, a clear distinction can be drawn between the physiological and pathological type of response. In the former there is a greater rapidity of withdrawal, shorter duration, prompter return to the original position, a more uniform amplitude of movement, and most important, flexion only at the hip and knee, but not of the foot at the ankle. Lyman reviews the conclusions held by many workers as to the antagonism existing between ankle clonus and the flexion reflex. He states that tendon jerks are subject to considerable variability, being affected by many causes such as exercise, drugs, and emotional factors, and, as one of the successive stages of reflex activity, ankle clonus appears when there is a sufficient increase of tone of the extensor muscles of the foot. He also asserts that the physiological limits of reflex activity are known to merge indefinitely into the pathological. The plantar response described by Babinski as pathognomonic of pyramidal lesion, has been found in certain toxic states in which no such obstruction has been demonstrated, true foot clonus may occur in certain conditions, such as anaesthesia, infection, and other toxic states as uraemia. Lyman has studied this question with Gordon Holmes in a number of patients, and describes a rapid and simple clinical test to distinguish organic from functional clonus. This consists of forcible plantar flexion of the homolateral hallux while ankle clonus is being maintained. If the clonus is then checked, the presence of an organic lesion in the central nervous system is inferred, if it persists despite prolonged toe flexion, it is probably functional in origin. The cessation of ankle clonus by flexion of the great toe in organic disease depends on an antagonism of reflexes. Clonus requires increased tone of the pedal extensor muscles. Forcible plantar flexion of the hallux gives rise to the withdrawal or flexion reflex in which there is strong tonic contraction of the pedal dorsal flexors which

causes reciprocal relaxation of the opposing extensors with disappearance of the clonus. Flexion of the great toe provides largely proprioceptive stimuli which make up the sensory portion of the arc relating to the flexion reflex.

150

Treatment of Phobias

M. J. JARKOWSKI (*Presse Méd*, March 14th, 1928, p. 323) indicates the psychotherapeutic measures which will be especially effective in the practical treatment of patients with phobias in early phases. He limits his subject to patients who, otherwise healthy, are afflicted with tormenting ideas, recognized as absurd, but accompanied by unbearable anxiety. In the study of these cases three questions arise: (1) Why does the idea torment? (2) Why does this idea differ from others in being so precise? and (3) What are the connections between the obsession and the idea to which it is linked? The first question is answered by the primordial law of human thought that the more an idea is combated the more is obsession caused. Jarkowski believes that the answer to the second is that it is pure accident, but adds that to obtain a clear idea it is necessary to trace the origin of the phobia. Lastly, he thinks that the interaction of the two phenomena—tormenting idea and anxiety—is complex and can be different in the various periods of the illness. In treating a patient with a phobia attention should not be given so much to the patient's anxieties and obsessions as to his conduct, which should be, at least in appearance, the principal object of the psychotherapeutic measure. The obsessions should be treated as a secondary matter. The patient's troubles must not be allowed to excuse his conduct or to disturb the life of his household. He must allow others to live, and live himself, a normal life in spite of his phobias, he must be made to understand that his troubles are not grave, but that they are largely due to a sequence of misunderstandings and mistakes. A clear idea must be given of the primary error which consists of the connection of his anxiety with an imaginary cause. He must be reassured in what concerns his secondary fears by showing him from his own experience that his anxiety never reaches that unimagined event which he dreads, and that phobia does not lead on to lunacy, but, on the contrary, is a protective mechanism. The simple explanation of these errors tends greatly to comfort the patient, but, still half convinced, he may object that whether it be a danger, an idiosyncrasy, or a simple mistake, it is none the less true that the tormenting idea pursues him and is unbearable. Jarkowski then appeals to the patient's goodwill, and demands from him an effort, stimulating his self-esteem, sense of duty, and ambitions, the nature of his miserable life being depleted if he refuses. But, above all, the patient's "egocentrism" must be combated, and his interest rekindled for the problems of life outside himself, and he must be made to feel the smallness of himself and of his preoccupations. Panic, like phobia, is shown by universal experience to be mastered only by curbing its impelling manifestations.

Obstetrics and Gynaecology.

150 Deliberate Early Rupture of the Membranes

I. KREIS (*Gynéc. et Obstét*, May, 1928, p. 421) doubts the physiological utility ascribed to the hydrostatic pressure exercised by the unruptured bag of membranes during the first and second stages of labour. That pressure, he states, is not only non-essential for expulsion of the foetus, but constitutes in numerous cases of non-engagement of the head the only obstacle to descent of the foetal pole into the pelvis whether normal or slightly contracted. Kreis relates in detail the course of (1) seven labours in which, with complete cervical dilatation, the head remained mobile until the membranes were artificially ruptured, (2) three cases in which rupture was quickly followed by delivery through a relatively contracted pelvis, (3) fifteen cases in which artificial or spontaneous rupture of the membranes, with only partial dilatation of the os, was followed by spontaneous expulsion in spite of foeto-pelvic disproportion. It is concluded that in the last group of cases the pressure of the amniotic bag impeded labour, causing spasmodic uterine contractions or preventing engagement of the head. According to Kreis artificial rupture may be indicated (whatever the degree to which dilatation of the cervix has advanced) when the uterine contractions are regular and strong, and labour nevertheless does not advance, or when deficient or spasmodic contractions have failed to become modified by medical treatment. This statement applies to the case of the relatively contracted as well as to that of the normal pelvis, but in the former instance the patient must be in hospital and there must be a reasonably good prospect of pelvic delivery. After rupture of the membranes a final "test of labour," with shaping of the foetal head thus ensues. The rupture is effected during the

height of a uterine contraction, slow drainage of the amniotic fluid being obtained by making a small opening as high and as far forwards as possible. Kreis is satisfied, from his own and other observations, that early rupture of the membranes is not associated either with a greater incidence of puerperal infection or a greater mean duration of labour.

151. Multiple Tumours of the Female Genitalia.

E. ALFIERI (*Ann di Ostet e Ginecol*, April 30th, 1923, p 381) describes a case in which a woman, aged 50, developed multiple tumours of the genital organs—namely, coincident basocellular carcinoma of the portio vaginalis of the cervix, spinocellular carcinoma of the ovaries, and adenomyoma of the uterus. The malignant tumours showed an abundant eosinophilia. The author believes that in most cases of multiple tumours the multiplicity is a pure coincidence, but in this case it would appear that organs embryologically and functionally related developed, simultaneously or successively, a proliferative reaction to some unknown stimulus.

152. Irritability of the Bladder

BELIEVING that bladder irritation in women has not received due attention, P. F. DONOHUE (*Minnesota Med*, July, 1923, p 478) asserts that the condition should always be considered merely as a symptom possibly indicating a serious pathological lesion. He shortly discusses the manifestations and gives an etiological classification of such cases, dividing them into two main groups—those with and those without bladder lesions. The former are subdivided into primary lesions and lesions secondary to extravascular disease, the latter being either temporary or permanent. Among the primary lesions acute cystitis, due to various causes, is occasionally seen. The condition is temporary, and rapid recovery is the rule. Subchronic cystitis (called also elusive ulcer or Heuner ulcer) and the Fewick ulcer are primary vesical lesions causing severe irritation. Foreign bodies accidentally introduced into the bladder give rise to irritability, which subsides on their removal. In cases of bladder neoplasms the cystitis is usually severe and resistant to any treatment short of destruction of the growth. Bladder diverticula may cause irritation due to persistent infection resulting from the residual urine. Disease elsewhere in the urinary tract or adjacent pelvic structures is primarily the cause of a vesical irritability in a large number of cases. Upper tract diseases causing this condition are pyelonephritis, pyonephrosis, lithiasis, and tuberculosis, gonorrhoeal or other infections of the urethra often extend upwards and involve the bladder. If the extravascular infecting focus is neglected the bladder lesions become more or less permanent, and such conditions as chronic cystitis, leucoplakia, and polyp, more resistant to treatment, may supervene. Irritation may occur in the absence of any pathological change in the urinary tract, and may be due to a disturbance in the myoneural mechanism controlling bladder function. It is seen in such diseases as *tuberc dorsalis* (most commonly), multiple sclerosis, transverse myelitis, and pernicious anaemia. Ureteral stone, and stricture or other obstruction, are also causes of this irritability, as are certain foods and drugs. Very rarely irritable bladder is merely a habit frequency, which has been noted in very nervous women. Donohue advises that in all cases a most careful investigation should be made to determine the site, extent, and nature of the responsible lesion; he believes that, if this were performed as a routine, the cases requiring major surgery or endangering life would be markedly decreased.

Pathology.

153. The Pathogenesis of Epidemic Encephalitis

DECLARING that an epidemic disease must be infectious and inoculable, J. SÉVAL (*Journ des Pratic*, June 30th, 1923, p 420) maintains that so-called epidemic encephalitis possesses neither of these properties, and controverts the usual theories as to its pathogenesis. He supports the hypothesis first advanced by Veillard, that it is an alimentary intoxication caused by poisons in the leguminous products substituted for ordinary flour. He thinks that it is not a new disease, and that its toxic symptoms cannot be attributed to the action of a presumptive virus. The various forms of encephalitis are classified according to their symptoms as high, low, peripheral, and mental, with their organic and psychio sequelae, a parallel is drawn between these and various intoxications, such as labyrinthism, beri beri, and pellagra, with their sequelae. It is pointed out that encephalitis first appeared during the war, in 1917, and was commoner among the belligerents, in whom the privations were greater than among the neutrals; moreover, influenza, another pandemic attacked chiefly the bread eating races. SÉVAL also doubts if the hypothetical dormitive virus is the causal agent of the fever occurring in the majority of cases of

encephalitis. He takes the case of pneumonia with delirium tremens supervening in an alcoholic, and remarks that no one would cite the delirium as the cause of the fever or as a specific pathological manifestation of the pneumococcus. In reality, the alcoholic toxins, normally controlled by the lacunar or circulatory antitoxins, have been freed by the intervention of an intercurrent infection. He terms the pneumonia a febrile "fire brand" malady, which permits the appearance of toxic symptoms, and he describes this as being a pyretic or post-traumatic liberation of the stored up toxins. A similar process is held to occur in encephalitis, in a patient progressively impregnated with toxins from vitiated bread, and attacked by some febrile infection such as influenza or angina, an encephalitis will be grafted on this infection as delirium tremens is grafted on pneumonia. The "fire brand" disease is epidemic, not the encephalitis itself. SÉVAL believes that this theory of encephalitis intoxication reveals the possibility of efficacious prophylaxis.

154. Bacterial Allergy in Recurrent Erysipelas

K. E. BIRKHAUG (*Journ Amer Med Assoc*, June 23rd, 1923, p 1997) during the last three years has actively immunized sixty-eight patients by means of gradually increasing doses of *Streptococcus erysipelas* toxin alone or a mixture of the toxin and the killed streptococci. Although many of these patients suffered the usual discomfort attending a course of immunization with bacterial antigens, only six showed erysipelas like eruptions along the routes previously affected by the recurrent attacks of erysipelas. In three cases which were studied bacteriologically and immunologically (the outstanding features were—(1) the recurrence of erysipelas in the identical situations previously affected or sensitized; (2) the absence of *Streptococcus erysipelas* from the lymph spaces within the erysipelatous lesion, where the organism was present in almost every case during the acute stage; (3) the isolation of *Streptococcus erysipelas* from distant foci of infection, such as the tonsillar crypts or nasal recesses, and the demonstration in the blood of erysipelas toxin presumably absorbed from these foci, and (4) the development of antitoxic substances following the injection of the erysipelas toxin vaccine, which subsequently immunized against recurrent attacks. Birkhaug suggests that the existence of a state of bacterial allergy accounts for the recurrent attacks of erysipelas strictly within previous sensitized anatomical areas.

155. Respiratory Sequels of Gall bladder Distension

V. L. SCHRAGER, A. C. IVY, M. KRONENBERG, and P. DEXSANT (*Surg., Gynecol. and Obstet*, July, 1923, p 1) investigated clinically and experimentally the symptoms produced by distension of the gall bladder and biliary ducts, having observed that some cases of biliary colic from distended gall bladder or impacted stone are associated with respiratory embarrassment at the height of an attack. The gall bladder in dogs was distended by the introduction of a small water-filled balloon to which a manometer was attached. Readings of the respiration and blood pressure were then recorded. In experiments to ascertain the effects of distension upon the cystic and biliary ducts a cannula was tied into the cystic duct through the gall bladder, the common bile duct was doubly tied, and all branches of the vagi and splanchnic nerves and sympathetic were cut. The reflex manifestations noted during distension were distress, inhibition of the respiration, inspiratory in type, occasionally salivatory denoting nausea, and vomiting. The distress from distension of the gall bladder was not so marked as was that accompanying distension of the biliary passages, and the amount of pressure necessary to cause inhibition of respiration was less than that required to cause salivation and distress. It was found that nausea, vomiting, and some of the respiratory inhibition were abolished by section of the vagi, cutting the right splanchnic nerve abolished distress and some respiratory inhibition. The subcutaneous injection of cocaine or the instillation of cocaine or procaine into the bile ducts was found to ameliorate or temporarily abolish the effects produced by distension, blocking of the right splanchnic nerve with procaine or alcohol under direct vision produced results similar to those produced by section. Changes occurred in the blood pressure and heart rate during distension, but these were not uniform, and appeared to be dependent upon the functional condition of the cardiovascular system at the time the distension occurred. Distension of the biliary ducts was produced by intermittent distension over a period of a week, and during the respiratory inhibition produced by distension the diaphragm was observed to be contracted on the right side, apparently for the purpose of demobilizing or splinting the affected part. It is concluded that in differential diagnosis this symptom of respiratory inhibition or embarrassment in affections of the gall bladder and biliary ducts is of value, since it is practically absent from any other abdominal complex.

Medicine.

154.

Transient Hemiplegia.

O. K. WILLIAMSON (*Journ Med Assoc of S Africa*, May 26th, 1928, p. 269) describes three cases of transient hemiplegia in elderly patients, he ascribes this to arterial spasm which did not persist long enough to produce softening in the cerebral area involved. After a fall a man, aged 62, became comatose and deeply cyanosed. The respiration was stertorous, of the Chayne-Stokes type, the pupils were tightly contracted, the pulse was small and weak, the tongue was deviated to the right, knee jerks were absent, and there was flaccid paralysis of the right arm and leg. When soon he was still cyanosed, but conscious and fairly rational. The pupils later became equal and rather large. The deviation of tongue, the facial paralysis, and the weakness of the right arm soon passed off, but the paralysis of the right leg persisted. The knee jerks returned and there was no ankle clonus. The plantar reflex was extensor on the right side and flexor on the left. The heart sounds were normal, the radial pulse was rather small, regular, and soft, and the arteries were not perceptibly thickened. *Aspirin* was given immediately, orythol tetranitrate in $\frac{1}{2}$ grain doses was ordered every four hours, and 8 grain doses of potassium iodide thrice daily. A few days later all signs of paralysis had disappeared. Before the attack his systolic blood pressure had been 140 mm Hg, and the diastolic pressure 90 mm. Williamson believes that spasmodic contraction of the middle coat of the middle cerebral artery produced temporary ischaemia. His second patient, a man aged 55, had had attacks of paresis in the left arm and leg for two months associated with vertigo and headache, with complete paralysis of arm, and paresis of the leg with numbness in both limbs, they were followed by unconsciousness lasting about thirty minutes, when he occasionally passed urine. He had had six similar attacks. There was no paralysis and the knee jerks were normal. The brachial arteries were thickened and tortuous. The systolic blood pressure was 185 mm. His third patient, a woman aged 64, suffered from occasional sudden weakness of the left hand, with numbness and tingling in the left thumb and index finger. The mouth was drawn to the left, and there was numbness and coldness of its left side. These symptoms persisted for about a week. The patient was florid and well nourished, there was no paresis, and the knee jerks were normal. There was no obvious thickening of the arteries, and the systolic blood pressure was 210 mm Hg. The heart was dilated, there were no bruits, but the aortic second sound was accentuated. At the time of an attack the pulse was small and weak, but later recovered its volume. Williamson remarks that it has been noted previously that sclerosed vessels are especially prone to conditions of spasm and adds that it is obviously most important to recognize and treat these cases as early as possible. Eliminatory measures and vaso-dilator treatment are indicated.

157

Adult Apical Pneumonia.

R. LEPAGE (*Bruxelles Médical*, August 12th, 1928, p. 1337) remarks that adults are not immune to apical pneumonia, a disease common among infants, pneumonia accounts for 25 per cent of the mortality of old age, and two-thirds of these pneumopathies occur in the upper lobe. He adds that young adults, though less frequently than the aged, are also attacked. Its diagnosis is not always easy owing to its relative rarity, its unusual localization, and its symptomatology. The onset is generally sudden, with chills, pain at the base of the thorax, and elevated temperature, it seems what resembles that of frank lobar pneumonia, but is less severe and dramatic, the typical sputum and distinct localizing signs being absent. Symptoms of general infection, among which nervous reactions (vomiting, restlessness, delirium, prostration, and torpor) predominate, are very persistent, but respiratory signs are very slight, a sharp dyspnoea, ordinary cough with no or scanty sputum, and some bronchial rales only being present. A sign of great diagnostic value is a heavy furring of the tongue. Those symptoms last for four or five days or even longer, and then the signs of apical involvement appear. At times a sub-clavicular skodism, a souffle or some isolated rales are present, sometimes there is dullness over the suprascapular fossa with adventitious bruits, and sometimes rales are heard over the apex of the axilla. The dullness and sputum are not early signs, the latter is not typical and does not appear till defervescence, which is as sudden as the onset. Six cases

illustrating these points are reported, the ages of the patients ranging from 19 to 32. Death occurred in only one of those. The thoracic pain, an early symptom, occurs on the same side as the lesion and always at the base of the thorax. When this pain is very severe and on the right side, and especially if icterus is also present, an erroneous diagnosis of hepatic colic might be made. More or less marked congestion of the bases and even effusion, were found in five of the cases. Conditions usually considered as predisposing to this type of pneumonia are debilitating and cachectic diseases, such as alcoholism, diabetes, and cancer, but Lepage adds that none of his cases showed these classic predispositions, and that the only death occurred in a robust female patient, aged 19, in whom, without any apparent cause, a double bronchopneumonia developed. The treatment of apical pneumonia is purely symptomatic, though vaccine therapy may be tried.

158 Pirquet and Wassermann Reactions in Asthma.

K. J. BAAGØE (*Brit Journ Child Dis*, April-June, 1928, p. 107) states that the relation between tuberculosis and asthma is one on which widely divergent views have been held. The question has become of renewed interest owing to the studies of Storm van Leeuwen and Varkamp, who maintain that patients with allergic diseases possess a special hypersensitivity to tuberculin. This was shown (1) by most of their patients with asthma and hay fever giving an undoubtedly positive Pirquet reaction, (2) by the excellent result claimed from treating such patients with tuberculin, and (3) by the occasional occurrence of asthmatic attacks as the direct result of an injection of tuberculin. Baagøe, however, found from investigations on 83 asthmatic children aged from 2 to 15 years that a positive Pirquet reaction was not more frequent than among ordinary hospital children, thus confirming Wallgren's view that there is no etiological connexion between hypersensitivity to tuberculin and asthma. Examination of the Wassermann reaction in 92 asthmatic children aged from 3 to 15 showed that it was invariably negative, except in a syphilitic child, so that syphilis does not appear to play any part in the development of asthma, as some writers maintain.

Surgery.

159

Angioma of Kidney

E. S. JUDD and H. SIMON (*Surg Gynecol and Obstet*, May, 1928, p. 711), who report a personal case, illustrate the rarity of angioma of the kidney by the fact that they could find only eleven other examples on record. The principal clinical manifestations consist in haematuria, which is usually the result of ulceration into the renal pelvis. The bleeding may be severe enough to cause marked anaemia or a state of shock. No symptoms, however, may occur when the angioma is in the renal cortex. In the reported cases the only definite symptom before operation was bleeding from one kidney without any obvious cause. The diagnosis of essential haematuria has often been made until the continuation of haematuria necessitated nephrectomy and the angioma was found. Renal angiomas probably never attain a greater diameter than one or two centimetres. They are usually solitary, but Henry Morris recorded an instance of multiple tumours situated in the medulla, while in Deansley's and Virchow's cases multiple tumours were found in the cortex. These tumours may or may not be encapsulated. The age of the patients in the recorded cases ranged from 18 to 66, the average being 38 years. Of the seven cases in which the sex was mentioned five were in males, and in five out of seven cases the tumour was on the left. The authors remark that a true angioma must be distinguished from other blood containing tumours which may occur in the kidney, such as carcinoma, which is differentiated by the type of epithelium lining the blood filled spaces, or haemorrhagic cysts, which are usually much larger than angiomas. The authors' patient was a woman, aged 57, who for twenty years had had attacks of haematuria occurring every four or five years and lasting two or three weeks. Cystoscopy showed that there was less excretion from the left kidney than the right. In view of the history of repeated renal haemorrhage associated with pain which was always referred to the left side, an exploratory operation was made, when the upper pole of the left kidney was found to be occupied by many dilated blood vessels, nephrectomy was performed and recovery was uneventful. Examination of the tumour, which was situated in the cortex and measured 1.5 by 2.5 cm, showed the typical appearance of angioma.

160 Fracture Involving the Acetabular Cavity

C LENORMANT (*Presse Méd*, June 23rd, 1928, p 788) reports a coincidence whereby two men suffered a simultaneous fracture of the acetabular cavity. The patients, who were each about 40 years old, were seated side by side in a motor car when a violent collision with another vehicle occurred. The impact threw them both on the ground, though neither knew precisely how this happened. The one complained of pain in the hip and was unable to walk, the injured hips were the adjacent ones as they sat in the car, the right one being that of the driver, and the left one of his passenger. Examination on the following day did not definitely disclose the nature of the lesion. The driver's leg maintained a fixed attitude of incomplete extension with adduction and internal rotation. The radiograph revealed a fracture of the acetabulum. In the other case the leg was immobilized in a position of semiflexion without adduction or abduction, but with slight internal rotation. This patient suffered acute pain during the examination. An x-ray examination showed a fracture of the superior acetabular ridge with the fragment detached. The author discusses fractures in this region and defines two anatomical types—one in which fracture is limited to the acetabulum, and the other in which the ischium, pubis or ilium is involved also. In the more severe form the head of the femur is driven into the pelvis. He emphasizes the importance of careful radiological examinations in all suspected cases, both for the first diagnosis and also during the course of treatment.

161. Epinephrectomy in Spontaneous Gangrene.

V A OPPEL (*Annals of Surgery*, June, 1928, p 801) follows up his contention in 1911 that the condition of spontaneous gangrene was due to a hyperfunction of the adrenal bodies and was caused by a hyperadrenalinæmia, by presenting clinical and experimental proof that his hypothesis was correct. He suggested that an excess of adrenaline in the blood caused spasm of the arteries, a derangement of the degree of nourishment to the arterial walls, orosion of the endothelium, development of arteriosclerosis, formation of sclerosis, and production of a local thrombus which impinged, as it grew, on the lumen of the artery. He contends that Snegor's disease and hyperadrenal arteriosclerosis are both the same condition, which he calls spontaneous gangrene. For the cure of this disease he has performed a left-sided epinephrectomy in 130 cases with small mortality—only two deaths occurring in the last 70 cases treated in this way. After the operation the number of thrombocytes and the level of blood sugar decrease, the central arterial pressure becomes lower, and the peripheral blood pressure rises. It was also observed that pulses reappear in the arteries, which cease to be in a state of spasm, and that after operation the gangrene is arrested, pain stops, dead tissues slough away, and movement is regained in the affected extremity. Epinephrectomy has also proved satisfactory for the relief of Raynaud's disease, after which there is improvement of the function of the heart. As a result of his observations Oppel considers that the condition of spontaneous gangrene is caused by hyperadrenalinæmia irritating the sympathetic nervous system, with resultant spasm of the arteries.

162. Surgical Treatment of Azoospermia

M RICHARD (*Deut Zeit f Chir*, July, 1928, p 275) reviews the present position of conservative surgery of the testis. He refers to the earliest resections of the epididymis performed more than seventy years ago, and to the modifications introduced by later surgeons. The results of these operations were recorded but seldom, although a few were successful. Richard describes a number of experiments on guinea pigs, rabbits, and dogs, he also compares the results of operations on patients recorded by various modern surgeons. His conclusions are as follows: (1) The probability of anatomical and functional connexion between the testis and the vas deferens after oxtidation of the entire epididymis is very slight. Hitherto no biological evidence of such an anastomosis has been adduced. For this reason, and because of the danger of recurrence of the disease, resection of the epididymis in tuberculous epididymitis must be considered absolutely. (2) There is much greater probability of a successful anastomosis between the healthy remains of the epididymis and the vas deferens. This operation is advisable to relieve the azoospermia of post-gonorrhoeal obliteration of the lumen of the vas, and in chronic non-specific epididymitis. (3) There is considerable probability of the restoration of the lumen of the divided vas deferens, after splitting the divided end of the vas and lateral anastomosis with the distal portion of the canal. It would appear that atrophy of the testis and arrest of spermatogenesis occurs only when the spermatic artery is divided or injured.

Therapeutics.

163. Cerebral Opothrapy in Epileptic Subjects with Malaria

A LOMBARDI (*Rev Sud Amer de Endocrinol, Immunol, Quimioter*, June 15th, 1928, p 389), who records five illustrative cases, states that quinine is contraindicated in epilepsy owing to its tendency to produce convulsions. Epileptic subjects, therefore, who contract malaria, as often happens in Calabria, are liable to be deprived of the benefits of a specific remedy. Lombardi, however, has found that the administration of cerebral extract by mouth or subcutaneously not only improves the general condition of the epileptic patient by diminishing the number and severity of the attacks, but also presents the following advantages: (1) It neutralizes the exciting action of quinine on the motor centres of the cerebral cortex and allows the patient to undergo specific antimalarial treatment. (2) It renders the administration of quinine possible in any other cases in which it is required, such as acute infectious diseases. (3) Subcutaneous injection of cerebral extract enables the epilepsy to be treated when the patient is suffering from gastro-intestinal disturbances which do not permit any drugs to be taken by mouth.

164 The Antigen Treatment of External Tuberculosis.

A HENRY (*Arch del Inst Pasteur de Tunis*, June, 1928 p 157) has treated more than fifty cases of various forms of external tuberculosis with the methyl antigen of Nègre and Boquet, and gives a summary of excellent results obtained in twelve cases, two of lupus being dealt with in greater detail. This antigen is said to be easier to prepare and more stable than the peptonized antigen B2 of Calmette and Massol, and to cause an abundant formation of antibodies. Six weeks old bouillon glycerol cultures of human and bovine bacilli are used in its preparation. The bacilli are defatted with acetone and then treated with methyl alcohol. The extract thus obtained is cleared of the alcohol by distillation in a vacuum, and is then emulsified in equal quantities of physiological saline. The antigen is used both undiluted and in a 1 in 10 dilution, and treatment is always commenced with the diluted form, the subcutaneous method being employed. The commencing dose is 1/4 c cm, which is progressively increased to 1/2, 3/4, and 1 c cm, the same progression being followed with the undiluted antigen. The same dose is injected three or four times successively before the next higher is commenced. Injections are given twice a week and the 1 c cm dose is continued for a long period. If pyrexial or local reactions occur, return to a lower dose is advised. According to Henry, methyl antigen causes no ill effects if a progressive dosage is maintained, its use is said to be efficacious in the treatment of open or closed adenitis, osseous fistulae, cutaneous tuberculosis, and lupus. It has a rapid, beneficial action on the general state, the weight increasing and the skin improving.

165 An Aromatic Bismuth Preparation.

R N CHOPRA, J C GUPTA, and M N MULLICK (*Indian Med Gaz*, July, 1928, p 361) remark that the older preparations of bismuth were not suitable for injection but only for oral administration, and that during the past decade several new compounds have been prepared with the view to employing them intravenously or intramuscularly. Most of these have proved unsatisfactory for intravenous injections, and even when given intramuscularly have caused much pain and discomfort. The insoluble compounds, though not so painful as the soluble, are not absorbed quickly and regularly, and so give rise to the danger of cumulative poisoning. When administered intravenously bismuth compounds produce agglutination and haemolysis of the erythrocytes, and even such compounds as the colloidal preparations, which do not bring about these results, cause severe reactions, cases of sudden death with symptoms of colloidal shock following the intravenous injections of such compounds have been reported. B C Ghose has prepared an organic aromatic compound, which is practically the bismuth analog of urea stibamine, and has been given the name of "bismene." It is a sodium salt of para amino-phenyl bismic acid in combination with urea, and contains 50.1 per cent of bismuth. This salt is freely soluble in water (15 per cent at 33° C), giving a clear, brown, slightly acid solution (pH = 5.9) which is not decomposed by boiling. It has a low toxicity, and is said to cause no untoward effects after intravenous injection. The authors have used this preparation with striking results in cases of framboesia, and are now trying it in syphilis and filariasis. Four cases of framboesia are reported in which the lesions rapidly cleared and the general health considerably improved after four intravenous injections given weekly in progressive doses of 0.05, 0.1, 0.15, and 0.175 gram.

Dermatology.

166. Psoriasis and Affections of the Joints

E. ZELLNER (*Wien Arch f Inn Med*, July 20th, 1928, p. 435) refers to several articles published during the last twenty years by French and German writers on a specific arthropathy associated with psoriasis, which must not be confused with the syphilitic or gonorrhoeal forms. He has seen eleven cases of psoriasis accompanied by definite articular disease, all these patients had negative Wassermann reactions, and only two men, aged 68 and 59 respectively, had had uncomplicated gonorrhoea during adolescence. Zellner classifies eight of these patients as suffering from psoriatic arthropathy. The ninth patient was a woman, aged 47, who had suffered from psoriasis since the age of 10. She was neurasthenic and complained of swelling and pain in the joints, but no articular lesions were found. The tenth patient was a man, aged 23, who had psoriasis, accompanied by signs of arthritis deformans. The eleventh patient, a woman aged 25, had typical psoriasis accompanied by a form of tuberculous polyarthritis (Poncet) with tuberculous pulmonary lesions. The arthritis was mild and yielded to specific treatment. Zellner describes the last three cases in order to show the contrast between psoriatic arthropathy and other forms of arthritis occurring in patients suffering from psoriasis. In the cases of psoriatic arthropathy, the joints affected were chiefly the wrists, fingers, and toes. In some cases the knees and shoulders were attacked subsequently. The affected joints were swollen and very painful on pressure or movement. The arthritis was progressive, and severe disorganization of the joints occurred. Zellner states that five of these patients were males and three were females; this is contrary to the sex ratio of chronic progressive polyarthritis. Psoriatic arthropathy occurs almost always symmetrically in the small joints, the larger joints are attacked later, but in one case the first articular pains occurred in the knee. Skiagrams often show similar changes in psoriatic arthropathy and chronic progressive polyarthritis, but the differential diagnosis is usually easy, arthritis deformans in the monoarticular or symmetrical forms most frequently affecting the knee joints. It is a disease of later life, more common in women, especially in the climacteric and post-climacteric periods. Ankylosis never occurs, and skiagrams will distinguish arthritis deformans from psoriatic arthritis. Arthritis deformans may attack a patient who suffers from chronic psoriasis, but this does not justify the assumption that the two diseases have a closer connexion. One patient had arthritis deformans of the knee joint in addition to psoriatic arthritis in other joints. The differential diagnosis from polyarticular diseases of infective origin, such as gonorrhoeal arthritis, is important. In gonorrhoea skin affections resembling psoriasis may occur, and these are always connected with joint lesions. Differential diagnosis is particularly difficult in chronic polyarticular forms of gonorrhoeal arthritis. In some cases urethritis may be demonstrated. Skiagrams may aid differential diagnosis of both gonorrhoeal and syphilitic polyarthritis. In the latter there is a positive Wassermann reaction in the early stages, but a negative reaction may not indicate that the lesion is non-syphilitic. Early cases of syphilitic arthritis recover under treatment without destruction of tissue. In suspected cases the therapeutic test should always be performed. Extreme ankylosis occurs seldom in late syphilitic arthritis, but are common in psoriatic arthropathy. Tuberculous arthritis may be differentiated by the tuberculin reaction, but it must be remembered that atypical psoriasis may be associated with tuberculous or gonitic arthritis.

167. Dermatomyositis of the Extremities

REMARKING that dermatomyositis, or so-called ringworm of the feet and hands, is occasionally extremely difficult to cure, C. WHITE (*Journ Amer Med Assoc*, June 9th, 1928, p. 1865) reports the clinical observations, laboratory reactions, and therapeutic details of three cases selected from a series of eighteen. All these patients suffered from a resistant dermatomyositis, and examination of the peripheral blood vessels revealed the presence of an obliterating occlusive endarteritis. In the three cases discussed previous x-ray treatment had only aggravated the condition, and the external application of the usual fungicides produced no effect. General examinations, and particularly those of the vascular system, suggested that circulatory impairment might be a factor favoring fungus activity, and that an increase of the peripheral circulation together with the local applications might overcome the infection. Accordingly, intravenous injections of a 20 per cent sodium citrate solution were given, local treatment being continued, and strikingly good results were obtained. The injections were given on alternate days, the initial dose of 5 c.cm. being gradually increased to

10 to 20 c.cm. Usually the drug is well tolerated if given slowly. The maximum dose administered was 20 c.cm., but many patients could not take more than 10 c.cm. because of the production of tachycardia, faintness, and a feeling of impending collapse. White adds that the dosage should always be kept below the point of any systemic reaction. Local therapeutic measures are very important, but too strong preparations should be carefully avoided. C. E. Brown has divided peripheral vascular disturbances into functional and organic, the chief distinction between the two being the palpability of the pulsation. As the pulse was markedly diminished or absent in all the cases, the circulatory impairment would fall in the organic group, while clinically there was impairment of the vascular supply in the larger vessels, the necroses must be attributed to partial or total thrombosis of the smaller arterial branches. There were no clinical features of thrombo-angiitis obliterans. W. A. Steel has used sodium citrate extensively in the treatment of the latter disease, and believes that it exerts a specific action as well as reducing the viscosity of the blood. Since, however, the drug produced no improvement in three patients with mycosis of the foot but with no detectable peripheral arterial sclerosis, the present author suggests that it exerts its beneficial effects by inducing a physiological improvement of the circulation, indirectly increasing the resistance of the local areas.

168.

Pigmentary Urticaria.

THOUGH pigmentary urticaria is usually considered as occurring in early life, often shortly after birth, L. M. PAUTRIER, A. DISS, and WALTER (*Bull Soc Française de Dermatol et de Syph*, April, 1928, p. 254) maintain that as a rule the onset is delayed. An example of this is recorded in a man, 64 years old, in whom the disease first appeared at the age of 50. The affection was of sudden onset and invaded the whole body, excepting the face and neck, at once. The eruption consisted of small, round, black papules, sometimes isolated, sometimes confluent, with regular borders of a colour ranging from red to brown. These papules were clearly pigmented, infiltrated, and raised above the skin. On gentle pressure, a pale red zone, surrounded by an erythematous halo, appeared round each papule, which persisted for half an hour. Repeated friction of the body caused a diffuse erythema, which surrounded the lesions, had a tendency to become confluent, and lasted for some hours. On microscopic examination, these papules or dermic tumours were seen to consist of a great number of cells, some round and globular and some polygonal, with numerous protoplasmic expansions. All the cells were studded with granulations varying in colour from red to blue and violet, and these basophilic and metachromatic granules characterized the cells as being mastocytes. Numerous capillaries, apparently newly formed, were also seen running vertically to the epidermis. The mastocytes extended as far as the epidermis, and, in general, the metachromatic granules stopped at this layer, while the cellular expansions carrying them had invaded the epidermal basal layer. At certain points, however, the granules were found in the epidermis. It was evident, therefore, that the mastocytes had deposited the granules they had elaborated in the epidermal cells, and, conversely, melanic granules, elaborated in the epidermis, were deposited in the mastocytes. The authors regard this as a typical case of pigmentary urticaria with mastocytic tumours, which presented dermo-epidermic exchanges between the dermic mastocytes and the pigmentogenous cells of the epidermis.

Obstetrics and Gynaecology.

169. Induction of Labour by Quinine and Pituitrin

R. DE GUCHTENEERE (*Bruxelles Medical*, July 15th, 1928, p. 1203) comments on the value of a combination of ecbolic drugs in inducing labour. It has been stated that in the quinine and castor oil method the former drug merely stimulates the rhythm of contractions induced by the castor oil, pituitrin, on the other hand, is inconstant in its action on the uterus, although it hastens the process of induction. A combination of these two drugs so as to obtain the ecbolic effects of both is stated by the author to have proved successful in 90 per cent of cases. The indications are primarily post maturity, which, according to various authors, occurs, in at least a minor degree, in from 10 to 19 per cent of pregnancies. The author's method is as follows: A total of 2 grams of quinine is given in four doses at half hourly intervals; the doses may be reduced if there are signs of intolerance. With the last dose 0.25 c.cm. of pituitrin is injected. This is repeated at half hourly intervals, four or more doses being given, and labour is induced in about six hours. It occurs more rapidly in primiparae. No ill effects

have been noted, with the exception of those due to quinine intolerance. There are certain contraindications to the use of pituitrin, such as cardiac or renal disease, arterio sclerosis, high blood pressure, and malpresentations.

170 Diagnosis of Commencing Cancer of the Cervix.

W. SCHILLER (*Arch f Gynäk*, February 25th, 1928, p 211) discusses the diagnosis of very early carcinoma of the cervix. He is satisfied that just as in the later stages a superficial extension may precede deep penetration of the neoplasm at right angles to the epithelial covering, so in the very earliest stages the neoplastic change, which invariably commences near the external os, proceeds centrifugally along the surface of the cervix. For microscopical diagnosis of commencing carcinoma, it is therefore better to scrape away the epithelium from the surface than to excise more deeply a macroscopically suspect area. Macroscopically the cancerous areas are usually found to be pale and to resemble patches of leukoplakia. In four out of 135 cases in which during six months the uterus was removed for other conditions, systematic histological examination revealed an unsuspected early carcinoma of the cervix. Schiller defines the pathological cytology as "anaplastic atypia and polymorphism" of the epithelial cells. In the very earliest stages the epithelium is as definitely marked off from the underlying connective tissue as in normal conditions, but both in the basal and superjacent layers neighboring epithelial cells and their nuclei are of differing size and shape, with variable staining properties. The nuclei are relatively more numerous than in the healthy epithelium, from which the early carcinomatous area is marked off by a sharp and unusually oblique line of demarcation. Irregularity of the papillae and disappearance of the prickles between the polygonal cells may occur, but not necessarily, in early cases. Neither absence of mitoses nor absence of penetrations of the epithelium deep into the connective tissue excludes the diagnosis of carcinoma. Inflammatory infiltration beneath the carcinomatous zone is usually noted. Schiller admits that diagnosis in these cases demands special experience on the part of the histologist; it is easier when, together with the carcinomatous area, a portion of normal tissue has been removed for examination. He discusses the fallacies which may be encountered when a healing erosion is examined histologically. W. Schiller (*Zentralbl f Gynäk*, July 28th, 1928, p 1886) has found that if a swab impregnated with Lugol's iodine solution be placed for a short time in contact with the surface of the cervix, normal epithelium becomes stained dark brown within a few seconds, whereas diseased epithelium, including epithelium which microscopically shows signs of early carcinomatous change, remains unstained or becomes faintly tinged with yellow. The differential staining, which is temporary but can be repeated with a similar result, occurs even more quickly after the application of very weak potassium iodide solution. The test is said to have no value in the diagnosis of early carcinoma from inflammatory or other morbid conditions, but to be of considerable use when a biopsy is to be performed in cases of suspected carcinoma of the cervix. If after the application of iodine the portion of tissue excised or scraped away for examination is selected from the faintly staining zone, there is no risk that normal instead of diseased tissue may be subjected to the microscope. Faint staining with iodine is also a characteristic of areas of more advanced carcinoma, so that after Wertheim's hysterectomy application of iodine to the vaginal mantle will show whether the excision has been carried wide of the furthest extension of the neoplasm.

171 Sex Differences in Syphilis.

A. S. WARTHIN (*Amer Journ of Obstet and Gynecol*, May, 1928, p 595) states that in a very large number of cases the primary sore in women escapes detection either by the patient or the doctor. It is as a rule smaller, less indurated, and more fugitive than in the male, while syphilitic infection without chancre probably occurs frequently on columnar celled mucosae. A striking exception to these common characteristics is the occurrence upon the cervix, clitoris, urinary meatus, and nipple of hyperplastic cauliflower-like chancres, usually mistaken clinically for carcinoma. In the secondary stage the cutaneous lesions are generally milder in women. They may even be so slight as not to be noticed, or they may not appear at all. On the other hand, a greater proportion of women have constitutional symptoms, especially fever, diffuse headache, and anaemia, together with relatively greater involvement of the heart, aorta, central nervous system, and ovary, as compared with the testis. Lesions of latent syphilis are usually more extensive in the female liver, pancreas, adrenals, and rectum, but severe clinical forms of these visceral lesions are infrequent in comparison with the severe forms of cardio-vascular and central nervous system syphilis in men.

Pathology.

172 Vaccination of Cattle with B.C.G.

B. LANGE and K. LADTIV (*Zeit f Hyg u Infektionskrankh*, July 3rd, 1928, p 803) have performed experiments on a small number of cattle to find out whether vaccination with the B.C.G. strain has any protective effect on subsequent infection with virulent tubercle bacilli. One protective dose only was given, either 160 mg subcutaneously or 20 mg intravenously. The infecting dose was given about four to six months later, it consisted of 2 mg in one experiment, and of 20 mg in another experiment, of a moderately virulent bovine bacillus (the Vallée strain) given intravenously. The results suggested that no protection was conferred by subcutaneous vaccination, but that a certain amount was afforded by intravenous vaccination. The protection, however, was noticeable only when a small dose (2 mg) of virulent bacilli was used for the infecting test; this dose was not certainly fatal to control animals. When a larger dose (20 mg) was used both the control animals and the subcutaneously vaccinated animals died of miliary tuberculosis, unfortunately no intravenously vaccinated animals were used for this test. The authors seem to think that the only chance of protecting cattle with the B.C.G. strain is by intravenous vaccination; they cast grave doubt on the efficacy of the oral method of administration which Calmette is at present using for children, but they intend to test the value of this method on newborn calves.

173 Punctate Basophilia in the Lead Treatment of Malignant Disease.

R. W. BROOKFIELD (*Journ Path and Bact*, April, 1928, p 277) has made a study of the blood changes during the course of treatment of malignant disease by lead, paying special attention to the production of punctate basophilia. The effect of the lead varied greatly in different patients; some patients underwent a whole series of injections without showing any great fall in the red cell count, while others lost half their red cells after a single dose, and later showed extreme bone marrow activity and marked basophilia. From a study of red cells vitally stained by cresyl blue the author is of the opinion that cells showing punctate basophilia are closely allied to reticulated cells—that they are, in fact, immature cells or reticulocytes altered by the toxic action of lead. The evidence on which he bases this opinion depends on the variation in appearance produced by staining with different concentrations of cresyl blue. Using concentrations of 0.2 to 5 per cent the cells show an unfragmented reticulum, with a 0.05 to 0.1 per cent dilution they show a fragmented reticulum with stippling and a certain amount of polychromasia, with concentrations below 0.05 per cent there is no reticulum, but the cells show stippling and polychromasia—that is, according to the strength of the stain, there is a complete transition from the typical reticular cell to the cell showing punctate basophilia or polychromasia.

174 Relation between Glanders and Melioidosis.

J. VERGE and O. PAIRFMAURE (*C R Soc de Biologie*, June 22nd, 1928, p 182) have found that the serum of a glandered horse is able to fix complement in the presence of an antigen made with *B. whitmorei*. The antigen was prepared by autoclaving a one week's broth culture for half an hour at 115° C, centrifuging, washing, preserving the deposit on ice, and suspending 40 mg in 20 c.c. of saline at the moment of usage. In the presence of this antigen the horse's serum fixed complement to the same extent as it did in the presence of an antigen made up with *B. mallei*. This observation confirms Stanton and Fletcher's observations on rabbits, and demonstrates the close antigenic affinity of *B. mallei* and *B. whitmorei*.

175 The Incubation Period of Yellow Fever in the Mosquito

J. H. BAUER and N. P. HUDSON (*Journ Exper Med*, July, 1928, p 147) recall the fact that previous observers have demonstrated the existence of an incubation period in the mosquito during which, after a meal of infected blood, it remains incapable of transmitting yellow fever to susceptible persons. The length of this incubation period has been found to be about twelve days. Working with *Macacus rhesus* monkeys the authors have confirmed this observation, in one experiment the mosquitoes became infective by the ninth day, and in two other experiments not till the twelfth day. But it was found that if at any time after feeding on an infected monkey the mosquitoes were ground up and injected into fresh monkeys these monkeys developed typical yellow fever. This means that the yellow fever virus can be demonstrated in an infectious form in *Aedes aegypti* throughout the entire period of extrinsic incubation, even though the mosquitoes do not become infective by biting till the ninth to the twelfth day after infection.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine.

176 Complications of Helminthiasis

L. SOUBEN (*Bull Soc de Théor*, April 18th, 1928, p 110), who records seven illustrative cases in children and adults, emphasizes the frequency of the medical and surgical complications of helminthiasis, the possibility of which should always be borne in mind in order to prevent serious errors in diagnosis. The condition should be suggested by such symptoms as gastric disturbance, with foetid stools, nasal, buccal, and anal pruritus, conjunctivitis, erythematous nausea, vomiting, peculiar fetor of the breath, and a characteristic paroxysmal cough. The ova may be looked for in the stools, but the simplest method is to employ a therapeutic test. Seabon has always obtained good results with calomel and santonin in very small doses. Lumbar puncture causes cessation of convulsions and a return of consciousness. In the child cerebrospinal fluid in such cases is abundant, perfectly clear, and cytologically and bacteriologically normal. In adults Souben twice found slight excess of albumin and once a turbid fluid, but no micro-organisms. Loew, who thinks that the presence of peritoneal, mesenteric, or other ill-defined symptoms suggests too seldom the possibility of intestinal parasites, has recorded a case of epileptiform convulsions in a soldier which were wrongly attributed to absinthio, whereas the real cause was a tapeworm.

177 Subacute Endocarditis and Syphilis.

Of 52 cases of subacute endocarditis (endocarditis lenta) observed during the years 1919-27, J. SUMBIL (*Pratis. vst. i. Istarske Listy*, May, 1928, p 267) found in 18 instances a positive Wassermann reaction. He believes that the reaction in these cases is due to a previous syphilitic infection. He remarks that in subacute endocarditis, which is really a chronic septicaemia, the entire cardio-vascular system is affected as a manifestation of disease of the reticulo endothelial apparatus. The syphilitic infection, by reducing the defensive powers of the reticulo-endothelial apparatus, prepares the way for the subacute endocarditis. Endocarditis on a syphilitic basis is characterized by manifesting a tendency to a haemorrhagic diathesis, to a protracted course with a low temperature curve, and to improvement under the influence of antisyphilitic treatment. In cases where the endocarditis occurs soon after the syphilitic infection, or where it complicates an already existing syphilitic infection, the antisyphilitic treatment is more liable to fail or even to exacerbate the condition. It is suggested that the increased number of cases of subacute endocarditis following the war is probably due to the increase of syphilitic infection. Sumbil advises systematic examination of the blood by the Wassermann test in all cases of cardiac diseases, irrespective of their origin, and even when there is complete compensation, since an existing syphilitic infection influences unfavourably the prognosis of the cardiac disease owing to the possibility of the appearance of a subacute endocarditis.

178 Immunity of Newborn to Scarlet Fever

A. LICHTENSTEIN (*Acta Paediatrica Supplement*, April 20th, 1928, p 121) performed the Dick test on 100 recently delivered women and their children, with the following results: (1) 27 per cent. of the women were positive and 73 negative, (2) of the newborn children only 7 per cent were positive and 93 per cent were negative. (3) the children of Dick negative mothers always gave a negative reaction, but of 27 Dick positive mothers only 7 had positive children, while the remaining children (about three quarters of the total) were Dick negative. The following results were obtained from Schmitz-Charlton tests. Serums from Dick negative puerperal women had regularly the power of extinguishing a scarlatinal rash. Blood from the umbilical cord of children of Dick negative mothers also consistently produced extinction. Serums from Dick positive puerperal women lacked extinguishing power. Blood from the umbilical cord of children of Dick positive mothers also had no power to produce extinction even in cases where the children were Dick negative. Lichtenstein concludes that the newborn child is not susceptible to scarlet fever because the body is not yet able to react to scarlatinal infection with the development of a typical scarlatinal complex. Present knowledge of the immunity to scarlet fever is quite compatible with the view that the disease is an anaphylactic process.

179

The Dick Reaction

N. MALDIBLIG and G. JACOBSON (*Acta Paediatrica*, Supplement, April 20th, 1928, p 119) investigated the Dick reaction in 1,200 children from birth to 15 years of age, and found that it was positive in 66.8 per cent., negative in 24.2 per cent., and doubtful in 9 per cent. In children with a previous history of scarlet fever the reaction was positive in 11 per cent. Pseudo-reactions were more frequently found in children with increased sensitivity to tuberculin than in those without. Investigations of the spontaneous validity of the Dick reaction showed that in the case of a positive reaction there were practically no changes on re-testing, whereas a negative reaction changed into a positive one in 20 per cent. The authors conclude, therefore, that a positive reaction may be regarded as giving definite information, whereas a negative one should be considered more cautiously and the patient should be re-tested.

180.

Pain in Duodenal Ulcer

M. J. WILSON (*Arch Intern Med*, May, 1928, p 633) describes an investigation into the cause of pain in duodenal ulcer. A brief account is given of the numerous explanations advanced, such as mechanical irritation by coarse particles of food, spasm of the pyloric or duodenal musculature, and the action of acid gastric juice on the sensitive nerve endings in the ulcer base. The acid theory is called in question by the work of Hurst, who introduced 0.5 per cent. hydrochloric acid into the stomachs of six patients with gastric ulcer, producing no sensation whatever. Observations on the role of muscular activity have been conflicting, while the theory of mechanical irritation must be doubted in view of the relief of duodenal ulcer pain by alkali or food. The author has made x-ray examinations of sixteen patients with duodenal ulcer suffering from pain at the time of observation. The opaque meal was given and the period elapsing before the onset of pain noted. When pain started the patient was examined by the fluorescent screen. Part of the lumen was observed to be still in the stomach, and it was found that with practice the stomach contents could be manipulated through the pylorus and be made to fill the duodenal caput. In thirteen of the cases this procedure was followed by almost immediate relief of the pain, persistence of pain in two of the remaining cases was attributable to postural abnormality of the stomach. It is inferred from these investigations that duodenal ulcer pain is not directly related to acidity or gastric peristalsis, and that such pain is due to sustained contraction of the duodenal caput, since it is relieved by filling this part of the bowel with gastric contents.

181 Paroxysmal Oculogyric Crises in Parkinsonian Encephalitis

I. PARDEL (*Amer Journ Med Sci*, May, 1928, p 683), who records four illustrative cases in patients aged from 13 to 27, states that there have recently been an increasing number of references in foreign literature to an eye syndrome which differs from that previously described, in that it appears late in the disease, is perhaps preceded by no previous eye symptoms, and is almost invariably a sequel of the Parkinsonian syndrome. This syndrome consists in hypertonic paroxysms of conjugate deviation resulting in forced movements upwards, which are frequently accompanied by other torsion phenomena. Its occurrence suggests a striatal, gondri-geminal body posterior longitudinal fasciculus complex as the underlying cause of the condition. The immediate cause of the paroxysms seems to be fatigue, emotion, metabolic accumulation, and focal absorption.

182

The Haemorrhagic Diathesis.

V. FANANO (*Il Politecnico, Sez Med*, May 1st, 1928, p 255) publishes three cases of haemorrhagic diathesis in children, illustrating the chief features of this condition. In each case there was haemorrhage from the mucous membranes and skin, spontaneous in origin, recurring and unassociated with any of the numerous causes of secondary purpura or with haemophilia. The blood showed thrombopenia, irretractability of the clot, and great diminution of platelets, those present being abnormally large and having a poor staining capacity. There was prolongation of the "dripping time" of the blood drop and a positive reaction to the ligature test (appearance of petechiae below the ligature) and other similar tests. The coagulation time *in vitro* was not much altered. In those cases Fanano thinks that a delicacy of the capillaries must be assumed, it is constitutional in origin, and tends to have long latent periods, but is easily aroused.

by the many stimuli which may induce a haemorrhagic crisis. Haemophilin could be excluded in the author's cases by the absence of any heredity, the spontaneous character of the haemorrhage, and by the normal coagulation.

133 Well's Disease following Trauma

H. A. LAMPE (*Nederl. Tijdschr. v. Geneesk.*, June 2nd, 1928, p. 2653) records the case of a man, aged 23, who injured the tip of his little finger with a reed while standing knee deep in ditch water. A few days later a whitlow developed, followed by high fever, jaundice, and a scarlatiniform rash. The serum agglutinated *Leptospira icterohaemorrhagiae* in a dilution of 1 in 5,000, and inoculation of a guinea pig with the virus gave a positive result. Recovery gradually followed, and the patient was able to resume work after three months. Lampe considers that the wound in the finger formed the point of entry for infection with the leptospira in the ditch water.

184. Acidosis in Methyl Salicylate Poisoning

J. G. M. OLMSTED and O. A. ALDRICH (*Journ. Amer. Med. Assoc.*, May 5th, 1928, p. 1438) report two cases of methyl salicylate poisoning in children; they have also collected records of twenty-four instances of this form of poisoning. Vomiting and abdominal pain occurred in most cases owing to the local irritant action of the drug on the alimentary canal. The most remarkable symptoms in the authors' cases were hypopnoea, flushed skin, coma, and convulsions. These symptoms the authors attribute to acidosis, and they show that symptoms of acidosis were present in most of the recorded cases of poisoning. Treatment with alkalis (sodium bicarbonate, 1 gram hourly) rapidly produced relief and cure in both cases, although the children appeared at first to be in a desperate condition.

185 Pulmonary Embolism Complicating Sciatica

A. THYSEN (*Ugeskrift for Læger*, April 26th, 1928, p. 381) records five cases of sciatica complicated by pulmonary embolism; in four cases there was phlebitis of the femoral vein. After giving details of the cases, the author asks, Is the phlebitis in such cases due to the obstruction to bed, or to the massage prescribed for the sciatica? May a condition diagnosed as sciatica in reality be a deep-seated phlebitis without a rise of temperature or oedema? Or may a sciatica be due to an infection predisposing to phlebitis?

Surgery.

186 Surgical Treatment of Exophthalmic Goitre.

L. BERARD and DUNET (*Presse Méd.*, June 13th, 1928, p. 737) suggest that insufficient importance has been attached to the surgery of this disease in France, and emphasize the value of co-operation between the physician and the surgeon in its successful treatment. The principles of modern treatment should be accurate diagnosis by clinical investigation and study of the basal metabolism, distinguishing true exophthalmic goitres from toxic thyroid adenomata, general hygienic measures, including rest, hydrotherapy, and diet, and sedatives, cardiac tonics, electrical treatment, and serums. Quinine and quindine are specially mentioned as useful, but the authors consider iodine the most important remedy, and prefer to give it in the form of Lugol's solution. They distinguish three groups of cases: (1) exophthalmic goitres with complete Basedow syndrome, but with compensated heart and little general toxæmia, (2) severe forms with a fibrillating uncompensated heart, and (3) very grave cases with meningeal toxic symptoms, such as nystagmus, nausea, and persistent diarrhoea. The increase of basal metabolism is mentioned as an important point in the consideration of the type of, and suitability for, operation. In Group (1) thyroidectomy can be performed at once after treatment with small doses of iodine for a fortnight under medical care, attention being given to rest and diet. Lugol's solution in 10 minim doses is given three times a day, twice before meals and once at 9 p.m. If the basal metabolism is not more than 25 per cent above normal the operation is performed under a regional or general anaesthetic. A brief description of the most suitable form of operation is given and the importance of immediate and remote treatment is emphasized. In Groups (2) and (3) the general technique is the same, but preparatory treatment must be continued for a longer period. In cases of oedema or nystagmus, diuretics and digitalis should be given. Operative treatment is performed in stages. First, one or two thyroid arteries are tied, and medical treatment is continued until the direct intervention on the gland is permissible. The authors give statistics of nearly 100 cases of exophthalmic goitre operated upon by them during the last fifteen years. There were

three deaths in the period before preoperative medical treatment was so methodically conducted, but for the last four years no death has occurred. Since performing a larger number of early subtotal thyroidectomies after previous iodine treatment post-operative accidents have been more and more reduced and the results have continuously become more satisfactory.

187 Temporary Ligature of the Common Carotid for Haemorrhage following Tonsillectomy

A. H. HOFMANN (*Centralbl. f. Chir.*, May 26th, 1928, p. 1292) removed the hypertrophied right tonsil in a patient aged 21, and intractable haemorrhage followed, digital and intraoral compression for five hours being unavailing. On discontinuing this compression the haemorrhage became more copious. The bleeding vessel could not be secured with artery forceps, nor was the haemorrhage arrested by posture. The patient had lost at least two and a half pints of blood and was very pale and exhausted. It was therefore decided to ligature the external carotid. The artery was exposed at its origin, and a ligature was passed around it, but when tightened it did not arrest the bleeding. When, however, the common carotid was compressed by the finger, the arterial haemorrhage ceased. A broad silk ligature was passed around the common carotid and tightened over a small swab sufficiently to arrest the haemorrhage, no cerebral symptoms followed. Three days later the ligature was divided and the swab removed. The constriction in the arterial trunk disappeared immediately. Apparently the ligature, being tied over a swab (thus imitating digital compression), prevented any injury to the intima. There was no sign of embolism. Hofmann believes that the bleeding vessel was an aberrant branch of the internal carotid; this would explain the failure of temporary ligature of the external carotid.

188. Intestinal Obstruction Simulated by Gas Accumulation

ACCORDING to G. LEYEN (*Bull. Soc. de Théor.*, March 14th, 1928, p. 97), who records three illustrative cases, the accumulation of gas in the colon may cause a form of intestinal obstruction of which the diagnosis is simple and the treatment purely medical. He believes that the general ignorance of the condition, alike by physicians and surgeons, has been responsible for numerous needless operations for appendicitis or intussusceptions of abortion for vomiting in pregnancy. It is added that the existence of the intestinal obstruction from accumulation of gas in the colon has been proved by radiological examination as well as by the results of treatment. Examination of the patient shows the clinical picture of aerophagia—namely, a red, moist, shining tongue, profuse salivation, which is most marked at night, abnormal tenderness of the larynx due to frequent swallowing caused by the excess of saliva, and an abnormal prehepatic resonance owing to distension of the colon. The patients can sleep on their right side only, since the distension of the stomach gives rise to painful cardiac sensations as soon as they lie on their left side. Treatment consists in making the patients perform successive movements of prolonged expiration as in blowing out a candle, putting them in a very hot bath, or in passing a catheter into the stomach. The use of one or more of these methods causes an escape of intestinal gas and is followed by rapid recovery, the abdominal distension subsiding, the dyspnoea ceasing, and the pulse becoming normal.

189 Primary Adenocarcinoma of the Duodenum

J. D. DEWIS and G. W. MORSE (*New England Journ. Med.*, April 12th, 1928, p. 383), who record twelve cases with a review of the literature, come to the following conclusions. Duodenal cancer usually occurs in the sixth decade of life, the youngest patient recorded was aged 23. It probably develops independently, and there is little evidence that it ever arises in pre-existing benign duodenal ulcers, the obstructive symptoms caused by it are more rapid in onset than are those of pyloric cancer. Primary cancer of the duodenum usually obstructs the gut, primary cancer of the pylorus seldom blocks the bowel. An abrupt incidence of gastric stasis in middle age suggests duodenal cancer, and the diagnosis is confirmed by the absence of free hydrochloric acid in the stomach. Bile will be found in the gastric contents when the duodenal constriction is below the ampulla of Vater. Blood is present in the stools in cancer of the duodenum except in scirrhus cancer without ulceration. Perforation at the site of duodenal cancer may cause the first symptoms. Perforation of a duodenal ulcer is suggestive of cancer, especially in persons over 60. Metastases in duodenal cancer are not frequent, they were found in only three of the authors' cases. Syphilitic ulceration and cancer of the duodenum may be associated with symptoms and laboratory findings hardly distinguishable by present methods. Gammata rarely occur in the duodenum, but not so rarely

in the jejunum and ileum. X rays may aid in the diagnosis, especially in the absence of obstruction. It may not be possible at operation to distinguish simple ulcers from early cancer of the duodenum. In such cases it is best to excise the lesion.

190. Treatment of Cholelithiasis in Elderly Patients

L. METZLER (*Wien Klin Woch*, May 17th, 1928, p. 689) has analysed in detail the histories and results of treatment in 45 patients over 60 years of age suffering from cholelithiasis. The operative mortality in the 25 cases treated between acute attacks was 8 per cent, while of 20 in whom immediate operation had to be performed during an acute attack because of jaundice, high temperature, or symptoms of peritoneal irritation, 44.1 per cent died, the total operative mortality being 24 per cent. One-half of the patients had been ill for more than a year, and in one instance the duration of the illness prior to operation was over forty years. His analysis has led Metzler to the conclusion that the high mortality after operations on the gall bladder, particularly in elderly patients, is more often due to a long history of repeated acute attacks treated medically with temporary improvement, and to the damage to the liver and other organs (and consequently to the general health) associated with chronic cholecystitis, than to the actual age of the patient at the time of operation. Even in these elderly patients who give only a short history he advocates early operation, preferably in an interval after an acute attack has subsided, since this allows for adequate preparation. He considers that local anaesthesia, limiting drainage to a minimum, and careful after-treatment further improves the prognosis. In non-complicated cases patients were allowed out of bed as early as the day of the operation, apparently with beneficial results.

191. Purulent Meningitis Cured by Operation

P. C. SIMONS (*Nederl Tijdschr v Geneesl*, May 26th, 1928, p. 2559), who records an illustrative case, remarks that recovery from meningitis of nasal origin as the result of operation is very rare. According to H. Burger, who mentions only one successful case, the prognosis is very unfavourable. Simons's patient was a previously healthy man, aged 46, who a few days after a severe attack of tonsillitis developed infection of both frontal sinuses, followed by symptoms of meningitis. Killian's operation was performed followed by four lumbar punctures, 10 to 20 c cm of turbid fluid being removed on each occasion. An intravenous injection of 10 c cm of a 1 per cent solution of trypanflavin was given on two occasions, and probably contributed to recovery, which followed in about three months' time. It was significant that the organisms found in the cerebrospinal fluid were not the ordinary pyogenic bacteria such as streptococci, staphylococci, pneumococci, or meningococci, but diplococci and tetrads.

192. Appendicitis in Measles.

F. ROST (*Zentralbl f Chir*, April 14th, 1928, p. 905), who records an illustrative case, states that the association of appendicitis and measles is a rare occurrence of which no mention is made in surgical and paediatric textbooks, while the cases reported by Gottstein and Kuttner (*ibid.*, 1927, p. 2095) are the only cases on record known to him. Rost's patient was a girl, aged 4, who six days after the onset of measles, while the eruption was still well marked, developed symptoms of appendicitis. The child was kept under close observation, and operation was not performed until the twelfth day, when a circumscribed abscess was felt in the appendix region and evacuated. Recovery was complete ten days later.

193. Treatment of Ganglion on the Back of the Hand.

I. EISENKLAM (*Wien Klin Woch*, May 24th, 1928, p. 740) describes the following method, which has been employed for several years at the first surgical department of the General Hospital at Vienna in preference to all other methods, such as crushing and extirpation. A large sized Pravaz needle is driven through the ganglion so that the point can be felt beneath the skin on the opposite side. The needle is then withdrawn nearly up to the point of insertion and then plunged in various directions five or six times, or even as many as ten, care being taken that the parts surrounding the young cysts are perforated. On removing the syringe some of the contents of the cysts can be evacuated by gently pressing the skin, but most of the contents escape into the surrounding tissue, just as after the crushing method. Not infrequently a permanent cure is effected by a single application of this method, but in the case of recurrence the procedure can be repeated without waiting till the ganglion regains its former size. This method is said to be less painful than crushing and does not interfere with the patient's occupation.

Therapeutics.

194. Treatment of Nausea and Related Circulatory Sensations.

R. W. KEETON and ESTHER S. NELSON (*Journ Amer Med Assoc*, March 3rd, 1928, p. 683) have studied experimentally the control of nausea and certain closely related sensations, including dizziness, lightness of the head, mental numbness, pressure in the head and neck, and headache, their direct relation to vomiting having been previously shown by Keeton. As the result of their experiments they have found that the reflexes involved must first be disorganized or separated from their central connections, after which a mild cathartic will re-establish the arrested intestinal peristalsis. During the last four years they have used a powder containing 1 gram of disodium phosphate, 1 gram of sodium bicarbonate, and 1 gram of sodium bromide, or an equivalent bromide mixture. This powder is dissolved in 100 c cm of water and given on an empty stomach. It has resulted in symptomatic relief in a wide variety of conditions. In the milder cases of nausea of pregnancy the powder is given forty-five minutes before each meal. In some cases of migraine it has been possible to give one, two, or three doses at forty-five minute intervals, thus lessening the headache and obviating vomiting. The powder is said to have proved of great value in controlling the dizziness and pressure headaches in cases of non-ulcerative colitis, and in colitis secondary to low grade pyelitis. It has been used occasionally in acute exacerbations of blood pressure when the patient was disturbed by dizziness and mental numbness. Sodium bromide in practice was usually replaced by a less deliquescent mixture of the sodium, potassium, and ammonium bromides in equal parts. Paraldehyde acted less effectively when vomiting was present. In cases of pronounced nausea the patient received only half a powder at the first dose, when necessary a second and third dose were repeated at intervals of forty-five minutes. It was found that an increase of above 1 gram of the disodium phosphate tended to make patients more nauseated and sometimes caused vomiting. When the circulatory sensations were primarily concerned the dose of bromide was increased and the phosphate slightly reduced.

195. The Specific Treatment of Syphilitic Aortitis

E. DOUVER (*Bull et Mém Soc Méd des Hôp de Paris*, May 31st, 1928, p. 853) discusses the treatment of syphilitic aortitis by injections of arsenobenzol and bismuth. Although these drugs often give good results, ill effects are liable to follow their use, especially in the case of arsenobenzol. For example, if there are but slight signs of cardiac failure they are likely to be increased, while if anginal attacks have been experienced greater severity and frequency of attacks may result. Such accidents arising in the course of treatment have been regarded as manifestations of reactivation of the syphilitic infection, and they have been compared with the Herxheimer reaction. The latter is clearly due to renewal of activity, but certain features of the complicating congestive and anginal failure show them to be of different origin. Thus cardiac vascular disturbances generally occur after the third or fourth injection when the dosage is being increased, and the patient's condition progressively deteriorates until treatment is suspended. On the other hand, Herxheimer's reaction follows the earlier injections, and the accompanying eruption disappears despite the continuance of treatment. Furthermore, the circulatory embarrassments are observed with doses that usually exert a curative influence on cutaneous lesions and gummatous, and at a stage when improvement is ordinarily resulting. In explanation of these undesirable phenomena it has been suggested that they depend upon the irritation provoked by vascular congestion which attends resolution of gummatous infiltration and the absorption of necrotic material. If signs of cardiac vascular disturbance appear it is necessary to discontinue injections at once, and subsequently to give smaller doses over a more prolonged period, or to substitute bismuth for arsenobenzol, or even to rely solely upon the use of mercury and potassium iodide.

196. Contraindications to the Use of Salvarsan

J. GATÉ and P. BARRAL (*Journ de Med de Lyon*, May 20th, 1928, p. 283) state that in the course of secondary syphilis, in addition to coincidental jaundice such as cholelithiasis or ordinary infective jaundice other forms of jaundice may develop, such as the so-called prereseolar jaundice, simple jaundice, and even icterus gravis. Haemolytic jaundice is rare. Moreover, since the introduction of arsenical preparations the number of cases of jaundice occurring in syphilis has shown a considerable increase. Most of them may be regarded as toxic, but some are due to syphilis and constitute an herpetic Herxheimer reaction. The practical conclusions are as follows: (1) Salvarsan is contraindicated in the presence

of any jaundice occurring in a syphilitic patient even when no treatment has been applied. (2) As it is impossible to say whether jaundice occurring in the course of salvarsan treatment is toxic or syphilitic, it is best to continue with anti-syphilitic treatment but to replace salvarsan by intravenous injections of mercury cyanide, which is the least likely drug to injure the hepatic cells. Bismuth, owing to its possible toxicity, is contraindicated. (3) The significance of jaundice occurring after salvarsan treatment varies in different cases. If the treatment has been very energetic and sufficiently prolonged, and there has been no other sign of active syphilis as well as a negative Wassermann reaction, the symptomatic treatment of jaundice is all that is necessary. If, on the other hand, there is reason to suppose that syphilis is responsible, treatment by mercury cyanide exclusively should be adopted.

187 Malariotherapy in General Paralysis

A. MO (*La Med Ibera*, June 2nd, 1928, p. 621) during the last five years has treated 85 cases of general paralysis by direct simultaneous inoculation of malarial blood. The quartan form was always used, as it is more readily affected by quinine and is followed by a longer period of apyrexia than the tertian form. The incubation period after simultaneous inoculation varied, and might be as long as thirty nine or forty days, but was usually between fifteen and twenty days. The patient was kept under close observation during the febrile attacks, of which fifteen or sixteen were allowed to occur if the general condition permitted it. In debilitated patients 10 to 15 cc of quinine were injected to cut short the attacks, whereas if the attacks were ill marked they were rendered more violent by the simultaneous injection of adrenaline. When the malariotherapy was completed antisyphilitic treatment was instituted. The results were as follows. Of the 85 patients, 28 (31.46 per cent) made a complete recovery and were able to resume their occupation, 11 (12.35 per cent) showed considerable improvement without being able to resume their occupation, 14 (15.75 per cent) showed slight improvement, and 32 (33.84 per cent) showed no change. The total number of deaths since treatment had started was 14 (14.60 per cent).

188 Treatment of Epilepsy

In a review of epilepsy from the standpoint of physiology and therapeutics W. G. LENOX and S. COBB (*Medicine*, May, 1928, p. 105) discuss its specific treatment and emphasize the importance of careful attention to general hygiene and diet. It is suggested that as a first line of defence against attacks the patient should be helped to maintain peace of mind in a fully healthy body. The authors disagree with the practice of excluding fresh fruits from the diet on the ground that they are acid forming, and deny that there is need in epilepsy to guard against acidosis. In the evidence they have accumulated there appeared to be no justification for this view, and they therefore recommend simple and nutritious feeding, but not in excess of that necessary to satisfy caloric requirements. A ketogenic diet is indicated in children when the seizures are so frequent as to justify the inconvenience caused by it. Bromide treatment, with a restricted constant salt intake, has been found most effective in diminishing the number of fits, though luminal has displaced bromide to a large extent because it is less depressant. The usual dose employed is 1½ grains daily, and luminal sodium, being more soluble, can be given subcutaneously or intravenously. Levi has reported that the intravenous injection of 5 grains of luminal sodium in three patients with status epilepticus brought the fits to an end almost immediately, and the present authors mention a case in which a single intravenous injection of 10 grains of luminal sodium completely suppressed fits for a period of four days in a patient who had previously had fifteen to twenty of these daily. With status epilepticus, in addition to drainage of the spinal fluid, the inhalation of a mixture of 10 per cent carbon dioxide and 90 per cent oxygen is suggested. Magnesium sulphate, given by the mouth in a 50 per cent solution, serves to reduce intracranial pressure, increase acidosis, and clean out the bowels. The warning is given that in some patients the use of sedatives appears to damp up the fits which are subsequently released in a flood when the control of the sedative is relaxed.

189 Intraperitoneal Dextrose Injections

R. N. SANFORD and P. L. HEITMEYER (*Journ. Amer. Med. Assoc.*, March 10th, 1928, p. 737) discuss the value of intraperitoneal injections of dextrose in the treatment of certain diseases of children; they describe a method of dry sterilization which obviates reactions and overcomes the tendency to acid formation. Five grams of chemically pure dextrose are placed in a pyrex tube 150 by 20 mm and thoroughly dried by hot blast and baking for forty minutes at 100°C. The tube is then plugged by inserting a piece of gauze of four

thicknesses, 20 by 20 cm., over the top and pushing it down into the bore for about 10 cm., into this cavity about 5 grains of anhydrous chloride are placed. After autoclaving for twenty minutes at 15 lb. pressure the tube is ready for use and will keep for at least fourteen days, but it should not be used if any brown spots are seen in the dextrose or if there is moisture in the plug. By the addition of 100 c. cm. of twice distilled water to the dextrose a 5 per cent solution is obtained for intraperitoneal injection. A higher concentration than this is contraindicated because of the tendency to draw body fluid into the abdominal cavity. Since uniformly successful results followed this treatment in cases of toxæmia with dehydration its use was extended to the treatment of any disturbance due to insufficient nourishment, marasmus, pneumonia, pyelitis and post-operative conditions. These intraperitoneal injections were never given in larger quantities than 100 c. cm. at one time, but in order to be effective they require frequently repeating at about twelve hourly intervals, one child received six daily for four days. The authors add that by their method of dry sterilization such injections can be given without any resulting reactions.

Ophthalmology.

200 A Racial Factor in the Etiology of Myopia.

A. SOBRASKI (*Brit. Journ. Ophthalmol.*, April, 1928, p. 197) has investigated the incidence of visual defects in Jewish children in the East End of London and compared them with those found in non-Jewish children. He reports that myopia is twice as common in Jewish as contrasted with non-Jewish boys. This myopia does not seem to be induced by the greater amount of close work (Hebrew classes) which the Jewish boys do. It appears rather to be due to the fact that the Jewish boy normally has a lower hypermetropic reserve than the non-Jewish boy. There is always a tendency during adolescence for a move away from hypermetropia towards myopia. In Jewish boys the incidence of myopia is greater in the later years of school life because they are deficient in hypermetropic reserve, and so their myopia becomes more easily developed. It also appears that the incidence of myopia among Jewish boys is much greater than among Jewish girls. This also holds good for the non-Jewish boys and girls, but whereas the Jewish boys do a great deal more close work than the Jewish girls, this is not the case among the non-Jewish boys and girls. Sobraski's statistics suggest that excessive close work is not so important a factor in the development of myopia as has been previously thought. During adolescent growth there is a general tendency towards myopia which demands in early adolescence a hypermetropic reserve, and in this the Jews are defective. He suggests that this hypermetropic reserve is a racial factor. The adolescent tendency towards myopia is equally common in boys, Jewish or non-Jewish, but is much less marked in girls. This appears to be a sex-determined factor.

201 Gangrenous Peridacryocystitis

R. DEL CASTILLO RUIZ (*La Med Ibera*, March 17th, 1928, p. 287), who records a personal case, illustrates the rarity of this condition by the fact that he has been able to find only three other examples on record reported by Vellou and Morax, Couge, and Jost respectively. In Jost's case the affection was bilateral. The patient of Ruiz was a woman aged 23, who after suffering from epiphora in the right eye for two years, developed acute suppurative peridacryocystitis. The abscess opened spontaneously and gave issue to a large quantity of foetid pus. Two days later a black slough formed, extending from the internal canthus to half way along the margin of the lower lid. There was no glandular enlargement. The temperature was 102.2°, and the patient was in a condition of prostration. The gangrenous area was treated with Paquelin's cautery under chloroform and the wound packed with iodoform gauze. Two doses of anti-gangrene serum were given and complete recovery followed.

202. Conjunctivoplasty in Corneal Affections

J. GREEN (*Amer. Journ. Ophthalmol.*, January, 1928, p. 12) advocates the use of a conjunctival flap or covering in certain corneal conditions. He has found it especially valuable in marginal ulcer, obstinate pannus, scirrhous nodule, descemetic perforation of the cornea, and Mooren's ulcer. Green considers that this method is not employed so often as it might be. The flap usually retracts back from the cornea after about four days. Green believes that the conjunctival flap subserves several purposes. It controls pain by covering up the exposed sensory nerves, and it protects the bare corneal surface, the fern from the vessels of the flap forms a non-irritating film which aids repair of the corneal lesion.

Obstetrics and Gynaecology.

203. Cervico vaginal Fistula

ACCORDING to P. CALLIFER (*Zentralbl. f. Gynäk.*, May 12th, 1928, p. 1206) central rupture of the cervix, although it may occur spontaneously in abortion, has become more common lately as an accompaniment of criminal induction of premature birth. It may be compared anatomically with central rupture of the perineum, with delivery of the presenting part through the new opening instead of the vulva. A tear having occurred in the wall of the cervix, abortion follows through the tear instead of the external os. The immediate consequences of central rupture of the cervix are seldom serious, although occasionally bleeding may necessitate insertion of a suture. The remote sequel is usually the production of a cervico vaginal fistula, through which, instead of the external os, menstruation and parturition chiefly take place. Spontaneous healing of such a fistula has been recorded, but appears to be unusual, commonly, as in a case described by Callifer, the cervical tissue connecting the fistula and the external os breaks down during subsequent deliveries, so that the rupture and the os unite to form a common orifice. Predisposing causes of spontaneous rupture of the cervix are extreme anteversion of the uterus and rigidity of the cervix, both these factors were present in a case now described, in which abortion was induced in hospital during the third month on account of uncompensated mitral stenosis. Insertion of a balloon having failed to complete dilatation of the cervix, a laminaria tent was introduced and the vagina plugged. Next day the tent was found still occluding the cervical canal, but the foot was in the vagina, having been delivered through a spontaneous rupture of the posterior wall of the cervix. The placenta was still in the uterus, and the umbilical cord, passing through the rupture connected it with the foetus. In a second case described by Callifer abortion was probably self induced in the fourth month, and was attended with fever on admission to hospital. The rupture was not diagnosed until introduction of a speculum with a view to enrolling. It was then found that the impossibility of expressing the foetus by pressure on the fundus was due to a sort of impaction of the trunk in the rupture, the feet lay in the vagina, the breech in the cervix, and the head, together with the placenta in the posterior vaginal fornix. In this case arterial bleeding necessitated stitching of the margins of the tear.

204. Clinical Use of Ovarian Follicular Hormone.

J. C. HIRST (*Am. Journ. Obstet. and Gynecol.*, April, 1928, p. 487) describes his experience and that of Pratt and Allen with regard to the clinical use of ovarian follicular hormone. Hirst gave intramuscular injections of fresh lipid extract of liquor folliculi or a similar preparation of placental derivation, commercial preparation of the hormone is stated to be still in an experimental stage. From the ovary it has been obtained in a concentration representing 15 Allen and Dofsy rat units per cubic centimetre, but this involves an inconveniently large consumption of gland, practically a preparation made from placenta in greater concentration seems more useful at present, and this was used in many of Hirst's patients. From three to ten injections were given in ten days, and 25 to 250 rat units in each series. Five patients were treated for menstrual disorders. No change was noted in a woman, aged 29, suffering from secondary amenorrhoea and obesity, or in a girl, aged 14, who had only menstruated once at the age of 10. Normal menstruations followed treatment in (1) a patient, aged 24, with retarded scanty periods, (2) a girl, aged 16, with dysmenorrhoea every eight weeks, (3) a woman, aged 34, who after an intrauterine radium application for metrorrhagia had "showing" only on four occasions during sixteen months. Hirst also treated twelve cases of sterility. Six were associated with marked reduction of menstruation, all became improved and three subsequently conceived. Of the six patients without menstrual reduction two conceived. In Pratt and Allen's clinical observations 15 to 90 rat units failed to modify cases of primary amenorrhoea but some response was shown in cases of scanty menstruation, of artificial (operative) menopause, and of functional climacteric symptoms.

205. The Results of Operations for Cancer of the Uterus

G. SCHAANNING (*Tidsskrift f. d. Norske Lægeforening*, June 1st, 1928, p. 505) has collected the records of the cases of cancer of the uterus admitted to the University Gynaecological Clinic in Oslo between 1906 and 1925—a total of 562 cases. In 508 the cervix and in 54 the body of the uterus was involved. The subsequent fate of 537 patients was ascertained, in only 25 instances was it impossible to trace the patients. Of the 508 cases of cancer of the cervix, 287, or 56.5 per cent, were operated on, a radical

operation being performed in 226 cases, or 44.5 per cent. The operative mortality for all the operations for cancer of the cervix was 10.6 per cent (24 deaths out of 226 operations), it varied greatly according to the extent of the disease and the increasing operative dexterity in the hospital. Thus it was only 7.3 per cent in the cases in which the cervix alone was infiltrated, whereas it was 15.7 per cent in the cases in which the parametrium was involved. In the five year period 1906 to 1910 it was 21.4 per cent, whereas in the period 1916 to 1925 it was only 5.6 per cent, although in the meantime the hospital had not made its indications for operative intervention more exclusive. The author publishes a table in which he gives the proportions of patients surviving the operation by five years without a relapse, classifying them according to the degree of involvement at the time of the operation. When only the cervix was involved, and there was no glandular infiltration, the survival rate without recurrence after five years was 33.8 per cent, whereas it was only 26.7 per cent for all the cases of cancer of the cervix submitted to a radical operation. With regard to the cases of cancer of the body of the uterus, the total operative mortality was 8.3 per cent, being 10.7 per cent for cases operated on by the abdominal route and 5.5 per cent for those operated on by the vaginal route. But the ultimate results after a 5 year interval were much better for the abdominal route, 73.3 per cent of the patients thus operated on being still alive, whereas this was the case with only 40 per cent of the patients operated on by the vaginal route, which does not allow of such extensive removal of cancer infiltrated tissues. The author concludes that the most important means by which the prognosis for cancer of the uterus can be improved is a continuous campaign of enlightenment of the general public.

206. Malignant Disease of the Vulva.

N. R. MASON (*New England Journ. of Med.* May 24th, 1928, p. 727) reports a case of malignant disease in the vulva, and refers to another case of the same kind recorded by him four years ago. In each instance removal of the growth was performed with vulvectomy and excision of the glands, and no recurrence has as yet been detected. The growth was carcinomatous in both cases, and is attributed to chronic irritation of the vulva, in one patient apparently following a warty growth of unknown nature. The author remarks that epithelioma of the vulva starts usually as a small hard nodule on the lower portion of the labium majus, which develops slowly and at first causes no symptoms apart from occasional troublesome itching, later an ulcer appears, surrounded by an indurated area, associated with a watery discharge which is sometimes mixed with blood. The subsequent progress of the growth is rapid. Mason emphasizes the importance of careful examination of indurated tissue discovered in this neighbourhood or near the urinary meatus. Two years is given as the usual duration of the disease. Wide surgical excision of the growth is necessary, except in cancer of the urethra and of the clitoris close to the urethra, in these two conditions radium treatment is recommended, since it does not usually destroy the urethral function. The operation may be preceded by radium application and he followed by x ray therapy.

207. Support of the Perineum

O. SEYNSCHE (*Zentralbl. f. Gynäk.*, May 26th, 1928, p. 1311) agrees with those German obstetricians who, with a view to the prevention of utero vaginal prolapse, have recently pleaded for modification of the custom by which during the delivery of the foetal head the attention of the midwife is chiefly centred on "supporting the perineum." Such support has been thought to diminish the incidence of perineal tears and the liability to subsequent occurrence of cystocele, rectocele, and prolapse. It is doubtful, however, whether the first object is secured, and there is some evidence that "supporting the perineum" actually defeats the second. In consequence of delay of the head, anaemia and mechanical injury of the muscular and elastic tissue of the pelvic floor are prolonged, so that utero vaginal descent after childbirth is favoured. In the author's opinion the procedure now employed in normal labours differs according to the degree of distensibility that is noted in the perineum. If it is readily distended spontaneous delivery is allowed without special support of the perineum, and any tear that occurs is stitched. If the perineum is resistant and delivery is thereby retarded it is split during the height of a uterine contraction by a mesial incision, which may extend as deep as the levator ani, and the head is delivered slowly and with the most persistent flexion during ethyl chloride anaesthesia. It is conceded that by this means tears of the levator are not always prevented, but it is argued that exact suture of these is a sure way of preventing cystocele, rectocele, and prolapse. It is said that, in hospital at any rate, the occurrence of a perineal tear does not predispose to puerperal infection.

Seynscho adds that to teach the midwife in extern practice to attach less importance to "supporting the perineum" is in the first instance fraught with difficulties, for the occurrence of tears is popularly thought to be a cause of reproach, and, in practice, more numerous tears will increase the expense of accouchements.

208. Perforation and Rupture of Pyosalpinx

J L LAPEYRE (*Gynéc. et Obstét.*, April, 1928, p 304) reports two cases of acute general peritonitis, the one consecutive to a rupture, and the other to a perforation, of a pyosalpinx. In each case the treatment adopted was drainage, as recommended by Mikulicz after subumbilical laparotomy. In the first case the rupture of the pyosalpinx occurred in a woman aged 40, and was caused by a fall. An operation was performed within thirty-six hours, and the patient recovered. In the second case the perforation of the pyosalpinx was spontaneous. Operation was undertaken within sixteen hours, and was followed by recovery. Bacteriological examination of the pus revealed the presence of *B. coli* only. The author remarks that these two cases indicate the difference between rupture of a pyosalpinx which is traumatic in origin, and perforation of a pyosalpinx which is inflammatory in origin and due to a destructive ulceration of the inflamed and stretched tubal wall.

Pathology.

209 Haemolysin Formation and the Suprarenal Glands

ACCORDING to D PERLA and J MARMORSTON GOTTESMAN (*Journ. Exper. Med.*, May, 1928, p 723), there is a great deal of evidence, from both morphological and physiological studies, that the suprarenal gland plays a significant part in the defensive mechanism of the body against intoxication. Studies during recent years have shown that the resistance of suprarenal-ectomized rats and rabbits to trauma and to various poisons and toxins is markedly diminished, particularly during the first few weeks following the operation. The authors have now tried to determine whether removal of the suprarenals in rats interferes with the production of antibodies. Their general technique was to subject a number of rats to suprarenal-ectomy, and subsequently to inject them and control rats with a single intraperitoneal dose of sheep red cells, the haemolysin titre of the serum was determined at intervals of five, eight, eleven, and fourteen days after injection. The results showed that the haemolysin production resulting from a single injection of 1 c.c. of a 10 per cent suspension of red cells was considerably lower in the experimental than in the control rats during the first five weeks following suprarenal-ectomy, the depression was most marked during the first week, and gradually wore off. But the surprising observation was made that if the dose of red cells was increased tenfold—that is, if 1 c.c. of undiluted red cells was given—the haemolysin production in the experimental rats was higher than in the control rats. After injection of the 10 per cent suspension a fortnight after suprarenal-ectomy the average titre of the normal rat five days later was 1 in 7,000, of the experimental rat 1 in 2,000, but after injection of the undiluted red cells the titre of the normal rat was only 1 in 2,000, whereas that of the experimental rat was 1 in 7,300. It would appear, therefore, that the effect of suprarenal-ectomy on rats is to diminish their power of producing haemolysin, and to increase by about tenfold the amount of antigen requisite to produce the optimal haemolysin titre.

210 A Possible Evolutionary Cycle in *Treponema pallidum*

C LEVADITI, Mlle R SCHOEN, and M V SANCHEZ-BAYARRI (*Ann. de l'Inst. Pasteur*, May, 1928, p 475) believe that the virus of syphilis undergoes a developmental cycle, of which the *Treponema pallidum* is only one of the stages. The evidence on which they base this belief is as follows. The inguinal and popliteal lymphatic glands of rabbits that have been inoculated into the scrotum prove virulent on injection into fresh animals, even though spirochaetes are very difficult or impossible to demonstrate microscopically in these glands. The authors examined thirty-three popliteal glands of syphilitic rabbits, and failed in every instance to detect spirochaetes by dark-ground illumination and by various staining methods. The virulence of eleven of these glands was tested; these were inoculated into twenty-four rabbits, in eighteen of which syphilis developed. Histologically it was found that implantation of a gland into the scrotum of a rabbit was followed by no marked change for seven weeks or so. The graft contained chiefly lymphoid tissue, a few giant cells appeared, but at no time were spirochaetes visible.

About the forty-fifth day the graft suddenly changed in appearance, the lymphoid tissue was replaced by fibroblasts, mononuclears, plasma cells, giant cells, and new vessels, and spirochaetes became visible in large numbers. The spirochaetes, however, were not all morphologically typical, inside the cells they appeared in involution forms, such as straight rods, club and dumb-bell forms, ring, pellet, and comma forms, and granules ranging from 0.4 μ to almost ultramicroscopic in size. Similar involution forms have been observed in syphilids of rabbits undergoing spontaneous retrogression, or retrogressing as the result of specific treatment. The authors suppose that the syphilitic virus is present in the lymphatic glands in the form of ultramicroscopic particles. When inoculated into a fresh animal these particles do not proliferate for some weeks, after this period they develop into the typical spirochaetes, and give rise to the usual histological changes of syphilis. These usually formed spirochaetes in their turn undergo involution, and pass once more into the ultramicroscopic phase. The authors suggest that this phase of the organism is more resistant to arsenic than the spirochaetal form, and that it is responsible for latent infections, and possibly for certain cases of paresis and general paralysis in which no spirochaetes can be demonstrated in the nervous system.

211 Specificity of the Tuberculin Reaction.

M MASTBAUM (*Zeit. f. Immunität u. exp. Therapie*, May 7th, 1928, p 147) brings forward evidence to invalidate the specificity of the tuberculin reaction. He finds that normal guinea pigs may be sensitized to tuberculin by treatment with a vaccine of *B. coli*. The vaccine is injected two or three times subcutaneously, only a certain proportion of the animals become sensitized, and the sensitivity wears off in a few weeks. A similar degree of sensitivity may be produced by injection of tuberculin mixed with pig serum. Of eight guinea pigs which received on two occasions a mixture of 0.3 c.c. of pig serum and 0.1 c.c. of old tuberculin, four subsequently reacted to the cutaneous tuberculin test. The author compares this artificial hypersensitivity to tuberculin with the allergy that occurs in tuberculous guinea pigs. The artificial hypersensitivity is not constant in its appearance and lasts only a short time, it is not very marked—that is to say, animals in this state will rarely react to less than 0.02 c.c. of old tuberculin. In true allergy the tuberculin hypersensitivity is constant in its appearance, it persists almost to the death of the animal, and it is marked by a reactivity to quite small doses of tuberculin—0.0003 c.c. These differences are, in the author's opinion, sufficient to prevent the two conditions from being regarded as identical. It is known that old tuberculin contains a large amount of non-specific material consisting of substances in the broth and protein degradation products. It is possible that these are responsible for the spurious tuberculin reactions that can be obtained by injection of *N. coli* and certain other substances. If this is so, it can still be maintained that the true tuberculin reaction is a specific phenomenon.

212 Action of Ethyl Alcohol on the Coagulability of the Blood.

G DI MACCO (*R. Morgagni*, May 20th, 1928, p 1049), as the result of intravenous injections into dogs of ethyl alcohol diluted with saline solution, came to the following conclusions: (1) Direct introduction of ethyl alcohol into the blood causes a decided increase of its coagulability, the increase being most marked about an hour after injection. (2) The coagulating power of the serum is increased in correspondence with the shortening of the coagulation time of the whole blood, on the other hand, the formation of fibrin and fibrinogen in the plasma appears to be diminished. (3) Alcohol *in vitro* accelerates and intensifies the coagulation of plasma prepared with magnesium sulphate. It is capable, even in the absence of serum, of causing the formation of fibrin when added to the plasma. (4) The changes are probably to be attributed to modification due to the presence in the plasma of alcohol, which activates the factors responsible for the transformation of fibrinogen into fibrin.

213 *B. paratyphosus A* Isolated from Epidemic Jaundice.

S COSTA, L BOYER, and MONTEL (*C. R. Soc. de Méd. Hyg. Jne 15th, 1928*, p 167) record a small epidemic of banku jaundice in troops returning from Syria in October, 1926. From four out of seven patients examined a bacillus was recovered identical with *B. paratyphosus A*, except for the fact that it produced hydrogen disulphide. This organism was agglutinated by a specific anti-*A* serum to a titre of over 1 in 5,000. The authors consider that this bacillus was causally related to the epidemic partly because all the cases occurred at about the same time, and partly because an apparently identical organism has been reported from other cases of epidemic jaundice in the East.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

214 Tobacco Smoking and Tabes

ACCORDING TO A WINKLER (*Med Welt*, August 4th, 1928, p 1160) although the majority of cases of tabes dorsalis are metasyphilitic, a very similar non-syphilitic condition occasionally occurs from the prolonged excessive use of tobacco, which he calls pseudo tabes nicotiana. It is always associated with visual symptoms. His patients were all over 50 years old, they were undernourished individuals with a history of excessive smoking for some twenty years. One patient aged 54 had absent knee jerks, pin point pupils which did not respond to light, attacks of giddiness, loss of memory, visual disturbances, and other symptoms. Romberg's sign was absent, and the Wassermann reaction negative. After four weeks' treatment with prolonged sulphur baths, warm mud baths, the use of sulphur waters, and complete abstinence from tobacco, the symptoms all subsided and the pupils and knee reflexes returned to normal. He emphasizes the importance of distinguishing this condition from the more usual one, since the prognosis is very good in the tobacco case if the patient gives up tobacco entirely, while in syphilitic tabes some improvement may result from treatment, but no complete cure is likely. Winkler considers it probable that tobacco merely disturbs the fibres in the posterior columns of the spinal cord, while syphilis destroys them.

215 The Heart in Whooping-cough

F. CHAJES ROSENBLUD (*Zeit f Kinderheilk*, July 7th, 1928, p 55) made a clinical and roentgenological examination of the heart in thirty-eight cases of whooping cough in children aged from 2 months to 7 years during the acute attack, and up to 15 months after its cessation. In thirty-one cases enlargement of the organ was noted, but in most cases it subsided a few months after the cough had ceased, the right auricle and right ventricle were the parts affected. The only clinical symptom indicating cardiac insufficiency was tachycardia, and there was no oedema or enlargement of the liver. Enlargement of the heart did not appear to depend on the age of the child, the severity of rachitic changes in the thorax, or the violence of the paroxysms, but the occurrence of febrile attacks appeared to be the most important factor. Of the 31 children who showed enlargement of the heart 43 per cent had an intercurrent disease, and of the 7 children whose heart showed no obvious change only one had an intercurrent illness, in the form of varicella, which ran an afebrile course.

216 Prevention of Measles

M. G. PETERMAN (*Amer Journ Dis Child*, July, 1928, p 123) reviews the progress made. First advocated by Nicolle and Conscif in 1918, the use of human convalescent measles serum and whole blood is now well established. A passive immunity of from six to ten weeks' duration is usually conferred by the intramuscular injection not later than the fourth day of the incubation period of human blood serum or plasma obtained within eight to ten days after the initial appearance of the rash, the dose is 5 c.c.m. for children aged 5, and 10 c.c.m. for older patients. From 15 to 30 c.c.m. of whole blood obtained and injected under the same conditions will be found as effective. The use of human convalescent blood or serum is, however, limited, adult donors are scarce, and children recovering from measles cannot well spare blood. Until antitoxins and detoxified toxins are made available for measles animal immune sera probably offer the most favorable solution of the problem of prevention. In January, 1926, Degkwitz reported favorable results in the prevention of measles with a specific serum obtained from sheep and monkeys, in the same month Tunneliff and Hoyle reported the production of an anti measles diplococcus serum in goats. Of a group of 34 patients inoculated in June, 1927, with this serum there was complete protection in 31 of the cases and a modification of the disease in the remaining 3.

217 Non diphtherial Membranous Laryngitis

C. RICCI (*Ospedale Maggiore*, June 30th, 1928, p 205), after alluding to the paper by Henneon (*Journal*, 1919, 1, p 604), who reported a series of cases of necrotic membranous streptococcal laryngitis, and to other writers on the subject, states that non diphtherial membranous laryngitis—two cases of which he records—may occur at any age of life, but is most frequent in childhood. Its severity varies. Coriat

distinguishes the following two forms. The first, which is most frequent in children, is characterized by special virulence of the organisms, it usually invades the whole respiratory system, and necessitates a guarded prognosis since about half the cases are fatal. The second form is mild and does not give rise to severe complications or much general disturbance, but remains confined to the larynx. Both Ricci's cases, which occurred in men aged 44 and 41 respectively, one of whom died and the other recovered, were due to the pneumococcus. In the first case, which was fatal, there was probably a pre-existing syphilitic lesion in the larynx, while in the second case, in which there was no fatal recovery ensued.

218 The Late Oculomotor Syndrome of Epidemic Encephalitis

T. HILUM (*Thèse de Paris*, 1928, No 46) bases his thesis on the study of seventy cases of chronic epidemic encephalitis in patients aged from 12 to 55 who showed various forms of oculomotor disturbances. The function of convergence was most frequently affected (54 cases), either alone or in association with paralysis of accommodation. Isolated oculomotor paralysis, which is a common symptom in the early stage, is exceptional in chronic encephalitis. Nystagmus is also less frequent than in the acute stage. As regards the intrinsic ocular muscles, while isolated paralysis of accommodation is exceptional in the late stage, and when present, is bilateral and ill marked, changes in the shape and reflex action of the pupils are frequent. The Argyll Robertson pupil is rare, but concentric affection of reaction to light and accommodation is common, and sluggish reaction of the pupils is also frequent. The palpebral symptoms are immobility, tremor, or exaggeration of the oculo palpebral reflex. Occasionally crises occur consisting in tonic or clonic deviations of the eyes in upward, downward, and lateral directions. The ocular symptoms occur in all varieties of chronic encephalitis, whatever their form may be, and their intensity bears no relation to that of the general symptoms. Their course is essentially progressive.

219 Arterio sclerosis of the Pulmonary Vessels

P. BENEDETTI and U. DE CASTRO (*Arch di Patol e Clin Med*, May-June, 1928, p 207) discuss the subject of arterio sclerosis affecting the pulmonary circulation, they record two personal cases and give details of 48 cases in medical literature. They epitomize the recent knowledge of this condition as regards its pathology, etiology, symptoms, diagnosis, prognosis, and treatment. Of the two personal cases one patient was a girl, aged 14, who suffered from primary arterio-pulmonary sclerosis with secondary tricuspid incompetence. The other was a man, aged 45, with arterio-sclerosis of the pulmonary artery and obliterating sclerosis of the small arteries secondary to chronic bronchitis, death occurred from failure of the right ventricle.

Surgery.

220 Surgical Treatment of the Pancreas

VON SCHMIEDEN and W. SEBENING (*Surg, Gynecol and Obstet*, June, 1928, p 735) discuss the surgery of the pancreas, based upon a study of 2,137 cases treated during the past eight years, with special consideration of acute pancreatic necrosis. The anatomico pathological picture shows simultaneous necrosis, inflammation, and haemorrhage, with great variations in type and degree, the necrosis being the dominating factor. Early operations for cholelithiasis are said to be justified prophylactically since pancreatic necrosis generally follows a neglected cholelithiasis, but the condition may arise without any sign of common duct complication. In treatment rapid drainage of the gall bladder will be sufficient if the large bile ducts are free from stones, but, if the condition of the patient permits, cholecystectomy with choledochostomy is the operation of choice. Since the pancreas is highly susceptible to operative trauma all possible damage must be guarded against, especially during operations on the gall bladder, stomach, and spleen. Mortality is high, being 51.2 per cent in 1,278 cases during the last eight years, and it is only in early operations that the best results can be obtained in acute pancreatic necrosis. The ideal aim in operation are to free the pancreas, protect against the spread of the toxic exudate, limit the process by draining away

the exudate, and prevent retention and downward in filtration. Any surgical intervention must be radical and prompt, cases without premonitory symptoms appear to be the most grave. The gravity of the prognosis is shown by the fact that 95 per cent of those not operated upon die.

221 Treatment of Infected Wounds

H. W. ORR (*Journ Bone and Joint Surg*, July, 1928, p. 605) recommends a form of treatment of compound fractures which makes no use of sutures, drainage tubes, or antiseptic dressings. The injured parts are first placed in correct position after which the wound is packed in every part with an aseptic non-absorbent vaseline mass, and a splint or cast is applied over a dry sterile dressing to keep the injured parts in a correct position during the entire period of healing. The vaseline pack facilitates drainage, and irrigation of the wound is not performed. The primary dressing is allowed to remain until healing of the wound is well established and primary consolidation of the fracture has occurred. This treatment has proved very satisfactory for recently contaminated but not actively infected bone and joint wounds, for such septic cases, treatment includes cleaning out the infected area, wide open drainage by a sterile pack, splinting in a correct position, and a careful avoidance of further irritative motion and the risk of infection following daily dressing procedures.

222. Rupture of a Varicocele by Indirect Violence.

A. LEHRNECHER (*Zentralbl f Chir*, June 30th, 1928, p. 1615) describes the case of a powerfully built labourer, aged 34, who, as the result of accidental compression of the abdomen by an overturned truck, had severe pain in the left inguinal region. A strangulated left inguinal hernia was suspected, and an attempt was made to reduce it without success. On admission to hospital the left half of the scrotum was found to be as large as a child's head and of a purplish colour. The swelling and discoloration extended above Poupart's ligament, suggesting an inguinal hernia with omental or vascular laceration, following the attempted reduction. An immediate operation was performed, the incision passing parallel to Poupart's ligament on the left side as far as the root of the scrotum, there was an extensive subcutaneous extravasation of blood. A haematoma as large as two fists distended the left spermatic cord, and there was a hydrocele of the left testis. Large blood clots were removed. Close to the epididymis there was more definite venous haemorrhage from a ruptured dilated vein in the pampiniform plexus, there was also rupture of a varicocele. The bleeding vessels were secured and Winkelmann's operation for varicocele was performed. No hernia was found, although the muscular development in the region of the inguinal canal was poor. The pillars of the ring were sutured, and the wound was drained by a tube passed through the lowest part of the scrotum and by strips of iodoform gauze. Healing was uneventful. The author believes that rupture of a varicocele is a very rare accident, he has been unable to find any reference to it in the literature. In this case it was evident that the accident caused a great increase of intra-abdominal pressure, which was transmitted to the pampiniform plexus and the varicocele, thus producing rupture of the veins.

223. Traumatic Shock

E. COWELL (*Journ Roy Army Med Corps*, August, 1928, p. 81) reviews the various theories as to the pathology of and factors in producing shock, and relates his own experiences during the war in this matter. He defines shock as the clinical condition which follows an injury, producing depressed vitality, and being associated with lowered blood pressure, deficient circulating fluid, diminished intracellular oxygenation, and reduction in the body temperature. Such a condition results from one or more of the following factors, acting either singly or in combination—pain, haemorrhage, cold, toxæmia of bacterial or other origin, and anaphylaxis. Sustaining factors are the low blood pressure and decreasing blood volume. The results produced are a diminished circulating fluid, deficient intracellular oxygenation, and devitalization of important organs, such as the heart, kidneys, and brain. Secondary traumatic shock is the common type, and only becomes established slowly. Prophylaxis is successful in many cases, and in the operating theatre shock may be avoided by warmth, a suitable anaesthetic (local, spinal, or gas and oxygen in a bad case), haemostasis, and gentleness in handling the tissues. Chloroform, and to a lesser extent ether are powerful toxic agents, and, if employed after the trauma, a chemical toxæmia may be added to the shock causation complex with serious results. Starving the patient and withholding fluids too long beforehand tends to anhydremia and is to be avoided. A small dose of morphine is useful in allaying undue mental pre-operative apprehension. If shock develops and a blood pressure of 80 mm Hg does

not respond in half an hour to such simple methods as the application of warmth, mental rest, and the relief of pain, other measures must be adopted. The deficient circulation may be restored by giving fluids by the mouth or rectum, or administering 10 per cent glucose saline solution intravenously (1,000 c.c. in two hours). Intracellular oxygenation may be increased by the hypodermic administration of 5 units of insulin at the beginning and end of the glucose injection. Even after a severe haemorrhage this will tide the patient over the crisis, and transfusion of whole blood may be performed subsequently if necessary. The question of operating in shock must be decided in each case, and under suitable anaesthesia surgery may be the only means of removing the cause of a toxæmia and, thereby, saving the patient's life.

Therapeutics

224. Treatment of Pulmonary Tuberculosis by Inhalation of Calcium Salts and Carbon

WILLIAM P. NOLAN (*Med Journ and Record*, July 4th, 1928, p. 6) describes a method of treatment of pulmonary tuberculosis by use of an inhaling box containing a mixture of carbon powder and calcium salts, which is driven towards the mouth piece by an electric fan. According to Nolan the inhalation of carbon particles gives rise to a maximum proliferation of phagocytic capillary endothelial cells, and subsequent blocking of lymph channels connected with diseased areas, this stops the absorption of toxic products and prepares the way for final calcification, which is hastened by the direct supply of lime salts to the pulmonary alveoli. Healthy areas of the lung do not appear to share in the process of calcification. This form of treatment was first tried as the result of the observation of exceptionally low mortality figures for pulmonary tuberculosis in certain coal mining areas and cities with particularly smoke-laden atmospheres. Nolan insists that the treatment is not a panacea and should be given only as an adjunct to the usual general hygienic measures, moreover, good results are not to be expected from it in advanced cases. It is claimed that morphological changes have been found to occur in tubercle bacilli obtained from subjects under treatment, the characteristic staining reactions and the virulence towards experimental animals disappearing. In Nolan's series 114 cases were treated, all were of moderate severity, as shown by physical and x-ray examination and the presence of tubercle bacilli in the sputum. In no case after the commencement of treatment did there appear haemoptysis, laryngitis, or pleurisy with effusion. All the patients were discharged as clinically inactive, there being no haemoptysis, no persistent rales and no x-ray evidence of tuberculous lesions in the upper half of the chest, no pleurisy with effusion, no tubercle bacilli in the sputum, no pyrexia or exorise, and a maintained increase in weight. Treatment was not attempted in cases of far advanced or rapidly progressing disease, or where there was definite evidence of ulcerative laryngitis.

225. Anaphylactic Asthma Relieved by Bleeding

P. VALLÉRY RADOT, P. BLAMOUTIER, and L. ROUQUÈS (*Bull et Mém Soc Méd des Hôp de Paris*, July 19th, 1928, p. 1191) describe three cases of asthma due to sensitization in which bleeding out short the attacks, and in some instances prevented their recurrence despite exposure to the provocative protein. This method of treatment was suggested by the occurrence of traumatic haemorrhage during an asthmatic attack in a baker who was sensitive to flour, immediate relief resulting. Both in this case and in another similar one specific desensitization had produced no effect, but with drawal of blood in amounts varying between 75 and 300 c.c. was followed by abbreviation of the attack and immunity for days, weeks, or even months afterwards. In the third case the attacks were occasionally apparently unprovoked, but were sometimes due to the inhalation of mustard, even the withdrawal of 20 c.c. of blood gave some relief within a minute or two, while the removal of another 100 c.c. on a total of fifteen minutes an attack which ordinarily lasted three quarters of an hour, despite the administration of ephedrine and ephedrine. None of the cases showed any signs of cardiac or renal insufficiency. The possibility that these results were produced by suggestion is considered by the authors, their view that suggestion could not account for the disappearance of symptoms for four months despite exposure to the particular sensitizing agent was confirmed by various control experiments performed by them. Results from this method were not consistently good, two patients sensitive to horse hair and serum failed to respond to bleeding, nor was any relief obtained in eight cases of severe asthma unrelated to any protein sensitization.

226 The Treatment of Impetigo Contagiosa Neonatorum

H G HOLDLER (*Amer Journ Obstet and Gynecol*, June, 1928, p 857) states that impetigo contagiosa of the newborn infant presents a serious problem in maternity hospitals, its ease of transmission and, at times, its high mortality causing it to be much dreaded. The treatment in 115 cases is reported, one or other of the following methods being employed: 3 per cent tincture of iodine in 25.2 per cent of the cases, 10 per cent ammoniated mercury ointment in 18.2 per cent, 1 per cent aqueous solution of mercurochrome in 5.2 per cent, and 2 per cent aqueous solution of gentian violet in 51.3 per cent. In each case the vesicle was surrounded by the agent used, and ruptured under aseptic precautions. The exfoliated epidermis was then removed and the medicament was applied directly. The order of efficiency of these substances was found to be: (1) gentian violet, (2) mercurochrome, (3) iodine, and (4) ammoniated mercury ointment. Mercurochrome was satisfactory, but did not produce such rapid delimitation and eradication of the infection as did gentian violet. Iodine was also effective, but was frequently too irritating. Ammoniated mercury ointment was found to be detrimental to rapid healing, it was not only ineffective, but prolonged infection and favoured complications. Gentian violet was tried, as the cause of infantile impetigo is supposed to be a strain of *Staphylococcus aureus*, and Churchill has shown that this dye has a selective bacteriostatic action on Gram positive organisms, penetrating other organisms and living cells without deleterious effect. Its use was strikingly beneficial, definite improvement occurring in twelve hours and entire healing in a week. More than one application of the gentian violet is seldom necessary, there being an immediate arrest of extension. Desiccation is rapid, and the thin crust formed permits of epithelialization under the surface, with normal desquamation of the crust in about forty-eight hours. There was a notable absence of recurrences in the cases so treated, after discharge only four patients returned for further treatment, and these showed merely minor recurrences.

Anaesthetics

227 Spinal Anaesthesia in Abdominal Operations

L F SISE (*New England Journ. Med.*, July 12th, 1928, p 59) prefers spinal anaesthesia in abdominal operations, since it combines complete relaxation with freedom from the injurious after effects, predisposition to surgical shock and lung complications often following ether anaesthesia. By its use patients can be dealt with who would be inoperable under any other method, or likely to succumb under a general anaesthetic. The method is safe, provided that care is taken in selection, and the pulse, blood pressure, respiration, and colour are carefully watched throughout, adequate measures being adopted if urgent symptoms appear. During operation better relaxation is obtained than by any other form of anaesthesia, the patient's breathing is quiet and shallow, the intestines are contracted, and the post-operative condition is distinctly better than with ether, comparing favourably with that following ethylene and regional anaesthesia. The preliminary administration of ephedrine maintains the blood pressure satisfactorily, and solutions of specific gravity less than that of the spinal fluid may be used, the heavier solution being preferable for most upper abdominal operations and the lighter for the lower ones, especially those requiring the Trendelenburg position. Sise describes the technique of injection in detail with suggestions for the treatment of complications, he points out the danger of giving too much ephedrine in the presence of a weak heart, regarding salt solution or epinephrine as safe if more than the preliminary dose of ephedrine is required.

228. Carbon Dioxide Anaesthesia.

E FISCHER (*Zentralbl f Gynäk*, August 11th, 1928, p 2010) has used carbon dioxide as an adjuvant anaesthetic in 300 cases of abdominal or vaginal operation with good results, both as regards anaesthesia and after effects. He sums these as follows: The most important action of this gas is on the respiration, dyspnoea and asphyxia occurring during the anaesthesia are due to lack of oxygen and not to excess of the anaesthetic. Inhalation of carbon dioxide raises its concentration in the blood, and, consequently, the respiratory centre is stimulated, respiration becomes deeper and more frequent, resulting in an increased intake of oxygen and output of superfluous anaesthetic. The circulation is improved, the blood pressure, usually lowered during anaesthesia is raised above the normal and then falls again. The good effect of the gas on the circulation guards against post-operation shock, and possibly thrombosis. In lung complications carbon dioxide is valuable through the enforced deep breathing and improved circulation which is already estab-

lished pneumonia and bronchitis help to expel secretion. Patients recover consciousness quickly and with less sickness and vomiting than usual. Carbon dioxide is also useful after an operation to stimulate patients who are semi-comatose, the effect is only temporary and may have to be repeated frequently. The apparatus Fischer uses consists of a cylinder and valve connected with a flask from which a tube leads to a gum elastic connexion, to this a thin rubber catheter is attached. The catheter is inserted into one nostril, and the patient obtains air through the other nostril and the mouth after three to four breaths the breathing grows deeper and quicker, the face becomes a rosy red, and the pulse is found to be fuller, stronger, and quicker. Carbon dioxide is pushed during induction if the respiration is shallow, and in asphyxia. If the breathing should stop, artificial respiration must be employed to cause intake of carbon dioxide. Towards the end of an operation carbon dioxide alone is given, its administration is repeated the same evening and the next morning and more often if necessary. The method, in Fischer's opinion, undoubtedly lessens the risks of chloroform and other anaesthesia, and it has the additional advantage of cheapness.

229

Stovaline Analgesia

W BARRAS (*Brit Journ Anaesth*, July, 1928, p 1) advocates the induction of spinal analgesia by the injection of stovaline in selected cases, the indications for its use being patients for whom inhalation anaesthesia is contraindicated and operations requiring complete muscular relaxation. The soluble salt stovaline hydrochloride is precipitated by alkalis, small traces of which lessen its analgesic properties. It is stable and capable of sterilization at 115° C. The maximum dose is 0.1 gram, and several solutions are in common use. Barras deprecates any elaborate preparation of the patient, but advises a little stimulant beforehand with a preliminary injection of morphine sulphate 1/6 grain and hyoscine 1/100 grain. Under strict asepsis injection is made through a lumbar space after a definite flow of cerebro-spinal fluid has been obtained. Numbness of the feet and legs and sensations of heat and cold are felt immediately after the injection, and impairment of pain sensation generally commences from two to three minutes later, the maximum effect of muscular paralysis is attained in from ten to fifteen minutes, and persists for from fifty to ninety minutes. Vomiting, which occasionally occurs during the analgesia, may be controlled by oxygen inhalation, while a fall in blood pressure is best restored by ephedrine hypodermically. Barras advocates ether inhalation as a restorative having been impressed by the effect of light ether anaesthesia when used to supplement the stovaline. Faintness and collapse due to extreme fall in blood pressure may be treated by adopting the Trendelenburg position, subcutaneous injections of adrenaline with massage of the site of injection to promote absorption may be useful. The author adds that the responsibility for the injection and for the general condition of the patient should be in the hands of a competent anaesthetist throughout.

Obstetrics and Gynaecology.

230.

A Round Ligament Reflex.

F I IMANITOFF (*Brussels Medical*, August 5th, 1928, p 1310) maintains that the round ligament possesses a reflex which can be utilized in the treatment of uterine retroversion. These ligaments arising immediately in front of and a little below the tubes, and being inserted among the connective tissue and muscular fibres of the labia majora, constitute a direct connexion between the uterus and the labia. Histologically they show the same structure as the uterine walls, and are thus the direct organic continuation of the uterus. In addition to smooth muscle fibres, the ligament, in its passage through the inguinal canal, receives striated fibres from the transversalis and internal oblique muscles, these forming the cremaster muscle. The axial part of the ligament contains its vascular supply, and these vessels are accompanied by nerves from the uterus. De Vicentis has shown that there is a relation between the abdominal organs and the cutaneous areas with which they are associated by sympathetic reflexes, and the present author holds that such a reflex exists in the round ligament entirely comparable in its sympathetic origin with other reflexes. The author remarks that the cremasteric reflex, present in the female though less marked than in the male, must not be confused with the round ligament reflex, though the two are complementary. These reflexes can be produced by stimulating, preferably with a high frequency current, the circumference of the hairy triangle of the mons and the inner surfaces of the thighs. This causes a contraction of the smooth fibres of the ligaments, and since these are in direct continuation with the uterine ones, a tonic contraction of the uterus ensues.

which straightens and draws it forward. The technique of the method is described. The only contraindications to its use are said to be retroversions due to tumours or adhesions. Usually twelve to fifteen applications suffice to restore the uterus to its normal position. Lianistoff reports 36 cases of retroversion due to abortion or post partum infection, and one juvenile case of lateral deviation, they were successfully treated in the manner described. In only three cases was there a recurrence of the trouble, but a second series of six applications definitely replaced the uterus normally.

231 Wounds of the Vagina from Coitus.

ACCORDING to A. BELLEI (*Ann di Ostet e Ginecol*, June 30th, 1928, p. 632) lesions of the vagina during coitus are less rare than the paucity of recorded cases would suggest, they are not less common among multiparae than nulliparae, but have been infrequently reported after the menopause. They are more common among the lower social classes, but only two cases have been reported as occurring in prostitutes as a rule, coitus has been in the normal position, and the lesion is often caused by the violence of an extra nuptial but voluntarily accepted congress. As a rule, vaginal wounds in mature persons after unforced coitus are not associated with disproportion, the most important causative factor is excessive vigour, especially on the part of the female. Etiological factors favouring injury to the vagina are (1) genital hypospasia, (2) pregnancy and the puerperal state, (3) previous vaginal operations, (4) abnormal direction of the vulvo vaginal canal, (5) presence of large faecal masses in the rectum. Diagnosis is generally easy, but reluctance of the patient to explain the true cause of the pain and haemorrhage may sometimes lead before examination to suspicion of incomplete abortion. The mortality, if published cases only were considered, would appear to be as high as about 7 per cent. Bellei describes ten cases, one of which—that of a forced coitus in a woman aged 48—proved fatal from septicaemia. In his series the relation of the accident to the last menstruation is recorded—about fifteen days had elapsed between the two in all cases. It is suggested that lesions at this time are favoured by increased sexual desire in the female during the days following ovulation.

232 Delivery of the Anencephalic Foetus.

H. NAUJOKS (*Zentralbl f Gynäk*, July 21st, 1928, p. 1818) quotes the report of Eierland, who has described a series of thirty cases of delivery of anencephalic monsters. The diagnosis was made after delivery in nineteen, at the end of the second stage of labour in eight, and during the second stage in three. Naujoks describes three cases in which diagnosis of the presentation was not made until shortly before birth, breech presentation having been expected. He points out that early recognition of the anomaly is frequently made more difficult by a coexisting hydramnion, which occurred in one half of Eierland's cases of anencephaly, and in an even larger proportion in cases reported by other authors. Radiological examination during pregnancy has occasionally led to detection of an anencephalic foetus, and Naujoks records a case in which the use of x-rays spared the patient considerable suffering. A 5 para, aged 34, was admitted to hospital five weeks before term for severe abdominal pain and great distension of the belly, combined with symptoms suggesting pregnancy toxæmia. The foetal parts and position could not be identified by intrapelvic or abdominal palpation. Radiography showed an anencephalic foetus, and labour was forthwith induced.

Pathology.

233. The Action of Lecithin on the Blood

A. GRÖNBERG and Å. LUNDBERG (*Acta Med Scand*, August 13th, 1928, p. 99) state that, following Magat's work proving that in rabbits injections of lecithin caused an erythrocytic increase, a 10 per cent emulsion of lecithin in glycerin has been used in the treatment of grave anaemias. The authors have made a series of experiments, both *in vitro* and *in vivo*, to ascertain whether lecithin increased the resistance of the red cells to hypotonic sodium chloride solutions, and, if so, whether similar results were produced in men and animals, they also tried to elucidate the action of lecithin in anaemias. The brownish yellow lecithin emulsion was administered intravenously in 5 gram doses and intramuscularly in doses of 15 grams in the latter injections 1 per cent of novocain was added. The *in vitro* tests were made on blood diluted with physiological salt solution and with distilled water, and on blood to which haemolysing agents such as saponin and bothriocéphalus extract had been added. The other experiments were made on rabbits and on nine patients suffering from various diseases. In two

of these cases a pronounced anaemia existed, the erythrocyte count being normal in the others, the emulsion was administered intramuscularly in one case and intravenously in the remainder. The results showed that lecithin does increase the resistance of the red cells to hypotonic solutions and haemolysing agents, but that to produce this action the lecithin must be emulsified in oil or glycerin and the emulsion carefully shaken before use. The erythrocytes were increased in the anaemic patients and in those with a normal cell count. Two hypotheses are given as to the action of lecithin: (1) that it is a purely physico-chemical phenomenon, and (2) that it is a biological reaction of one or more parts of the organism. Pending further experiments, the authors incline to the former view.

234 Efficacy of Antidiphtherial Serums.

E. TECHOUEYRES (*Presse Méd*, July 21st, 1928, p. 918) mentions the continued appearance of serious forms of diphtheria which do not respond, as might be expected, to treatment with serum. The remedy has sometimes been suspected, and to overcome the difficulty, larger and more concentrated doses have been given. However, Grenet and Delnne found that children treated with a serum rich in antitoxin gave a mortality of 23.5 per cent, whereas during the same period and in similarly severe cases serum of half the strength gave a mortality of only 13.43 per cent. Thus there seems to be no relation between the antitoxic strength of a serum and its curative effect. Techoueyres quotes Nicolle's former view, which was that two groups of factors were concerned, the one relating to immunity (conglins), the other to sensitivity (lysins). Seeing that clinical results do not agree with the theory, he proposes a hypothesis depending upon perpetual change or continuous evolution. He remarks that the quality of producing immunity attributed to this act of coagulation may perhaps be a wrong interpretation, substituting for a real and continuous progress a fixed and precisely defined state. This idea is illustrated by a table showing the effect of alcohol on several types of bacteria in which the lethal period increases with the stronger solutions, the purer alcohol coagulates the albumin and prevents penetration into the interior. He concludes by asking whether the increase in the strength of antitoxin solution does not act in a similar manner.

235 The Relation between *B. pseudotuberculosis rodentium* and *B. pestis*.

S. J. ZLATOGOROFF and Mme B. MOCHILEVSKAIA (*O R Soc de Biologie*, July 13th, 1928, p. 505), endeavouring to find some method for distinguishing *B. pseudotuberculosis rodentium* from *B. pestis*, have come to the conclusion that these two organisms are even more closely related to each other than is generally supposed. Two cultures of the pseudo-tuberculosis organism were cultivated in broth containing only a trace of peptone for about four weeks, they were then plated out on agar. Two sorts of colony were noticed—a smooth and a rough, intermediate forms between these two main types were also observed. The two type colonies were obtained in pure culture. It was then found that the smooth type was highly virulent for the guinea pig, and that in its cultural and biochemical reactions it was practically identical with *B. pestis*. The rough form, on the other hand, was only slightly virulent or actually non-virulent for the guinea pig, and in its cultural and biochemical reactions it preserved the properties of the parent strain. A difference in receptors was found between the rough and the smooth form. The authors conclude that *B. pseudotuberculosis rodentium* can produce a smooth variant which is for all practical purposes indistinguishable from *B. pestis*. They add that this observation establishes a whole series of new problems in the detection of endemic foci of plague.

236. Granulomatosis Siderotica of the Spleen

O. Z. ATTILIO (*Arch di Patol e Clin Med*, May-June 1928, p. 122) reports a case of this condition which was described by Gamma in 1923. He examines critically the French and German literature on the subject and expresses the belief that the "nodules tabac" described by Gamma are not specific for this form of splenomegaly, but are common in other types of splenic enlargement. He does not think that it is definitely mycotic in origin, although mycosis cannot be excluded as a secondary infection. The author's patient presented some of the symptoms of Banti's disease in the second stage, but there was no urthraur or relative lymphocytosis, attacks of fever occurred at times, and there was some enlargement of the inguinal glands, probably an intercurrent affection. When the spleen was removed an intercurrent affection. When the spleen was removed Gamma nodules were found, histologically "necrosiderotic". The liver was normal except for slight fattiness. After splenectomy the patient improved. Numerous drawings of the histological appearances are reproduced.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

237 Acute Yellow Atrophy following Cinchophen Administration

D. C. SUTTON (*Journ Amer Med Assoc*, August 4th, 1928, p 310) reports a case of cinchophen poisoning, the patient, a woman aged 27, having taken a total of more than seventy tablets as a remedy for joint pains. The first symptoms were a yellow discoloration of the skin, followed by a very irritable eruption over the face, arms, and body. Some days later there began attacks of a feeling of constriction of the chest, associated with humming sensations there and in the throat and face. Two face lips, and tongue became greatly swollen, the pulse rate increased, and there was vomiting, after about an hour the symptoms subsided. These attacks ceased after about a week. Two months later ascites increased rapidly, and the patient died after an attempt to relieve this condition by means of a Lanza-Narath operation. The liver contained sharply circumscribed yellow areas and a surrounding dark red portion, the areas occupying more than half the total cut surface. Many liver cells showed extreme fatty degeneration and actual necrosis, the bile ducts proved more resistant to the toxic process. The convoluted tubules of the kidney were dilated and filled with a form of granular material, the lining epithelium being swollen, as were the glomeruli. Sutton suggests that the benzoin ring in this preparation causes the jaundice, and that under some conditions the oxidation in the liver of the quinoline nucleus may produce highly toxic nitrogenous compounds. He refers to reports of similar cases in the literature (see *Journal*, 1926, Vol II, pp 37, 93, 136, 273-299). While admitting that this drug is most efficient in acute gout, he gives a warning that it should be used only during attacks of pain and be immediately withdrawn should urticaria, gastric distress, or jaundice appear.

238 Typhoid Fever in Peking

S. H. ZHANG (*Nat Med Journ of China*, April, 1928, p 105) records his observations on 256 typhoid fever patients admitted to the Peking Union Medical College Hospital between July, 1921, and the end of 1927, of these, 203 were males and 53 females. During the same period there were 48 cases of paratyphoid A and 17 of paratyphoid B. Over half the cases occurred in patients between 16 and 25 years of age. The youngest patient was aged 1½ and the oldest 48 years. Most of the patients were of the student, soldier, and labouring classes. The highest incidence came in the months immediately after the hottest season, in 29 cases there were relapses, the average interval between the end of the initial attack and relapse being seven to eight days. Intestinal haemorrhage occurred in 20 per cent, perforation in 3 per cent, and parotitis in 3 per cent. The annual mortality varied from 5.8 to 26.3 per cent, the average being 15.6 per cent.

239 Venous Blood Pressure in Hyperplasia

C. ALEXANDRESCO-DESCA, D. JONESCO, and V. BALACEANU (*Paris Méd*, August 11th, 1928, p 133) review the advances made in recent years in the study of peripheral venous blood pressure. Using the technique of vein puncture elaborated by Villaret, they have investigated the venous pressure in thirty cases of chronic hyperplasia, the measurements being made in each case under exactly similar conditions. They found increased pressure in the veins in these patients suffering from early cardiac insufficiency or definite failure of the right heart, and also in cases of advanced renal disease. The pressure in such patients varied between 17 and 60 cm of water as compared with the normal 12 cm. Intrapulmonary hypertension, whether arising from bronchitis, emphysema, fibrosis, or sclerosis of the pulmonary artery, was also found to raise the intravenous pressure. Reduction of the venous pressure to 7 or 10 cm of water was observed in cases of hypertension accompanied by arterio-sclerosis or any other lesion involving the smaller blood vessels and capillaries. In a third group, in which high blood pressure was not complicated by cardiac, pulmonary, or vascular lesions, a normal venous blood pressure was the rule. From these results it is inferred that the determination of venous pressure is of diagnostic value because it is an index of the functional integrity of the right heart. Further, if it is reduced *pari passim* with the arterial pressure as a result of treatment, the outlook is more favourable, since the heart has responded to therapeutic measures. Venous pressure

measurements are therefore of use in prognosis, but they are also valuable in therapeutics, thus readings taken from time to time may help to determine the activity of particular remedies in cases of hypertension, chronic uraemia, and high blood pressure due to disease of the lung or its blood vessels.

240 Skin Sensitivity in Scarlet Fever

JEAN V. COOK (*Amer Journ Dis Child*, May, 1928, p 762) finds that skin sensitivity to scarlatinal streptococcus filtrate toxin, which is present in only a small number of infants at birth, increases slowly during the first six months and more rapidly during the last half of the first year. It remains high from the second to the sixth year and falls during the school age. The relative absence of skin sensitivity during early infancy and the rather gradual development of this property later might have several possible explanations—as, for example, the assumption of an inherited antitoxic immunity from the mother in early life which disappears later. The possibility that the skin sensitivity is dependent on an acquired hypersensitivity to streptococcus protein must also be considered. Haemolytic streptococcus infections of the upper respiratory tract are extremely prevalent in infancy, and the opportunity for such a sensitization in early life is therefore present. The decrease in skin sensitivity in later childhood is apparently associated with the presence of specific neutralizing antibody (antitoxin) in the blood. This immunity is probably acquired as a result of later streptococcal infection.

241 Lymphogranulomatosis Maligna.

A. DALLA VOLTA (*Arch di Patol e Clin Med*, May-June, 1928, p 167) publishes two cases of this condition especially affecting the spleen. The blood was marked by a diminution of platelets and granulocytes, while the lymphocytes were almost normal. Examination of the myeloid tissue showed that these blood changes were myelopathic in origin, and due to a partial hypoplasia of the bone marrow, which in its turn was attributable to a toxic process of splenic origin. The author has found x-ray therapy useful in these cases, applied especially to the spleen.

Surgery.

242 Biliary Intestinal Anastomosis for Obstructive Jaundice

E. S. JUDD and B. R. PARKER (*Archives of Surgery*, July, 1928, p 1) report the results of operation in 137 consecutive cases in which anastomosis of the biliary and gastro-intestinal tract was performed. Each patient with jaundice was treated before operation with a diet rich in carbohydrates and was given fluids and calcium chloride injections. Many of the malignant cases were hopeless and required heroic measures for their relief. In the 137 cases there were 9 of contraction of the stoma. Return of symptoms occurred from one to six months after operation, and reconstruction of the stoma over a rubber tube was effected in each case. Five patients have survived from two to four years after operation and ten have been completely relieved of their former trouble, three cases are reported as much improved. There were 62 cases of stenosis of the bile ducts following operation. It was noted that the trouble appeared immediately after the primary operation in certain cases, and was probably due to a continuation of the inflammation in the bile ducts, which finally resulted in obliteration. The authors add that many cases attributed to trauma are due to obliterative cholangitis. Various types of operation were performed, and 17 patients were completely freed from their symptoms. A review of the general results was not encouraging, but the end results were satisfactory in cases in which there was a reasonable chance of improvement or cure.

243 Statistics of Prostatectomy

P. CIELESKY (*La Ved Ibera*, August 4th, 1928, p 108) has performed prostatectomy on 226 patients. Of 90 patients treated during the period 1910 to 1917, 72 recovered and 18 died, a mortality of 20 per cent, while of 136 treated between 1920 and 1928, 126 recovered and 10 died, a mortality of 7 per cent. The better recovery rate in recent years is attributed to improved technique, especially packing the cavity, performance of the operation in two stages, and a careful

selection of cases While 142 cases occurred in hospital practice with a mortality of 14 per cent, there were 84 in private practice, with a mortality of 7 per cent. The causes of death were haemorrhage 8 cases, broncho pneumonia 6, naemia 5, generalized infection 4, cardiac failure 2, shock 2, and pyelonephritis 1. General anaesthesia with ether and chloroform was employed in 167 cases, spinal anaesthesia in 58, and general anaesthesia with ethyl chloride in 1. 31 patients developed epididymitis, which in only one case terminated in suppuration, and 21 had pyelonephritis, which was severe in only two instances, one patient dying. In 2 cases post-operative stricture developed in the deepest part of the membranous urethra, in 3 cases the operation was followed by prostatitis, which in 2 was mild, and in 1 ended in an abscess which had to be opened through the perineum. Perineitis occurred in 12 cases, in 9 being of a mild character, and in 3 ending in an abscess which was evacuated into the urethra in 2 cases and externally in 1. In 9 cases cicatrization was slow, but no permanent fistula resulted. Four patients had a mild form of phlebitis of the lower limbs accompanied by a slight rise of temperature, three patients developed secondary vesical calculi a few months after the operation owing to persistence of infection in the bladder. Like most urologists Cifuentes is in favour of the hypogastric operation performed in two stages.

244. Simple Facial Erysipelas with Streptococci in the Blood and Urine.

H. HOFFMANN (*Med Klin*, July 27th, 1928, p. 1164) states that in uncomplicated erysipelas the prognosis is good in the majority of cases when the blood is free from streptococci, but when these are present in the blood stream, the probability of a generalized septicaemia renders the prognosis much graver. Hoffmann's patient was a boy aged 11 who had suffered from lupus vulgaris of the nose and nose since he was 4. He had also lupus on the left arm and on both great toes, and the nasal mucosa had been invaded. The patient had been under treatment since January, 1927, with rays, pyrogallol, and tuberculin had been tried. The pulmonary physical signs were suspicious, but skiagrams showed nothing definite. The heart appeared to be normal. The Pirquet reaction was definitely positive. One day the boy's temperature rose suddenly to 104.2° F. with painful erythema of the nose and left cheek. Erysipelas of the nose spread rapidly over the whole face and invaded portions of the scalp; there was severe headache and slight general malaise. On the seventh day the temperature rose to 106.3° F., and a pure culture of a haemolytic streptococcus was obtained from both blood and urine. There was a leucocytosis of 13,700 and the lymphocyte count was 14 per cent. Albuminuria was absent, and the spleen was not palpable. Two days later the erysipelatous swelling disappeared, and the patient was discharged in good general health four weeks after his admission. Hoffmann comments on the great rarity of streptococcal invasion of the blood and kidneys in uncomplicated cases of erysipelas, and also notes the remarkable fact that a haemolytic streptococcus in the urine failed to produce albuminuria, although this sign is found in about half the cases. Actual acute nephritis occurs only in 2 to 3 per cent of cases of erysipelas. According to one German writer the death rate from septic facial erysipelas amounted to 68.75 per cent, another gives the death rate of facial erysipelas in children as 15 to 20 per cent.

245. Primary Carcinoma of the Ureter

L. P. PLAYER (*Urol and Cutan Rev*, July, 1928, p. 438), who has collected thirty nine cases, including a personal one, states that this tumour occurs with equal frequency in both sexes. The ages of the patients range from 30 to 89, but the sixth decade is most affected. The three main symptoms are pain, haemorrhage, and tumour. The pain may be variable in character, it often starts in the lumbar region, occurs in crises, and sometimes there may be renal colic with pain radiating towards the bladder. Haematuria is the most constant symptom. A tumour may be detected by bimanual palpation under the bladder near either ureteral opening. When a mass can be felt in the lumbar region as a result of ureteral tumour, the neoplasm has usually advanced so far as to produce obstructive symptoms resulting in a hydronephrosis, haematonephrosis, or pyonephrosis. Anaemia, which is a less frequent symptom, may become bilateral, due to sympathetic involvement of the other ureter, carcinomatous involvement of the muscular coat of a patent ureter may also cause total obstruction by blocking the peristaltic waves. Treatment consists in early removal. Player's patient was a woman aged 65, with a history of haematuria of two years' duration. A diagnosis of neoplasm of the left ureter with hydronephrosis was made and confirmed at the operation, when nephrectomy and ureterectomy (upper half) were performed. The tumour proved to be a papillary epithelioma. Benign

metastatic papillomatous growths in the bladder were treated by fulguration. The patient remained in good health for two years after the operation and then complained of pain in the left side, she passed increasing amounts of blood, became cachectic, and died.

246. Indications for Appendicostomy

G. COTTE and P. BRITRAND (*Lyon Chir*, May-June, 1928, p. 305) describe the indications for appendicostomy. The operation they have employed has been as a caecal fistula rather than a true appendicostomy, the caecum and base of the appendix being sutured to the parietal peritoneum. A urethral sound has been used to keep the opening patent, and the fistula has always closed spontaneously when this has been removed. Appendicostomy has been employed with advantage in cases of paralytic ileus following peritonitis, and in surgical affections of the large intestine, such as malignant growths, with or without obstruction, acute chronic dysenteric ulceration, and volvulus of the sigmoid colon. It has also proved of value for introducing saline solution into the bowel after serious abdominal operations. Appendicostomy has been used with success in cases of severe gastric haemorrhage, both as a means of administering fluid and of evacuating the blood from the bowel. The operation is said to be valuable in all those conditions, and has in no single instance been followed by any unsatisfactory results. While it cannot be said that it has actually saved the life of any patient, it has certainly proved distinctly beneficial in the conditions described.

Therapeutics.

247. Remedial Measures for Cardiac Neurosis.

W. SCHOLZ (*Wien Klin Woch*, July 5th, 1928, p. 951) emphasizes the importance of regarding the vague condition of cardiac neurosis as part of a general neurasthenic state which leads the patient to take undue interest in heart sensations which are of little or no pathological significance. After determining by careful examination that there is no evidence of commencing heart disease, and winning the confidence of the patient, Scholz advises residence at or above the sea coast and the encouragement of physical activity. In severe cases such as those of "heart cramp" small doses of cocaine may be effective, or a mixture of the tinctures of aconite and valerian, rubbing the chest with alcohol, ether, or vinegar is also commended. In less acute cases the most useful remedies are the bromides, valerian, iron, arsenic, and quinine, arsenic in the form of injections has a suggestion value, and involves a closer medical supervision which may be advantageous. Cocaine and morphine preparations are contraindicated. Lukewarm baths each morning have been found useful, and to them may be added salt, thyme, and pine extract. Massage, air baths, faradic stimulation, and "four cell" baths may also be tried. Holotherapy under careful medical control is sometimes beneficial. Symptomatic treatment of such conditions as sleeplessness and loss of appetite should not be omitted. For relief of the unpleasant sensations caused by extra systoles becoming perceptible, the administration of quinine three times a day has been found useful.

248. Treatment of Alkalosis in Peptic Ulcer

W. E. GATEWOOD, O. H. GAEBLER, E. MUNTWYLER, and V. C. MYERS (*Arch Int Med*, July, 1928, p. 79) have studied the alterations in the blood chemistry caused by the treatment of peptic ulcer by alkalis, the result of using various alkalis in routine treatment, the effect of vomiting and aspiration of large quantities of gastric juice, and the shift of the acid base balance after relief of pyloric obstruction by gastro-enterostomy. The investigations of the blood chemistry in a few conditions other than ulcer of the stomach and duodenum—namely, carcinoma, colitis, and pernicious anaemia—were of interest because these conditions had features in common with certain forms of peptic ulcer. In patients showing symptoms of alkalosis changes in the blood chemistry and symptomatic relief occurred when sodium bicarbonate was replaced by calcium carbonate, the only disagreeable result of the administration of calcium carbonate was a tendency to constipation with hard, dry, lumpy stools occasionally producing faecal impaction. The chief symptoms observed were headache, drowsiness, anorexia, nausea, vomiting, muscle ache, nervousness, and mental depression, usually appearing from the sixth to the eighth day. Such symptoms increased during the day as the blood became more alkaline, returning to a more normal condition in the morning before the administration of alkalis was resumed. From a study of forty six patients suffering

from gastric or duodenal ulcer, with special reference to the acid base balance, a definite correlation was found to exist between the alkalaemia in these cases and a group of clinical symptoms chiefly nervous in character. Pyloric obstruction is an important factor in the production of alkalosis, and its surgical relief restores the acid base balance and the chloride deficit. The authors found that when calcium carbonate and magnesium oxide were given without soda the alkalaemia was much less severe, the clinical symptoms of alkalosis were not likely to appear if there was no occurrence of obstruction or vomiting, and in those cases there was no evidence that the alkalaemia produced any renal damage. The importance of treatment with water and sodium chloride, especially as a pre-operative and post-operative measure, is emphasized. It is added that when patients who have been treated with alkalis consent to operation the alkalis should be omitted for several days before operation and water and sodium chloride given freely.

249 Treatment of Acute Poliomyelitis

P. NOBECOURT (*Journ de Méd de Paris* June 7th, 1928, p 447), who has treated six cases of poliomyelitis in children with Pettit's serum, found that it did not prevent death in one case, although it was given as early as fifteen hours after the onset. It had also no effect on the course of the other five cases, even though one of the patients was given as much as 500 ccm of serum. He appends the following instructive statistics of the results of various methods of treatment. Tinel-Giry (*Thèse de Paris* 1911)—Ordinary methods, deaths, 6 per cent, complete or almost complete recovery, 14 per cent, considerable improvement, 68 per cent, persistence of severe paralysis, 12 per cent. Salanfor (*Thèse de Paris*, 1917)—Treatment with convalescent serum, deaths, 22 per cent, complete or almost complete recovery, 30 per cent, considerable improvement, 37 per cent, no change, 8 per cent. Nobecourt's principal conclusions are as follows: (1) Holne-Medlin's disease may assume very different clinical forms, attacks of varying degrees of severity being found in different epidemics, in the same epidemic, and among sporadic cases. Even extensive paralysis may undergo considerable spontaneous improvement. There does not appear to be any specific treatment in the acute stage at the present time, Pettit's serum in particular having no obvious value. Although we possess no really efficient method for controlling the course of Holne-Medlin's disease in the acute stage, considerable benefit may be derived later from the application of various physiotherapeutic measures.

Laryngology and Otology.

250 Abductor Paralysis of the Larynx.

J. E. MACKENTY (*Arch of Oto Laryngol*, July, 1928, p 37) has devised a simple operation for the relief of abductor paralysis of the larynx—a small permanent opening in the windpipe where it dips backward into the thorax. Through a two-inch incision in the middle of the neck the thyroid bridge is excised, and an oval section of the trachea wall is removed, leaving the mucous membrane intact. Skin flaps are nailed with the edge of the oval opening in the trachea. The diaphragm of mucous membrane is left intact for four or five days, after this it is split in its long axis and attached to the edge of the skin flaps. During the period of healing and contraction a small silver obturator is worn or a small tracheal cannula may be substituted. The air passing through this small opening in the trachea counteracts the inspiratory pull on the cords and acts as a safety valve during the dangerous asphyxial spasms. After several weeks the obturator can easily be removed, but if the opening shows a tendency to contract it should be dilated. The operation is not intended to supplant ventriculocordotomy, but may be used as an intermediate procedure between this and tracheotomy. Low speech is possible without closing the aperture, and loud speech can be obtained by pressing the clothing of the neck against the opening. If the laryngeal condition improves, or if ventriculocordotomy is contemplated the tracheal opening is easily closed by eversion and sewing the skin over it. The author adds that this procedure has been found most useful in the case of bilateral abductor laryngeal paralysis.

251 Hypertrophic Rhinitis

L. FELDMAN (*New England Journ Med*, May 17th, 1928, p 682) discusses a rational treatment of hypertrophic rhinitis by the application of the positive pole of a galvanic current to the hypertrophic mucous membrane without producing the bad effects of destruction of excessive tissue. Through a non-vacuum flat nasal electrode held against the tissues a monopolar high frequency current from the Oudin coil is

turned on for about ten minutes and the spark gap regulated so as to produce a slight tingling sensation. This causes hypnomania of the previously pale boggy hypertrophied membrane and renders it ready for the subsequent treatment with current from the positive pole of a galvanic apparatus, attached by an insulated wire to a flat copper electrode covered with cotton. It is moistened and applied intranasally against the tissues, while a larger indifferent moistened pad is placed over the sternum. The average dosage is about three to eight milliamperes applied for about ten minutes, and the whole process is then repeated on the other side of the nose. In 50 cases so dealt with the average number of treatments was ten at forty-eight-hour intervals, 56 per cent of the cases were cured, 24 per cent improved, and 20 per cent unimproved. Goldman considers that this method offers a greater percentage of relief and cure than others, and he is of opinion that further research will prove the value of such physical measures in many chronic and acute conditions.

252 Antral Suppuration Treated by Suction

T. LKJUND (*Umska Läkarsälls apets Handlingar*, April, 1928, p 287) describes how he treated himself for suppuration of the right antrum associated with general and severe local symptoms. Wishing to avoid an operation followed by prolonged irrigation, he constructed a suction apparatus, connected at one end with a vacuum cleaner, and at the other with the antrum by means of a suitably shaped nozzle. From this nozzle a thick walled rubber tube passed to a glass tube thrust through the cork of a wide necked bottle. Through the same cork another glass tube was passed, and was connected with the rubber tubing attached to the vacuum cleaner. When the nozzle was inserted in the right nostril, the left one was closed, the vacuum cleaner was set in action, and the patient was made to close the nasopharynx by trying to breathe through his nose. The vacuum cleaner being always in readiness, the whole operation took only a few moments, and was repeated at intervals. At the end of the operation the nozzle was put into water, which, being sucked into the bottle, cleaned the tubing. During the acute stage of antral suppuration it is necessary to repeat this operation every two or three hours if the pain and sense of pressure associated with this condition are to be avoided. In the author's case this condition cleared up within three weeks, during which he was able to remain at work. The only objection to this treatment is the noise of the vacuum cleaner, which, if worked at night, is liable to be a nuisance to the neighbours.

Obstetrics and Gynaecology.

253 Vaginal Hernia.

J. C. MASON and H. E. SIMON (*Surg, Gynecol and Obstet*, July, 1928, p 36), who record five illustrative cases in women aged 44, 42, 65, 39, and 57 respectively observed at the Mayo Clinic, state that vaginal hernia is very rare. It is formed by a portion of the abdominal contents pushing through an opening in the pelvic floor or a peritoneal sac which presents in the vagina. The symptoms are not characteristic, and the diagnosis is rarely made before operation. When the hernia is large it may interfere with walking. On superficial examination a vaginal hernia is not readily differentiated from a rectocele or a cystocele, but its true nature is usually revealed by more careful examination. Anterior vaginal hernia is distinguished from cystocele by the introduction of a sound into the bladder, while posterior vaginal hernia and rectocele are differentiated by rectal examination, which shows that the bulging of the rectum into the vagina, no matter how marked, constitutes only a small portion of the mass. Complications are rare. Strangulation is uncommon, because the neck of the sac is usually very large in proportion to its size. The posterior type of vaginal hernia is the commonest, being about sixteen times as frequent as the anterior type. The most probable cause of vaginal hernia is congenital weakness of the muscles which form the pelvic floor. Treatment is surgical, the use of palliative measures such as supports of various types being unsatisfactory.

254 Presentations of Sinciput Face and Brow

F. DEMUTH (*Zentralbl f Gynäk*, June 30th, 1928, p 1653), states that presentation of an imperfectly flexed vertex was noted in 1.16 per cent of 12,100 births in a Prague clinic. The 141 cases comprised 77 sinciput, 56 face, and 8 brow presentations. The general conclusion drawn with regard to treatment is that the greatest importance should be attached to early diagnosis. Each case demands a careful consideration of the attendant obstetric circumstances as regards both mother and foetus, but whenever possible expectant treatment is called for. Persistence of sincipital presentation was almost twice as frequent among primiparae as among

multiparae, and the second or right sinclipto anterior presentation was almost as common as the first. In four fifths of cases the foetus was of modicum weight or was undelivered. Pelvic contraction was present in one third, usually as a minor degree of flattening. Three quarters of the sincliptal presentations came to spontaneous delivery, but in both multiparae and primiparae the average time of labour was almost double that of occipital presentations. One fifth of the cases called for forceps delivery, of the 77 cases bipolar version was performed in one and Caesarean section in three. In the whole series the maternal and foetal mortality rates were 1.7 and 3.8 per cent respectively, puerperal fever was present in 14 per cent. Face presentation, of which the first was twice as common as the second position, was more frequent among multiparae, in almost one half of cases a slight degree of pelvic contraction, usually flattening, was present. The foetuses were as a rule small. Of the 56 cases 53 were delivered spontaneously, with a foetal mortality of 16 per cent, the three cases of forceps delivery (on maternal indications) led to three foetal deaths. Death of the foetus almost always occurred during the actual delivery of the head, as a consequence of compression of the cervical blood vessels, it is pointed out, however, that this circumstance affords no indication to instrumental acceleration of delivery, which is attended with an equally large foetal mortality and increased danger for the mother. There were eight persistent brow presentations, in eleven other cases this presentation became changed into face presentations, spontaneously or after treating the mother by laying her on the side corresponding to that of the foetal chin. The average duration of labour was forty one hours, three cases were delivered spontaneously, with one foetal death. Operative delivery was performed in five cases, four times because of maternal pyrexia, four forceps deliveries led to two stillbirths, and one oriotomy was required. One maternal death occurred. Demuth suggests that in unfixed brow presentations (1) oriotomy by manual endeavour and/or positional treatment of the mother, and in fixed presentations with even slight pelvic contraction, (2) the performance of Caesarean section, might diminish maternal and foetal risks.

255. Puerperal Hemiplegia.

N J EASTMAN (*Amer Journ Obstet and Gynecol*, June, 1928, p 753) records seven illustrative cases of puerperal hemiplegia seen at the Pekin University Medical College Hospital in the course of four years. Two were apparently due to cerebral haemorrhage, two to cerebral thrombophlebitis, and three to cerebral embolism. Eastman states that puerperal hemiplegia from cerebral haemorrhage usually comes on during or shortly after labour, probably as the result of a coexisting toxæmia of pregnancy which produces structural damage of the vessel walls, rupture of which occurs owing to the rise of blood pressure and heaving down efforts incident to labour. Puerperal hemiplegia from cerebral thrombosis, which is probably the commonest type of the condition, appears most often in the second or third week of the puerperium, probably always secondary to a pelvic infection. In many instances the cerebral thrombosis is preceded by a toxæmia of pregnancy in which, as in cerebral haemorrhage, vessel damage plays an important etiological part. Certain changes in the colloidal state of the blood increase the tendency to thrombosis in the puerperium. Puerperal hemiplegia from cerebral embolism may be due either to detached ovarian vegetations or to emboli of pelvic origin. Although Eastman's patients all survived, the prognosis of puerperal hemiplegia is usually grave. Cerebral haemorrhage occurring during labour is particularly likely to be fatal. Survivors seldom escape a certain degree of permanent paralysis. Of Eastman's patients only one made a complete recovery.

Pathology.

256. Passage of Living Bacteria through the Intestine.

L ARNOLD (*Amer Journ of Hygiene*, July, 1928, p 604) has tried to determine the factors concerned in the passage of non-pathogenic bacteria through the wall of the intestine. A cannula was placed in the thoracic duct of a dog under local anaesthesia, and lymph was collected with sterility precautions for five minutes. The duodenum was then exposed through a small incision in the anterior abdominal wall, and bacteria suspended in various media were injected directly into it. The duodenum was replaced in the abdomen and the incision closed. Lymph was collected from the thoracic duct, and distributed each five minutes into separate tubes 0.25 c cm was plated on agar, and counts were made after twenty four hours, the bacteria used being *B prodigiosus* and *B coli*. It was found that when the suspending fluid was an alkaline phosphate buffer solution of pH 8.0 or neutral saline solution no bacteria appeared in the lymph, but if

egg white was added to the alkaline solution, then as many as 500 to 1,000 bacteria per c cm of lymph were demonstrated. The addition of egg white to neutral saline had no such effect. The addition of dog's serum either to the alkaline or the neutral solution likewise had no effect. A 10 percent solution of dog's bile in a neutral solution allowed a few bacteria to pass through the intestine and in an alkaline solution definitely more. In all instances in which bacteria did pass through the intestine the passage lasted for not more than an hour, usually for not more than half an hour. Further experiments made on dogs with gastric and cesal fistulae showed that after a high protein meal, given by the mouth *B prodigiosus*, which had been added to the meal, appeared in large numbers in the caecum, after a simple meal of milk, on the other hand, only very few organisms appeared in the caecum. Similarly fever, a high external temperature, or the injection of foreign protein allowed a large percentage of the ingested bacteria to reach the caecum. The author concludes that each factor as these, and the ingestion of large quantities of protein or the sudden alkalization of the upper part of the intestine in the presence of foreign protein, interfere with the normal bacteria killing power of the intestine, as a result of this, bacteria are in certain circumstances able to pass through the intestinal wall and reach the blood stream.

257. Reaction of Guinea pigs to Typhus

H MOOSER (*Journ Amer Med Assoc*, July 7th, 1928, p 19) found that male guinea pigs inoculated with blood from patients with Mexican typhus (tabardillo) almost invariably developed a scrotal swelling, sometimes simulating in many respects the scrotal lesions seen in guinea pigs inoculated with Rocky Mountain spotted fever. Histological examination of the animals inoculated with Mexican typhus shows pronounced swelling and proliferation of the endothelial lining of the tunica vaginalis. The endothelial proliferation is usually so pronounced that the tunica is transferred into a thick oedematous milky membrane, which can easily be scraped off. Smears from the scrapings invariably showed swollen endothelial cells containing minute diplobacilli, often in enormous numbers. These endothelial cells closely resemble the epithelial cells of the stomach of infected lice. The swollen tunica of the guinea pigs is highly infectious, a small drop of the oedematous fluid being sufficient to infect a guinea pig.

258. The Malignant Functions of the Chorionic Epithelium.

W BLAIR BELL (*Journ Obstet and Gynecol of the British Empire*, Summer Number, 1928, p 233) summarizes his view that the chorionic epithelium is originally malignant in nature but is early controlled by the foetus, and that in somatic malignant neoplasia the reversion from highly differentiated to simple cells is to those of the trophoblast. At an early stage the cells of a malignant neoplasm resemble those of the affected tissue, later they revert to a primitive type of cell and even to a synzytial arrangement. Such simple cells, unlike the fully differentiated, take no part in bodily functions, they are "injured" cells whose metabolism changes to meet some abnormal condition such as imperfect oxidation. On comparing the chemistry and functions of normal, benign, and malignant tissues and of the chorionic epithelium, permeability of the cell membrane to water soluble substances is seen in rapidly growing tissues, and is favoured by a high phosphatid cholesterol ratio in the constitution of the membrane, in both these respects chorionic epithelium shows even higher figures than malignant neoplasms and more resemblance to this tissue than to either benign or normal growth. The metabolism of malignant tissues differs from normal and benign in regard to glycolysis, this normally occurs to any extent only in growing tissues. In malignant neoplasms glycolysis is increased, and occurs even in aerobic conditions. Experiments on human placental tissues show glycolysis resembling that in malignant tissue, where chorionic epithelium was present, and a like resemblance is found in the infiltration of other tissues by chorionic villi. On examining the glucose and lactic acid values of maternal and foetal arteries and veins, it was found that the placental circulation had a lower glucose and a higher lactic acid content than in the venous circulation of the mother, this suggests again the high glycolytic power of the chorionic villi, but at full term it may be due to other causes. Like malignant tissues the chorionic epithelium shows a pH value on the acid side of neutrality, and this is more acid the younger the placenta. Chorionic epithelium is thus shown to bare the characteristics of malignant tissue, and this is most marked in its early stages. Conversely, malignant neoplasia of somatic tissues appears to be a process of cellular dedifferentiation back to the trophoblastic type which possesses a metabolic function (glycolysis) that provides energy for existence in abnormal circumstances, such as deprivation of oxygen.

259 J. L. RICHARDSON and M. A. MANKINSON (*Intern Jour Med Sci*, August, 1928, p 168), whose observations are based on 198 cases of alcoholism treated at the Lakeside Hospital, Cleveland, from 1921 to 1926 inclusive state that since the advent of prohibition alcoholism presents many differences from that of former years, its chief characteristics now being early loss of consciousness in a large percentage of cases, a slight febrile reaction, and a transient albuminuria, in addition to other signs of alcoholic intoxication. The 198 cases were classified as follows: acute alcoholism 51, chronic alcoholism 61, neuritis 18, cirrhosis 14, delirium tremens 5, alcoholism associated with other poisons 5, and alcoholism in connection with accidents 44. The rarity of delirium tremens is attributed to the fact that the dolly "tippler" has disappeared and has given way to an individual who indulges in frequent sprays. Alcoholic neuritis is at present characterized by its comparatively rapid onset and short duration. Weakness constituted the complaint in over half the cases, while only one third complained of pain. According to the author's experience the present picture of alcoholic cirrhosis is essentially the same as before prohibition. Of 134 patients admitted to hospital 8 died, 4 from acute alcoholism with complications (namely, cerebral haemorrhage, lead encephalopathy, diabetes, and colitis), 3 from cirrhosis, and one from wood alcohol poisoning.

W. T. VAUGHAN (*Science*, July 6th, 1928, p 1) regards the study and treatment of allergic diseases as primarily a biologic problem, and considers the basic cause of hay fever and asthma to be the inhalation, ingestion, and absorption of some foreign protein through the respiratory or gastro-intestinal mucous membrane. An individual who has become sensitive to the proteol of a food has the barriers against its subsequent absorption much diminished, so that the protein passes through into the circulation without being completely digested. In treatment it is primarily essential to discover the protein to which the patient is sensitive and obtain relief either by avoiding such particular food, pollen, etc., or by producing a gradual desensitization or immunization by repeated injections of increasing doses of the proteol. The search for the causative protein is often tedious, it being not infrequently necessary to try a hundred or more different proteins before all the possible causes for allergic manifestations have been eliminated. While relief may sometimes be obtained by simply avoiding the offending protein, the majority of hay fever patients require desensitization, and from 75 to 100 per cent relief may be expected in most cases. Vaughan lays down the general principle that, as causative agents in hay fever and asthma, the brightly coloured plants are less important than those without brilliant flowerings, and that roughly there are three hay fever seasons—namely, early spring for tree pollens, early summer when the grasses are pollinating, and autumn when the compositae—particularly the ragweeds—are shedding their pollen.

261 A. BUSCHKE (*Med Klin*, July 6th, 1928, p 1042) refers to a number of cases of thallium poisoning, occurring either in industrial processes or when the metal was employed medicinally. Several cases occurred in a factory in which a thallium compound used as rat poison was made. Other cases of poisoning were also reported last year from chemical works where thallium is extracted from sulphur residues. In one week a foreman and five workmen were poisoned, they complained of lassitude, anorexia, pains in the knees and loss of hair. In one case total alopecia was accompanied by distinct erythema of the entire scalp. In every instance eosinophilia and lymphocytosis were present. In two cases albuminuria accompanied by the presence of leucocytes and red corpuscles in the urine, occurred. One patient suffered from severe retrobulbar neuritis, and was quite incapacitated at the end of three months. Papillitis was present, with central scotomata for red and green. The visual acuity deteriorated so that he could count fingers only at nine feet. The patellar reflex was absent. Optic neuritis was followed by optic atrophy. Buschke's observations and experiments have convinced him that cases of industrial thallium poisoning are much more numerous than has been thought hitherto.

The Prussian Ministry of Health has added thallium to the list of dangerous chemicals. In view of the fact that thallium salts are being extracted in increasing quantity from sulphur and lead residues, not only for therapeutic use but also for employment in the manufacture of heavy optical glass, and also that thallium is being substituted for boron in rat poison, Buschke remarks that it is very important that toxic symptoms should be recognized at their commencement. He finds that ocular lesions (optic neuritis, cataract, and iritis) occur as serious complications in many cases after the employment of thallium in the treatment of tinea microspora, favus, and trichophyton. Moreover, when optic neuritis occurs the damage is irreparable. Buschke thinks it is probable that some fatal cases of thallium poisoning in which albuminuria occurred are due to traces of lead which are found frequently in specimens of thallium. He adds that these facts show that thallium therapy demands great care, and that a minimal accurate dosage should be employed.

L. PICCHINI (*Arch di Patol e Clin Med*, May-June, 1928, p 289) gives his experience in some 500 cases of porcnasion over the apices, with especial reference to the changes in resonance which occur when the head and neck are moved in different positions. He describes fully four different positions and illustrates the places where he percusses. The main result of his investigations is to show that in normal conditions the line of resonance is shifted when the head or neck is moved, whereas when there is disease of the apex no shifting of the line of resonance occurs. The apical disease need not be tuberculous, but the author states that this unchanged position of resonance may be an early sign, and be present before more definite signs of tubercle can be detected. The mechanism by which these changes in resonance are brought about is said to be complex, involving many anatomical structures (muscles, aponeuroses, ligaments, bone, articulations, pleura, and lung), and affecting the dome of the pleura and the apex of the lung. The author shows by drawings the site and change in position of the resonant area.

L. H. ZIEGLER (*Journ Amer Med Assoc*, July 31st, 1928, p 138) made a study of the subsequent history of 752 patients who had been treated in the Mayo Clinic for epidemic encephalitis, the average duration of the disease being five and a half years. The occupation, age, and sex did not apparently bear any relation to the severity of the disease. The mortality was 13.2 per cent, and the recovery rate 1.3 per cent about five and a half years after the onset of the disease. Of the entire series 15.7 per cent were able to work regularly and 25.7 per cent were doing light work or part-time work. It was found that patients recovered from severe attacks, respiratory symptoms, and from behaviour or residual sequelae, but rarely, if ever, from the Parkinsonian syndrome, although it might become arrested.

M. HARBIN (*Surg, Gynecol and Obstet*, August 1928, p 155), from a consideration of derangements of the knee joint, advocates immediate suture of complete lacerations of the internal lateral ligament and of tears in the capsule, rather than treatment by fixation with plaster or splints. For an injury producing only effusion without any increased range of lateral mobility, treatment by a short period of rest, followed by physiotherapy, is suitable, but when this range of mobility is 15 degrees greater than that of the other knee, severe laceration or a complete tear of the lateral ligament exists. With such a condition there is the possibility of an interposition of fat or fascia interfering with union and since there may also be damage to the semilunar cartilage, which can only be determined by exploration, immediate approximation of the torn structures is advisable. Rupture of the crucial ligaments does not appear to interfere with function, provided that no obstruction to complete flexion or extension is present, and in the presence of a laceration of the internal lateral and anterior crucial ligaments early repair of the internal lateral ligament renders the joint stable. The tear is usually a sharp transverse one, which is easily approximated, and such immediate repair gives more satisfactory results, with a shorter period of disability, than when the

ropoli is delayed. In a case in which laceration of the posterior cornua of an internal semilunar cartilage caused constant pain, even with the joint fixed, complete relief followed removal. Harlin reports cases in which the removal of loose bodies in the knee joint resulted in complete return of function. In one case of villous osteo arthritis and hydrops the pain and swelling of the left knee were relieved by synovectomy.

285 Bone Marrow Transplantation in Bone Diseases

M. KATZENSTEIN (*Zentralbl. f. Chir.*, July 28th, 1923, p. 1872) agrees with those who regard the pathology of Porthos' and Köhler's and a few other diseases as of the nature of a localized necrosis of bone marrow associated with defective powers of regeneration in the surrounding marrow, whether this is due to embolism or to trauma is still uncertain. When weight is put on the limb, however, deformity involving the neighbouring joint ensues. In several cases in which the usual forms of treatment had failed the author has treated the condition by an autogenous subperiosteal bone marrow graft. Bone marrow is removed from the tibia by gently raising a flap of bone, which is left attached at one end and introduced under the cartilage at the site of the defect, the limb is then put up in plaster for about two months. Satisfactory anatomical and functional results from this procedure are reported. In one case of disease of the left hip joint with a five years' history of treatment, the patient was subsequently free from pain and able to walk without a limp, there was no shortening, and the range of movement at the hip joint had considerably improved.

286. Treatment of Burns.

F. CHRISTOPHER (*Amer. Journ. Surg.*, July, 1923, p. 61), discussing the modern methods of treating burns, advises that, when one-tenth or more of the body surface is involved, shock should first be treated by morphine, external heat, and fluids, and possibly by blood transfusion. As soon as possible gauze saturated with 2½ per cent tannic acid solution is applied, and the area is kept moist with this solution for twenty-four hours until it is thoroughly tanned. The burned area is then treated by the open air method under a heated oradle. Fluids are pushed and blood transfusions are given if necessary. When all sloughs have disappeared, and the wound is cleanly granulating, adhesive or rubber tissue strips are applied, and scarlet-red preparations are used to accelerate epithelialization. Skin grafting is occasionally advisable. Tannic acid appears to exert its beneficial action by fixing the toxic substances in the burned tissue. For small burns involving less than 5 per cent of the body surface the application of soothing ointments containing phenol or picric acid, and gauze dressings, is the best treatment.

287. Carcinoma of the Pancreas.

As the result of a study of 37 cases, J. FRIEDENWALD and T. S. CULLEN (*Amer. Journ. Med. Sci.*, July, 1923, p. 31) conclude that carcinoma is the most common malignant tumour of the pancreas. It occurs usually between the ages of 40 and 70, and is more frequent in males. In primary cancer the head of the pancreas is its most frequent site and the growth, usually of the sclerous type, is characterized by enlargement with nodulation. Compression of Wirsung's duct induces an interlobular pancreatitis, which may destroy the islands of Langerhans, with resulting glycosuria. The common duct and pylorus may become involved, in the latter instance pyloric stenosis with gastric dilatation ensues. The onset is usually gradual, and the initial signs are vague. At first only mild symptoms of indigestion are noted, but these soon become exaggerated, and pain, vomiting, deepening jaundice, loss of flesh, and oedema are added. When these symptoms occur in a patient past the age of 50 pancreatic cancer should always be suspected. Pain is a characteristic symptom, though in rare cases it may be entirely absent. Tenderness on pressure over the epigastrium is frequent, and jaundice is very common, the latter increases progressively until the skin assumes a black line and then gastric and intestinal haemorrhages are not unusual. The gastric secretion frequently contains no free hydrochloric acid, and the stools are usually soft and contain an abnormal amount of fat and undigested muscle fibres. The pancreatic secretion ordinarily shows a diminished activity, and often a complete absence of ferment, especially of protease. Enlargement of the liver is frequent, and a pear-shaped distension of the gall bladder is of great diagnostic importance. Transient or permanent glycosuria indicates an advanced stage of the disease. Ascites and oedema of the extremities may occur as late complications, and pressure of the growth on various organs may cause symptoms of obstruction. Diagnosis is easy in about half the cases, in others it is extremely difficult, and often the differential diagnosis between malignancy and chronic pancreatitis is

impossible. The duration of the disease varies from a few months to two to four years, depending on the rapidity of the growth, its interference with other organs, and subsequent complications. The prognosis is grave, and there is little hope of radical cure. Cholecystostomy, gastro-cholecystostomy, and gastro-cystenterostomy may afford temporary relief.

Therapeutics.

288. Liver Extract in Sprue.

W. RICHARDSON and T. G. KLUMPP (*New England Journ. Med.*, August 2nd, 1923, p. 215) report a case of sprue treated with liver extract, the daily ingestion of this gave results comparable to those in similar cases fed with large amounts of whole liver. A man, aged 59, was admitted to hospital complaining of weakness, loss of weight, and diarrhoea of five years' duration, with periods of partial recovery followed by relapses. The stools were typical of sprue, they were loose, bulky, mushy, yellowish, and full of gas bubbles and fatty acid crystals. There was severe anaemia indistinguishable from the pernicious form, with marked oematocrit, and a large amount of free hydrochloric acid was present in the stomach contents. The response to liver extract was most striking: a red cell count on admission of 376,000, of which 2 per cent were reticulocytes, rapidly improved, the reticulocytes began to rise on the third day, and reached a peak of 37 per cent on the seventh day. Rapid improvement also occurred in the gastro-intestinal symptoms, the stools becoming normal by the ninth day, the improvement in this blood picture was typically that which results from liver extract treatment in pernicious anaemia. The authors add that the accompanying rapid improvement in the gastro-intestinal symptoms suggests the possibility of pernicious anaemia being a symptom of the lack of a specific substance due to some gastro-intestinal disturbance, and that their case points to the fact that the use of liver extract can relieve the associated anaemia as well as the digestive symptoms of sprue.

289. Diet in Gastro-duodenal Ulcer.

LEON MEUNIER (*Presse Méd.*, August 11th, 1923, p. 1020) states that gastric ulcer may slowly develop for twenty or thirty years, and that during this time long periods of freedom from symptoms occur. During these it is impossible to impose a very strict, irksome regimen, but at the same time the patient should not be allowed an unrestricted diet. To overcome this difficulty the author progressively increases the food, and introduces variations. The three chief kinds may be given (nitrogenous, starchy and fatty), attention being directed rather to their preparation than to their chemical composition. Gastric secretion can be lessened by modifying gustatory sensations through the diet. Such sensations are more or less caused by salts, sugars, spices, acids, and bitters, which should therefore be avoided. Aromatic substances also should be eliminated. Hence meat should be boiled, rather than stewed or grilled, and insoluble starches are preferable to sugars. Since the longer food remains in the mouth the greater the gustatory sensations excited, the diet should be chiefly liquid or finely minced, and consist of soups, milk, minced boiled meat, boiled fish, dried vegetables in purées, and minced greens. Bread and biscuits, since they need mastication, should be avoided. A diet of this nature diminishes salivation also, so the patient should drink at meals sugar-converting liquids, such as grumulated barley water, the action of which replaces that of the saliva. Every week there should be a physical and alimentary rest for twenty-four hours, for that length of time the patient should remain in bed or on a couch, with a hot bottle over the gastric region after each feeding to increase gastro-duodenal peristalsis, the food should be liquid or semi-liquid and taken over three hours. The patient should be advised to live exactly as during a painful crisis. By this intermittent rest the author believes that these crises can always be retarded and often checked, thus obviating surgical intervention.

290. The Toxicity of the Colloidal Sulphides of Heavy Metals.

The therapeutic value of a number of the heavy metals has long been recognized, but since in some cases the colloidal preparations of these have proved as toxic as the crystalline, G. E. WAKERLIN and C. TISEMAN (*Amer. Journ. of Syph.*, July 1923, p. 384) have carefully studied the toxicity for rabbits of colloidal solutions of the sulphides of several heavy metals. The colloids of mercuric sulphide, copper sulphide, bismuth sulphide, mercurous copper sulphide, sulpharsenite, bismuth sulphide, and stannous were tested, the mercurous copper sulpharsenite, and stannous were tested, the maximum amount tolerated and the minimum lethal dose

being ascertained for each. The protective proteins used in the preparation of these colloidal solutions were proved to be non-toxic in the quantities employed and apparently devoid of anaphylactic properties; the solutions remained stable for the two-month period of the experiments. None of the colloidal solutions produced objective irritant effects at the site of injection into the marginal ear vein, there being no local venous thrombosis, inflammation, or sloughing, comparatively large doses of colloidal lead and gold sulphides and metallic gold caused no bad effects in dogs. Colloidal lead sulphide was found to be less than one-thirtieth as toxic as the preparations used by Blair Bell and Wood in treating cancer, and colloidal gold sulphide and metallic gold much less so than sanocrysin. The authors believe that these preparations are relatively non-toxic, and may prove to be of great value in the treatment of cancer, syphilis, tuberculosis, and other diseases.

271 Serum Treatment of Erysipelas

W. S. McCANN (*Journ. Amer. Med. Assoc.*, July 14th, 1923, p. 78), who reports a series of cases treated with serum and controls, maintains that the true value of the serum treatment of erysipelas will not be established until an analysis can be made of a long series of cases with simultaneous controls not treated by the serum. Previously published reports of the results of serum treatment are open to serious objections on the score of inadequate control. The cases reported by McCann do not prove that erysipelas serum is of no value, but merely indicate that a comparison of them with statistics of cases admitted to hospital in the eleven years prior to the introduction of the serum treatment is most unfavourable to the use of serum both as regards mortality and the duration of stay in hospital. Skin tests indicated that if erysipelas serum was of value a scarlet fever antitoxin was also valuable in the treatment of erysipelas.

Disease in Childhood.

272 Cyclical Vomiting in Children

G. LEVEN (*Bull. Soc. de Théor.*, June 13th, 1923, p. 150), who records two illustrative cases in boys aged 10 years, maintains that cyclical vomiting in children, with or without acetonaemia, is in the great majority of cases ordinary dyspeptic vomiting, which is caused or aggravated by aerophagia. In rare cases atonic dilatation of the stomach complicates the clinical picture. In all cases of cyclical vomiting in children a search should be made for clinical signs of aerophagia both by clinical and radiological examination. Treatment consists in the administration of a mixture containing sodium bromide and lithium carbonate, and respiratory exercises.

273 Spina Bifida Occulta

G. LATTES (*La Pediatria*, May 15th, 1923, p. 531) reviews recent work in reference to spina bifida occulta. After discussing the anatomical varieties and pathology, he describes the local and distant signs and symptoms. His comments on the frequency with which enuresis occurs as a symptom, and remarks that in any cases where this is prominent and cannot be explained otherwise it is well to think of the possibility of spina bifida, and if necessary employ radiography or inject lipiodol. In some instances, by freeing adhesions or cyst-like tumours at an early stage, it is possible to prevent the development of the paralysis and sensory or trophic changes which often appear subsequently.

274 Treatment of Intussusception

E. EDBERG (*Acta Paediatrica*, August 15th, 1923, p. 130) discusses several recent papers on this subject, and concludes that surgical treatment offers more hope, especially if carried out early than non-operative mechanical taxis. Many patients are not brought to the surgeon until gangrene and peritonitis have set in. In the etiology of the disease he attaches importance to the lymphatic system, especially the lower Peyer's patches, as being the primary cause of invagination in some cases, pointing out that intussusception often follows an enteritis accompanied by an acute swelling of the lymphatic glands, especially in the lower portion of the small intestine. As regards Meckel's diverticulum, he doubts whether the usual view holds good, and describes a case where invagination of the ileum probably began circularly at the very place where the top of the long, wholly inverted diverticulum was situated. The author states that the only type of case where surgical treatment should not be resorted to at the outset is that in which the exact onset of the illness is known, and which affects only the colon or is ileocaecal. Here mechanical means may be tried, especially if

the child is not very young, x-ray examination with opaque injection may be very useful during replacement and as a control. Details of 67 cases are given in tables which are classified as follows (the tumours in parentheses refer to deaths in each case): Ileac, 4 of which were due to Meckel's diverticulum, 9 (7), ileo colic 18 (11), ileo colic or ileo-caecal 2 (0), ileo caecal 28 (5), colic 10 (1). The total was 67 (24). Two other patients succumbed after operation, but from other causes.

Obstetrics and Gynaecology.

275 Insulin Treatment of Uterine Haemorrhage.

H. BULTMANN (*Zentralbl. f. Gynäk.*, July 21st, 1923, p. 1841) states his experience of insulin treatment, as recommended for trial by Vogt, in metrorrhagia haemorrhagica and in menorrhagia accompanying chronic inflammation of the ovaries or uterus. He has found that attacks of excessive bleeding at or shortly after puberty always yield to this treatment. He describes, as an example, the case of a girl, aged 19, whose menses for three and a half years had lasted from two to three weeks, she had been cured four times, and was admitted to hospital with the diagnosis of pernicious anaemia, the haemoglobin percentage being 29. Insulin injections for seven days, repeated after an interval of eight days, led to cessation of bleeding on the third day of the first course and to two ensuing three to four day periods at monthly intervals during her stay in hospital, in the course of which her weight increased by 34 per cent and her haemoglobin to 77 per cent. Climacteric bleedings which did not improve after a previously diagnostic curettage were treated by insulin and showed an improvement, which however, lasted for two or three months only so that x-ray treatment was finally necessary. Menorrhagia associated with chronic adnexal inflammation showed no response to insulin therapy, and cases of so-called chronic metritis, with a large hard, and tender uterus and excessive bleeding not influenced by curettage, exhibited only a transitory improvement. The insulin was injected intramuscularly in doses of 25 units night and morning on the first day, increased to about 45 units night and morning on the fourth day, and thereafter diminished to 25 units twice daily on the seventh and last day of the course. After each injection 40 grains of sugar were given dissolved in a tumblerful of lemon water. No signs of hypoglycaemia were noted in forty cases.

276 Sodium Hypochlorite as a Tissue Disinfectant.

W. O'N. SHERMAN (*Surg., Gynecol. and Obstet.*, July, 1923, p. 115) reports that irrigation of the uterus with sodium hypochlorite solution of low alkalinity, in combination with hypertonic saline solution, destroys bacteria in the uterus and dissolves blood clots, placental tissue, and debris, without destroying the living tissues and leucocytes. His isotonic preparation consists of sodium hypochlorite 0.5 per cent, sodium chloride 0.7 per cent in distilled water. Sherman states that sodium hypochlorite in proper dilution is not toxic and can be used in any quantity, he finds it much more effective than phenol and mercury preparations. He has used as much as 10,000 c.c. in a period of twenty-four hours in the treatment of pyemia, with no deleterious effect. In septic endometritis, whether puerperal or following abortion, the intermittent irrigation of the uterus with a hypochlorite solution has brought about cure, but the author warns against the ill-advised or careless performance of this treatment, since traumatic extension of the uterine infection may follow. He has found it of the greatest value in puerperal septic endometritis of mixed bacterial origin with marked subinvolution of the uterus, but he adds that if extension to the perimetrium has occurred or is expected attempts at the treatment are inadvisable.

277 Cancer of the Cervix Uteri.

K. H. MARTZLOFF (*Surg., Gynecol. and Obstet.*, August, 1923, p. 183) discusses the surgical treatment of cancer of the cervix and the criteria essential to the establishment of a post-operative prognosis. Without belittling radium and deep x-ray therapy, the advantages and limitations of surgery are analysed and the various results compared. A proper selection of patients and an experienced surgeon are essential, in order that a permanent cure may be expected. The question of operability must be determined clinically beforehand by a consideration of the history and of such contraindications as extension of the cancer to the rectum, bladder, or paracervical tissues with regional lymph gland involvement. An adequate operation involves a panhysterectomy with removal of the proximal one-third to one-half of the vagina, and a wide parametrial dissection after the uterers have been mobilized for their distal 10 cm or more. Although some

authorities advocate the routine extirpation of the iliac and contralateral glands, while others recommend the extirpation of the regional lymph glands only when palpably enlarged, most gynaecologists operate without removing them, and this seems to be the most rational basis for surgical treatment. Ethylene carbon dioxide oxygen anaesthesia gives the most perfect relaxation and the best anaesthetic results. As to the post-operative prognosis, extension of the cancer to the uterus alone, while impairing the chance of cure, does not obviate it in spino-epithelial cancer, but in the transitional cell type such extension entitles any such chance. In the adenocarcinoma or in the spindle cell cancer it is not possible to generalize. A duration of symptoms in the spino-epithelial and transitional cell types of more than eight months, or of less in the spindle cell variety, renders cure improbable. The adenocarcinoma is the most hopeful, since 75 per cent of the operable cases may be considered cured. In order to enable a post-operative prognosis to be made it is essential that the tissue removed at operation should be examined to determine the extent of the local neoplastic invasion, the variety of cancer, whether adenocarcinoma or epidermoid carcinoma, and, if the latter, the predominant type of cancer cell. This involves the study of numerous micro sections of the cervical parametrium cut at right angles to the longitudinal axis of the cervix through its entire length, of the thickness of the vaginal cuff, cervix, adnexa, and of the corpus uteri well beyond any macroscopic involvement. Such an examination, together with the fact that an adequate hysterectomy and a wide parametrial dissection are performed by a competent surgeon, affords a rational basis for a prognosis, and Martzloff concludes that in properly selected cases surgery has a definite place in treatment.

278. Carcinoma of the Body of the Uterus.

G. VAN S. SMITH and R. S. GRINNELL (*Amer. Journ. of Obstet. and Gynecol.*, June, 1928, p. 832) report a series of 101 cases of endometrial carcinoma in which the proportion of carcinoma of the uterine body to that of the cervix was 1 to 4.46. Ten patients gave a family history of malignancy, and in 35.6 per cent of the cases there was no history of pregnancy. The symptoms began usually in the sixth decade and after the menopause, they were generally present for about two years before the patient came for treatment; the earliest and most prominent symptoms being bleeding or a blood stained discharge. Fibromyoma was an associated condition in about a quarter of the cases. The operative mortality was 3.37 per cent. The authors consider that an absolute curability of about 20 per cent is approximately correct for carcinoma of the body, as compared with 5 per cent for that of the cervix. This better prognosis is attributed to the late involvement of surrounding structures, the infrequency of metastasis, and the lower degree of malignancy. Radium is thought to be less beneficial in this condition, except as a palliative procedure where an operation either is contraindicated or has failed to extirpate the disease.

Pathology.

279. Calcium Metabolism in Diseases of the Skin.

N. BURGESS (*Brit. Journ. of Derm. and Syph.*, July, 1928, p. 279) has estimated the serum calcium in certain diseases of the skin in which the vegetative nervous system and the endocrine glands are believed to be primarily at fault. The diseases investigated were urticaria, including dermographism and angioneurotic oedema, prurigo of the Besnier type in which lichenoid, asthmatic, hay fever, and eczema are common symptoms, acroasphyxia, including erythema pernio, generalized alopecia areata, eczema, and light sensitization of the adult type. Studies were made of other diseases not having a primary nervous factor, such as psoriasis, seborrhoeic dermatitis, Darier's disease, erythema multiforme, and acrodermatitis continua, and estimations of the serum calcium in healthy persons were also made. In many instances a normal figure for the total serum calcium associated with a diminished amount of precipitable calcium was discovered, and in a few cases of certain skin diseases there was a diminution of both total and precipitable calcium. The great majority of cases of urticaria, especially those with marked dermographism, prurigo of the Besnier type, total alopecia areata, light sensitization of the adult type, and eczema, showed a marked diminution of precipitable serum calcium. One group of cases of acroasphyxia and erythema pernio showed a greatly diminished amount of precipitable calcium, while in another group the serum calcium was normal. In only one case of psoriasis was there diminution of the precipitable serum calcium, and two cases of seborrhoeic dermatitis

with considerable accompanying secondary infection had a lowered serum calcium. A slight diminution of the serum calcium was found in one case of erythema multiforme with normal figures were obtained in a case of Darier's disease and in one of acrodermatitis continua. Burgess found a diminution of the precipitable calcium in the serum with, in most instances, a normal to a calcium content in those cases in which the endocrine glands and the sympathetic nervous system were thought to be primarily at fault. Cases of urticaria, prurigo and eczema, and those cases of acroasphyxia and chilblains with a low serum calcium content, were much improved by treatment with calcium and parathyroid extract. Dysfunction of the endocrine glands apparently leads to an altered chemical or physical state of the serum calcium, causing a diminution in the amount of calcium for use by the tissues, with an increased irritability of the sympathetic nervous system resulting in the formation of skin lesions.

230. Tests of Hepatic and Pancreatic Functional Ability.

E. A. GRAHAM (*New England Journ. of Med.*, July 5th, 1928, p. 1), discussing various functional tests states that out of 2,289 patients examined by cholecystography 264 were diagnosed as having pathological gall bladders, and cholecystectomies were performed, of these 254, or 96 per cent, showed definite evidence of disease. Of 69 cases where the gall bladder was passed by this test as normal, 61 were found by gross examination during operations for other abdominal conditions to be quite normal, 2 were diseased, and 6 cases were doubtful. This gives a percentage of accuracy for this test in the case of the normal gall bladder of over 88, as compared with Kirkin's figure of 69. Graham discusses possible fallacies in this test, and emphasizes its value in indicating the degree of concentrating power and the ability of the gall bladder to empty itself. The excretory function of the liver was tested by Graham, using phenolphthalein in doses of 0.04 gram per kilo of body weight, or eight times the recommended dose. In normal cases about 12 per cent of the dye remains in the serum half an hour after injection, and only 5 per cent after an hour. About 90 per cent of cholecystitis cases, even without jaundice, give an average half hour retention figure of 27 per cent. These results suggest that operation risk is greater in cases with high retention figures, such as 40 per cent and over. Graham adds that the retention figures are relatively low in cases of obstructive jaundice due to malignant disease, and high when there is a stasis in the common duct or "obstructive icterus" is present. The regurgitation of pancreatic secretion into the stomach and the consequent neutralization of the HCl has been estimated by the author in a new type of test meal, in which the time taken to neutralize 200 c.c. of 0.5 per cent HCl introduced into the stomach is measured. He states that this type of test meal has practically supplanted the older kind, and is also used to study the post-operative results of gastro-enterostomies and gastric resections, in which it is of great prognostic value. Importantly attached to the regulation of the acidity of the gastric contents by pancreatic regurgitation, and the existence of the condition termed "hyperacidity" is doubted. Persistence of gastric acidity may be due to pyloric obstruction of mechanical or other nature.

231. The Cerebro-spinal Fluid in Acute Poliomyelitis.

G. M. LYON (*Amer. Journ. Dis. Child.*, July, 1928, p. 40) has investigated the cytology of the cerebro-spinal fluid in the pre-paralytic stage of acute poliomyelitis. His results suggest the presence of some cytolytic factor, not described previously, particularly active towards the multilobed cells. The origin of these cells has not been fully determined, they may be identical with the polymorphonuclear leucocytes of the blood stream, or they may be wandering clasmatoocytes not necessarily of haematogenous origin. The author inclines to the latter view. Proof is given of the advisability of making spinal fluid cell counts immediately after lumbar puncture in all cases in which there may be a possibility of poliomyelitis. A pleocytosis of 50 per cent or more of multilobed cells occurring in a clear fluid is suggestive of acute poliomyelitic infection. Lyon asserts that when, in the course of from twenty-four to thirty-six hours, the lumbar puncture is repeated, and there is a fall in the total cell count with a shifting of the differential count to a mononucleosis of 90 per cent or more, it is certain that the condition is one of poliomyelitic infection. This cellular response is pathogenic, as it has not been observed in the spinal fluid in other conditions. It is not easy to determine the exact mechanism of the cytotoxicity. If there is a cytolytic characteristic of poliomyelitic fluids, it is probable that it does not appear until the time of, or shortly after, the shower of virus into the cerebro-spinal fluid.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

282.

Linear Vaccination

M D MACKENZIE (*Journ Royal Army Med Corps*, September, 1928, p 161) records the results of vaccination among recruits for the army, with special reference to the severity of the reaction and its consequences. He found that single linear (6-7 mm) insertions or four linear marks in primary vaccination or revaccinations were preferable to scarification: no man thus treated had later to be admitted to hospital. Routine exemption from duty or drill did not appear to reduce the severity of the reactions, but rather the contrary. Urticaria and pruritus were greatly diminished when the strapping was replaced by a bandage to secure the dressing. Mackenzie discusses the relation between the degree of immunity and the size of the scars of primary vaccination; he places the primary four scar cases in four groups: (a) those with a total scar area of less than 500 square mm, (b) an area of 500 to 1,000 mm, (c) an area of 1,000 to 2,000 mm, and (d) an area of over 2,000 mm. In these groups there were true vaccinia reactions in 100, 62, 66, and 44 per cent of the cases respectively, but it is added that these figures do not tally with those of other observers, who may have included cases of late vaccination or revaccination. Mackenzie suggests that the acceleration of three days in the time of maximum reaction as a result of primary vaccination represents the average amount of immunity remaining in this age group (18 to 21 years), and gives figures to show that the amount of acceleration of the maximum reaction varies with the scar area of primary infantile vaccination.

283.

Diagnosis of Insulin Coma.

E L SEVINGHAUS (*Journ Amer Med Assoc*, August 4th, 1928, p 305) reports two cases of diabetes mellitus to illustrate the value of clinical observation and testing the urine for sugar and acetone in diagnosing the cause of coma in this condition. In one case—an ambulatory patient—the condition was traced to a dietary indiscretion. In the second patient there was doubt whether a syphilitic infection was present, and the coma followed nervous excitement and unaccustomed exercise. The author remarks that the differentiation of diabetic coma and insulin coma in a known diabetic patient presents an important practical problem, in spite of the fact that in the first instance dehydration, and in the second sweating, is usual. In the first of the author's patients a dry skin was present during coma attacks, which were demonstrated to be hypoglycaemic in nature. The author doubts also whether convulsions form part of the typical picture of diabetic coma. He suggests that when there is doubt as to the nature of the condition there is nothing to be lost, and much to be gained, by giving an intravenous injection of from 10 to 20 c cm of 50 per cent dextrose. In insulin coma beneficial results follow in from one to three minutes, while the diabetic comatose patient does not respond, and no additional harm is caused by the single injection. If the coma does not respond to the dextrose injection within ten minutes, it is then safe to proceed with the usual methods of treatment of true diabetic coma. In the author's second patient, however, insulin coma did not yield readily to this treatment because there was a complicating factor—namely, paraldehyde, which the patient had taken.

284.

The Inheritance Factor in Tuberculosis.

REFERRING to a previous paper in which an analysis was made of the family records of approximately 4,000 tuberculous patients in Belfast and an attempt made to construct tuberculosis life tables for the general population of that city, P STOCKS and MARY N KERN (*Ann of Eugen*, April, 1928, p 63) state that no account was taken of the presence or absence of the disease in parents, grandparents, or collateral relatives, and therefore a further analysis was made on the basis of the antecedent history. From this latter study the authors deduced that the fathers and mothers of tuberculous patients were subject to a higher rate of tuberculosis than the general population of parents, and, conversely, that the children of tuberculous parents were subject to higher rates than the general population of children. The rate in children was more pronounced when the mother rather than the father was affected, and much more so when both parents were tuberculous. These facts could be explained by infection whether inheritance is involved or not, but it can be demonstrated that, whereas in the latter instance the contingency coefficients between pairs of children would be

independent of the condition of their parents or antecedents, this would not be the case if susceptibility to infection is inherited as a quantitative factor. Arranging the families in groups according to the presence or absence of tuberculosis in parents or antecedents, it was found that the contingency and correlation coefficients for pairs of children were greater with increasing tuberculosis in the antecedents, a result to be expected on the theory of inheritance, but inexplicable if susceptibility is independent of the antecedents. The contingencies between non-pulmonary forms of tuberculosis in pairs of siblings also suggested that inheritance must be involved.

285.

The Electric cardiogram in Diphtheria.

M H NATHANSON (*Arch Int Med*, July, 1928, p 45) remarks that though it is generally agreed that involvement of the circulation following diphtheria is of serious import, there is no accurate clinical method for detecting its presence. In fifteen severe and moderately severe cases of diphtheria examined by him with the electrocardiograph, seven showed inversion of the T wave in significant leads during convalescence, and two of these patients died suddenly. In the patients who recovered the inverted T wave returned to normal as early as seven weeks after the onset of the disease. Cats injected with sublethal doses of diphtheria toxin showed consistently similar T wave alterations, usually within forty-eight hours. These observations support the myocardial theory of the circulatory failure in diphtheria, as opposed to the theory of paralysis of the vasomotor centre, or that of a toxic injury to the vagus nerve. Nathanson concludes that electrocardiographic studies are of practical value in diphtheria during the period of convalescence to ascertain both the presence of myocardial involvement and its duration.

286.

Carriers in Vincent's Angina

THE occurrence of a typical case of Vincent's angina in a college led K PARDEE, T F GORDON, and C RILEY (*New England Journ Med*, May 31st, 1928, p 796) to examine smears from the gums or throats of 462 students, and they found numerous fusiform bacilli and spirilla in 139. Mild but definite clinical signs in the form of redness and puffiness of the gums or inflamed throats were found in 113 (82 per cent), but only two developed all the typical symptoms of Vincent's angina. Under treatment with local applications of chromic acid and a mouth wash the majority of cases cleared up in eight days. Moderate smoking apparently did not influence the incidence of the infection, but possibly delayed cure. Good oral hygiene seemed the most important factor in decreasing susceptibility.

Surgery.

287 Late Intestinal Stenosis following Strangulated Hernia

L GINZBURG and E KLEIN (*Annals of Surgery*, August, 1928, p 204) report five cases of late intestinal stenosis as a sequel of operations for strangulated hernia. After intervals ranging from three or four weeks to several months severe abdominal pain developed with an incomplete mechanical ileus. Premonitory symptoms of diarrhoea, or intestinal bleeding due to secondary sloughing of affected areas, may also occur. If the obstruction is not removed the patients go rapidly downhill from starvation, severe anaemia, or chronic toxic absorption. Laparotomy shows either an area of tubular stenosis due to fibrosis of part or all of the strangulated loop, or an annular stricture corresponding to the zone of intestinal constriction at the neck of the sac. The early stages of strangulation show venous stasis, oedema, and some haemorrhagic extravasation in the wall of the affected loop; relief of the constriction results in a return to normal. In the advanced stages there is a progressive devitalization of portions of the affected gut, and thrombosis of the vessels in the intestinal wall or smaller mesenteric radicles causing interference with circulation. These cases undergo perforation even after the constriction is removed. The authors remark that operative intervention should be undertaken early, and should consist of resection of the involved portion of the gut or of a short circuiting entero-anastomosis. If resection is performed a lateral anastomosis is preferable owing to the disparity in the diameter of the proximal and distal loops. In the presence of numerous adhesions, or when the patient is in poor condition, entero-anastomosis is the preferable mode of procedure.

288 Toxic Goutre and Mental Disease

J L DE COURCY (*Arch of Surg*, August, 1928, p 296) discusses the relief of psychoses in thyrotoxic patients by means of thyroidectomy. He believes that thyrotoxicosis may be the exciting or a strong contributory cause of serious mental disease, and that thyroidectomy may offer a good prospect of mental recovery. Out of fourteen cases of insane patients with toxic goutre, all but two recovered sufficiently after operation to resume their former occupations. In the majority of these cases the mental symptoms were previously extremely pronounced, and in two, where a diagnosis of dementia praecox had been made and a poor prognosis given, complete recovery followed operation. In thirteen cases the goutre was of the exophthalmic type, the exception being a toxic adenomatous goutre with evidence of hyperplasia. The author remarks that, when thyroidectomy is performed on patients with psychoses, preoperative rest, medication with a compound solution of iodine, and the most perfect operative technique are even more important than in patients with normal mentality.

289 Calcification of the Gall Bladder

J J ROBB (*Brit Journ of Surg*, July, 1928, p 114) reports a rare case of calcification of the gall bladder accompanied by gall stones. The patient, who was the mother of eleven children had complained of pain for several months in the right subcostal region and also round the medial angle of the scapula, this was accompanied by attacks of nausea without vomiting or jaundice. There was tenderness over the gall bladder. At operation the gall bladder was found to be hard and fixed by periglandular adhesions. Cholecystectomy was performed and the patient made a good recovery. Pathological examination showed the gall bladder to be of walnut shape, measuring 3.6 cm from the fundus to the cystic duct and 2.6 cm transversely. The serous coat was of a dull grey colour, thickened and fibrotic, and it could be stripped cleanly from the wall of the gall bladder. The muscular layer had the appearance of bone, the mucosa had disappeared and had been replaced by a layer of lime salts which encroached the wall of the gall bladder, crossing over and shutting off the entrance to the cystic duct inferiorly, but not extending into it. The gall bladder was filled with laminated calculi, the largest measuring 1.5 cm across, these were cemented together by lime salts. Microscopic examination showed that the mucosa was entirely absent and the muscular stratum had been replaced by an acellular homogeneous substance.

290 Fracture Statistics.

M CAMURATI (*Chir di Org di Movimento*, August, 1928, p 452) reports that the 328 cases of fracture of the bones of the elbow formed 12 per cent of all the fractures treated at the Rizzoli Institute, Bologna, from 1899 to 1926, and 29.54 per cent of the fractures of the upper limb. The most frequent variety was the transverse supracondylar fracture (34.14 per cent), then those of the external condyle (15.24 per cent), internal condyle (11.28 per cent), epicondyle (7.92 per cent), and epitrochlea (6.70 per cent). The male sex was most frequently affected, 218 patients (66.46 per cent) being males and 110 (33.53 per cent) females. The age at which the fracture most frequently occurred was the second half of the first decennium. The mechanism was most frequently (60.67 per cent) indirect violence. Primary nervous lesions were not exceptional, being represented by 20 cases (6.03 per cent), in which isolated lesions of the musculospiral nerve predominated (14 cases). Late nervous lesions, on the other hand, were rare, being represented by only 2 cases of palsy. Fractures of the elbow were accompanied by dislocation in 40 cases (12.19 per cent), the posterior variety being the most frequent (29 cases). Ossification took place in 67 cases (20.42 per cent). The best results were obtained by bloodless methods, by which 135 patients (51.92 per cent) were treated. A SOLDI (ibid., p 466) states that the 186 cases of fracture of the bones of the wrist formed 6.8 per cent of all the fracture cases treated at the Rizzoli Institute in the period named (117 (62.9 per cent) occurred in males, most of whom were affected between the ages of 11 and 15 and 45 and 50, whereas in females the fracture was met with at any age. The Pott's Colles' joint articular type was most frequent (40.86 per cent), while articular fractures represented only 27.68 per cent of the cases observed. Among 161 cases in which the mechanism of the fracture could be ascertained indirect violence was responsible in 152 and direct violence in only 9, including 2 cases of back fire fracture in motor drivers. In both sexes the left wrist was most frequently affected. Nervous complications were very rare, being represented by only one case of laceration of the median and ulnar nerves. In recent fracture bloodless orthopaedic treatment is advised, while operation is indicated in old fractures consolidated in a vicious position, as well as in fractures of the scaphoid and

scapholunar. E DUSI (ibid., p 473) states that the 242 cases of fracture of the neck of the femur treated at this Institute formed 19.16 per cent of the fractures of the lower limb and 64.4 per cent of the fractures of the femur, 136 cases were in males and 106 in females. Of 214 cases of which radiograms were available, 141 (65.7 per cent) were transcervical and 73 (34 per cent) cervico trochanteric. In youth and old age transcervical fracture was commonest, while in adult life cervico-trochanteric fractures were most frequently encountered. Of 136 cases kept under observation for a minimum period of eight months, 96 were treated by bloodless methods. The results in 14 were bad, in 22 moderate, in 23 good, in 33 excellent, and 4 died. Among 40 treated by operation the results were bad in 9, moderate in 14, good in 11, and excellent in 6.

Therapeutics.

291 Liver Administration in the Anaemias of Childhood.

J P GRIFFITH and J P SCOTT (*Med Journ and Record*, August 1st, 1928, p 121) summarize the conflicting views regarding the administration of inorganic iron in anaemia, and remark that the mode of its assimilation is still unknown. That a low iron content of food is not the only cause of anaemia is shown by the fact that administration of any form of iron relieves some cases, while in others no improvement occurs even when the food is rich in iron. They describe seven cases of anaemia of different type and degree occurring in girls whose ages ranged from 4 months to 6 years. Four of these children were of European descent, and three were negro or mulatto. In only two cases did improvement follow administration of liver, and in one instance other forms of treatment employed vitiated any conclusion in favour of liver administration. In the other case the decided and rapid improvement may have been due to the liver given, but this was not certain. Among the patients who did not improve one received the treatment for a short time only, yet long enough for some improvement to have occurred. The authors do not condemn liver diet in anaemia, but conclude that in the severe anaemias of early life it may fail completely, it is doubtful whether, in the milder cases, especially of the chlorotic type, it presents any advantage over inorganic iron. Where the child's condition permits of the rebuilding of haemoglobin it is probable that administration of iron in any form will do good. Where other factors are present, causing anaemia, it is doubtful whether either liver or iron in any form will be useful. The authors add that too great dependence on liver treatment will lead to disappointment, pernicious anaemia is excepted from this criticism, but this disease rarely occurs in early life.

292 Treatment of Small pox

P TEISSIER (*Bull Méd*, July 25th and 28th, 1928, p 831) describes the treatment of small pox by xylol and convalescent serum. The action of xylol is said to be threefold. It causes the eruption to abort and prevents suppuration, it acts as a deodorant, and it prevents the formation of scars. It has no action in cases in which haemorrhages appear early or in malignant confluent small pox, the rapid course of which does not allow the drug to act, but indirectly it has considerably reduced the gravity and mortality of small pox by preventing suppuration, which is the most serious feature of the disease. In moderate cases xylol is given in wine or milk in doses of 60 drops, which are rapidly reduced to 20 or 10 drops a day. In severe confluent or late forms the dose should be 100 to 120 drops for men, 80 to 100 for women, and 20 to 50 drops for children. Convalescent serum or whole blood is obtained from patients between the twenty-fifth and fortieth days of disease, after excluding the presence of syphilis or tuberculosis in the donor, it is injected subcutaneously, or in severe cases intravenously, in doses ranging from 25 to 100 c.c. The effect of the treatment is a rapid fall of temperature, slowing of the pulse, rise of the blood pressure, and improvement of the general condition.

293 Ammonium Ortho-iodoxy Benzoate in Arthritis.

M SMITH (*New England Journ Med*, July 19th, 1928, p 133) discusses the treatment of arthritis with particular reference to the use of ammonium ortho-iodoxy benzoate. In many cases patients derived no benefit or were made worse, these patients were constipated or complained of gastro-intestinal symptoms, without presenting evidence of other foci of infection. In other cases the removal of such foci had not resulted in relief. Patients who remained unbenefited by this treatment after removal of other foci almost always gave evidence of constipation or some form of gastro-intestinal dysfunction. This led to the impression that the focus of infection lay in the

large bowel, the sluggish action of which favours increased bacterial growth and absorption of toxic products. Smith states that this ammonium preparation is effective when given by the mouth or rectum, but the intravenous route is preferable, the size of the dose is regulated by grouping patients into those above 110 lb in weight and those below. In the case of patients of the lighter weight the initial dose should not exceed 0.3 gram, with subsequent doses up to 0.7 gram. The initial dose for patients over 110 lb in weight should not be more than 0.5 gram and the later doses less than 1.0 gram, each dose after the initial one being increased by 0.2 gram until satisfactory results are obtained. No harm appears to result from repeating the injections at 48-hour intervals, the average number given being from 15 to 20. Other forms of treatment should be used concurrently. Occasionally it was found that acute exacerbations of the arthritic symptoms followed administration owing to an increased absorption of the toxin from the gastrointestinal tract, the possibility of such harmful action in patients not benefited must be considered before repeating the injections.

294 Mercury Lamp Treatment of Whooping cough

J. BECKER (*Munch med Woch*, June 22nd, 1928, p. 1070), as the result of careful observations on his own children, aged 9 and 21 months respectively, concludes that treatment of whooping cough in the paroxysmal stage by irradiation with the mercury lamp had the effect of reducing the number of attacks during the second half of the night. Suggestion could be excluded owing to the age of the children, and Becker is inclined to attribute the good effect of the treatment to diminution of the reflex excitability, by which the nervous element in whooping cough was favourably affected. The irradiation also acted by causing a fall of blood pressure, probably by acting on the calcium metabolism and vegetative nervous system.

Neurology and Psychology.

295 Myasthenia Gravis

A. N. FOXE (*Journ Nerv and Ment Dis*, August, 1928, p. 134) reports a case of myasthenia gravis with visceral symptoms, and contrasts it with one of dystonia musculorum deformans, the ready exhaustion of the somatic musculature in the one and the ceaseless movement in the other being striking, and leading to the deduction of a common origin of the two maladies. It was found that the myasthenic visceral phenomena were functionally the reverse of those reported by Kaufman, Savitsky, and Fried in dystonia musculorum. A clinical contrasting table of the two present cases is given, from which it is seen that the sex, age, etiology, onset, and course in each is the same. The patient with myasthenia was easily fatigued and always sought the position of greatest ease, there was a tendency to hypotension, atonia of the stomach with induced vomiting, constipation due to atonia, vesical relaxation, and apathy. The dystonia patient showed constant movement, with greatest comfort when up and moving, a tendency to hypertonus, retroperistalsis with vomiting constipation due to spasm vesical tenesmus, and excitability. Foxe states that both are diseases of the somatic and visceral musculature, the motor system being essentially affected without involvement of the pyramidal tract. In conclusion, he quotes the pathological findings in the central nervous system in myasthenia reported by several authorities. From the work of Tchiriev, Boeke, Agdnhr, Sherrington, and Hunter on the double innervation of somatic muscle Foxe concludes that it is possible that the two diseases here considered are purely vegetative disturbances, but whether a single central system controls a special phase of tone, or whether there are opposing or balancing centres which determine the exhaustibility and overactivity of muscle, is questionable.

296 Actinomyces of the Central Nervous System

B. O. LEDEBOER (*Nederl Tijdschr v Geneesk*, March 10th, 1928, p. 1202), who records an illustrative case, states that although actinomyces is generally recognized, its localization in the central nervous system is often missed. Ponick, in 1882, was the first to describe two cases of actinomyces of the brain, and Morach in 1922 collected 48 cases of actinomyces of the central nervous system from the literature. He showed that the disease was more frequent in men than in women, and that the ages of the patients ranged from 15 to 70, the highest incidence being at about the age of 30. The persons most frequently affected were farmers and others who came in contact with grain. In most of the cases the central nervous system was affected by spread of the disease from another part of the body, primary involvement of the brain being very rare. The most frequent

form was meningitis. Ledebor's patient was a young man, aged 19, whose first symptoms were ptosis, diplopia, and violent headache, followed by complete right ophthalmoplegia, swelling of the right half of the face, high fever, emaciation, great increase of cells in the cerebro-spinal fluid, Kernig's sign, slight delirium, and the presence of pathological reflexes in the feet. No organisms were found in the blood or cerebro-spinal fluid, either on direct examination or in cultures. Death ensued, and the necropsy showed suppurative meningitis over the base of the temporal lobe, which was adherent to the base of the skull and one large and several small abscesses within the temporal lobe. On microscopical examination numerous actinomycotic organisms were seen. Nothing abnormal was found in the other organs.

297 Hemiplegia with Extensive Naevus and Mental Defect

T. BRUSHFIELD and W. WYATT (*Brit Journ Child Dis*, April-June, 1928, p. 96) refer to their previous papers on this subject (see *Epitome*, August 27th, 1927, para 178, and January 28th, 1928, para 99) and the case since reported by Hugo (ibid., April 21st, 1928, para 396), and describe the following pathological changes found in one of their cases. A naevoid condition of the meninges was found at the base of the brain after death in one case, and in two others the existence of a small meningeal naevus was suggested by x-ray appearances during life. Microscopically the cerebral cortex showed a generalized deficiency of neurons, many of which were immature. The authors conclude that whereas the paralytic features of the cases may be ascribed to the presence of intracranial naevi, the mental defect may be only partly due to this, since there was also a definite underdevelopment of neurons throughout the brain examined.

298 Emotional Factors in Disease

A. LUMIÈRE (*Presse Méd*, August 8th, 1928, p. 993) discusses some of the phenomena in physical and psychological medicine. Beginning with the fact that the blood pressure changes after a shock, he goes on to suggest that the more lasting and profound effects are due to the redistribution of colloids in the body fluids, which lead to a flocculation. This in turn may lead to more colloid changes, and a vicious circle be produced. Thus a psychic stimulus may give rise to persistent derangement of the functions of the sympathetic system. The great polymorphism of the after effects of shock is explained by the abnormal flocculates circulating in organs of different sensitivity. Thus there may occur crises of asthma, epilepsy, psychoses, and dermatoses, following an infection, a trauma, an intoxication, anaphylactic sensitization, or at certain periods of life. The author adds that his theory may explain why post-emotional troubles, persisting even for years may sometimes completely disappear following a colloidal shock. He admits that his explanatory theory is open to discussion, but claims that it has the merit of being in accordance with the facts.

Obstetrics and Gynaecology.

299 Pregnancy Toxaemias of Renal Origin

I. W. KAHN (*Amer Journ Obstet and Gynecol*, August, 1928, p. 201) believes that the kidney is an important etiological factor in the toxaemias of pregnancy, and that it has usually been previously affected in childhood, puberty, or adolescence, or has become secondarily involved from extraneous foci of infection. Prutz found renal involvement in all but seven instances out of 360 necropsies after eclampsia, and Pollack of Vienna noted the same condition in 98 per cent of 139 cases. Kahn divides the toxaemias of pregnancy into early and late, the former including those of pernicious vomiting and the latter the eclampsias. He regards a case as mildly toxemic when there is persistent nausea and vomiting, and states that though in many such patients the urine appears normal, yet a complete investigation will reveal pathological conditions. As the result of a study of 52 cases the following measures are advocated when there is the faintest suspicion of toxemia in early pregnancy. Careful inquiries should be made concerning possible antecedent renal or other urogenital involvement, and there should be a complete analysis of the day and night urine. Other essential steps are the cystoscopic examination of the bladder, the passage of catheters into both ureters and the collection and culture of specimens of urine from each side, renal function tests, and pyelographic investigation. After determining the presence of some renal lesion by these methods Kahn employs the following treatment. A urinary antiseptic is given by the mouth. Full doses of caprokol proved efficacious in many cases but if this was too expensive, teaspoonful doses of

effervescent granules of formohydric given every four hours in a tumbler of water proved an excellent substitute. The ingestion of water, preferably in small quantities at frequent intervals, is encouraged as soon as the vomiting lessens. Some patients benefit from the use of autogenous vaccines, but local measures directed to the kidney itself are the most important. These consist of irrigating the renal pelvis and calyces with 2 per cent boric or saline solution or sterile water. After the lavage 5 to 10 c. cm. of neosalol, mercurchrome, or silver nitrate is instilled into the renal pelvis, the irrigations and instillations are repeated every fourth or fifth day. In eight of the cases the ureteral catheters were left in place for several days until satisfactory drainage was established. As the patient improved, catheterization was performed only once a week, and, when she was free from symptoms, the ureter was finally dilated in order to prevent the formation of an inflammatory stricture and obstruction of the renal pelvis. A coincident cystitis is treated by intravesical irrigations or instillations, strictures and calculi were adequately dealt with. Kahn maintains that in many patients pregnancy can be safely carried to term if a definite renal or ureteral involvement is found and adequately treated.

300 Diagnosis of Submucous Fibromata.

S. VIDAKOVITCH and M. SMOKVINA (*Gynecol. et Obstet.*, June, 1928, p. 553) have employed hystero salpingography in the diagnosis of certain diseases of the internal genitalia. As regards sterility and fibromyomata, they record several successes in the recognition of submucous fibromyomata. While the detection of both subperitoneal and interstitial fibromyomata is usually easy by ordinary clinical examination, when the tumour is sufficiently large the diagnosis of submucous tumours frequently necessitates dilatation of the cervix and digital examination of the uterine cavity, sometimes the sound or the curette is required also. The authors prefer to inject Iliodol, followed by a skidogram, as being a safer and more rapid procedure. They have employed this method in nearly 150 cases without any complication. They recommend that in all cases of motor rhagia in which manual examination shows only slight uterine enlargement skidography should be performed as a routine. In several cases hystero salpingography, after Iliodol injection, has revealed submucous tumours which were not previously suspected. The authors remark that curettage or x-ray treatment of fibromyomata may not only fail to cure, but necrosis and even gangrene of the tumour may follow. From the point of view of treatment accurate diagnosis is necessary, since subperitoneal and interstitial fibromyomata require a different procedure—namely, x-rays or abdominal myomectomy—while the submucous variety should be enucleated, or, if too large for this, vaginal hysterectomy should be performed. Submucous fibromyomata give characteristic skidographic shadows, the normal triangular image being distorted and irregular, large or small shadows appearing. Other lesions, such as blood clot, placental fragments, polyps, and neoplasm, may produce an irregular image; these may be difficult to distinguish, but the image of a fibromyoma is more regular and definite. Further, in fibromyomata there are no uterine contractions, while in other lesions forcible irregular contractions are almost always present. The authors give illustrations of seven typical cases, with drawings of the actual tumours *in situ*.

Pathology.

301 Meningeal Permeability and Physical Changes in the Blood

L. STERN, E. L. ROMEL, and C. A. GUERTCHIKOWA (*C. R. Soc. de Biologie*, July 6th, 1928, p. 363) have tried the effect of altering the H ion concentration of the blood on the permeability of the meninges to certain crystalloids, colloids, and antibodies. To raise the pH sodium carbonate or sodium hydrate solutions were injected, by this means a pH of 8.4 high as 7.72 was obtained in extreme cases. To lower it sodium hydrogen phosphate was injected, or the animal was made to inhale CO₂. In extreme cases the pH fell to 6.61. The animals used were cats and rabbits. The test substances—sodium iodide, sodium ferrocyanide, colloidal trypan blue, and haemolysin—were injected intravenously either at the same time as the injection of the substances designed to alter the H ion concentration or till the pH had returned to normal. About ten to fifteen minutes later a specimen of cerebro spinal fluid was removed by suboccipital puncture, and tests made for the substances that had been injected. The results showed that any disturbance of the H ion concentration of the blood increased the permeability of the meninges to all three

classes of substances, but that increasing the H ion concentration was more effective than lowering it. L. STERN, S. M. ZEITLIN, and R. M. GOZMAN (*ibid.*, p. 365) tried the effect of altering the osmotic pressure of the blood on the permeability of the meninges. To raise the osmotic pressure they injected highly concentrated Ringer's solution or a solution of glucose, to lower it they injected large quantities of water or some other hypotonic solution. The results showed that any marked increase or decrease of the osmotic pressure of the blood—above $\Delta = 0.8$ or below $\Delta = 0.45$ —increased the permeability of the meninges. The first substances to pass through were the haemolysins, then came the crystalloids, and lastly the colloids. The effect lasted for a considerable time after the return of the pressure to normal. From these and other experiments the authors conclude that the alteration in the barrier between the blood and the cerebro spinal fluid is probably determined by an alteration in the anatomical structure of the cells forming the barrier, and that this alteration can be brought about by varying the pH or the osmotic pressure of the blood.

302 The Pathogenicity of *B. abortus* for Man

M. KRISTENSEN (*Centralbl. f. Bakt.*, July 25th, 1928, p. 89), working at Copenhagen, examined the serums of 1,177 patients suspected of suffering from enteric fever for agglutinins to *B. abortus* Bang, no fewer than 89 agglutinated this organism to a titre of 1 in 100 or higher. He then proceeded to make blood cultures in order to isolate the infecting organism. From 2 to 5 c. cm. of blood was placed in fluid media—either glucose citrate asclitic broth, horse serum broth, or liver broth, the cultures were incubated at 37°C. for ten to fourteen days in an atmosphere of 10 per cent CO₂, and subcultures were made at intervals on to asclitic or serum agar. From 13 out of 20 bloods examined in this way an organism was recovered that was indistinguishable from *B. abortus*. It had the usual morphological, cultural, and biochemical reactions of this organism, it was agglutinated to titre by a serum prepared against a cattle strain of *B. abortus*, cross agglutination and cross absorption tests carried out with four human and five cattle strains and their corresponding antisera showed all organisms to be identical, injected into guinea pigs the human strains gave rise to the enlarged spleen and lymphatic glands and the necrotic foci in the liver which are characteristic of *B. abortus* infection, and finally, intravenous injection of two pregnant cows was followed by abortion, and *B. abortus* was demonstrated in the foetus. Though positive blood cultures were obtained in only 13 out of the 20 patients examined, the author thinks that there is little doubt that the other 7 patients, as well as the remaining 69 who were not examined so fully, were suffering from infection with *B. abortus*. The clinical picture was one of undulant fever, accompanied sometimes by severe sweating, neuralgias and arthralgias, swelling of the spleen, and other minor symptoms. Of the 89 cases 58 occurred in men and only 21 in women, no patient was under the age of 13. Clinically they were diagnosed as enteric fever, generalized or latent tuberculosis, malaria, or sepsis. Only one patient died. For treatment the author recommends confinement to bed, a nourishing diet, and, if possible, an antiserum to *B. abortus*.

303. Virus Neutralization in Poliomyelitis

T. W. STEWART and P. HABELBAUER (*Journ. Exper. Med.*, September 1st, 1928, p. 449) note that during the past decade three types of antipoliomyelitic serums have been employed in the treatment of acute anterior poliomyelitis—namely, the serums of convalescent human poliomyelitis, serums from horses immunized against the streptococcal supposid by Rosenow, and others to be the etiological factor in this disease, and the Pettit serum prepared at the Pasteur Institute, which consists of sheep or horse serum from animals supposedly immunized by repeated injections of emulsions of spinal cords of poliomyelitic monkeys. Since the two latter serums have been more or less widely used, the authors have made a further study of their neutralizing action on the virus of poliomyelitis. Monkeys were used as the test animals, and all the experiments were rigorously controlled. These showed that the Rosenow antistreptococcal serum, concentrated or nonconcentrated, does not neutralize the poliomyelitic virus as tested in monkeys. The Pettit horse serum neutralizes it only occasionally, while "immune" sheep serums prepared according to Pettit's method do not neutralize the virus even when the normal serums of the same animals have caused neutralization. The reason for such chance neutralizations is obscure and the authors add that there should be no confusion with the constant action of both human and monkey convalescent serums. The authors conclude that experimental evidence affords no basis for the use of either the Rosenow or the Pettit serum in the treatment of poliomyelitis.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

304 Hypertensive Mitral Endocarditis.

IN a series of forty cases of chronic mitral endocarditis A DUMAS (*Presse Méd.*, September 15th, 1928, p 1172) was surprised to find at the necropsies that nine of these were accompanied by arterial hypertension. Other authorities have noted the association of these two conditions and in 1926 Boas and Linborg stated that the frequency of arterial hypertension in the course of mitral stenosis, especially after the age of 40, was too great to be considered accidental. As a result of his present study Dumas maintains that chronic endocarditis involving the mitral valve can be accompanied by arterial hypertension in old patients who have tolerated these lesions well. The same phenomenon occurs in aortic insufficiency, with which the author does not deal, as it is a better recognized condition. This hypertensive form of mitral disease is characterized by a small systolic or post systolic souffle of mitral insufficiency. The nine cases noted could be divided into two groups—those in which death resulted from a progressive cachexia with tonsillar hypertrophy, as occurs in arterial hypertension without mitral involvement and those less important, in which death was caused by left ventricular insufficiency. The anatomical lesions were always clear, they usually consisted in a calcitrated capping of the mitral valves, and sometimes in a slight atheromatous induration with a calcified nucleus. In only two cases was there a particularly marked stenosis. Arterial hypertension may mask the usual signs of mitral disease, and, besides the already mentioned souffle, only a hard mitral sound and a presystolic bruit (liable to be confused with the gallop bruit) may be heard. Many cases of mitral disease can remain completely latent and be mistaken merely for hypertension. It is advised, therefore, that in all cases of the latter disease a most careful auscultation should be made to reveal the presence or absence of mitral involvement. Dumas believes that subacute endocardial inflammation is the cause of this hypertensive condition, as in all of the cases no renal lesions were found to account for it.

305 Uræmic Paralysis following Scarlet Fever

Y. SHAW (*Brit Journ Child Dis*, July–September, 1928, p 191), who records a personal case, illustrates the rarity of cerebral palsies in scarlet fever by the fact that Rolleston in 1927 had been able to collect only 75 cases, 4 of which he had seen himself. Shaw's patient was a boy, aged 8, who developed nephritis on the twenty eighth day of a mild attack of scarlet fever. About a fortnight later generalized convulsions occurred, which were successfully treated by venesection and lumbar puncture. Left homiplegia, however, was found on examination the next day, and persisted, although the renal condition cleared up. An exceptional feature of the case was the permanent character of the palsy, uræmic paralysis as a rule being transitory.

306. Nephrosis in Children

GLADYS L. BOYD (*Canadian Med Assoc Journ*, July, 1928, p 46) prefates her description of some cases of nephrosis by reviewing the origin and significance of this term. The clinical association of marked oedema and intense albuminuria, in the absence of nitrogen retention, hyperplasia, or gross hæmaturia, has been known for rather more than twenty years, and the balance of evidence has suggested a general toxæmic origin for the renal changes. In favour of this view are the frequent presence of degenerative lesions in other organs and the nasal appearance of anæmia and vague ill health some time before the oedema is noticed. Although no acute illness is typically associated with nephrosis, attacks of bronchitis and gastro-intestinal upsets not uncommonly precede the hydraemia. Of a series of children suffering from nephrosis 95 per cent were found to have had measles, and tuberculosis also seemed to be a frequently related condition. While pyuria was often present the urine was generally sterile, *B. coli* being found in the infected cases. Some observers have regarded staphylococci as an important etiological factor, with *Staphylococcus albus* and *aureus* as the predominating organisms. Four cases of nephrosis in children were studied by the author in the hope that in them as contrasted with adults, renal pathology might correspond more closely to clinical findings. Increase in size of the kidney and preponderance of tubular changes were constant observations. Where in later cases, glomerular changes also were found, it was difficult to determine whether these were primarily inflammatory or secondary

to cellular degeneration. Fatty infiltration of the liver was found always, similar changes being discovered frequently in the heart.

307

Common Cardiac Problems

M. D. SILVERBERG (*Med Journ of Australia*, June 23rd, 1928, p 764) reviews the clinical and therapeutic problems presented by syncope attacks, cardiac neuroses, and precordial pain. He classifies syncope into harmless and serious varieties, the former being dependent upon disturbances of the nervous mechanism, which may consist in overaction of the vagus and inhibition of the heart or in vasomotor pooling in the splanchnic area, or in a depressor vagal mechanism induced by a sudden rise of pressure in the aorta. Grave forms of syncope are commonly the result of pathological changes in the myocardium, and are usually recognizable by cardiac irregularities, Stokes Adams attacks belong to this group. Recurring unduly loud first sounds produced by aortic reinforcement and arrhythmic systolic sounds in the long pauses are of diagnostic value in heart block. Passing to cardiac neuroses, known also as effort syndrome and irritable heart, the author emphasizes the importance of allaying the patient's anxiety, actinosis and of recognizing the chronic toxic condition so frequently present. The identity of these cases with those of hypothyroidism and thyrotoxicosis is regarded as more apparent than real. Treatment with bromides, glycerophosphates, and calcium salts is recommended. In considering precordial pain the author follows Mackenzie's scheme of primary and secondary angina, the latter including the harmless forms common in young women and in neurotic subjects generally, the pain being usually unrelated to exertion, and not substernal or radiating, the patient is restless as compared with the immobility characteristic of primary angina. The well defined group of coronary thrombosis is described, and stress is laid upon the risk of mistaking mild attacks of cardiac pain for indigestion when, as often happens, the discomfort comes on after meals. In severe attacks the pain centred in the epigastrium, the vomiting, and signs of collapse may suggest an abdominal catastrophe, while pyrexia and leucocytosis may enhance the similarity.

Surgery.

308.

Splenectomy for Trauma.

J. T. CONNORS (*Annals of Surgery*, September, 1928, p 388) reports conclusions drawn from 32 cases of splenic injury, motor accidents accounted for 18 of the cases, and 22 occurred in persons under the age of 21. He attributes the fact that 25 cases occurred in males and only 7 in females to the greater occupational and industrial hazards to which men are exposed. In all cases but one the spleen was normal, except for the traumatic lesion, in the one exception a spleno-medullary leukaemia was found. The traumatic lesion usually consisted of a laceration which divided the spleen into two parts, in some cases the laceration was stellate. In all cases the abdomen was filled with blood and blood clots, the latter being chiefly round the spleen and on the left side of the abdominal cavity while free blood was found in the pelvis. Of the 32 cases, only 15 patients survived, in each case as the result of operation, 7 cases which were not operated on terminated fatally. In many instances there were injuries in addition to that of the spleen. The symptoms were chiefly those of shock and hæmorrhage, with abdominal pain, often localized in the left hypochondrium. Vomiting occurred in 7 cases, dullness on percussion in the left flank in 16 cases, obliterated liver dullness in 3 cases, and abdominal distension was invariably present. Connors adds that the treatment should be immediate operation in all cases of splenic rupture, splenectomy is the operation of choice, its operative mortality being 40 per cent. A subsequent blood transfusion is of great value. It was found that a slight anaemia, which lasted for several years associated with a slight leucocytosis, followed operation, but otherwise the health of persons whose spleens had been removed for trauma was not adversely affected.

309

Cerebral Gas Gangrene

W. SCHÄR (*Deut Zeit f Chir*, September, 1928, p 414), who records an illustrative case, remarks that gas gangrene in time of peace is a rare occurrence. In the great majority of cases the extremities are involved and the trunk is rarely affected. The condition chiefly develops in the muscles. In

recent years other localizations have been described, such as in the lungs, liver, gall bladder, and in the peritoneum after appendicectomy. Schür now reports a fatal case of cerebral gangrene in a boy, aged 14, following an injury to the left eye. Death occurred three days after the accident, with symptoms of meningitis and abscess in the frontal lobe. The necropsy showed recent basal meningitis and an abscess partly filled with gas in the base of the left frontal lobe. Bacterial examination revealed a hitherto unknown bacillus which formed gas in both aerobic and anaerobic media, and killed a guinea pig in eight hours with the typical signs of gas gangrene. Only five cases of cerebral gas gangrene have hitherto been described, in four patients, two of whom recovered. It was the result of war wounds and due to Fränkel's bacillus. In one patient it followed otitis media, and was due to a Gram negative non mobile anaerobic bacillus. Cerebral gas gangrene has no characteristic symptoms, but presents the picture of an ordinary cerebral abscess, or, most frequently, of a rapidly progressive meningitis, as in Schür's case. Treatment consists in free evacuation of the abscess and early and intensive anti gas gangrene serum therapy.

310. Intestinal Tuberculosis causing Obstruction

J R B BRANCH (*Arch of Surgery*, September, 1928, p 440) believes that in the most severe cases of pulmonary tuberculosis there is some intestinal involvement, lesions being found in the intestinal tract of 70 to 90 per cent of patients dying of this disease. The condition is usually ulcerative, stenosis or stricture developing in only 25 per cent of cases. This type of lesion is progressive and associated with processes in the lungs, and is called "secondary," the "primary" type being hyperplastic. In about 85 per cent of cases the involvement in intestinal tuberculosis is in the terminal ileum, caecum, and proximal colon, in some cases the appendix also is involved. In all cases there is a generalized thickening of the entire wall of the bowel with old healed scar tissue, resulting in stenosis of the lumen. In diagnosis there may be confusion with appendicitis or malignant growth but as most cases occurred in young people between 25 and 30 years of age malignancy was improbable, and a ray examination confirmed the clinical diagnosis of intestinal tuberculosis. Treatment involves resection of the diseased portion of the bowel, with enterostomy, two features in the operative and post operative procedure being important: (1) the prophylactic or complementary enterostomy suggested by Mayo to avoid paralytic ileus, and (2) the limiting for four or five days after operation of all fluid intake to the subcutaneous and intravenous administration of solutions of physiological sodium chloride or dextrose. Nothing must be given by the mouth or the rectum, morphine may be used liberally to reduce peristalsis to a minimum.

311 Treatment of Empyema following Pneumonia

H BINNEY (*New England Journ Med*, August 30th, 1928, p 410) describes the principles underlying the modern treatment of empyema. Realization of the fact that the mediastinum is not necessarily a rigid partition, and that pressure changes in one pleural cavity may therefore be transmitted to the other, has led to the avoidance of open drainage and its attendant pneumothorax, especially when pneumonia is present and the vital capacity low, and if there has been no time for stabilization of the mediastinum by adhesions. The author has tried preliminary aspiration of 200 to 300 cc of pus in 28 cases, in 17 the condition was thereby improved prior to operation. The indications for this procedure are underlying pneumonia, cyanosis and dyspnoea due to pneumonia or much fluid, or unduly rapid pulse. If the pus is found to be too thick to pass through a needle, trocar puncture and catheter drainage is advised. With regard to diagnosis, the atypical forms give rise to greatest difficulty—for example, the encapsulated, interlobar, apical, or mediastinal empyema. For the detection of these abnormalities careful physical and x ray examination is essential and subsequent wide exploration at operation. As a routine method the pus is gradually drained off through a catheter introduced into the thorax by means of a trocar and cannula, and since the substitution of this method for the old open drainage at the Boston City Hospital the mortality from this condition has been halved. In accordance with other observers, the author has found that in pneumococcal empyema the chance of recovery is twice as great as in streptococcal empyema. The occurrence of chronic empyema depends upon various factors, such as age, organism, and complications, but it is believed that about 20 per cent of cases become chronic when treated by open drainage, the perfection of closed drainage methods has seemed up to the present to reduce greatly the incidence of chronic empyema, this condition being developed in only 4.7 per cent of the author's 126 cases treated by closed drainage.

Therapeutics.

312

Bismuth as a Diuretic.

H G MEHRTENS, P J HANZLIK, D C MARSHALL, and N S BROWN (*Journ Amer Med Assoc*, July 28th, 1928, p 223), as the result of tests with a constant fluid intake, confirm their original impression, derived from an uncontrolled fluid intake that bismuth administered intramuscularly acts as a diuretic in both ambulatory and confined cases. Single and repeated doses of bismuth metal suspended in dextrose solution, or of potassium bismuth tartrate, or bismuth salicylate suspended in oil were used. On an uncontrolled fluid intake it was found that the urine output increased simultaneously with the excreted bismuth in the urine, the optimum diuresis coinciding with the peak of bismuth excretion and generally diminishing as the excretion of bismuth decreased. That the diuresis is due to the bismuth ion is shown by the fact that similar results were obtained with either the metal or the tartrate and salicylate compounds, the ions of the latter being insufficient in quantity to cause diuresis. Large or repeated doses were more effective than small or single ones, but it was found that the bismuth preparations caused considerable increase in urine output, ranging from 31 to 150 per cent above that prior to medication. With a constant water intake similar results followed intramuscular injection, and even single doses produced a definite increase in output. The effects were temporary and lasted about a day, but when the urine output had returned to its previous level reinjection of the bismuth produced an increase, it was found that three doses spaced a day apart gave the best diuresis. With the ordinary dosage used in the treatment of syphilis such diuresis did not cause any demonstrable injury to renal function. With the oral administration of from 3 to 5 grams of the subnitrate an increase sometimes occurred, but was not dependable since only five patients were tested a more extended trial is desirable. Bismuth subcarbonate was found to be ineffective in producing diuresis. Any such resulting diuresis would appear to be due rather to the nitrite action, since there was no accompanying bismuth excretion, and moderate nitrite effects on the circulation occurred. No toxic effects followed any of the preparations or methods of administration, and the authors conclude that their results justify the intramuscular use of bismuth in the treatment of clinical oedemas.

313 Treatment of Early Cerebro-spinal Syphilis

A POSITIVE Wassermann or gold sol reaction in the cerebrospinal fluid is considered by F BERING (*Wien Klin Woch*, July 12th, 1928, p 977) an indication for malaria treatment. He adds that no thorough antisyphilitic treatment is possible without an examination of the cerebrospinal fluid. Not much significance can be attached to a positive or negative reaction in the fluid in the secondary stage, therefore the examination should be made at the end of the treatment or during the stage of late latency, when a positive reaction is of primary importance, implying that the central nervous system is threatened by the syphilitic virus. Bering remarks that it is not certain that commencing involvement of the central nervous system can always be detected in the cerebrospinal fluid. The examination of the blood only is certainly insufficient, since very pronounced changes may be present in the cerebrospinal fluid, while the reaction of the blood remains negative. In the presence of a positive reaction in the cerebrospinal fluid the routine antisyphilitic treatment is insufficient, and malaria treatment is indicated. Eight attacks of malaria are usually sufficient, but the malaria treatment should in all cases be followed by an intensive salvarsan or bismuth treatment. The malaria treatment has proved useful also in cases where, in spite of intense antisyphilitic treatment, the reaction of the blood remained positive. Bering considers that the results of malaria treatment in tabes have been variable, they were occasionally good, but sometimes there was no response. No permanent harm has been caused to any patient by the malaria inoculation. No case of syphilis treated prophylactically with malaria developed general paralysis or syphilis of the central nervous system.

314.

Arsenio in Lambliæ Infestation

A H A MARTENS and C H KOERS (*Nederl Tijdschr v Geneesl*, August 4th, 1928, p 3781), who record an illustrative case in a woman aged 25, state that the connexion between intestinal symptoms and the presence of a large quantity of flagellate parasites in the intestine cannot be denied. It is an open question, however, whether the parasites play a primary or a secondary part in the production of the clinical picture, although it is probable that pre-existing intestinal disturbance forms a suitable soil for their development. According to the authors it is improbable that the parasite multiply on the mucous membrane of theiliary tract.

Treatment at present is unsatisfactory, the ordinary lutes that disinfectants cannot destroy the parasites. Investigations on the effect of arsenco in the form of neosalvarsan or stovarsol yielded the following results. After the intravenous injection of neosalvarsan arsenco could be found one and a half hours later in the duodenal fluid and the parasites were still active, twenty minutes later the arsenco reaction in the duodenum was strongly positive and the flagellates were motionless. Three days later the arsenco reaction was feebly positive and there were no parasites. In another ten days the arsenco reaction was negative and mobile flagellates were found. Arsenical treatment therefore, has a favourable effect but only of a temporary character, it must be continued for a long period and in fractional doses. Stovarsol appears to be a suitable drug for this purpose, but the authors state that they have not hitherto had a permanent success after six months' treatment with this drug.

Ophthalmology.

315

Syphilis of the Orbit.

G. F. ROCHAT (*Nederl. Tydschr. v. Geneesk.*, May 19th, 1928, p. 2438) states that in the presence of symptoms suggesting a tumour in the orbit there is always a small chance of sparing the patient a serious and disfiguring operation by careful inquiry as to the possibility of syphilitic infection. Violent nystagmus, especially at night, from the onset of the illness and the paralysis of several ocular nerves associated with only slight ophthalmos, are suggestive of gumma of the orbit. He adds that it is always worth while to try the effect of antisyphilitic treatment, even when the presence of lues cannot be proved. A woman, aged 79, who had contracted syphilis in early life, developed slight ophthalmos and ocular palsies. There was doubt as to whether the condition was due to a gumma or to tumour, as the Wassermann reaction was negative. Potassium iodide had no effect, and the ophthalmos and paralysis increased, so that evacuation of the orbit had to be considered. Mercury and salvarsan were first tried, and complete recovery followed in a few weeks. Numerous cases have also been recorded in which non-syphilitic processes in the orbit suggestive of tumour were cured by mercury and potassium iodide.

316 Tendon Transplantation for Paralysis of the External Rectus

T. H. RODIN and W. F. SWETT (*Amer. Journ. Ophthalmol.*, May, 1928, p. 369) report a case in which this operation was performed with success. Their patient was a man of 61 who had paralysis of the left external rectus resulting from an injury. Under local anaesthesia a curved incision was made through the conjunctiva over the superior external and inferior recti muscles of the left eye, and the tendons of these muscles were exposed. The superior and inferior recti muscles were then split and the lateral halves, so produced, sutured to the insertion of the external rectus. After healing there was still some convergence of the eye, but it could be abducted as far as half way between the primary position and extreme abduction. A few weeks later a complete tenotomy of the left internal rectus was performed, with the result that the eye became straight with apparently full movement in all directions.

317

Angor Ocularis

AMONG the ocular symptoms due exclusively to angiospasm which cause transient or lasting changes, E. AUBARET and J. SÉDAN (*Presse Méd.* September 8th, 1928, p. 1139) discuss an autonomous clinical syndrome to which they have given the name "angor ocularis" or ocular anguish. Regarding retinal angiospasm, the theory that the vasomotor nerves have no action on the retinal vessels is disproved by the presence of special branched cells (the cells of Rouget) in the tunica of the retinal capillaries which can modify their walls and therefore their lumen, and also, as has been demonstrated by modern workers, by the presence in the vascular trunks from which all the retinal vessels rise, of a vasomotor mechanism controlled by autonomous centres of sympathetic origin and in relation with the cervical sympathetic and endocrine organs. Ricker has stated that vascular spasms respond to two modes of origin: either a direct one where the cause is found at the point of contraction of the vessel, or an indirect one where the cause lies at some distant point. Angor ocularis is characterized by a constant fear of imminent blindness and the principal symptom is the sudden appearance of a more or less opaque mist, which, though rarely total, suffices to impair vision. Its duration varies from some minutes to a few hours. Frontal or orbital headache is rarely present, this fact, together with its unilateral

position and the incomplete blindness, distinguish this form from angiospasm of cortical origin. Abadie has shown that angiospasm is a factor in causing lesions of the optic nerve, and the present authors incline to the hypothesis that repeated attacks of angor ocularis lead sooner or later to definite retinal lesions. This syndrome is observed in many diseases, including chronic glaucoma, angina pectoris, Raynaud's disease, epilepsy, and hypertension, and in certain intoxications, such as with lead, quinine, tobacco, and alcohol. The authors draw attention to the analogy between angina pectoris and angor ocularis, and the similarity of the latter to certain epileptic auras. At the onset of an attack antispasmodic treatment, especially with inhalations of amyl nitrite, is indicated. Other less active antispasmodics are sodium nitrate, trinitrine, valerian, boron, and morphine. Instillations of atropine are employed locally, and subcutaneous injections of pilocarpine nitrate are useful in that they cause a general vaso-dilatation. Frequently repeated retrobulbar injections of atropine have been recommended by Abadie and have proved beneficial, gonalal is often a useful addition. The periorbital operations of Leriche may cause immediate improvement. Treatment of all intoxications and specific treatment in cases of syphilis should be instituted at once.

Obstetrics and Gynaecology.

318 Thymus and Pituitary Extracts in the Early Stages of Labour

ACCORDING to A. G. LAURITZEN (*Ugeskrift for Læger*, July 5th, 1928, p. 635), Tomesbury of Broslau reported in 1926 that he had made a mixture of an extract of the thymus and of the posterior lobe of the pituitary body, and had used it in 70 maternity cases. It is claimed that the action of this preparation did not change after keeping for a year and a half. After giving clinical details of some of his cases, Lauritzen summarizes them as follows. In abortions good effects were obtained in one case, no effects in two others. Before term, one case was treated with no effects. During the first stage of labour twelve patients were treated with good effects, and one with bad effects. During the second stage of labour seven cases were treated with good effects, two with no effects, and one with asphyxia. During the period of the expulsion of the placenta the mixture was given in one case with good effects, and in another with bad effects. The author notes that these results coincide approximately with those claimed by other writers, and he concludes that his preparation "thymophysin" has a specific action in the first stage of labour, and that it therefore fulfils a long felt want. It provokes stronger and more frequent pulsations of a physiological type, its employment is not followed by secondary atony while the placenta is being expelled, in no case could it be held responsible for asphyxia of the infant, and its chief use is during the first stage of labour. Towards the end of labour its action does not exceed that of pituitrin. The indications for its employment are primary uterine inertia, rigidity of the soft structures, premature rupture of the membranes, and, last but not least, the wish to shorten labour. Contra-indications are marked mechanical obstacles, abnormal presentations, malformations, a contraction ring, infections, and diseases of the heart and kidneys.

319

Hydatidiform Mole.

REEB (*La Gynéc.*, April, 1928, p. 204) records two cases of hydatidiform mole to illustrate marked differences in the clinical evolution. A multipara, aged 53, whose seventh and last child had been born when she was 49 years old, had amenorrhoea for four months. The breasts were enlarged, they contained colostrum and there was marked pigmentation of the areola. The vulva and vagina were slightly cyanosed, the cervix was long and hard, and the external os was slightly permeable. The uterus was enlarged to the size of the head of a newborn child, it was mobile, rather soft, and contained a fibroma as large as a small hen's egg. The appendages were normal. The diagnosis of pregnancy at the fourth month with a small fibroma was made. A month later the patient had not increased in size, she had not felt quickening and had "menstruated" twice. Examination showed that the uterus had not enlarged since the last examination, it felt hard, the bigness of the vagina had not increased, and the breasts had become flaccid. Four months later, on account of pains and the passage of clots, together with the presence of a fibroma, subtotal hysterectomy was performed. The patient recovered. Examination of the uterus showed a fibroma the size of a small apple and a hydatidiform mole. Histological examination revealed that the growth, although it had been retained for five months in the uterus without producing symptoms and without invading the uterine wall, possessed the characters of a hydatidiform mole in active

evolution. In the second case a multipara, aged 42, complained of loss of blood of fifteen days' duration following three months' amenorrhoea. The uterus was enlarged and reached to one fingerbreadth above the umbilicus, it was soft and flaccid, the cervix being very short and the os permeable to the finger. Next day a very large hydatidiform mole was spontaneously expelled, with severe haemorrhage, necessitating swabbing and tamponage. The patient recovered and was recommended to return after four weeks, or before then if she commenced to bleed. This she neglected to do, but eight weeks later presented herself in a condition of severe anaemia following serious haemorrhage. The uterus was enlarged to the size of a two months' pregnancy, it was hard and in mobile anteversion, the external orifice being scarcely permeable. In the posterior vaginal wall was an ulcerated tumour surrounded by clots and still bloodclot, and close to it were several small nodules which were felt as thickening in the recto vaginal septum. The uterus was enucleated and mucosa only removed. One of the vaginal nodules was excised and proved to be a chorion epithelioma. Owing to the patient's anaemic condition, it was only after eight days, when some amelioration had occurred, that it was possible to excise the vaginal growths and to remove the uterus and appendages. The patient died of post-operative ileus on the sixth day. The necropsy revealed one small metastasis on the pelvic peritoneum, there were none in the lungs. The excised nodule from the recto vaginal septum was a characteristic chorion epithelioma, but the mucous membrane of the uterus was perfectly smooth, and no sign of chorion epithelioma could be detected in the uterus. The problem remains unsolved whether in this case the chorion epithelioma in the vaginal wall was primary, or whether it was secondary to a chorion epithelioma in the uterus which had spontaneously cleared up.

320

The Decidua and Lactation.

F. SPIRITO (*Ann di Ostet e Ginecol*, July, 1928, p 755) regards the hypertrophy of the breast during pregnancy and its secretion during lactation as brought about by a combination of hormonal influences, of which one—namely, that of the decidua—is not present until after conception. Animal experiments with placental extracts have led to different results in different hands, this is perhaps explicable by Cora's finding that mammary tissue is not affected by extracts of placenta from which the maternal (decidual) portion has been completely excluded. Among the results reported after repeated injections of decidual extracts are adiposity, regression of the internal genitalia, hyperplasia of the suprarenals, increase in size of the breasts, and secretion of milk. There is some evidence of an increased tendency to abortion in animals after the injections. Spirito reports the results of intramuscular injections into human subjects of an extract of animal placentae made by trituration with glycerin, no unpleasant symptoms were noted and all pregnant patients went on to term. The results in cases of deficient lactation in the puerperium were encouraging, those in a second series of cases, in which patients whose lactation after the antecedent childbirth had been defective received injections throughout the last forty to fifty days of pregnancy, were much better. In a certain number of cases in both series the injections were without effect. Using Spirito's extract in virgin animals, Tesano has induced hypertrophy and lactation in the breasts. Di Nanno, by giving the extracts hypodermically or by the mouth to newborn animals, has found that males show increased growth and females diminished growth—effects which are ascribed respectively to hormonal stimulation of suprarenal and inhibition of ovarian endocrine activity.

Pathology.

321

Etiology of Cancer

G. VILLATA (*Il Politecnico, Sez. Prat*, July 9th, 1928, p 1298) reports four cases under the care of Professor Bobbio in Turin to indicate the importance of the chronic irritative factor in the production of malignant tumours. The irritation may be physical, chemical or thermal, it is often multiple, and is especially liable to occur in a cicatrix. Villata points out that while endeavours to produce new growth by inoculation or by implantation mostly fail, they are more likely to be successful when accompanied by a method which provokes chronic non specific irritation. Malignant tumours may follow exposure to x rays, the application of tar, and infection by the *Cisticercus fasciolaris*, the larvae of taenia, or by demodex. Menetrier stated that Fibiger had again shown the relation of chronic inflammatory phenomena with hyperplasia of tissues and malignant new formations.

77SD

Villata's four cases are as follows: (1) A man, aged 67, was operated upon for a calculus in the bile duct in August, 1924. The liver was enlarged and the gall bladder was inflamed, adherent, and full of calculi. Cholecystectomy was performed, and the patient was discharged cured at the end of September. He was readmitted in September, 1927 with pain in the right lumbar region, and was found to be suffering from diffuse and extensive carcinoma proceeding from the zone previously occupied by the gall bladder. (2) A woman, aged 58, was admitted in January, 1925, with symptoms of gastric ulcer. Extensive and tough adhesions were found between the stomach and the abdominal wall, the ulcer, which was about perforated, was cauterized and folded in after the manner of Balfour. The patient returned in September, 1927, and was found to have a large ulcerating cancer of the stomach in the pyloric region. (3) A woman, aged 45, had had lupus of the face when 25, this responded well to treatments and irradiations. In January, 1927, she showed extensive epithelioma affecting the old cicatrices, the growth being of the spino-collular variety. (4) A woman, aged 41, had a cancerous growth in the right breast which was caused by chronic irritation, she was accustomed to thrust her right breast against the loom in the process of weaving, and a carcinoma developed at the point of recurrent impact.

322.

Bacillus botulinus in Scottish Soils.

G. LEIGHTON and J. B. BUXTON (*Journal of Hygiene*, August 8th, 1928, p 79) report the results of the examination of 100 samples of soil taken from different Scottish counties with a view to determining the presence of *B. botulinus*. The series yielded only 4 per cent of positive results, as compared with 5.5 per cent in Denmark, 7.8 per cent in England, 20 per cent in Holland, and 23.5 per cent in Switzerland. The authors remark, however, that it would not be safe to conclude that the organism is relatively and proportionately rare in Scotland, what is definitely shown for the first time is that both the A and B types of *B. botulinus* occur in Scottish soil. Only eight samples of soil gave filtrates containing tetanus toxin, four of these came from manured cultivated land—one from old pasture and one from moorland. Two soils yielded the A type of *B. botulinus*, this being the first time that it has been found in a European soil. The authors mention that the investigation owes its inception in part to the Loch Maree tragedy in 1922, particulars of which were given in the *Journal* of February 17th, 1923 (p 279), by T. K. Menro and W. W. N. Knox.

323. Fate of Tubercle Bacilli in Various Organs.

M. B. LURIE (*Journal Exper. Med.*, August, 1928, p 155) has made a quantitative study of the rate of growth of human and bovine tubercle bacilli in different organs. The general technique was to inoculate a series of rabbits intravenously with a given dose of bacilli, to kill one or more at varying intervals of time, and to make a rough estimate of the number of living organisms in the different tissues by inoculating Dorset's and Petroff's egg media with diluted suspensions. By this means it was found possible to count the colonies that developed and so obtain an idea of the number of bacilli present in the tissue. In rabbits killed two days after inoculation the number of organisms was greatest in the spleen, next to which came the liver, lung, bone marrow and kidney, in this order. After 0.1 mg of human bacilli the organisms grew most rapidly in the spleen and lungs, reaching a maximum in the spleen after two weeks, and in the lungs after four weeks. In the liver, bone marrow, and kidney the multiplication was very much less, then destruction set in, so that after two months the numbers were greatly decreased. After a similar dose of bovine bacilli multiplication occurred more slowly, and whereas destruction was present in the spleen, liver, and bone marrow after a preliminary period of growth, in the lungs and kidneys the organisms continued to multiply indefinitely. When a smaller dose of bacilli was used (0.001 mg) the same sequence of events appeared, but at a slower rate—that is to say the rate of multiplication and the onset of destruction occurred at a later date. Even six months after the inoculation of human bacilli considerable numbers were still present in the lungs and spleen. The author finds that the growth of the human is faster than that of the bovine bacillus in the rabbit, on the other hand, the human type is destroyed earlier and more completely than the bovine type. With both types destruction occurs first in the liver, spleen, and bone marrow, in the lung and kidney the destruction of the human type is later, while in these organs multiplication of the bovine type continues till the death of the animal. With both types destruction in a given time is more complete in some organs after a large than after a small dose. For these reasons the author concludes that the virulence of a given strain is inversely proportional to its rate of growth in the animal body.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

324 Diagnosis of Lobar Pneumonia in Children

ACCORDING TO A C BELMONTE (*Nederl Tijdschr v Geneesk*, September 22nd, 1928, p 4662), whose paper is based on the study of 66 cases of lobar pneumonia of the upper lobe and 61 of the lower lobe admitted to the Emma Children's Hospital at Amsterdam in the period 1909-27, many cases of supposed appendicitis in children turn out to be lobar pneumonia of the lower lobe. The symptoms suggestive of acute abdominal disease, especially appendicitis, in lobar pneumonia of the lower lobe are the association of abdominal pain, nausea, vomiting, muscular rigidity, and the constant presence of constipation. The symptoms are more likely to be due to a reflex cause than to inflammation of the diaphragm. Whorled abdominal pain was present in only 3 per cent of the 66 cases of pneumonia of the upper lobe, it was found in 40 per cent of the 61 cases of pneumonia of the lower lobe. On the other hand, diarrhoea was present in 66 per cent of the cases of pneumonia of the upper lobe but was found in only 2 per cent of the cases of pneumonia of the lower lobe. The presence, therefore, of diarrhoea in a doubtful case of the kind is much in favour of acute appendicitis.

325 Tuberculosis and Orthostatic Albuminuria.

J VALDES LAMBEA (*La med Ibera*, September 15th, 1928, p 229) asserts that the so-called orthostatic albuminuria is principally met with in young members of tuberculous families who are themselves subject to inactive tuberculosis. These persons have a long narrow thorax with small respiratory capacity. The blood pressure is usually below normal, the stomach is atonic, and there is generally more or less tachycardia. Such individuals, therefore, are examples of Stillor's asthenic habitus, which, according to Lambea, is almost always of tuberculous origin. Of 133 boys aged from 13 to 15, 125 had a family history of tuberculosis, 98 presented Stillor's asthenic habitus and showed signs of active pulmonary tuberculosis on auscultation or radiology, and had a blood pressure below 100 mm of mercury sometimes as low as 91/75. Albuminuria was present in 83 of the 133, and 65 of the 83 were of the asthenic type. Lambea concludes that non nephritic albuminuria in young persons of the asthenic type is due in most cases to tuberculosis and that orthostatic albuminuria is frequently of tuberculous origin.

326 Peripheral Arterio-sclerosis

C LUNDSGAARD and E RUD (*Ugeskrift for Læger*, July 26th, 1928, p 715) have studied at the Rigshospital in Copenhagen the condition of the arteries of the arms and legs as shown by an x-ray examination. The object of this investigation was to ascertain whether skilgraphically demonstrable arterio-sclerotic changes in the peripheral arteries could or could not be correlated with the clinical picture of certain diseases, such as chronic nephritis and angina pectoris. During three and a half years 193 men and 152 women were thus examined, preference in the selection of the patients for this examination being given to those whose clinical symptoms suggested arterio-sclerotic changes, high blood pressure, chronic nephritis, nephro-sclerosis, angina pectoris, coronary sclerosis, myocardial degeneration, diseases of the aorta, or apoplexy. Skiagrams were taken not only of the right forearm and the right foot, but also of the heart. The blood pressure was measured frequently, and the radial and temporal arteries were examined clinically for rigidity, tortuosity, and unevenness. An ophthalmoscopic examination of the vessels of the retina was made in 151 cases. A great difference was found in the distribution of skilgraphically demonstrable peripheral arterio-sclerosis in men and women, 100 of the 193 men and only 13 of the 152 women showing such a change. In no patient under the age of 40 could such peripheral arterio-sclerosis be demonstrated. Between the ages of 50 and 59 there were 82 men and 71 women, and the respective incidence of peripheral arterio-sclerosis was 57 per cent and 55 per cent. Among the 113 men and women with skilgraphically demonstrable peripheral arterio-sclerosis there were as many as 47 whose radial and temporal arteries seemed perfectly normal on clinical examination. Of the 58 patients with skilgraphically demonstrable peripheral arterio-sclerosis whose retinal vessels were examined, only 4 showed arterio-sclerosis of these vessels. Among the 12 men between the ages of 40 and 49 in whom peripheral arterio-sclerosis was demonstrated skilgraphically, as many as 9 suffered from diseases of the myocardium.

Among 44 of the men and 10 of the women the systolic blood pressure was found to be above 150. In other words, the blood pressure was above normal in about 50 per cent of the patients with skilgraphically demonstrable peripheral arterio-sclerosis. Among the 113 patients with skilgraphically demonstrable peripheral arterio-sclerosis there were 25 showing no cardiac symptoms. There remained 88 with cardiac symptoms and 63 with cardiac signs of disease.

327 The Anaemia Infection of Edelmann

M SCHUR (*Wien klin Woch*, August 9th, 1928, p 1153) describes a case of severe progressive anaemia in a boy aged 13. The temperature was 100.4° F, and the skin was puffy and pasty, the heart was not enlarged, but short systolic bruits were heard at all the valvular orifices. The spleen was enlarged, hard, and palpable. The haemoglobin percentage was 37, the red cells numbered 3,420,000, and the leucocytes 13,800, with an eosinophil percentage of 65. There was excessive anisocytosis, blood culture was sterile, and the Wassermann and tuberculin tests were negative. There was no evidence of endocarditis lenta. Five months later the anaemia was more severe, and eosinophilia had risen to 12 per cent. The symptoms suggested Edelmann's "infectious anaemia." Stained blood films showed erythrocytes containing dark blue or violet stained bodies with coronated edges, extracellular rosettes or mulberry like masses of blue stained bodies with reddish centres, and smaller circular reddish violet bodies lying within the red corpuscles. Schur considers that these bodies are a hitherto unknown form of blood parasite, resembling those described by Edelmann. The only differences between Schur's and Edelmann's cases were the degree of leucocytosis and the size of the enlarged spleen. Antiparasitic treatment with quinine and stovarsol was employed, the temperature fell and the systolic bruits and splenic enlargement disappeared. The patient gained weight, and the blood count became normal, except that a moderate eosinophilia (6 per cent) persisted.

328 Vincent's Infection of the Nose.

H I SHULMAN (*Amer Journ Dis Child*, August, 1928, p 35) who records an illustrative case of Vincent's infection of the nose in a boy aged 3 remarks that nasal discharge mixed with blood particularly when it has been persistent, is so often associated with diphtheria and a foreign body that little attention is usually paid to other conditions. The symptoms of Vincent's infection of the nose are a persistent mucopurulent discharge and a greenish membranous slough. The discharge has a foetid odour and tends to excoriate the skin. The nose is tender to touch, and this renders examination difficult. The condition may be associated with Vincent's infection of the gums, as in Shulman's case, it is accompanied by cervical adenitis, slight rise of temperature, rapid pulse, irritability, and restlessness. Treatment consists in swabbing the nose with half strength hydrogen peroxide, followed by 5 per cent chromic acid, which is kept in the nostril for a minute. Only one previous example of Vincent's infection of the nose, reported by Place in 1911, is on record.

329 Polycythaemia Vera.

AFTER discussing the various forms of polycythaemia, such as those due to high altitudes, chemical agents, and congenital heart disease, G A HARROP, jun (*Medicine*, August, 1928, p 291), deals fully with polycythaemia vera. This disease, which seemingly is a constitutional or familial malady, affects both sexes equally, and is more common than hæmophilia, as is the case in pernicious anaemia, and its onset is usually in middle or late middle life. The patients present a rather characteristic body build, being usually spare with thin and often narrow faces. The disease is marked by a clinical syndrome of chronic cyanosis of a peculiar and striking hue, epistaxis, and polycythaemia. The cyanosis occurs especially on the exposed surfaces—namely, the face, particularly the cheeks, the tip of the nose, and the ears, the trunk usually being unaffected. Paraesthesias, typical of the disease, may be due to the plethora and stasis of the blood in the peripheral vessels. The superficial appearance of the eyeballs is often striking and the retinal picture is well known. Enlargement of the spleen is by no means constant, and the polycythaemia is usually supposed to antedate the epistaxis. Gastro-intestinal symptoms are very prominent, the most serious being hæmorrhages, severe bleeding is one of the principal causes of death. Associated with the portal thrombosis are other liver disorders, including enlargement and cirrhosis, a rather common terminal event. Nervous

and p. yohio disturbances are often the first and most striking manifestations of the disease, the chief being lassitude, headache, vertigo and giddiness, transient syncope, insomnia, weakness, a sensation of fullness in the head, numbness and tingling in the fingers, but less often in the feet, burning sensations, and extreme sensitiveness to cold. Of the pathological changes, extensive hyperplasia and proliferation of the red bone marrow is of primary otological importance. The blood shows the following changes: very great concentration of erythrocytes per unit of volume, with a most marked increase in the total blood volume, much intensified viscosity, normal or somewhat delayed clotting time, and unaltered haemoglobin. Anisocytosis, microcytosis, polychromasia, normoblastosis, and less frequently megaloblastosis, are often found. Many therapeutic measures, such as oxygen therapy, venosuction, and bouzou, have been found to be useless. Phenyl hydrazine, given over a period of several days, has proved of benefit in some cases. Good results have followed radiation (both x-ray and radium), but this apparently should be applied over the long bones only and not be directed to the spleen. Splenectomy is absolutely contraindicated. Two hypotheses are advanced to explain the bone marrow changes. The first regards polycythaemia vera as primarily a disease of the red marrow, strictly analogous to leukaemia—that is, it is a type of malignant tumour, the second considers the bone marrow changes as secondary to one or several different factors causing over stimulation.

330 Recurrence of Herpes Zoster

ACCORDING TO J. VERGELY (*Journ de Méd de Bordeaux*, August 25th, 1928, p. 632) it is generally held that herpes zoster is a disease which does not recur, one attack conferring immunity for the rest of life. O. W. Allen, however, in 1898 reported a case of a girl, aged 13, who developed lumbo-abdominal zoster in 1898 and thoraco-brachial zoster on the same side the following year. Vergely now records the case of a previously healthy woman, aged 30, who developed typical right dorso-brachial zoster in July, 1923. In November, 1927, while still in good health apart from overwork after being in contact with two children suffering from varicella, she had a typical attack of herpes zoster in the corresponding region of the opposite side. Vergely does not discuss the question as to whether the first attack was essential zoster and the second the result of infection by varicella, but expresses the opinion that zoster—like other diseases, such as measles and small pox, which usually confer immunity—is occasionally liable to recurrence. In such cases the disease, either from insufficient virulence or lack of reaction on the part of the individual, fails to provoke a sufficient quantity of antitoxin to allow the patient to escape a second infection.

331 Immunization against Diphtheria.

J. A. MUÑOYERRO (*Arch. d-med. cir. y esp.*, September 22nd, 1928, p. 334) states that immunization against diphtheria with anatoxin is absolutely harmless, no fatal case having yet been recorded among the many thousands which have been inoculated with it in Europe. Among 1,500 personal cases he has not met with a single instance of a violent reaction or disagreeable sequelae. He urges that immunization with anatoxin should be made compulsory like vaccination against small pox, so as to prevent the annual death toll of more than 4,000 children in Spain due to diphtheria. The most suitable age is 1 to 2 years, but up to the age of 5 years immunization should be performed without a preliminary Schick test. After that age only those found to be susceptible by the Schick test need be inoculated. During epidemics of diphtheria those who have not been immunized should be injected with serum, and three weeks later should be given three doses of anatoxin, with an interval of three weeks between each dose. Those who have been already inoculated should be given another injection of anatoxin if it is not desirable to perform a Schick test. Almost every child who has been given three doses of anatoxin may be regarded as immune to diphtheria. Muñoyerro found only 2 per cent who were refractory after three doses, and these became immune after the fourth dose.

332 Gallop Rhythm in Hypertension.

A. DUMAS (*Journ de Méd de Lyon*, September, 1928, p. 543), discussing the origin and significance of gallop rhythm, emphasizes the fact that in all cases it represents abrupt reduction of the arterial blood pressure, irrespective of the original tension. Thus it may occur simultaneously with sudden weakening of the myocardium, or alterations in the peripheral circulation. Both the gallop rhythm supervening in hypotensive states and that accompanying hypotension depend for their production upon increased diastolic relaxation of the ventricular wall, which oscillates with the impact

of blood forced into the ventricle during auricular systole. This explanation holds good whether the gallop is presystolic or diastolic, the different time relations of the added sound and the first heart sound in the latter case depending upon prolongation of the PR interval and defects of myocardial contraction, these factors most clearly operate in the diastolic gallop so frequently observed in myocardial infarction. Etiologically, gallop rhythm in hypotension may be classified as occurring as three types: the first consists of those cases in which gallop is of cardiac origin, such as primary cardiac enlargement unrelated to arterial hypertension and myocardial infarction, the second group depends upon peripheral or vascular causes, such as haemorrhage, vaso-dilatation attending shock, and hypotensive states—for example, those related to endocrine disturbances, the last group is seen typically in typhoid fever and other infectious diseases. Ordinarily in these diseases no gallop is present, its appearance, therefore, is frequently of grave import as indicating myocardial insufficiency or the onset of circulatory failure.

Surgery.

333 Teratomatous Cysts of the Spinal Cord

L. S. KUBIE and J. F. FULTON (*Surg., Gynecol. and Obstet.*, September, 1928, p. 297) report a clinical and pathological study of two cases of teratomatous cyst of the spinal cord containing mucus and ciliated cells. One, a boy aged 2, was brought with a history of always having dragged the right foot, with later irritability and a "tender" abdomen. Repeated lumbar punctures between the tenth and eleventh dorsal vertebrae gave vent to thick "egg white" fluid filled with ciliated cells. At the operation a flattened cyst was found extending on the dorso-lateral surface from the tenth dorsal to the fourth lumbar vertebra, it proved to be a simple teratoma lined with ciliated columnar epithelium. Complete recovery followed its removal. The other patient was an unmarried woman, aged 27, who, since the age of 2, had had five attacks of left hemiplegia with pain in the left cervical region and Brown Séquard dissociation of sensation in trunk and extremities. The last attack produced an almost complete quadriplegia with an upper level of sensory disturbance at the fourth cervical vertebra, the respiration was gasping, laboured, and entirely diaphragmatic. At the operation a cyst filled with mucus and ciliated cells was removed, it was attached to the left side of the cord at the junction of the third and fourth cervical vertebrae. This proved to be a more complex teratoma than that of the other case reported, with changes compatible with its greater duration. Immediate recovery of power resulted after its removal, with marked, though less complete, return of sensation. In both cases the cysts were congenital, and probably represented ependymal diverticula of the central canal of the cord. Some instances from the literature presenting analogous features are reported, though a careful search gives no record of cases exactly comparable.

Cleft Palate.

W. E. M. WARDILL (*Brit. Journ. Surg.*, July, 1928, p. 127) describes a new operative procedure for cleft palate. The operation is divided into two stages, the object of the first being to narrow the nasopharynx laterally and to produce a union of tissue on the posterior pharyngeal wall, imitating but exaggerating that which is formed by the superior constrictor muscle, in order to form a seating for the upper surface of the repaired soft palate. The mucous membrane is incised transversely at the level of the ridge of Passavant, and is held open with fine sharp hooks. The bucco-pharyngeal fascia being relatively tough, the superior constrictor muscle and covering mucosa can be peeled from it. The dissection is carried on in this layer upwards almost to the base of the skull, downwards for a similar distance, and laterally a little beyond the ridge of the salpingo-pharyngeus muscle. The incision is enlarged laterally up to the salpingo-pharyngeus, and is sewn up in a vertical direction. The second stage is the repair of the palate, and this part of the operation is usually performed after an interval of three to four weeks. The Langenbeck-Ferguson method is the one used most effectively, with the modification of the division of the hamular processes or of the tendons of the tensors of the palate, thereby setting free the palatal aponeurosis and so destroying the greatest bar to backward displacement of the palate. The author adds that care must be taken until recovery from the anaesthetic is complete, since repair of the palate blocks the nasopharynx until the sutures loosen. In six cases out of eight a functional pharyngeal valve was formed, and evidence showed that speech was improved. The operations were, however, of too recent a date for it to be certain that the

oushion formed on the pharyngeal wall would persist. It is thought that the method of operation may be applicable to infants, though the youngest patient (aged 4) died after the operation from acetonaemia.

335 Metacarpal Fractures.

D DAMI (*Rev Méd de la Suisse Romande*, September 25th, 1928, p 794) asserts that in certain cases of fracture of the metacarpal bones reliance on radiography may lead to diagnostic errors. The true condition can be ascertained solely by clinical examination, and three cases are reported illustrating this contention. At the first these fractures are characterized by simple contusion, with partial loss of power in one or more fingers, and diffuse pain. When the swelling has diminished pathognomonic signs appear, those being intense pain at the site of the fracture, crepitation, which, however, is inconstant, more rarely, abnormal mobility due to displacement of the fragments, and, especially in fractures of the second and fifth metacarpals, which have lost lateral support, lateral displacement which causes an apparent deformity of the segment of the hand involved. The seat of election of these fractures is the diaphysis, direct fractures are usually transverse, and indirect ones commonly oblique, running from below forwards. The latter, the most frequent, may present either a straightening (rarely) or an exaggeration of the normal curvature of the bone. The metacarpal osteomyelitis, especially the first, may also be fractured. There are three types of these: the fracture of Lenoir (boxer's fracture), in which the head of the first metacarpal is fractured, that of Bonnot, at the base of the first metacarpal and involving the trapezometacarpal articulation, and that of Rolando, in which the base of the first metacarpal is broken into three fragments, separated by a Y shaped line of cleavage. Dami comments on the difficulty of obtaining exact radiographs of these forms of injury.

336. Pseudomyxoma Peritonei

J NAESLUND (*Uppsala Läkartidskrift*, Förhand, June 16th, 1928, p 1) states that this condition is relatively uncommon, as barely one hundred cases have been recorded, though it is not so rare as some authors maintain. A close study of the literature shows that it is by no means predominant in men and exceptional in women, but that both sexes are almost equally affected. Naeslund, by removing the appendix from the rest of the alimentary canal in newborn rabbits, succeeded in producing experimentally large tumours, occasionally provided with diverticula, some of which burst and discharged their contents into the abdominal cavity. Subsequent examination showed the presence of cysts filled with mucus, either free in the abdominal cavity or attached to the omentum or coils of the small intestine. These experimental changes correspond to what is known of the pathology of mucocoele, appendix and pseudomyxoma peritonei or processus vermiformis in man.

337 Pancreatic Calculus.

A W MEYER (*Zentralbl. Chir*, September 29th, 1928, p 2440), who records an illustrative case, remarks that pancreatic calculi are rare. N Guleke has collected 50 cases from the literature and v. Schuleden has reported 20 operations, of which 11 were successful, for the removal of calculi in the pancreas. Meyer's patient, whose age and sex are not stated, in addition to a feeling of compression in the epigastrium, showed disturbance of internal secretion in the form of fatty stools. On x-ray examination a calculus was seen in the pancreas. Laparotomy was performed and the calculus was removed through an incision in the pancreas about 3 to 4 cm long. Complete recovery followed.

338. Vertebral Trauma followed by a Polymyelitic Syndrome.

R LOMBARDO (*Studium*, September 20th, 1928, p 411) discusses the similarity which may exist between certain traumata of the vertebral column and the syndrome of anterior polymyelitis, and reports an illustrative case. A boy, aged 14, was struck violently on the back and fainted. There was a contusion with excoriation from the thorax to the occiput, and a deep wound in the region of the right carotid. For some days the boy remained unconscious and collapsed, with general muscular relaxation. Later, complete paralysis of the right upper limb and limitation of neck movements were observed. There was incomplete paralysis of the right lower limb. The patient remained in hospital in a debilitated condition for some time. Eight months afterwards there was paralysis, with wasting of the muscles of the shoulder girdle and of the right arm. The right leg was not obviously affected, though there was a slight impediment in walking. All the measurements of the arm showed a considerable degree of wasting, as did the small muscles of the hand. There was a diminution in the reaction to faradic and galvanic stimulation. The deep reflexes were increased and the Babinski sign was present on the side of the paralysis.

There was no disturbance of the sensory organs, and the psychical functions were normal. So far the clinical picture might have been that of a localized affection of the anterior horns. In the right carotid region there was an irregular scar, adherent to underlying tissues and having a fistula from which escaped a sero-purulent discharge. A radiogram showed a foreign body lodged at the level of the transverse processes of the sixth and seventh vertebrae. At an operation two metallic plates of the size of a halfpenny were removed. The post-operative course was normal and the wound healed in fifteen days. On examining the patient three months later it was found that the nervous syndrome had not been modified, except that there was rather freer movement of the head.

339 Post-operative Jejunal Ulcer

N M ALLEN (*Amer Journ Surg*, August, 1928, p 128) reports cases of jejunal ulcers occurring after gastro-enterostomy. He finds that post-operative marginal or jejunal ulcers appear most frequently near the suture line, the symptoms being emaciation and a secondary anaemia, the duration of relief after ingestion is shorter than when a duodenal or gastric ulcer is present, there is pain in the region of the mid portion of the transverse colon, and the disease is more incapacitating than in the case of a primary ulcer. Sometimes the marginal ulcer occurs as soon as seven months after gastro-enterostomy, but cases have been reported in which it developed fourteen years after the operation. The cause may be any of the following: the use of clamps during the original operation, the use of non-absorbable suture material, faulty placing of the anastomosis, haematoma becoming infected and causing inflammation, infiltration, and possible ulceration, focal infection, and operation on mistaken diagnosis. When the primary operation was gastro-enterostomy treatment involves the disconnection of this, the resection of the ulcer, and repair of the jejunum and stomach if there is no stenosis in the pylorus. Marginal or jejunal ulcers occur as frequently after partial gastrectomy as after gastro-enterostomy, and present a more formidable surgical procedure than when a simple gastro-enterostomy has been performed. Out of eleven cases of marginal ulcer, one patient had six operations, two had four, and one had two. The conclusion is drawn that the type of operation and surgical procedure had nothing to do with the recurrence of the ulcer.

340 Primary Adeno carcinoma of the Epididymis

A J SCHOLL (*Journ Amer Med Assoc*, August 25th, 1928, p 380), who reports an illustrative case, states that tumours of the epididymis were classified by Hinman and Gibson in 1924 into benign tumours consisting of the three groups: epithelial, (2) mesoblastic (lipoma, fibroma, myxoma, and (3) leiomyoma), and (3) heterologous (cystodermoids), and malignant tumours—epithelial (carcinoma), mesoblastic (sarcoma), and heterologous. Only twelve cases of benign tumour of the epididymis are on record, the varieties being leiomyoma, which is the most frequent, while there are isolated examples of lipoma, fibroma, adenoma, and fibromyoma. Hinman and Gibson found only three cases of carcinoma and ten of sarcoma in the literature. Tumours of the epididymis are more frequent on the left side and the site is usually the tail or the corpus, a tumour has never been found in the head of the organ. Scholl's patient was a man, aged 22, who developed pain of the right testis, which set in three months after an injury, and was followed by swelling of the organ five months later. The scrotal contents were very sensitive and constantly painful. A diagnosis of epididymitis was made. An operation was performed under local anaesthesia, when the epididymis presented the nodular and reddened appearance of tuberculous infection. Microscopical examination, however, showed the presence of malignant disease of the nature of adeno-carcinoma. The epididymis, testis, surrounding coverings, and cord, up to the external inguinal ring, were removed. Three months later there was recurrence at the site of the wound, and a further operation was performed. Four months afterwards the patient developed signs of pleural effusion in which numerous apparently malignant cells were found. The issue of the case is not recorded.

341 Injection Treatment of Varicose Veins

R MENA (*Arch de méd. cir y esp*, September 29th, 1928, p 349) reviews the literature, and records fifteen cases of varicose veins treated by injection of 3 cm of sodium salicylate in a 20 to 40 per cent solution. No symptoms of shock were produced, and only one patient complained of feeling faint at the time of the first injection. Relief was experienced after five or six injections, and eight or nine were generally sufficient to produce sclerosis of all the varicose veins. The treatment is said to be undesirable in patients in whom varicose veins indicate a collateral circulation, as in abdominal tumours, ascites, and old deeply seated phlebitis.

Therapeutics.

342. Tryparsamide in General Paralysis

R C JARNIKE and G W FORMAN (*Journ Nerv and Ment Dis*, September, 1923, p 261) report the treatment with tryparsamide of 100 patients suffering from paralysis who were in poor physical health and presented marked mental deterioration. Each received an average of 34.6 injections of tryparsamide of 3 grains each. The best results were obtained in twenty-six cases where the condition had lasted less than three months. Improvement in most cases was noticed after the first six weeks to two months of treatment, and nearly always began with a gain in weight, mental improvement following later. By a long continued administration of tryparsamide clinical and serological cures were produced in five cases, and clinical and mental improvement in thirty-eight. No complications occurred in a few and headache was occasionally noticed, but was not severe or of long standing. The authors remark that in spite of the fact that the spirochaetal action of this drug is comparatively low, its marked impermeability and its power of reinforcing the natural processes of resistance bring about an obvious clinical improvement which entitles the drug to a prominent place in the treatment of this resistant disease, although complete cure is relatively rare. The patients presenting manic symptoms at the time of admission showed the most rapid and complete return to the normal.

343. The Manganese Treatment of Pneumonia.

F S COOMBS (*Med Journ of Australia*, August 11th, 1928, p 175), from a personal experience of nineteen cases advocates the treatment of pneumonia by rectal injections of potassium permanganate. From 3 to 10 oz., according to age, of a solution prepared by dissolving 2 grains of chemically pure potassium permanganate in a pint of water are injected slowly through a funnel and tube of small bore at a temperature of 105° F., the patient's buttocks being raised on a pillow. These injections are repeated every two and a half to four hours for the first twenty-four to thirty-six hours, the intervals between the injections depending on the day of the disease on which treatment is commenced. The earlier the patient is seen the longer the interval, the less the injections are retained the more frequently must they be given. Once the temperature becomes normal the injections should be given twice a day for three days and then once a day for three days. It is claimed that within a few hours after the first injection the breathing becomes easier, deeper, and slower, and the cough freer, with less tenacious sputum, the rusty appearance of which gives place to a white frothy expectoration which may be ushered in by a small haemoptysis. The temperature drops to normal or to a lower level soon after the first or second injection, and the appetite returns even earlier. Coombs contends that this treatment provides an excellent chance of aborting the attack, especially in children, if commenced quite early.

344. Intravenous Use of Digitalis Preparations

H E B PARDEE (*Journ Amer Med Assoc*, July 21st, 1928, p 147) has made a clinical investigation of the therapeutic action of intravenous injections of digalen, digitan, and digitfolin. Each of these substances was administered in doses of 1 minim per lb of body weight. Three groups of patients were thus treated, the retardation of the heart rate being taken as the index of digitalis action. In the group treated with digalen a marked slowing was noted fifteen minutes after the injection, the pulse rate continuing to fall for another two hours. The group of patients treated with digitan and digitfolin showed similar but slightly less rapid effects. Other observers have investigated the action of intravenous strophanthin in a similar manner and found that the maximum effect was produced earlier, though the initial effects did not appear so quickly. With regard to oral and rectal administration of the digitalis preparations, doses equal to or larger than those given intravenously failed to produce the same effect. The author considers intravenous digitalis therapy to be indicated only when the patient is so ill that prompt results are necessary, or when the patient cannot retain digitalis by mouth or rectum. For a patient who has had no digitalis for two weeks the dose of those preparations should be 1 minim per lb of body weight. If there is no improvement in two hours a further dose equal to one fourth of the original should be injected. As many as four such additional doses may be given in the absence of clinical improvement or toxic effects. The latter include, besides slowing, acceleration and irregularity of the heart occasionally. A patient who has recently had digitalis must be

treated cautiously and given doses of $\frac{1}{2}$ mg per lb of body weight every thirty or forty minutes until a result is shown. Not more than four such doses may be given. As compared with strophanthin, the intravenous use of digitalis preparations is preferable because of the wider margin between the slight and marked toxic doses. Comparing the effects of intravenous, intramuscular, and hypodermic injections, the author considers that delay in absorption may occur in the last two methods owing to feebleness of the circulation in cardiovascular diseases.

345. Treatment of Endocrine Disorders in Infancy and Childhood

L F BARKER (*Amer Journ Dis Child*, May, 1928, p 872) remarks that true ophthalmic goitre has occurred as early as the third year of life, and many cases have been reported between the ages of 3 and 10. Besides the classical symptoms, emaciation, sweating, diarrhoea, mental and physical restlessness, with an accelerated basal metabolic rate, should be kept in mind. Treatment includes the correction of faulty hygiene, the temporary exhibition of bromides or phenobarbital, and thyroidectomy. Childhood myxoedema is much more common. In severe cases the transposition of a piece of ophthalmic thyroid is suggested. The treatment of colloid goitre, in regions where it is endemic, with minimal doses of iodine, is commended. In tetany resulting from a deficiency of parathyroid function there is an associated diminution of the calcium content of the blood. A potent parathyroid extract, which will raise the level of the blood calcium rapidly, is indicated. It is not yet established, however, that all tetany is of hypoparathyroid origin, moreover, cases of marked hypocalcaemia occur without tetany. Hypoparathyroidism has been experimentally produced in dogs, with consequent hypocalcaemia, vomiting, drowsiness, pallor, atony, and circulatory failure. A 25 per cent solution of dextrose is suggested as an antidote. Gigantism and acromegaly, dwarfism and dystrophia adiposogenitalis, and diabetes insipidus are associated with dysfunction of the pituitary gland. Treatment by surgical measures, substitution therapy, and radiation is far from satisfactory. With marked thymus enlargement asphyxiation seizures are observed, there may be simple syncopeal attacks, persistent cyanosis, or asthmatic attacks. These have been variously ascribed to pressure and to thymic intoxication. X-rays serve both for diagnosis and for therapy. In the status thymico-lymphaticus a large thymus, marked lymphocytosis in the blood, and very large medial and very small lateral incisor teeth in the upper jaw are described. The importance of the thymic function in the development of the genitals is suggested. Hyperplasias or neoplasms of the suprarenal cortex are held to account for pseudohermaphroditism and premature puberty. The enchondroid phenomenon so often seen in boys with undescended testicles almost certainly depend on a deficiency of the internal secretion of the sex glands. An accidentally induced hypoglycaemic shock syndrome, characterized by convulsive seizures or by transient loss of consciousness, may easily develop in the treatment of diabetic cases with insulin. Cases of spontaneous hyperinsulinism and hypoglycaemia have been recorded. One group of hyperglycaemic cases is refractory to insulin, the cause is not always apparent.

346. Bismuth Arsphenamine Sulphonate in Syphilis

P A O'LEARY (*Arch Derm and Syph*, September, 1928, p 372) records his experience during the last eighteen months with bismuth arsphenamine sulphonate administered intramuscularly into the buttocks in the treatment of syphilis, he uses 0.2 gram doses dissolved in 1.0 c.c. of sterile water with 2 minims (0.1 c.c.) of a 2 per cent solution of bityn for its local anaesthetic effect. In acute syphilis four courses, each consisting of eight injections, were given, the injections being made on every fourth day with a rest period of four weeks between each course. Local reactions are said to be practically negligible, and the addition of bityn removes any complaint of discomfort. Constitutional reactions were mild, and only one instance of exfoliative dermatitis occurred in eighty-four cases, there were no such complications as jaundice, hepatitis, encephalitis, kidney infection, neuritis, syphilitic neurorecurrences or blood dyscrasias. The drug has apparently a slower therapeutic and spirochaetocidal effect than is the case with other preparations of arsphenamine. While the serological studies of the blood in cases of acute syphilis are gratifying further research is necessary before their value in early neurosyphilis can be determined, the question whether mercury should begin simultaneously is still undecided. O'Leary found that six of his cases in which mercury injections were not so given progressed as well, both clinically and serologically, as those in which they were given.

347 Vaccine Treatment of Cerebro spinal Meningitis

L M M E MORFET (*Thèse de Paris*, 1928, No 299) remarks that the increasing number of failures of antimeningococcal serum in the treatment of epidemic cerebro spinal meningitis has led to the trial of other measures, especially vaccine therapy. Intramuscular or intraspinal injections of meningococcal endoprotein, of which a description was recently given by Luton, have yielded fairly satisfactory results, except in infants, and, in spite of the violent reaction which they provoke, appear to be free from any danger. The injections of endoprotein may be given in association with serum treatment or alone, the latter method seems to be the best. Previous intrathecal injections of serum, however, are a contraindication to the use of endoproteins. Intramuscular injections of endoprotein are an effective means of controlling the symptoms of meningococcal infection, especially the pseudo malarial fever. Intrathecal or intramuscular injections of endoprotein only appear to be effective when they produce a fairly intense reaction. This reaction does not appear to be specific, but rather of the nature of protein shock. The author reports the histories in eight cases of cerebro-spinal fever in patients aged from 6 months to adult life, who were treated by intramuscular or intrathecal injections of meningococcal endoprotein with or without antimeningococcal serum. Four recovered and four died, the ages of the fatal cases ranged from 6 months to 3 years, while those who recovered were aged 13 and 14 or were adults.

Radiology.

348. Uncertainty of Cholecystography

W W BOARDMAN (*Amer Journ Med Sci*, September, 1928, p 383) warns against diagnosing a pathological condition of the gall bladder on the unsupported evidence of the tetradiodophosphthalcin test. He points out that for successful visualization of the gall bladder there must be sufficient concentration of the dye in the blood stream, a liver capable of excreting it, patent common and cystic ducts, a gall bladder capable of receiving, concentrating, and discharging the dye, and a properly functioning sphincter mechanism at the lower end of the common duct. Disturbance in any one of these factors results in a partial or complete failure of gall bladder visualization, yet several of them are entirely independent of the anatomical condition of this organ, and may vary from day to day, thus giving contradictory results if the test is repeated. Radiographical findings should be interpreted in terms of the functional activity of the biliary system, rather than in terms of the pathology of the gall bladder. He adds that, though radiological examination of this kind is of the greatest aid in the study of the functional activity of the biliary tract, careful correlation of the results with the other clinical findings is absolutely essential to proper diagnosis and treatment.

349 WITH a view to improving cholecystography as a diagnostic procedure W H STEWART and H E IBELICK (*Radiology*, October, 1928, p 271) plead for standardization at technique in the oral method so that a 12 or 16-hour film may be universally understood. They recommend the administration of a mild cathartic the night before the preliminary examination, which should be made in the afternoon before any of the dye has been given, the patient's activity during the subsequent examination need not be curtailed, since it does not affect the results. A pure and fresh preparation must be used, and at the time of the preliminary examination the 3.5 grams of tetradiodophosphthalcin contained in one sealed coloured glass ampoule are transferred into eight plain gelatin capsules. These, together with four 10 grain capsules of sodium bicarbonate, are given to the patient, who is instructed to eat, at 6 p.m., a meal consisting of soup, creamed chicken or soft boiled eggs, vegetables, bread and butter, and a glass of milk, and at 9.30 p.m. to swallow two of the tetradiodophosphthalcin capsules and one of the sodium bicarbonate capsules with half a glass of water every quarter of an hour until all have been taken. He is instructed to report himself at 9.30 the following morning, without having had any food, and the 12-hour examination is made, and, still starving, the 16-hour examination follows at 1.30 p.m., after which a lunch consisting of two soft-boiled eggs, two pieces of well buttered toast, and a cup of tea is taken, to be succeeded an hour later by the 18-hour examination. After an evening meal the patient reports the next morning at 9.30 for the final 36-hour examination following which a barium meal examination is made of the stomach, duodenum, and hepatic flexure for evidence of adhesions or associated lesions. At the preliminary examination calcified calculi may be detected, and any doubtful shadows can be checked later by the gall bladder shadow

after the dye. The fatty meal the night before the 12-hour examination ensures the gall bladder being as empty of bile as possible when the dye is given, so that as the gall bladder fills during the night its greatest concentration may be present at the 16-hour examination. The lunch an hour before the 18-hour examination tests the emptying power, and at the 36-hour examination the shadow should have completely disappeared. Any variation from such a normal cycle of filling, concentrating, and emptying should arouse suspicions at there being some impairment of functional efficiency with a pathological lesion.

350 Radium Treatment of Rectal Cancer

G E BINKLEY (*Radiology*, June, 1928, p 457) classifies patients with rectal carcinoma as favourable or unfavourable, according to the general condition of the patient, the site of the growth, radio-sensitivity and degree of malignancy of the tumour, and extension of involvement by the tumour cells. He advocates radium as the principal factor in treatment for practically all cases. The most efficient method of radiating rectal cancer is by careful and uniform implantation of gold emanation seeds into the tumour mass. Although less efficacious than emanation seeds, external radiation is the first step in treatment, it is applicable to all cases and determines the tumour radio-sensitivity. The erythema dose is given at a distance of 10 to 15 cm from the skin through several portals of entry. Binkley submits the results in 103 patients admitted to hospital from July, 1925, to July, 1927—23 favourable and 77 unfavourable. Of the former group 18 are free from recognizable rectal cancer. In the latter group, of 20 patients who received extensive palliative treatment 18 are still alive and 17 were greatly benefited. Of 34 found suitable for mild palliation only, 30 were benefited, and 13 of these have survived.

Obstetrics and Gynaecology.

351 Complications of Myoma.

HEIMANN (*Zentralbl f Gynäk*, August 4th, 1928, p 1996) records two cases of myoma with complications. A woman, aged 30, was treated by excision of the hymen and vaginal dilatation for dyspareunia shortly after marriage. Eight weeks later the uterus was found to be hard and enlarged to the size of the fist. Amenorrhoea for six weeks was reported, accordingly the patient was treated expectantly for three weeks, when the soft pregnant uterus was found to be distinguishable from the hard myoma. Delivery occurred spontaneously at term, but manual removal of the placenta was necessary four hours later for post-partum haemorrhage. The placenta was very firmly attached to the anterior wall in the neighbourhood of the myoma, this growth, which was as large as a fist, was spontaneously expelled on the sixteenth day of a pyrexial puerperium. At a later date all morbid signs and symptoms had disappeared. The second patient was a single woman, aged 39, one of whose breasts had been amputated for sarcoma eleven years previously. She complained of excessive bleeding, and was found to have an enlarged myomatous uterus, caretting showed hyperplastic endometrium without suspicion of malignancy. After eight months of regular two-day menstruation at four to six day intervals a thin blood stained discharge was noted, and the uterus was found to have undergone considerable enlargement in the zone of the previously noted myoma. Sarcomatous degeneration of the myoma was suspected and total extirpation was performed. The uterus was found, however, to contain a large carcinoma of the body, which must have developed in eight months.

352. Haemorrhagic Metropathy of the Menopause

E TARAMELLI (*Ann di Ostet e Ginecol*, May 31st, 1928, p 539) believes that "metropathia haemorrhagica" of the menopause should be considered as a definite clinical entity on account of its mode of onset the age of the patient, its clinical course, and the haematological, gynaecological, and anatomical pathological findings. Taramelli considers this condition to be a general disturbance of the neuro-endocrine system, of menopausal or pre-menopausal origin, which produces local modifications in the walls and vessels of the uterus, thus leading to metrorrhagia. He claims that radium therapy is the method of choice and that the brilliant results already obtained guarantee a permanent cure. The effects of the intrauterine application of radium should, he thinks, be referred mainly to direct influence on the uterine wall and its vessels, and in a minor degree to a less direct effect upon the ovary and on the general endocrine equilibrium, as well as to modification of the blood plasma, which becomes endowed with new stimulating powers. As the result of the application

of radium the blood pressure is modified so as to approach the normal, being diminished if too high and increased if too low. The coagulation time of the blood is also changed in the same manner. Radio activity augments the number of erythrocytes and leucocytes, and the renal functions are also modified. After the intratracheal application of radium there are habitually lacking symptoms attributable to the sudden cessation of ovarian functions concomitant with the resulting amenorrhoea.

353. Tumours of the Great Omentum in Women

E. M. FUSS (*Centralbl. f. Gynäk.*, July 14th, 1928, p. 1782) refers to the importance of distinguishing tumours of the great omentum from other abdominal conditions. Indications of involvement of the omentum are the detection by palpation of a tumour mass not in the abdominal wall but under it, and yet appearing to be near to the examining fingers, definitely separated from the pelvic organs, and having no demonstrable connexion with the stomach, kidney, gall bladder, or bowel. The diagnosis is strengthened if the tumour is unusually freely movable, and especially if dullness or tympanicity of an underlying organ can be detected through the tumour. Confirmatory evidence is afforded by any history of a previous laparotomy for an inflammatory condition or hernia, especially where omentum had been resected. Fuss thinks that omental tumours are commoner than is usually supposed. They may be inflammatory, non-inflammatory, benign, or malignant. The omentum is involved in all inflammatory processes, and may be the seat of inflammatory and hyperplastic tumours long after recovery from the primary illness or operation. Fuss recommends that conservative treatment should be tried first, if after one to one and a half months the tumour persists an operation should be undertaken, particularly since it is impossible to eliminate malignant disease from the diagnosis by external examination. Operation is necessary where the tumour is causing ileus or torsion, or is due to actinomycosis, all non-inflammatory tumours require operation. Haemorrhagic ascites is said to be an almost certain sign of malignancy. The author adds that an operation for a malignant growth should be thorough, even to removal of the whole omentum, for, in spite of the risk of metastasis and recurrence, good results have been reported in some very advanced cases.

354. Diagnosis of Foetal Age from Ossification Centres.

V. CATHALA and Mlle J. BARDY (*Bull. Soc. d'Obstet. et de Gynéc. de Paris*, July, 1928, p. 601) point out that the data found in textbooks of obstetrics or forensic medicine, according to which the age of the foetus may be inferred from the presence or absence of ossification centres in certain bony epiphyses, are reliable for a majority of cases only, the foetal age and the ossification phenomena have been correlated from two variable and unreliable factors—namely the physical characters of the infant and the menstrual history of the mother. The authors have made x-ray examinations of the femoral and tibial epiphyses at the knee joint in thirteen pairs of newborn univitellic twins, and in ten cases have found distinct differences in the ossification, one or both centres being less well developed or absent in the infant having the lesser body weight. In one instance the age of one twin, as calculated from the ossification phenomena, was seven months gestation, that of the other eight and a half to nine months gestation. It is concluded that in forensic medicine epiphyseal ossification affords no certain index of foetal age, and the absence of Bédard's point in a newborn child weighing less than 2½ kilograms does not indicate prematurity. These observations show also that differences of ossification in bivitellic twins afford no evidence of superfoetation.

Pathology.

355. The Relation between Glycaemia and Temperature.

WHILE it is generally admitted that glycaemia is related to the thermo-regulating mechanism of the body, A. DE CARVALHO (*C. R. Soc. de Biologie*, September 18th, 1928, p. 935) states that this subject has not been sufficiently studied, and records the results of a series of his own experiments. Those were performed on non-diabetic subjects after a fourteen hours' fast to whom various antipyretics were administered. Before administration the temperature and blood sugar were ascertained. After it, the temperature was noted every five minutes, and, when the effect of the drug was at its highest, one or more samples of blood were taken for the estimation of the sugar by Hagedorn's method. The antipyretics employed were antipyrin, pyramidon, quinine,

and oryogouline. As a result of 59 such determinations, de Carvalho concludes that hyperglycaemia does not occur during the course of fever, and that there is no relation between the oscillations of temperature and those of glycaemia.

356. Lymphatic Reaction following Varicella.

A. VAN WESTRIJENEN (*Nederl. Tijdschr. v. Geneesk.*, August 18th, 1928, p. 4015) states that recently considerable attention has been paid to the occurrence of a lymphatic reaction following infections, especially tonsillitis, and the difficulty in distinguishing it from lymphatic leukaemia. He records a case of a girl, aged 6, who a fortnight after an attack of chicken pox showed a leucocyte count of 22,000, of which 80 per cent. were lymphocytes. The spleen and liver were enlarged and the temperature was raised sometimes as high as 102.2°. Five days later the leucocytes fell to 6,800 of which 85 per cent. were lymphocytes. The lymphatic glands were not affected and the red corpuscles showed nothing abnormal. In the course of the next few months the number of leucocytes ranged between 6,000 and 7,000, and the lymphocytes gradually fell to 52 per cent. Another striking change was the occurrence of eosinophilia, which lasted for seven months and rose as high as 13 per cent. An uncomplicated attack of scarlet fever which occurred about six months after the onset of chicken pox was followed by disappearance of the eosinophilia and a fall in the lymphocytes to 46 per cent.

357. Natural Immunity to Diphtheria.

G. RAMON, O. NOUREDDINE, and B. ERBER (*C. R. Soc. de Biologie*, July 27th, 1928, p. 562) point out that the guinea pig and the pigeon are highly susceptible to diphtheria toxin, whereas the rat is resistant. A dose of 1/1000 c.c. of toxin suffices to kill a guinea pig weighing 250 grams, and a dose of 1/500 c.c. of a pigeon of the same weight, but to kill a rat about 0.75 to 1.0 c.c. is required. Moreover, in the guinea pig a dose of 1/5000 c.c. injected subcutaneously produces oedema and necrosis, and a dose of even 1/100,000 c.c. intradermally a definite skin reaction, but in the rat a dose of 0.25 c.c. injected subcutaneously, or of 1/10 c.c. intradermally, produces no reaction. Evidently diphtheria toxin possesses a marked affinity for the skin and subcutaneous tissues of the guinea pig and practically none at all for those of the rat. The authors find that, besides this difference in natural immunity between the two animals, there is a striking difference in the way in which they respond to artificial immunization. A course of five injections of antitoxin rendered a series of a dozen guinea pigs so immune that they were able to withstand more than 10,000 lethal doses of toxin, and in their serum sufficient antitoxin was present per cubic centimetre to neutralize 10,000 lethal doses. On the other hand, a similar series of injections in rats was not successful in rendering the animals resistant to even three lethal doses, examination of their serum failed to demonstrate the presence of any antitoxin—that is to say, artificial immunization produces a high grade of immunity in naturally susceptible animals, due to the development of antitoxin, in naturally resistant animals it hardly increases the immunity at all, and no antitoxin is generated. The authors point out the analogy existing between the human infant and the rat, and the human child and the guinea pig. The infant is Schick negative, contains no antitoxin, and fails to respond to artificial immunization; the child is Schick positive and responds readily to artificial immunization with the production of antitoxin.

358. Latency of the Herpes Virus.

ACCORDING to P. GASTVIEL and J. REILLY (*Bull. Méd.*, July 25th and 28th, 1928, p. 839) some animals can survive in spite of being carriers of active herpes virus, the guinea pig, for instance, after inoculation of its cornea, develops a keratitis which is usually not followed by any nervous disturbance, but if the animal is killed the presence of the herpes virus in its brain can be shown by inoculation of the cornea of another guinea pig. The herpes virus may therefore remain latent in an organ without giving rise to symptoms. Attempts to resuscitate the virus by producing an anaphylactic shock with injection of human or animal serum failed. On the other hand, the introduction of pneumococci into one rabbit which had just recovered from paralysis of the left lower limb following inoculation of herpes virus, and lumbar puncture of another which had just recovered from herpetic paraplegia, was followed by a return of the paralysis and death. Although they do not maintain that these observations entirely resemble those met with in clinical medicine, the authors hold that it may sometimes be possible to reproduce in animals the essential features of herpetic infection in man and to effect its resuscitation. This is manifested by the appearance of encephalitic symptoms in animals which are carriers of a latent virus.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine

329 Spontaneous Subcutaneous Emphysema in Laryngeal Diphtheria

J D ROLLESTON (*Brit Journ Child Dis*, July-September, 1928, p 185), who records an illustrative case, remarks that while subcutaneous emphysema is a well recognized complication of tracheotomy and occasionally occurs after intubation, it is a very rare occurrence in diphtheria apart from surgical intervention. Rolleston's patient was a girl, aged 6 who was admitted to hospital with severe faucial and laryngeal diphtheria. In spite of large doses of anti-toxin the dyspnoea increased and subcutaneous emphysema appeared on the neck, this spread upwards in the face and downwards to the costal margin. Considerable relief followed tracheotomy, but the emphysema lasted for eleven days, after which complete recovery followed. This is the first example of non-surgical emphysema which Rolleston has seen in more than twenty seven years of fever hospital experience. No mention is to be found of the complication of diphtheria in textbooks of general medicine or infectious diseases or in monographs on diphtheria, six cases, however, have been reported in periodical literature by Sachse, Senator, von Torday, Fahre, Pineau and Sharman and D'Estorzo respectively. The probable explanation of the condition is that as the result of dyspnoea pulmonary emphysema occurs, and vesicles on the surface of the lung rupture, air passes into the hilum of the lung, and so into the mediastinum and neck.

330 Bronchopulmonary Mycosis

J M DIAZ (*La med Ibera*, September 29th, 1928, p 272), who reports three illustrative cases in men aged from 22 to 30, states that the symptoms of bronchopulmonary mycosis are usually those of other more frequent infectious which are localized in the bronchi, lungs, or pleura. The only characteristic feature of the condition is its course, which may be described as a chronic process generally commencing in the bronchi, with a succession of subacute attacks of pulmonary inflammation and a tendency to the formation of nodules, necrosis, and sclerosis of the connective tissue. The clinical picture is that of bronchitis, bronchiectasis, bronchopneumonia, pneumonia, pulmonary abscess, and even gangrene and pleurisy, the course of which depends on the nature of the soil, individual reactions, or association with other micro-organisms. Owing to its chronic course it is most frequently diagnosed as pulmonary tuberculosis, especially when it is primary and assumes the form of millary dissemination, or when the nodules break down and form cavities. The error is most likely to be made when no fungus is found in the sputum, or only the tubercle bacillus when the two conditions are associated. Sometimes the disease may escape notice and not be discovered until the necropsy. The clinical diagnosis may be supported by the pre-existence of lesions of the skin (nodules, ulcers, and fistulae), mucous membranes (necroses and patches like thrush), or bones, especially if the pus contains granular concretions, or if in the absence of external lesions these granules are found in the sputum, particularly when this is tinged with blood or there is haemoptysis. In such cases Sabouraud's or Kanil's media should be inoculated with the sputum. Treatment consists in the administration of potassium iodide, or, if that fails, intrabronchial injection of lipiodol may be tried.

331 The Practicability of Antirachitic Prophylaxis

RIETSCHEL, SZEGÖ, and GERTRUD PRINKE (*Med Klinik*, August 31st, 1928, p 1343) discuss a simple and inexpensive method of preventing rickets which would not necessitate medical supervision or the prescription of drugs. Through the discovery of antirachitic substances, such as ergosterin, activated by irradiation, the treatment and prophylaxis of rickets have made a great advance. There are two practicable methods. The first is the administration of antirachitic substances in a 1 per cent oily solution, which may be administered in an emulsion, mixed with milk at the central milk depots of large towns. The flavour of the milk is not altered, and the mixture will be found to contain increased quantities of antirachitic substances which are chemically stable and unaffected by heat. The second method is to treat milk with ultra violet rays and thus to increase the content of antirachitic substances. The milk so treated, however,

has a rancid taste, and the employment of the mercury vapour lamp produces chemical and physical changes in it. Some deaths have been reported as following the administration of this irradiated milk. The authors describe a method of irradiating milk by means of a quartz lamp in an atmosphere of carbon dioxide. The milk is forced under compressed carbon dioxide through three "coils," each having a depth of 1 mm (1/25 inch) and covered by a plate of rock crystal. The milk flows slowly through the coils and is thus exposed to intensive irradiation by the quartz lamp. The apparatus is water cooled in order to prevent heating of the milk. During last winter the authors gave milk treated thus to a series of rachitic infants, and they also tested the practicability of the method in rats and guinea pigs. They confirm previous observations that the antirachitic content of the milk is increased and that thus experimental rickets in rats as well as infantile rickets can be cured. This method is said to be absolutely safe for animals and children. They add that such experiments are possible only in winter and spring, since in summer and autumn there is a natural tendency to spontaneous cure of rickets.

332 Vincent's Angina

V JEJINEK (*Acta Oto Laryngologica*, vol XI, Fasc 4, p 533) discusses three theories as to the etiology of Vincent's angina. The first is that it is due to vitamin deficiency, but against this view is the fact that the condition occurs in well-nourished troops on a liberal and varied diet, and attacks one regiment where another escapes though on identical rations. The second theory is that it is an infection set up by the eruption of the molar. Jejinek has observed that it usually occurs in some position other than that of proximity to the last molar, and he can see no connexion between the two phenomena. The third theory is that the condition is due to a specific infection by the spirochaete of Plant Vincent and the *Bacillus fusiformis*. The organisms are consistently found in the condition, its infectivity is shown by the way it spreads through a regiment of young healthy soldiers and by the way in which secondary infection occurs, especially on the fingers. Surgeons in attendance, oracles, and other patients in the same ward all tend to be infected, but other regiments in the same garrison or division often escape altogether. The author considers that the spirochaete is the really specific organism and originates the inflammation, while the bacillus acts as a parasite and continues the ulcerative process. The author's method of treatment consists of applying an ethyl chloride spray to the affected parts, protecting healthy tissue, and especially the teeth, with wool, India rubber, or in some cases with his own or an assistant's finger. Alternatively, and especially for ulcers of the tongue, he sprays ethyl chloride on to a pledget of cotton wool allows it to freeze, and then applies it to the ulcer. He sometimes substitutes a piece of ice for this pledget. Gargles of potassium chlorate or permanganate, and later hydrogen peroxide, are employed, and after the ulcers are healed the mouth is rigorously cleansed, with the removal of tartar and dental caries. The treatment is not at all painful, and may be repeated several times.

Surgery.

333. Traumatic Prostatic Backache.

L R BOIES (*Minnesota Med*, September, 1928, p 576) refers to the common occurrence of prolonged disability following comparatively trivial injury to the back, he believes that conditions frequently diagnosed as "neurasthenia," "neuritis," and "rheumatism" are often due to focal infections of the teeth, tonsils, or sinuses. The gall bladder or appendix may be regarded as the source of the disability, but chronic prostatitis is also a very common cause of such backache. One writer stated that 30 per cent of men have true prostatic hypertrophy, and 60 per cent have chronic prostatitis. Boies thinks this an extreme view, but adds that prostatitis and vesiculitis are not always venereal in origin. In chronic cases gonococci are rarely found, the principal organisms are *B. coli* and *Staphylococcus albus*, but in an equal proportion the expressed secretions are sterile. Boies reports ten cases of men, whose ages ranged from 23 to 49, who were seen within a period of two years, only one patient admitted having had gonorrhoea, all had been injured by falls or strains. In every case the prostate was inflamed and usually

very tender, the expressed secretions generally contained much pus. Boles suggests that the haematocho is a referred pain, due to imperfect drainage of the gland and to fibrositis, while a metastatic prostatic infection may occur, and there may be lumbosacral arthritis in some cases. The attitude which must be assumed in standing or walking increases muscular back strain. The author is convinced that in each case the prostatic disease was the important factor in the subjective complaints, and concludes that rectal examination should be a routine procedure, if any focal infection is suspected, microscopic examination of the prostatic and vesicular secretions is imperative. He adds that the absence of objective enlargement or of symptoms does not exclude the possibility of prostatic focal infection, and maintains that no orthopaedic procedure is justifiable in back injuries with obscure objective findings so long as there is evidence of prostatic infection.

384.

Tuberculous Synovitis

S. P. VASQUEZ and J. M. M. AREÑOS (*La med Ibera*, September 8th, 1928, p. 209), who record 21 illustrative cases with skiagrams, maintain the existence of a primary tuberculous synovitis. Trauma is the most frequent cause, being found in 75 per cent of the authors' foot cases. The symptoms of tuberculous synovitis may be divided into two groups—namely, a hydrarthrotic form and a fungating form. The hydrarthrotic form develops more rapidly, is associated with a dull pain, worse at night, limited movement is possible, muscular atrophy is slower than in the fungating form, regional adenopathy is slight, and contracture, though present, is not intense. Absorption of the fluid may occur, or the synovial membrane may become enlarged and have sequesterous abscesses. In the fungating form, which is of slower development, the pain and muscular atrophy are more intense and the limitation of movement and regional adenopathy are more marked than in the first form. Finally, there is suppuration with the formation of a fistula. The best mode of treatment is rest and improvement of the circulation, such as Bier's hyperaemia, so as to favour absorption of the effusion. Sympathectomy and puncture of the epiphysis are useful when the disease is limited to the synovial membrane, but bad when osseous lesions are present. Excellent results may be obtained by methods of revision, such as Scott's dressing or the cauter, accompanied by rest.

385

Surgery of the Pituitary Body

C. H. FRAZIER (*Annals of Surgery*, July, 1928, p. 1) points out that the peculiar relation of the pituitary body to the optic chiasma and nerves makes its surgery altogether different from that of cerebral or cerebellar tumours, the primary purpose in the former being to save vision, in the latter to save life. Of the two avenues of approach, the transfrontal has latterly been adopted in preference to the transphenoidal, since although the latter route is less hazardous, symptoms frequently recur, moreover, the capsule cannot be removed after evacuation, so that when it is firm and unyielding the effects of pressure on the optic chiasma may be only temporarily relieved. Local anaesthesia is preferred by Frazier to ether inhalation, since under the latter the intracranial pressure is greater, access to the base of the brain can only be obtained by elevating the brain mass, and this is only possible when there is a minimum intracranial pressure. In a few instances there was an unexplained fall in blood pressure, with collapse, and it was found that this fall did not occur when the lesion was approached from an angle along the greater wing of the sphenoid, the retro-orbitals being to one side and not pressing upon structures directly overlying the pituitary region. Since this lateral approach may render the lesion on the side opposite the flap less accessible, the propriety of a bilateral approach by a two-stage operation is considered, and a case is reported in which this was tried with excellent results, three months elapsing between the stages. Frazier adds that undue traction upon the capsule must be avoided as being likely to cause an alarming fall in blood pressure, the capsule should be resected piecemeal, and because of the attendant risks every step must be executed with the greatest delicacy and with a minimum of force.

386

Bladder Calculi in Young Children

J. WELFIELD (*Urol and Cut Rev*, August, 1928, p. 493), who records a case in a boy aged 10 states that calculi in the urinary tract occurs in early life to a much greater extent than is commonly supposed. Although urinary lithiasis is believed to originate in the kidney, calculi are more frequently found in the bladder, where they attain a relatively large size before symptoms suggest their presence. Vesical calculi are common in young children in Eastern Europe, in North America and in the northern part of South America. In some countries, such as France, vesical calculi in young children

are rare. About 95 per cent of bladder calculi found in early life occur in males, the majority being detected at or near the age of 5, they are not usually primary in the bladder, but originate in the kidney. Simple calculi are generally of uric acid origin, and about 50 per cent of bladder calculi are of this kind. Composite calculi contain a uric acid nucleus with urates and oxalates, upon which phosphates or ammonium-magnesium layers are superimposed when cystitis is present. Usually the calculus is single in a child's bladder, but multiple calculi are found in about 2 per cent. The ordinary symptoms are pollakiuria, nocturnal enuresis, interruption of the jet of urine, and a sensation of tickling in the glans. Cystitis is fairly common, especially in the advanced stages. Pyuria was present in 48 per cent of the cases of vesical calculi reported by Thomas and Tanner. The diagnosis is mostly established by x-ray examination. The prognosis depends on whether infection is present or not. Treatment consists in suprapubic incision, cystostomy, and removal of the calculus.

Therapeutics.

367

Sodium Citrate in Haemophilia.

E. PALMIERI (*Il Policlinico*, Sez. Prat., September 24th, 1928, p. 1817) reviews the literature and records an illustrative case in which sodium citrate acted as a haemostatic in haemophilia when all other measures had failed. He states that it is important that the solution should be as fresh as possible, the fluid should be injected very slowly by the intravenous route, in which case no complications of any kind are likely to occur. Palmieri's patient was a soldier who after operation for a left varicocele under local anaesthesia with novocain, developed an extensive haematoma of the scrotum, perineum, and pubic region. The wound was reopened and a large quantity of partly coagulated dark blood evacuated. In spite of an intravenous injection of coagulin, the subcutaneous administration of normal saline solution, and intramuscular injections of calcium chloride and ergot, the condition became worse. Finally 30 c.c. of a sterile 20 per cent solution of sodium citrate was introduced slowly into the vein of the left arm, and recovery followed. On inquiry the patient stated that he was subject to frequent epistaxis and bled profusely after slight injuries.

388.

Arsenic in Chorea.

In a series of carefully controlled cases S. GRAHAM (*Arch Dis in Childhood*, August, 1928, p. 206) found that the course of chorea did not appear to be influenced by treatment with arsenic. He thinks that any improvement shown should be attributed to the toxic effect of the arsenic, since it is not in proportion to the amount of arsenic given. The intravenous administration of arsenic has no advantages over other methods of treatment. Simple rest in bed and freedom from emotional disturbances will, he adds, usually cause a disappearance of chorea in four or five weeks, but the administration of sodium salicylate is recommended in the hope that it may favourably affect the rheumatism. None of the children so treated displayed any intolerance, the salt was given in 10- to 20-grain doses three times a day, with twice the amount of sodium bicarbonate five times daily. In patients treated with arsenic, neokharalvan was given at four-day intervals, the total average amount injected being 2.15 grams. In four cases toxic symptoms appeared, apparently due to idiosyncrasy. In patients treated with arsenic by the mouth the average total amount given was 11.5 drachms of liquor arsenicalis; two children showed signs of intolerance, which disappeared when the drug was stopped.

369

Resuscitation by Intracardiac Injections of Adrenaline.

J. NORDENTOF (*Ugeskrift for Læger*, August 2nd, 1928, p. 741) has given intracardiac injections of adrenaline in three cases, in two of which the heart was made to beat again, but only momentarily, the condition of the patient being incompatible with life. The third case was that of a man, aged 81, on whom suprapubic cystostomy was performed under lumbar anaesthesia for enlargement of the prostate. Towards the end of the operation he collapsed completely, pulse and respiration ceasing. Through a needle inserted in the fourth intercostal space, along the upper border of the fifth rib, and passing obliquely upwards and inwards, 1 c.c. of a 0.1 per cent solution of adrenaline was injected. Within about two seconds very violent heart beats began, the face became flushed instead of grey, and the respiration returned being natural and deep. After making an uneventful recovery during the following fourteen days he suddenly collapsed and died. From a study of the literature the author concludes that recovery may be

affected by this means even after the heart has ceased to beat for ten minutes, recoveries after a longer interval are very rare, and there is no record of a successful resuscitation after an interval of twenty minutes. Until 1925 about thirty cases of intubation with intracardiac injections of adrenalin in human beings had been recorded, permanent successes being achieved in about half this number. The survivors showed no permanent ill effects, and even in the cases which terminated fatally necropsies brought to light no trace of the injection, but in some cases the injections were followed by transitory disturbances of the nervous system, such as epileptiform twitchings. Of all the drugs used for this purpose, including camphor, atropine, and extracts of the pituitary body, adrenalin would seem to be by far the most effective.

370 Treatment of Haemorrhoids with Injections

V. MEISEN (*Ugeskrift for Læger*, June 7th, 1928, p. 523) recommends the injection treatment of haemorrhoids on the basis of one hundred cases, only one of which was complicated by necrosis. In seventy-two cases the patients were men, and in twenty-eight, women. The average number of injections given to each patient was three, with an interval of a few days between each. In eleven cases one single injection sufficed, and the greatest number of injections in a single case was thirteen. An acute attack of haemorrhoids, whether it occurs as the first manifestation of this disease or as an exacerbation of a chronic condition, is considered absolutely unsuited for treatment by injections. After the internal haemorrhoids have been brought to the surface, tincture of iodine is applied, 0.5 c.c. of novocain is injected through a hypodermic needle, followed very soon afterwards by the solution, the composition of which the author has changed from time to time. At first he used a 20 per cent solution of sodium salicylate, only in one case giving over 1 c.c. Later, and in most of his cases, he gave an almost neutral solution of guanine and urethane, according to the following formula: chlor. chl. 0.50, ethylurethane 0.25, aqua dest. ad 2 c.c. Still more recently he has substituted for this solution one containing 50 per cent of grape sugar. This may be somewhat less effective than sodium salicylate, but it has the advantage of causing no pain and not giving rise to necrosis. For x-ray work the author has used a 20 per cent solution of strontium bromide, which is also an effective thrombotic agent. When he first began this treatment he used to send his patients home with a prescription for opium suppositories, but only in the case in which necrosis supervened was there any need for them. Indeed, many of the patients experienced relief after the injection in spite of an oedematous reaction. The risks of embolism and infection are said to be negligible, and those of necrosis small. The author does not, however, advise general practitioners to attempt this treatment themselves, for it requires a good deal of dexterity, and may have necrosis as a sequel. It should be noted in this connection that the structures concerned are much more delicate and easily injured than are varicose veins of the legs. But with these reservations, and after three years' experience, the author recommends this treatment because it is ambulatory and painless, and does not necessitate a general anaesthetic. He cannot yet calculate the chances of a recurrence, but he does not think they are considerable.

Dermatology.

371 Systemic Blastomycosis

D. C. SMITH, H. O. TURNER, and E. S. SANDERSON (*Brit. Journ. of Derm. and Syph.*, August-September, 1928, p. 344) report a fatal case of systemic blastomycosis which occurred in a man, aged 42 who complained of cough, skin eruption, and swelling of the extremities. Four months previously a small red tender nodule developed on the bridge of the nose, finally discharging blood stained pus. Similar nodules developed later on the extremities and over the entire body and followed the same course, while the patient's general condition progressed downwards, with headaches, malaise and loss of weight. He developed a troublesome cough, with purulent expectoration, but had no chills or night sweats, and his appetite remained good. Solid and fluctuant abscesses in the corium and subcutaneous tissues, varying in size from 1 to 10 cm. in diameter, were generalized over the body, with communicating sinuses discharging thick, tenacious, greenish yellow pus. In addition there were many scattered granulomatous lesions, and ulcerated areas were present in the mouth and external auditory canals. A ray examination showed lesions resembling military tuberculosis in the right lung. Wassermann tests and blood culture examinations were negative, but the sputum and pus from the abscesses showed numerous blastomycetes. Microscopic

examination of the pus showed typical double contoured "round" forms, readily cultivated, and reproducing chiefly in the mycelial form. No harmful effect resulted from inoculations in rabbits, guinea pigs, or mice. Both morphologically and culturally the organism from this case presented characteristics similar to the majority of strains of blastomycosis previously reported. While it would appear that practically every structure of the body can become involved in the systemic infections, the skin and lungs are the organs of predilection for attack, and form the principal portals of infection. Since it may be reasonably assumed that dissemination from the cutaneous lesions rarely occurs, the primary focus of infection in systemic cases seems to be most frequently through the bronchi, whence the organisms may spread through the blood and lymph streams, producing multiple metastatic foci. Treatment with large doses of potassium iodide is recommended, and the possibility of inhibiting the growth of the blastomycetes by dilute concentrations of gentian violet has recently been suggested, the proper ventilation, lighting and drainage of houses and workshops are important aids in prevention.

372 Etiology and Treatment of Pityriasis Rosea.

H. H. HAZEN (*Journ. Amer. Med. Assoc.*, September 1st, 1928, p. 645) concludes that pityriasis rosea is probably due to an infection which enters either through the tonsils or through other lymphoid structures of the throat. He remarks that this disease usually commences with slight soreness of the throat, and that, a day or two later, one large lesion appears on the hand, body, or limbs. About five days afterwards an erythematous rash develops over the trunk, and a week subsequently lesions are found on the limbs. The disease is distinctly self limited, lasting from three to seven weeks, and is rather analogous to German measles. It is not uncommon and tends to occur in epidemics though more than one case is rarely seen in a household. Hazen has reviewed eighty-five consecutive cases, and reports that in forty-six of those, in which the notes were complete, the throat condition was satisfactory in only two instances. One patient, who had had three attacks, showed marked follicular changes in each one. The employment of ultra violet rays cut short the disease, and the author recommends the administration of an experimental dose over the entire body first, this being followed in from five to seven days by a second dose just sufficient to cause slight redness.

373 Sarcoid and Related Lesions.

W. H. GOECKERMAN (*Arch. Derm. and Syph.*, August, 1928, p. 237) reports seventeen cases of sarcoid and related lesions, and reviews the recent literature in this connexion. He maintains that sharp differentiation is practically impossible in some cases of the sarcoids of Boeck and Darier-Roussay, lupus pernio, erythema induratum, and nodular tuberculosis of the subcutis, though in all these lesions the originating factor is probably the tubercle bacillus. He thinks that the lesions in other tissues which are often associated with these conditions should be recognized as constituting a syndrome with cutaneous manifestations, and he suggests that, by taking into consideration these associated lesions, a better classification might be devised. The microscopic characteristics are, in Goeckerman's opinion, insufficiently specific to aid in differentiation, they are even to be found in some cutaneous lesions of syphilis and leprosy. Arsenic has not been found to be a specific in these sarcoids or related conditions.

Obstetrics and Gynaecology.

374 Pregnancy associated with Fibroma.

R. D. ERNST (*Brunelles Medical*, September 9th, 1928, p. 1458) reports a case of pregnancy which was complicated by a large fibroma in the left ligament. An additional difficulty in making the diagnosis was due to the menses persisting up to the fifth month. At four and a half months, when the patient was examined, a soft tumour was found in the abdomen, this extended up to three fingerbreadths above the umbilicus and was much deviated to the right. It was concluded that this was the gravid uterus. On the left side a hard tumour was felt, separated from the other one by a groove, and displacing into the left iliac fossa, this tumour extended to three fingerbreadths below the umbilicus. The subjective symptoms being corroborative of pregnancy in spite of the continuance of the menses a diagnosis was made of a four and a half months gravid uterus with a fibroid tumour in the left ligament, and confirmed by a radiogram. Expectant treatment was adopted and the patient was seen at weekly intervals during the remainder of her pregnancy. She remained in good health, with absence of any grave

manifestations until, towards the end of the time, dyspnoea became troublesome. A second radiogram, taken at thirty-two weeks, showed that the foetus was nearing full growth. Two weeks later the patient had a few mild uterine contractions. These yielded to treatment, and Caesarean section was performed a week later. A living child was delivered and subtotal hysterectomy was performed. The weight of the child and the total tumour mass removed was 15½ lb. In addition to the large fibroid tumour, which was adherent to the left uterine wall, there were multiple subserous fibromata. The post-operative course was normal and the patient made a good recovery, but the child died from broncho pneumonia on the twenty-fourth day.

375 Rapid Termination of Pregnancy

P. DELMAS (*Méd. Wcst.*, September 8th, 1928, p. 1349) describes a method of delivery under spinal anaesthesia useful in cases when quick emptying of the uterus is essential. He removes by lumbar puncture 10 to 15 c.c. of cerebrospinal fluid, of which 5 c.c. are used to dissolve 10 grams of a sterile neuro-cain preparation and are re-injected. The patient is then put in the lithotomy position prepared for operation, the bladder is emptied by catheter. The uterus is then opened up as follows. The right hand is introduced into the vagina, and the index finger is passed into the cervix and lower uterine segment, its distal phalanges are then bent and the lower uterine segment massaged until it is soft enough to admit the middle and eventually all four fingers. After a pause the whole hand is passed into the uterus, it pushes the hand up and works to and fro and then up and down until all resistance is overcome and dilatation is complete. The child is extracted by rupturing the membranes if this has not already occurred, performing internal version, and delivering. If the retraction of the uterus makes version difficult, forceps may be applied. As soon as the uterus is firmly contracted a vaginal douche is given and the placenta is allowed time for spontaneous expulsion. As prophylaxis an intravenous injection of Lingel's solution and a subcutaneous injection of 0.12 gram of sulfarsenol are given. All the forty cases of Delmas were successfully treated thus, the only maternal death being due to haemorrhage from a general placenta praevia. The author adds that the procedure is very quick, the complete emptying of the uterus taking on an average fifteen minutes. It can be performed with safety only in a completely undamaged uterus, with no old scars, cervical cancer, or infiltration tumours. It is useful during pregnancy—in the pre-eclamptic state, discrepancy between the pelvis and foetal head, and ante-partum haemorrhage, during labour—in eclampsia, pathological conditions of heart and lungs, or, if the foetal condition requires it, as in the case of a prolapsed cord. It can only be undertaken by a really skilful and experienced operator, and in such hands it is a useful method of speedy delivery.

376 Epidural Anaesthesia in Obstetrics

The various disadvantages encountered in the employment of spinal anaesthesia have led P. DALEAS and A. GALEY GASPAROU (*Gynéc. et Obstet.*, July, 1928, p. 37) to advocate epidural anaesthesia, which combines harmlessness with an action sufficient for all interventions by way of the natural passages. In this form of anaesthesia the authors prefer the sacral method of Cathelin, the technique of which is described in some detail. The first step in the procedure is to define the sacral hiatus, a space formed by the non-coalescence of the posterior arcs of one or more vertebrae, and the base of which is always found at the lower extremity of the sacrum. The guiding marks to this space are the spinous apophysis of the last coalesced sacral vertebra, which marks the upper angle of the hiatus, and laterally the twin tubercles which define the posterior arcs of the non-coalesced vertebra or vertebrae. A needle penetrating on the median line between or immediately below these points is certain to enter the hiatus. The anaesthetic employed is a 2 per cent solution of novocain in isotonic serum which also contains sodium chlorid and bicarbonate, the latter aiding in producing a good anaesthesia. As novocain rapidly loses its anaesthetic power in alkaline solutions, the mixture must be made at the time of the injection, the addition of adrenaline has been found to be of no advantage. This method produces a complete anaesthesia of both the superficial and deep perineum and of all the tissues contained in the true pelvis. Possessing no action on the motor centres of the uterus, the solution does not affect uterine tonicity and contractions, and causes no complications in delivery. Epidural anaesthesia is said to be the method of choice in all obstetrical and gynaecological operations involving the vulva, perineum, vagina, and cervix. Its use is excluded in such operations as phlebectomies and Caesarean sections. It does not interrupt or retard the progress of labour, and does not prevent the use of another anaesthetic should such necessity arise. Having no ill effects on the

general condition, it is not contraindicated by exhaustion, shock, intoxication, or anaemia of the patient, and the only contraindications to its use are partial or total contraction of the uterus, and a degree of obesity in which the thickness of the subcutaneous fat renders epidural puncture impossible.

Pathology.

377 Chloroform and the Hepatic Function.

S. M. ROSENTHAL and W. BOURNE (*Anesthesia and Analgesia*, September-October, 1928, p. 276) state that anaesthetics modify physiological processes, and that the change they produce on the liver is only a reflection of widespread depression of the cell activity. In order to ascertain their hepatic effect the authors have made a series of experiments on dogs with various anaesthetics, the tests employed, based on pigment metabolism, were the bilirubin concentration in the blood and the urobilinogen excretion in the urine. Brief periods of chloroform anaesthesia were found to produce immediate and delayed toxic effects on the liver, half an hour of chloroform administration caused injury which required eight days for functional recovery, while after two hours of anaesthesia six weeks elapsed before the return to normal. Functional disturbances could be demonstrated with the bromsulphalein test long after the pigment metabolism had recovered. Ether produced a definite but transient impairment of function, recovery being usually complete in twenty-four hours. Nitrous oxide and ethylene administered through a mask did not cause any change in the bromsulphalein test for hepatic function or any disturbance of pigment metabolism, but if given in a closed chamber with poor oxygenation both immediate and delayed toxic effects on the liver were caused. Cyanosis in itself increased the toxicity of anaesthetics on the liver. Large doses of morphine give rise to considerable depression of function, with complete recovery in twenty-four hours. The experiments seemed to indicate ethylene as the anaesthetic of choice for operation in severe liver disease.

378 The Mechanism of Recovery from Lobar Pneumonia.

R. H. P. SIA, O. H. ROBERTSON, and S. T. WOO (*Journ. Exper. Med.*, October, 1928, p. 513) have studied the time of appearance of immune bodies in the serum of patients with lobar pneumonia. The pneumococcal power—that is, the power of the serum to destroy pneumococci—was tested by adding decreasing amounts of the patient's serum to rabbit serum leucocyte mixtures containing small numbers of highly virulent pneumococci. Since these mixtures by themselves have no inhibitory effect on the growth of pneumococci, any pneumococcal effect that occurs must be due to the added test serum. Estimations were likewise made of the agglutinating and opsonic powers of the patient's serum, as also of its power of protecting mice injected with virulent pneumococci. In all, seventeen patients were studied, of these, five were infected with pneumococcus Type 1, six with Type 2, two with Type 2 atypical, and four with Group 4. Sixteen of the patients recovered, and one died. The results showed that immune bodies first became demonstrable in the serum at about the time that the temperature began to fall, whether this occurred by crisis or lysis. In only one case was evidence of antibody production found before the commencement of defervescence, and then only a few hours beforehand. These results applied to the patients that recovered. In the patient that died no pneumococcal powers were demonstrated in the serum, unfortunately, the other antibodies were not tested for. The observations made in this paper are practically identical with previous findings in experimental pneumonia of cats, and lead the authors to conclude that the development of serum immune bodies at the time of crisis must be regarded as an event of considerable significance. How far the antibodies are responsible for the crisis it is impossible as yet to say.

379 Levulose Tolerance in Rheumatism.

R. T. CHADWICK (*Arch. Dis. in Childhood*, August, 1928, p. 179) describes investigations in which the levulose tolerance test was performed on healthy children and also on those with active disease, especially rheumatism. The administration of levulose was found to have little or no effect on the blood sugar in the healthy children and on those with either simple chorea or who were convalescent from rheumatism. In the child with active rheumatism whether the heart was affected or not, and in the choreic with heart affection, there was, however, an appreciable intolerance to levulose. The author concludes that this intolerance to levulose must be due to some toxic absorption from a focus of rheumatic infection.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine

380 Occupational Causes of Gastro Intestinal Disease

ACCORDING to T. LÖWY (*Med. Klin.*, September 7th, 1928, p. 1383) the acid gastric juice, in addition to its other functions, defends the intestinal tract against infection by ingested organisms and is also one of the regulators of the ionic balance in the blood stream during muscular exertion. During prolonged muscular work the alkali reserve of the blood plasma tends to fall and the secretion of acid gastric juice rises. Subsequently the blood alkali reserve increases again and the gastric secretion of hydrochloric acid diminishes. A feeling of fatigue is associated with disturbance of the ionic balance in the blood, and a diet rich in protein, such as the heavy manual worker instinctively demands, by stimulating acid gastric secretion, helps to restore the ionic balance in the blood to normal. Thus occupations causing disturbance of gastric secretion are of particular importance in determining the working power of the body. Though a congenital tendency to gastric and duodenal ulcer is now generally recognized to exist, chemical, mechanical, and traumatic factors play a part in the production of these lesions. Among mechanical factors Löwy mentions the swallowing of sharp particles of dust—by stonemasons and metal workers, for example. The alkali vapours swallowed by workers in candle, warfarn, and soap works tend to neutralize the gastric juice, and by diminishing its sterilizing powers facilitate the entry of pathogenic organisms into the intestine, where they give rise to catarrhs. The connexion between intestinal disorders and occupation is in some cases more direct—as for example, hernia, the atonic constipation of sedentary workers, and the constipation of the spastic type which is comparatively common amongst postmen, land workers, and others leading an active life, this last is best relieved by rest, antispasmodic drugs, and a diet containing a minimum of roughage.

381

Pulmonary Arteritis

M. WYBAUW (*Le Scalpel*, August 11th, 1928, p. 901) records two cases of pulmonary arteritis which show similar features. Both patients were women, aged respectively 42 and 25. The chief symptoms were dyspnoea and inability to work, both had coughs and sputum in which no tubercle bacilli could be found, some haematemesis and blood streaked expectoration, marked cyanosis and oedema, negative Wassermann reactions, and no rise of temperature. The first patient had chronic bronchitis; the second had been unable from an early age to play like other children, and had had some slight rheumatism. Cardiac examination by percussio and auscultation did not result in a satisfactory diagnosis. At necropsy the second patient showed especially a very dilated right ventricle and left auricle, and a narrow, funnel shaped mitral orifice, with mitral valves but no visible vegetations, by a microscopical examination, however, chronic inflammatory lesions were found. The valvular orifice of the pulmonary artery was dilated, and on its wall there were small raised yellowish white spots like those found in arteritis. The medium sized arteries were very thick and revealed changes characteristic of chronic endarteritis. The author concludes by stating that pulmonary arteritis, though rare, does exist, but is difficult to diagnose during life. It appears usually as a complication either of mitral disease, generally stenosis, or of chronic pulmonary trouble, such as bronchitis, tuberculosis, or emphysema. To these diseases certain characteristic features are added—namely, cyanosis, haemoptysis, increase in the pulmonary arch as measured by radiography, increase in bulk of the hila, and marked dilatation of the right ventricle, with right electrocardiographic predominance. The course of the disease is unfavourable and often rapid, cardiac drugs usually having only a temporary action.

382.

Panniculitis

H. A. CHRISTIAN (*Arch. Int. Med.*, September, 1928, p. 338) records a case of relapsing febrile nodular non suppurative panniculitis occurring in a single woman aged 25, who had ten recurring attacks in which subcutaneous lumps appeared chiefly on the arms and legs. These became flattened and attached to the skin, finally leaving a depression without suppuration, while the continuity of the skin remained unbroken. The attacks were accompanied by fever, nausea, vomiting, and muscle pain, the variations in temperature reaching a daily higher level, with a more gradual decrease. While the fever and relapses suggest that the condition may be a manifestation of undulant fever from

infection with organisms of the *M. melitensis* or *B. abortus* group, the cultures in this case were negative. As a result of the subcutaneous nodular inflammation necrosis of some of the fatty tissue occurs, and much of it becomes infiltrated with lymphoid and plasma cells. Macrophages take up fat in fine droplets, and a few foreign body giant cells appear. Atrophy of the nodules results, causing a depression in the contour of the skin without there having been any break in its continuity. Towards the end of convalescence from her tenth attack the patient developed acute appendicitis, for which she was operated upon without any resulting complications. The etiology is said to be unknown.

383 Intestinal Origin of some Acute Infections

A. GIOVANNARDI (*Bull. de Sci. Méd.*, July-August, 1928, p. 232) found that *B. typhosus*, *B. paratyphosus* B, and *B. anthracis*, when given by the mouth to normal rabbits, passed through the barrier formed by the gastric juice and reached the intestine directly. The passage of these organisms into the intestine occurred with considerable frequency and regularly when they were attached to green vegetables. They reached the intestine fairly quickly—namely, in one or two hours after food—and might remain there a considerable time. In some cases they were found in the mesenteric glands a few hours after they had been swallowed. While, however, the passage of *B. typhosus* or *B. paratyphosus* B through the stomach into the intestine occurred with considerable frequency, it was not proved that the organisms after this passage were the cause of disease. It may be supposed that under normal conditions the intestinal mucous membrane is not susceptible to this infection without the intervention of other factors. On the other hand, when an organism was virulent for the rabbit, such as *B. anthracis* was administered by the mouth in green vegetables infection and death from anthrax sometimes occurred.

384 Cisternal Puncture in Cerebro spinal Fever

ACCORDING to V. PALCSO (*Wien. Klin. Woch.*, August 16th, 1928, p. 1182) four cases of cerebro-spinal meningitis successfully treated by cisternal puncture have been recorded by Ayor, Nonne, and Hartwich (two cases) respectively. Palcsó now adds two more—in a man aged 22, and a woman, aged 41. The only disagreeable symptoms noted were severe headache, sweating, and vomiting, which occurred in one of the patients and lasted about twenty minutes. The method is relatively indicated in those cases in which lumbar puncture is also practicable, and absolutely indicated when lumbar puncture is ineffective—as, for example, when the fluid is purulent and sticky and enough cannot be evacuated, or there are any local lesions or deformities which interfere with the operation.

Surgery.

385. Enlargement of the Thymus Gland.

F. W. O'BRIEN (*New England Journ. Med.*, October 4th, 1928, p. 657) reviews the literature relating to the thymus gland, and concludes that the thymus has no secretion as such, though its involution in otherwise normal children at puberty suggests a definite relationship with the sex glands. He is believed that the thymus was not itself essential to life, though death by wasting followed the removal of this organ together with the spleen. Hammar suggested that the lymphocytes in the gland were necessary postulates for its functioning, and indicated an antitoxic activity, the thymus not being a transitory organ, but existing and functioning even until old age. Hyperplasia is relatively rare and is found chiefly after castration, and in Graves's disease, Addison's disease, myasthenia, aoromegaly, and the so-called "thymus death." Cases of the latter, with which alone O'Brien deals, can be divided into those with and those without symptoms. The existence of a symptom producing thymus is conceded, but opinions differ as to whether an enlarged thymus is a causal factor of sudden death. In radiographs an enlarged thymus casts a shadow larger than that of the great vessels. Mosher, Macmillan, and Motley report that of 2,344 children 7.5 per cent showed a positive thymus shadow that all the latter were successfully operated on after x-ray treatment of the mediastinum, and that no unexplained sudden death has occurred since this treatment was instituted. Similar experiences are reported by O'Brien in some 2,526 cases. Since there is no evidence that the

thymus is not an integral onasativo factor in sudden death, and as it is known that involution of this gland takes place rapidly and without harm following a ray or radium treatment, O'Brien believes that it is not only desirable, but necessary, till more exact knowledge shall warrant a contrary opinion, to prescribe radiation therapy for those children presenting a ray evidence of the "broadened mediastinal shadow" without symptoms, for whom general anaesthesia or surgery is contemplated.

Therapeutics.

339 Home Treatment of Common Urinary Complaints.

R CAMPBELL BEGG (*New Zealand Med Journ*, August, 1923, p 214) gives some suggestions for the management of certain urinary disorders by the general practitioner. In pyelitis after careful examination has excluded other possible troubles, alkalinization of the urine must be ensured, adequate doses of alkalis should be reinforced by a teaspoonful of sodium bicarbonate the last thing at night, and the patient should be given a book of red litmus papers and instructed to watch the reaction. If symptoms persist in spite of alkalinization, a special examination of urine for tubercle bacilli should always be made. In dysuria in women it should be remembered that cystocolo may be present in the absence of cervical protrusion. Acute gonococcal prostatitis is often seen, though gonococcal cystitis is rare. Frequent enemas of 4 ounces of hot water with 40 grains of antipyrin give great relief. The author believes that local anaesthesia is too seldom used in catheterization, and that much avoidable pain is caused. Cocaine is said to be the only sure drug, and to be quite safe if used in 1/2 per cent solution and injected slowly. One drachm should be introduced and pressed back through the posterior urethra while the meatus is compressed with the fingers. Another drachm should then be injected, and a clamp put on the meatus for a few minutes. Not more than 1.25 grains of cocaine should be used in all. Gum elastic catheters are, in the author's opinion, unsatisfactory. Eynard's silk web catheters can be helled, but this should be done in a towel, in which the catheters should be lifted out, there is risk of denting them with forceps while soft. In the dilatation of strictures Hilform metal or whalebone bougies should not be used since they easily damage the mucous membrane. Eynard's silk web Hilform bougies are made with a female screw for attachment to the male screw of a sound. If a ray examination fails to reveal a calculus after treatment of the acute pain at the onset it is probable that the stone may be too small to show, and in this case it will probably be expelled sooner or later, the patient is more likely to pass it if up and about than if confined to bed. In urinary retention due to prostatic enlargement the kidneys are usually already damaged. The bladder should never be completely emptied, and distension should be allowed to occur again before the patient can be voided. The author uses a condé silk web catheter. After partial emptying of the bladder a tube should be attached and carried over a chair at such a height that a slow drip of urine is ensured sufficient to keep pace with renal secretion, the catheter is kept in place pending more radical treatment.

390 The Gold Treatment of Pulmonary Tuberculosis.

A FARJON, P. MAZILLY, and P. LEFFEVRE (*Presses Méd*, September 26th, 1923, p 1218) believe that the accidents encountered during the use of sanocrysin in the treatment of pulmonary tuberculosis are due solely to the large doses employed. They found that, in smaller doses, patients undoubtedly benefited from its administration, the general health almost constantly improved, the cough and expectoration diminished with a disappearance of bacilli from the sputum, the weight increased, and the fever progressively lessened. It is pointed out that improvement, however slight, often raises the patient's morale—an important factor in treatment. The authors give at weekly intervals the following doses by intravenous injection: 0.05, 0.1, 0.15, 0.2, and 0.25 gram, they repeat the last dose until 2 grams have been administered. The injections are preferably given two hours after food. In order to avoid cumulative action, sanocrysin being but slowly eliminated by the kidneys, one and a half to two months are allowed to elapse between each series of treatments. The authors advise that, in certain susceptible cases, the cumulative dose should be only 0.01 to 0.025 gram, and the doses should not exceed 0.05 or 0.1 gram until it is ascertained that the preceding ones have been well tolerated. Even in small doses the injections may have certain effects, which, however, are very trivial and need not interrupt treatment. These are: pain and localized redness at the site of the injection at the time of the injection; slight malaise, vertigo, and sometimes nausea, which disappear in a few minutes; headache and lumbar pain and a slight rise of temperature of about half a degree. If the fever is prolonged, and albuminuria, cutaneous eruptions, or nervous or intestinal troubles arise treatment should be discontinued for a time. Haemoptysis was never noted, but, should this occur, treatment should be stopped for a short period. Sanocrysin is said to be of no benefit in acute tuberculosis, but only in the chronic febrile or subfebrile types. The authors have treated 46 such cases, with good results in 31. The drug is contraindicated

386 Surgical Treatment of Gall-stones

G LUTZOW HOLM (*Norsk Mag f Lægevid*, August, 1923, p 741) reports 180 operations for gall stones performed at the Rik's Hospital, Oslo, in the period 1910 to 1926. Cholecystectomy was the method of choice, and, when necessary, was associated with cholecystotomy and drainage of the hepatic duct. Cholecystotomy was performed only in exceptional circumstances, such as weakly patients. It was regarded as more dangerous to operate in the acute stage than in the interval between attacks. An operation, therefore, was only performed in acute cholecystitis when there was evidence of perforation or impending perforation. Not more than eight patients were operated on during an attack, and the rest were operated on one to two weeks after disappearance of the acute symptoms. Seven deaths occurred—a mortality of 3.9 per cent—the cause of death being peritonitis in 3, degeneration of the heart and liver in 2, cholemic haemorrhage in 1, and broncho pneumonia in 1. The peritoneal cavity was never closed primarily, but was usually treated with a ekgarot drain for six to eight days. The end results were investigated by inquiries sent to patients who had been operated on between 1910 and 1924. In about 90 per cent of the cases of cholecystectomy the results were good, while in the remaining 10 per cent pain and attacks of colic continued. Like most other operators, the author very rarely found calculi when another operation was performed but almost invariably encountered adhesions between the liver and bile ducts with the stomach, duodenum, and colon, which he concludes, should be regarded as the principal cause of the pain following operation. These symptoms obviously occurred in patients who had suffered from colic for many years, so that adhesions had probably formed long before operation. Early operation is, therefore, strongly to be recommended.

387 Chronic Infections of the Prostate and Seminal Vesicles

C H GARVIN (*Med Journ and Record*, September 5th, 1923, p 213) believes that chronic posterior urethritis and chronic prostatitis are clinically synonymous, and that in chronic prostatitis the seminal vesicles are always involved. Non-specific prostatitis and vesiculitis are much more common than is generally thought, the symptoms, clinical findings, and treatment differ but slightly from those due to the gonococcus. Acute anterior gonorrhoeal urethritis can be said to have extended to the prostate and vesicles whenever the discharge has persisted, in spite of treatment, for more than four weeks. Rectal examination of the prostate without microscopical examination of the expressed secretion is inadequate. Garvin adds that treatment must be continued until all evidence of infection has disappeared, and that massage, dilatation, and instillation will ultimately cure any case. A standard of cure which does not include urethroscopy and microscopical examination, with cultural examination of the expressed secretion of prostate and vesicles, is held to be incomplete.

388 Abdominal Adhesions.

W S BAINBRIDGE, whose results in the treatment of cases of abdominal adhesions by means of plastic surgery are reported by Haller (*Bull et Mém Soc Chir de Paris*, July 6th, 1928, p 609), attributes the condition to various causes. If it occurs before operation it may be due to tuberculous peritonitis, long standing ulceration of the intestinal tract, syphilis, affections of the biliary organs and ducts, or inflammation of other organs adjoining the peritoneum. When these adhesions occur with only slight symptoms medical treatment will often prove efficacious, but in more severe cases radical surgical intervention is necessary and sometimes a short-circuit is the most successful operation. Between the slight and the severe cases there exists a large group where the alimentary canal can be freed by means of simple plastic surgery. This must be conducted with great care at an early stage, the operation being performed quickly and the tissues handled very gently. Warm saline solution should be introduced into the intestines during the operation to prevent the formation of fresh adhesions. In the seven cases reported the results were good after simple operations such as liberation of folds, section, and peritonization, the patients remaining in excellent health several years after treatment.

in cases with renal or digestive complications, in cases of advanced cachexia with hectic temperature, and in tuberculous laryngitis

391 Serum Treatment of Typhoid Fever

K. REINTHALER (*Seuchenbekämpfung*, Heft 4, 1928, p. 241) states that, in spite of the numerous outbreaks of typhoid fever in recent years, serum treatment, which was first introduced by Chautoussou in 1907, has not been extensively employed. The author used Kraus's anti endotoxin serum in a recent epidemic in 43 cases and found that the course of the disease in patients treated with this serum was more favourable both as regards the severity of the attack and the duration of the febrile period, which was only seven to sixteen days, whereas the great majority of the untreated cases considerably exceeded this period. No undesirable reactions, such as rigors or collapse, were observed. The number of injections ranged from one to four at intervals of from two to six days, and the doses from 10 to 20 c cm. The author found that the serum had no effect in relapses. The mortality of 12.4 per cent, in spite of the use of serum, is due to the fact that the fatal cases presented symptoms of peritonitis on admission, which were confirmed by the necropsy, only one patient died of myocarditis.

Anaesthetics.

392. Open Ether Anaesthetization in India.

J. B. HANCE and J. PERSHAD (*Indian Med Gazette*, September, 1928, p. 512) seek to dispel the belief current in some quarters that open ether is a difficult and expensive method of anaesthesia in hot climates. Working under conditions where the theatre temperature is frequently in the neighbourhood of 90° to 100° F. they have found that open ether can be employed with greater safety than chloroform and at small average expense. Their method is to use Shipway's apparatus, keeping the ether container at an average temperature of 50° F. and a Schimmelbusch mask resting on a Gamgee tissue face piece. During induction the bellows are used at a rate of twice per second, and subsequently at a steady rate of once per second. With patients of temperate habits they find that full surgical anaesthesia can usually be obtained in seven minutes, a "concentrating" layer of Gamgee tissue being placed over the Schimmelbusch mask after the induction stage. Tabular lists are given of operations, showing the time of anaesthesia, the temperature of the theatre, and the amount of ether used. This ranges from an average of 9.4 oz for major abdominal operations lasting up to two hours, to one of 3 oz for operations for haemorrhoids lasting about twenty minutes. They add that induction with the Shipway apparatus should become simple with practice if the patient will breathe deeply but induction with a C.E. mixture may be found by some easier at first.

393. Spinal Anaesthesia

AFTER reviewing the work of numerous authorities, O. J. CURRIE and J. A. CURRIE (*Journal Med Assoc of South Africa*, August 25th, 1928, p. 440) observe that most of these writers agree that the three outstanding merits of spinal anaesthesia are the prevention of shock, the ease of operating, due to perfect relaxation, and the prevention of certain sequelae of general anaesthesia, such as pneumonia. Spinal anaesthesia effects a true anoxic association, cutting off the brain from peripheral stimuli, but, since the anaesthesia causes a definite fall in blood pressure the presence of marked shock before operation is a contraindication to its use, as is also a blood pressure lower than 100 mm of mercury. Gentle operating is desirable owing to the possible painfulness of traction on neighbouring unanaesthetized parts. Moynihan's "destructive psycho strain" is not so severe as might be expected, and suitable psychological management, together with the use of hyoscine and morphine as a pre anaesthetic, dispels the fears of all but the very nervous. A summarized report is given of 45 cases of spinal anaesthesia, in 14 of which one of the authors operated single handed, stovaine alone being used. In the remaining cases Jonnesco's formula (stovaine and strychnine) was employed, these being kept in separate ampoules and mixed at the time of injection. The solution is usually heavier than cerebrospinal fluid, does not gravitate so markedly as Barker's solution of stovaine alone, and diffuses upwards to a certain extent. On reaching the theca a small quantity of cerebrospinal fluid was allowed to escape, the latter was then drawn into the syringe and allowed to mix with the solution, and the injection was made slowly. The dose of stovaine has varied from 2.5 cg in children to 9.5 cg in adults, the usual being 7 to 8 cg. The anaesthesia generally extended to one inch above the umbilicus, in one case reaching the clavicles.

It lasted from thirty minutes to two hours (in one case), the usual duration being thirty to forty five minutes. No deaths due to the anaesthetic have occurred, and the chief complication has been headache in some instances. In one case a slight transient diplopia was noted. Strychnine is said to lessen the duration of anaesthesia, and Jonnesco has recommended the substitution of caffeine. This author and Desplas claim that by injecting caffeine instead of strychnine the incidence of headache is greatly diminished and its severity lessened. The present authors, while bearing in mind its limitations, are inclined to favour spinal anaesthesia, either alone or combined with general anaesthesia and hyoscine.

394. Local Anaesthesia in the Reduction of Fractures

O. O. RICE (*Journal Amer Med Assoc*, June 2nd, 1928, p. 1768), whose paper was the subject of an annotation in our issue of August 4th (p. 217), suggests that local anaesthesia for the reduction of fractures deserves more extensive use. The advantages of the method are its simplicity, no additional equipment or detailed anatomical knowledge being necessary, its applicability at any time, even when the stomach is full, the satisfactory muscular relaxation, and the negligible danger of infection. The anaesthetic recommended is a 1 per cent solution of procaine hydrochloride, this is injected between and around the fragments and into the surrounding muscles. The amount used ranged from 15 to 60 c cm, but the smaller dose was found to be fully as satisfactory, and did not obscure the landmarks so much. During the past year Rice has treated more than fifty cases of fractures of the lower arm by this method, and reports seven of these. The results were very gratifying in all except two instances, in which the procaine had been administered the day before. The author remarks that at the lower end of the forearm the radius is prismatic, and the boundaries of this prism are defined. In administering the anaesthetic the arm should first be cleansed with soap and water, sterilized with iodine and alcohol, a sterile towel is placed over the hand, and another over the arm. With an ordinary hypodermic needle an initial puncture is made one inch above the fracture, over the subcutaneous dorsal border of the radius, 2 c cm are injected between this point and one opposite the lateral border, where the second subcutaneous wheal is made. The small needle is then replaced by a long flexible one (2½ in. 26 gauge), and this is directed straight down to the dorsal border, the tissues being injected as it advances. It is then directed along the medial radial surface, infiltrations being made into or as close as possible to the periosteum, and continued until the interosseous membrane is entered. The direction of the needle is then changed without withdrawal, it is introduced opposite the already anaesthetized lateral border, and directed across the ventral surface of the radius. Thus the three surfaces of the prism are infiltrated. During infiltration extravasated blood from the fractured bone may well up into the syringe, if it is not encountered, the needle is directed forward toward the fracture until blood appears in the syringe. About 4 or 5 c cm are injected at this point so that the procaine may reach the broken ends of the bone and the endosteum. Thirty minutes is allowed for the anaesthesia to develop, and the fracture is then reduced by the usual methods. Procaine anaesthesia should not be employed in the presence of infection, in compound fractures, or when it has been given only a short time previously.

Obstetrics and Gynaecology.

395. Pregnancy after Ureteral Transplantation

C. W. EBERBACH and J. M. PIERCE (*Surg, Gynecol and Obstet*, October, 1928, p. 540) record a case of pregnancy successfully terminated by Caesarean section in a patient upon whom two years previously bilateral transplantation of the uterus into the sigmoid for exstrophy of the bladder had been performed. Through an oblique muscle incision the peritoneum is stripped from the pelvic wall and the ureter cut as near to the bladder as possible and its distal end tied. A loop of sigmoid is drawn through a 5 cm peritoneal incision and the proximal end of the ureter is implanted therein by the method described by Coffey and Mayo. About a centimetre of the bowel is allowed to remain exposed extraperitoneally and sealed off by suturing the peritoneum to the intestinal wall, thus preventing any pull on the ureter and as a pre caution in the event of leakage. Urine usually appears in the rectum at once, and in a fortnight the second stage can be performed. In the case recorded uneventful recovery followed and pregnancy ensued two years later. At full term the abdomen showed normal distension, with a wide, firm, low mid line scar marking the site of the exstrophied bladder. The umbilicus was absent, and the two lateral transplantation operation scars were well healed and showed no sign of hernia. Below the fibrous symphysis and

surrounded with dense scar tissue was the vagina, 5 cm in length, and admitting two fingers, the labia were widely parted, and there was a bony separation of four inches at the symphysis. Following Caesarean section and delivery of a 5½ lb female child convalescence was normal, and throughout the pregnancy there was never any sign of pyelitis or nephritis. From this and three other cases previously reported it would appear that uterine transplantation does not necessarily contraindicate pregnancy—a point of importance in cases where sphincter damage or vesico vaginal fistula necessitates such a procedure.

396. Impacted Calculus in the Female Urethra

T. S. KLOTS (*Nederl. Tijdschr. v. Geneesk.*, September 1st, 1928, p. 4217), who records an illustrative case, remarks that incarceration of calculus in the female urethra is a remarkably rare occurrence owing to the passage being so distensible. As a rule the incarceration takes place immediately behind the external meatus, but it is also possible in other situations. Usually the symptoms set in suddenly with severe pain in the urethra, followed by difficult or painful micturition, the passage of turbid and not infrequently bloody urine, and often a purulent or sanious urethral discharge. There is also a constant pain, especially during coitus or on sitting. If infectious supervenes, perineurethral abscesses may develop and burst into the vagina. Incontinence of urine may supervene as the result of stretching of the vesical sphincter or in incarceration of the calculus in the neck of the bladder. The obstruction to the escape of urine may give rise to cystitis, followed by involvement of the kidney through back pressure. The diagnosis is usually easy if the possibility of the condition is remembered. The calculus can usually be felt through the vagina or by the passage of a sound. It will rarely be necessary to use a urethroscope or to make an x-ray examination. Treatment, which consists in removal of the stone, is much easier than in the male subject, and external urethrotomy will rarely be needed. The calculus can usually be pressed out by the finger in the vagina, or by a Collin's forceps or blunt curette. Klotz's patient was a woman who had suffered for some months from intermittent left-sided renal colic, polyuria, and painful micturition. The urine showed many pus cells and red corpuscles, but no casts. A sound passed into the urethra encountered a stone just below the neck of the bladder. The calculus was then removed by a forceps for extracting foreign bodies from the nose, and complete recovery followed within a week.

397. Pyrexia from Necrobiosis of Myomata.

E. GODLEWSKI (*Bull. Soc. d'Obstet. et de Gynecol. de Paris*, July, 1928, p. 643) records three cases illustrating the difficulty in diagnosis of pyrexia accompanying red degeneration of an unsuspected uterine myoma. The first patient had suffered for eighteen months from feverish attacks lasting twenty to twenty-five days, with digestive disturbances and meteorism, the diagnoses had successively been made of influenza, paratyphoid fever, and Malta fever, the serum having a faintly positive reaction. In the second case fever lasting seven months was accompanied by dyspepsia, recurrent diarrhoea, subfebrile, and ascites, tuberculous peritonitis was suspected, and the symptoms improved with rest, but were aggravated by actinotherapy. The third patient, a three para aged 38, had had three years of ill health with menstrual irregularity, loss of weight and pyrexia, which were attributed to plenury, an exacerbation of symptoms after six weeks' amenorrhoea was treated for post-abortion infection. In each case removal of myomata containing necrobiotic foci led to cure. In these cases the percentage of blood urea was considerably increased before operation.

Pathology.

398. Surface Tension Measurements in Bacterial Differentiation

A. A. DAY and W. M. GIBBS (*Journ. Infect. Dis.*, August, 1928, p. 97) after reviewing a number of recent papers on the effect of surface tension depressants on the growth of bacteria, conclude that at present there is no adequate and undeniable proof that surface tension plays any part in bacterial development. Many results which appear to indicate the favourable or unfavourable action of decreasing the surface tension can be equally well ascribed to the chemical properties of the particular depressant employed. In order to avoid this latter difficulty the authors decided to use a number of different depressants, if the effect on growth was the same, whether the given decrease in surface tension was brought about by one substance or another, then it might be inferred that it was the surface tension that was responsible, if, on the other

hand, entirely different results were obtained, depending on the particular substance used, then it would seem as if the chemical properties of the substance were responsible. They employed eight strains of *Lactobacillus acidophilus* and twelve strains of *Lactobacillus bulgaricus*, those organisms were chosen because certain workers have stated that they can be separated on the basis of surface tension alterations. The depressants used were sodium oleate, sodium taurocholate, sodium ricinoleate, and coco nut, palmitic, and olive soaps. These were added to a lactose broth medium in such quantities as would afford a range in surface tension from about 27 to 40 dynes. The tubes were inoculated, incubated at 37° C., and the amount of growth estimated every forty-eight hours by measuring the hydrogen ion concentration of the culture. The results showed no difference between the two organisms. Both grew quite well at about 30 dynes when sodium oleate or sodium taurocholate was used, but neither grew when sodium ricinoleate was used. The latter soap, in fact, proved to be very toxic, coco nut soap was slightly less so. The growth of *L. acidophilus* seemed to be actually increased by the other soaps, but not sufficiently to afford a reliable means of differentiation from *L. bulgaricus*. The authors conclude that none of these soaps seem to act by altering the surface tension, it is rather their chemical action that appears important in affecting the growth of bacteria.

399. The Boltz Reaction

E. MELKERSSON (*Acta Med. Scand.*, September 6th, 1928, p. 119) discusses the acetic anhydride-sulphuric acid test discovered by Boltz, in which 0.33 c.cm. of concentrated acetic acid is added drop by drop to 1 c.cm. of cerebrospinal fluid in a test tube. The mixture is shaken and 0.8 c.cm. of concentrated sulphuric acid is added drop by drop, after which the mixture is shaken again, and five minutes later the mixture is examined against a white background. A lilac or reddish blue tint indicates a positive reaction, if the fluid is colourless or yellowish the reaction is negative. Boltz claimed that the reaction was positive in 100 per cent. of cases of paralytic dementia, and in the majority of cases of psychoses associated with cerebrospinal syphilis, the positive reaction is said to be more definite in advanced cases. But Boltz was not convinced that the reaction was specific in regard to syphilis. Other investigators have found the test positive in almost all cases of dementia paralytica, being almost as reliable as the Wassermann test in this condition. A negative reaction was found in almost all other mental diseases except a few cases of syphilis of the central nervous system. Melkersson thinks that these writers were too optimistic. He has employed the test in 102 males and 64 females, whose ages ranged from 16 to 73, age and sex do not appear to influence the results. Melkersson concludes that the Boltz reaction is independent of pressure and of the cellular content of the cerebrospinal fluid, it is in no sense comparable with Nernst's reaction and a feebly positive result does not indicate the existence of an organic nervous disease. He obtained a positive reaction in many organic nervous diseases of various types, and does not consider it specific for paralytic dementia or for cerebrospinal syphilis.

400. Cultivation of the Relapsing Fever Spirochaetes

M. LAPIDARI and HÉLÈNE SPARROW (*Arch. de l'Inst. Pasteur de Tunis*, September, 1928, p. 191) have succeeded in growing relapsing fever spirochaetes in Unger mann's medium, which consists of a 20 per cent. dilution of rabbit serum in Loel's solution. The medium is distributed into narrow tubes, each of which contains 1 c.cm. of coagulated egg white, the whole is covered with vaseline. They found that this medium was greatly improved by substituting Hartley's broth for Loel's solution, not only did the organisms grow better, but they retained their vitality for a longer time. Subcultures gave very irregular results. It was noticed that the growth depended very much on the particular phase of the culture that was used for seeding. As a rule, the younger the culture from which the inoculum was taken the more rapidly did development occur in subculture. On the other hand when an old culture was employed, no growth might be noticeable for some days, then, quite suddenly, spirochaetes started to develop. Sometimes an initial phase of growth was followed by a phase of decline, so that no organisms could be found in the culture; this was followed in its turn by a second phase of growth, during which spirochaetes were again abundant. The authors consider that these observations simulate *in vitro* the phenomenon of recurrence. O. Nicolle, they state, believes that the relapses in relapsing fever are due not to a periodic reaction of the patient, but to a specific biological property of the organism itself. These observations of alternate phases of growth and decline in artificial cultures lend some support to this view.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

401 Early Diagnosis of Pulmonary Tuberculosis.

BURKARD (*Wien Klin Woch*, September 20th, 1928, p 1,352) comments on the difficulty in recognizing phthisis in adults in its early stages, in doubtful cases not one but several examinations, at weekly intervals, are required, so that the progress of any symptoms and signs may be watched. The previous history is important, also heredity and social conditions. A history of pleurisy with effusion is suggestive, and influenza may mask incipient tuberculosis. Changes in the chest formation and its movements should be looked for, but deep breathing should not be required until auscultation is in progress, since it may remove the finer accompaniments. The temperature and its fluctuations are important, even though no organic disease can be found in many cases of such febrile temperature of long standing. Patients may improve temporarily with treatment and change of air, and many of them keep well even at exacting occupations, but they require careful investigation and supervision. Increase in the pulse rate is a bad sign. Loss or gain in weight is important gain while at work especially of the manual kind, contraindicates the presence of any progressive tuberculosis. Percussion and auscultation may be misleading, since a case with marked physical signs may be healed or stationary, and there are many variations even in the normal chest. Shortening of the percussion note is a frequent finding in phthisis, there may, however, be no alteration in the note in an early case and conversely, dullness may persist harmlessly for many years if due to scar formation. Comparative auscultation is less reliable at the apices, because the breath sounds on the right side often approximate more nearly to bronchial breathing even in the healthy chest.

402 Undulant Fever in Denmark

MI KRISTENSEN (*Ugeskrift for Læger*, September 6th, 1928, p 869) supplements a paper published last year in that journal (No 49) on undulant fever in Denmark with observations brought up to date. Between April 3rd, 1927, and March 31st, 1928, 222 new cases were diagnosed throughout Denmark on the strength of a typical Widal reaction in a 1 in 100 or a higher dilution. There was no marked seasonal incidence, and it is probable that though no such cases were recognized before April 1st, 1927, they were as numerous before as after that date. The incidence of the disease was two and a half times greater in rural than in urban districts, and its distribution throughout the country was fairly even, with little to suggest concentrated endemic outbreaks. Only in one instance did two cases occur in the same house. Both the chronological and topographical distribution of the cases suggested that every strain of the bacillus in question is pathogenic to man, but only a minority of human beings coming in contact with it prove susceptible to it. The age of most of the patients was between 15 and 40, and the ratio of females to males was as 56 to 166. In this connexion it should be noted that many more men than women in Denmark come into direct contact with cattle. In no case was the disease diagnosed in children under the age of 8, although as many as 102 children under this age were clinically suspect, and their blood was tested (Widal), with a negative result. The mortality as calculated from the author's present and a previous series of cases, was between 2 and 3 per cent. Vesicular stomatitis, palpitation of the heart, a comparatively slow pulse, and haemorrhages such as epistaxis were among the most prominent symptoms. In as many as 49 cases the general condition was remarkably good, in spite of high and protracted fever. The average duration of the fever was seventy five days, and the average duration of incapacity to work was about four months. Blood cultures were made in 29 cases and Bang's bacillus found in 18 or 62 per cent. In no case were any other germs grown to which a pathogenic role could be imputed. Though infection from man to man cannot be categorically denied, it is probable that this risk is very small, provided ordinary cleanliness is observed. Treatment consists of rest in bed until the temperature has been normal for several days, patients in whom the fever has lasted for two months or more should not begin to get up till the temperature has been normal for at least a fortnight. Though the treatment is symptomatic rather than specific the correct diagnosis is of importance, since it saves the patient from the ill attending such alternative diagnoses as tuberculosis and typhoid fever.

403 Continuous Precordial Murmur in Hepatic Cirrhosis

GAI LAUARDIN, GRAVIER, and PUIG (*Lyon Méd*, September 16th 1928 p 334) remark that this sign, although very rare, has been observed by several authors who have regarded it as pathognomonic of hepatic cirrhosis. In a minority of cases some venous anomaly has been found. The authors report the case of a chronic alcoholic man, aged 47, who was admitted for atrophic cirrhosis. He had had severe haematemesis before admission, was very anaemic, and had syphilitic aortitis with the characteristic double aortic bruit. During the last fifteen days of life a continuous roaring precordial bruit was heard at the junction of the inferior and middle third of the sternum, it was loudest at diastole and during inspiration, and was sometimes accompanied by slight frissons. It resembled exactly the jugular "bruit de diable" heard in anaemia. At the necropsy the area in which the bruit was heard during life was found to correspond with the right auricle and the junction of the superior and inferior vena cavae. The diaphragmatic arch was abnormally high and the pleurae and pericardium were very adherent, especially on the right side. The heart was moderately hypertrophied, there was extensive syphilitic aortitis, but no other vascular abnormality. The authors add that in every case recorded, with one exception, cirrhosis was present, in the exceptional case the patient had malaria, recent syphilis, and hepatitis with ascites and anasarca, which disappeared under antisyphilitic treatment.

404 Relations between Herpes Zoster and Varicella.

V MISASI (*La Pediatria*, September 1st, 1928, p 933) records an attack of typical varicella in an infant, aged 10 months, being followed ten days later by a typical thoracic herpes zoster in another child in the same ward. Subsequently the majority of the children in the ward developed varicella and a small number herpes. None of the children with varicella showed any signs of herpes or vice versa. Although the problem of the relation of herpes zoster to varicella can only be settled when the specific agent of the two diseases has been identified, the large number of cases of herpes followed, preceded, or accompanied by varicella is in favour of there being a causal relation between the two forms, or at least supports the view that there is a form of herpes of the same nature as varicella (herpes varicelliformis) which is distinct from the other forms of herpes.

Surgery.

405 Wounds Caused by Copying Pencils

G BETTAZZI (*Il Policlinico*, Sez Chir, October 15th, 1928 p 501) reports two cases of wounds caused by copying pencils, and remarks that such injuries have a peculiar course because the coloring matter contained in the pencils has a necrotic action on the tissues and also gives rise sometimes to general toxæmia. A boy, aged 14, came into hospital with such an injury. He had a painful fistulous perforation on the left cheek which was discharging a saffron liquid of a very deep violet tint. The lesion was surrounded by a small violet area and by a large hard zone of oedema which was elastic and pallid. A long incision was made through the swelling and shreds of necrotic tissue were scraped away, all deeply tinged by the coloring substance. After a few days a large eschar separated, comprising skin and underlying soft parts. The oedema disappeared and the wound healed by granulation in 8 months, leaving a flat electric slightly red tint. There was no constitutional disturbance. Bettazzi's second patient was a woman who struck her right hand violently against a recently sharpened copying pencil, the point of which remained embedded in the palm of the hand. After two days she came to hospital with much pain, swelling, and inflammation. The point of entrance of the pencil was of a deep violet appearance with a coloured periphery. The whole arm as far as the axilla was numb, the patient felt ill and her temperature was 102°. A crucial incision was made and a quantity of dead tissue was removed together with the little fragment of pencil, later another incision was made at the back of the hand. The patient was discharged after nearly a month in hospital. Bettazzi remarks that experimental investigations have shown that the coloring substances in aniline dyes have not only a clearly necrotic action but a general toxic power. According to

Glass and Kruger, methyl violet is more toxic to tissues than methyl blue. In animals there is a general reaction, with lesions of the kidney and liver, and with pulmonary haemorrhages, as well as the local action on the tissues. The author concludes that with lesions of this kind it is not enough to extract the fragment, but that every piece of tissue which is in the least altered in colour should at once be freely excised.

403 Poisoning following the Use of Hexamine and Salicylic Acid

H. EDLMANN and H. NÖLLE (*Zentralbl. f. Chir.*, October 13th, 1923, p. 2576) comment further on Edelmann's report of a fatal case of poisoning after the use of hexamine and salicylic acid in a case of anuria following a surgical operation on a boy aged 7 (see *Epitome*, July 21st, para 55). Edelmann maintains his opinion that death was due to poisoning, and refuses any other explanation. Nölle agrees with Vogt that all such cases should be recorded in order to ascertain the actual value of a little known drug which is recommended in cases of pyelitis, pyelo-nephritis, cystitis, and prostatitis, and as a prophylactic after operations on the ureteral tract, and also in the treatment of post-operative and post-partum retention of urine, when these are physiological and not mechanical. Hexamine and salicylic acid preparations (such as cycloprolin) appear to induce hyperaemia of the vesical mucosa, they have also been administered intravenously in cases of meningitis or meningococcal irritation. In one instance slight haematuria followed administration of 4 grains of norepinephrine. The individual tolerance of patients to cycloprolin varies greatly. A debilitated patient, aged 61, complained of slight dysuria after cholecystectomy. An intravenous injection of about 4 grains of cycloprolin was followed by complete retention of urine, and daily catheterization was required for three weeks. Eventually an infrapubic cystostomy was performed, and a considerable area of the vesical mucosa was found to be necrotic. Nölle adds that the first intravenous injection of norepinephrine or of cycloprolin should not exceed 2 grams, and advises smaller doses than this, increasing them later if they are tolerated.

407 Pyloric Achalasia and Peptic Ulcer

D. MARTIN and V. G. BURDEN (*Annals of Surgery*, September, 1923, p. 565) quote Ernst's definition of achalasia as the persistent failure of a sphincter to relax, and suggest that pyloric achalasia gives rise to chronic dyspepsia and ulcer symptoms in the absence of ulcer, it is also a contributing factor in the development of peptic ulcer, and an underlying reason for its chronicity. Pyloric achalasia is the result of disturbed correlation between sympathetic and parasympathetic control, and may be caused by preponderance of sympathetic influence or paralysis of parasympathetic or vagal fibres. The failure of the pyloric sphincter to relax is chiefly operative against duodenal regurgitation, which reduces gastric acidity, and so there is prolonged exposure of the stomach mucosa to a highly acid content, which later causes chemical and mechanical trauma in the duodenum. Nicotine may cause pyloric achalasia by its paralytic action on the sensitive vagal ganglia of the pylorus. Infantile pyloric hypertrophy may be due to intermittent clonic spasm before birth, caused by preponderance of sympathetic influence or impaired development of vagal inhibition. Gastro-duodenal surgery must ensure a ready passage of gastric content and free regurgitation into the stomach of pancreatic and biliary secretion. Judd's ulcer resection, combined with partial pyloromyotomy, the Finney-Hahner operation, and Billroth No. 1 are the most successful methods of securing this result. Resection of the accessible portion of the pyloric sphincter without opening the mucosa offers the best chance of successful results in cases of pyloric achalasia.

408 Megacolon due to Pelvic Sarcoma.

MACAIGNE and FLEURY (*Bull. et Mém. Soc. Méd. des Hôp. de Paris* July 5th, 1923, p. 1113) report the case of a man, aged 67, with a uniform abdominal enlargement of several months' duration. There was general tympanites and dilatation of the superficial veins, but no ascites and no enlargement of the liver. No tumour could be felt either externally or by rectal examination. During his five months' residence in hospital he developed a small epithelioma of the tongue, but owing to his state of ill health no radical operation could be undertaken, there was no evidence of tuberculosis or syphilis. His bowels were slightly open every day, he could not retain any enema, but the passage of a rectal sound gave him much relief. He died from progressive cachexia, and at the necropsy a large sarcoma was found in the pelvis pressing on the colon. There were no metastatic deposits. The growth was situated at the recto-sigmoid junction beyond the reach of the finger. Since there was never any absolute obstruction, and he had difficulty in retaining simple enema, it was not considered advisable to give him a barium enema.

Therapeutics.

703 Antitoxin Treatment of Erysipelas.

D. SYMMERS (*Journ. Amer. Med. Assoc.*, August 25th, 1923, p. 535) maintains that the results of the antitoxin treatment of erysipelas are commensurate with those obtained in the treatment of diphtheria. It does not, however, confer immunity against recurrent attacks, diminish the incidence of complications, or prevent the occurrence of sequels. Facial erysipelas yields more readily to antitoxin treatment than erysipelas of the trunk or extremities. Of 563 facial cases treated at the Bellevue Hospital, New York, 92.1 per cent were cured in from two to seven days, and 1.9 per cent in from eight to fourteen days, while in 0.8 per cent the disease was uncontrollable, even when full doses of antitoxin were administered over a period of many days. Of the 563 patients 28 (4.9 per cent) died. In a series of 489 patients with facial erysipelas treated without antitoxin during the previous years 26.7 per cent were cured in from three to seven days, and 49.2 per cent in from eight to fourteen days, while 15.1 per cent required from fifteen to fifty three days, and death occurred in 8.7 per cent. In a series of 142 patients with erysipelas of the trunk treated by antitoxin, 78.1 per cent were cured in from three to seven days, 9.8 per cent in from eight to fourteen days, and in 3.5 per cent the treatment had no effect. Death occurred in 8.4 per cent. In a corresponding series of 92 cases treated without antitoxin, 18.4 per cent recovered in from four to seven days, 42.3 per cent in from eight to fourteen days, 16.3 per cent in from fifteen to forty six days, and 22.8 per cent died. Symmers adds that the intramuscular route offers the best method of introducing the antitoxin, intravenous injection is dangerous, and should only be employed in desperate cases.

410 Cardiac Contraindications to Ephedrine Administration.

W. A. BLOEDORN and P. F. DICKENS (*Arch. Int. Med.*, September, 1923, p. 322) call attention to the dangers attending the administration of ephedrine in heart failure. They report a case in which serious cardiac embarrassment with pulsus alternans, tachycardia, and cardiac decomposition, followed its use for "asthma." The patient, a man, had complained for several weeks of shortness of breath on exertion, an acute attack of dyspnoea occurred once at night, and, lasting for several hours, was diagnosed as "asthma." This was "cardiac" rather than "bronchial asthma," since there was no eosinophilia. There was only a single paroxysm of dyspnoea, occurring late at night after a fatiguing day in a patient who had shown previous evidence of a failing myocardium for several weeks, and in whom there was never any return of symptoms suggestive of bronchial asthma, marked improvement under rest and digitalis therapy established a diagnosis of cardiac failure. For this so-called "asthma" he had been given 3/8 grain of ephedrine, taking forty doses during the next twenty days—a total of 15 grains. Following its administration he developed signs of acute cardiac decompensation, with marked dyspnoea, sweating, tremors, weakness, palpitation with a cardiac rate of 160 per minute, pulsus alternans, and a large right pleural effusion. He complained that while taking the drug his condition became worse, and that after each dose the symptoms increased. With the discontinuance of the ephedrine and the administration of digitalis, with complete rest in bed, he steadily improved and the effusion disappeared. The authors contend that this case illustrates the danger of using ephedrine for patients with damaged hearts. They advise its use only after a careful cardio-vascular examination and with very great caution in the presence of any cardiac damage, the drug should be discontinued on the slightest development of any toxic symptoms. The case also illustrates the mistaken diagnosis of bronchial for cardiac asthma, and the need for cardiac examination even when true bronchial asthma is present. The authors add that on account of its danger in certain cases its open sale should be discouraged, since it is becoming more frequently used by laymen without consulting a physician.

411 Radiotherapy in Hodgkin's Disease.

HARET and LIECHTIZ (*Journ. de Radiol. et d'Electrol.*, October, 1923, p. 501) do not believe that radiotherapy hastens the course of Hodgkin's disease, and maintain that irradiation by x-rays produces marked benefits, transitory though they may be. By this treatment all the symptoms are ameliorated, the ganglionic masses diminish, the fever and sweats disappear, the appetite improves, weight increases, the erythrocytes and haemoglobin increase, the leucocytosis decreases, while the leucina, pruritus and spontaneous pains cease. No other treatment, including sodium cacodylate, thorium x, and vacolins, has proved so efficacious,

and radium has not given as good results as x rays. Operative treatment, especially when the disease is advanced, is attended with very grave risks. Irradiation should be started as early as possible, since in the early stages of the disease remissions are obtained more rapidly and maintained for a longer period, in the later stages patients apparently become radio resistant, and remissions are less complete and less prolonged. The authors report four cases treated during the past year. Three of these were advanced with pulmonary granulomatosis, and treatment had little effect. The fourth patient improved so much as to feel well enough to return to work. The effects produced by x rays are attributed to the great radio sensibility of lymphoid tissue. Dosage is governed by two conditions: the proportioning of the tension and filtration to the depth of the lesions, and the absorbing of considerable quantities of the rays without damage to the skin. For superficial adenopathies, some deep irradiation is employed—namely, 25 cw. k. v. with 5 mm. aluminium filtration. The spleen is irradiated over many ports of entry, but each cutaneous segment should not receive more than 600 R weekly, nor should each session be too prolonged. In deep seated lesions rays of greater penetration should be employed—namely, a filtration with 1 mm. copper or zinc plus 2 mm. aluminium and an anticathode skin distance of 30 cm. Each treatment should not exceed 1,000 R. Even when improvement has occurred it is advisable to continue the treatments at intervals over a sufficiently long period.

Laryngology and Otology.

412. Indications for Treatment in Tuberculous Laryngitis

H. CABOCHÉ (*Arch. Internat. de Laryngol.*, September-October, 1928, p. 897) insists that the important factors in the treatment of tuberculous laryngitis are the measures applied to curing the general or pulmonary condition, including the dietetic and hygienic procedures, the use of artificial pneumothorax, and the silence method. All local treatment of the larynx should be preceded by inhalation of some antiseptic. Such surgical measures as laryngectomy and laryngostomy are not indicated in tuberculous laryngitis. Epiglottidectomy is of considerable use in cases where there is necrosis of the free edge of the epiglottis and the larynx is elsewhere free; the author thinks that the operation would be better performed by diathermy. Application of lactic or trichloroacetic acid is restricted to cases of ulceration of the vocal or ventricular bands. Intralaryngeal surgery consists in the removal of vegetations. In almost all cases the best line of treatment is by galvanic cautery. Heliotherapy and actinotherapy have occasional good results, but these are much more numerous where the light is associated with the electric cautery. Radiotherapy does not appear to have any useful results and diathermy is very difficult of application. Caboché thinks that almost all cases of tuberculous larynx are in themselves curable, but they must be taken under control early and completely. If the patients do not receive sanatorium treatment and care their chances are lessened, and if they have to attend hospital out-patient clinics for all their treatment the prospect of recovery is poor.

413. Drainage of the Cisterna Pontis Lateralis

A. LEWY (*Arch. of Otolaryngol.*, June, 1928, p. 614) describes the operation of draining the cisterna pontis lateralis in cases of otogenic meningitis. He describes the cistern as being an arachnoid space communicating with the cisterna magna and extending outwards as far as a line between the internal auditory meatus and the opening of the duct of the cochlea. It includes both these openings and the seventh and eighth nerves, which lie free in it. The radical mastoid operation is performed, and the middle and posterior and middle fossae are uncovered. Bone is then removed in front of the lateral sinus and from behind and above the facial ridge. In cases where the labyrinth is involved the operation is continued through this structure, otherwise it is respected as far as possible. The dura mater is separated from the posterior surface of the petrous bone until the level of the internal auditory meatus is reached and the cushion like projection of the cistern is seen. The dura is here incised and cerebrospinal fluid gushes out, accompanied in many cases by pus. The cistern is then packed with an iodoform strip, this is removed after seventy-two hours and a light packing is substituted without inserting it into the cistern. Intravenous injections of methenamine are also given. The author has employed this operation twice, with one recovery and one death of six other reported cases three patients recovered and three died. He considers that it gives the best drainage in these cases and obviates the necessity for repeated lumbar punctures. It is useful in cases where meningitis is still confined to the posterior fossa.

414. Insulin Treatment of the Diabetic Mastoid

G. SALADORI (*Arch. Ital. di Otol.*, August, 1928, p. 463) reports three cases of acute suppurative disease of the middle ear and mastoid process in diabetic subjects, and describes their reaction to insulin. The first patient was a man, aged 56, with acute otitis media and tenderness over the mastoid process, there was a small perforation and some discharge. The urine contained 1.8 per cent of glucose and the blood 0.23 per cent. He was at once put on a diet containing 40 to 50 grams a day of carbohydrate and given a course of 10 units of insulin daily. In three days the glucose in the urine had almost disappeared and the pain in the ear had ceased. The second patient came with a definite degree of mastoiditis, following neglect for a month. The mastoid region was opened up and drained by Schwartz's method. The urine was found to contain 2.4 per cent of glucose and the blood 0.21 per cent. The patient was allowed carbohydrate, and was given daily doses of 5 units of insulin, and later 10 units. The mastoid region and the middle ear were perfectly healed and dry in less than two months. The third patient was a man who had suffered from diabetes for two years, there developed acute otitis media, symptoms of mastoiditis, and then diabetic coma. He was given 100 units of insulin a day, having 0.4 per cent of glucose in the blood, after fifteen days the blood sugar had returned to normal and the ear condition had completely resolved. Salvadori remarks that in diabetes there tends to be a condition of arterio sclerosis in the smaller vessels, a diminished production of leucocytes and antibodies, and reduced phagocytosis, any inflammation tends to spread very rapidly. Administration of insulin improves the general and the local conditions swiftly.

415. Treatment of Rhinophyma.

A. POROSZ (*Lof. and Cut. Rev.*, August, 1928, p. 519) states that rhinophyma consists essentially of bulbous, lobulated, and poulous swellings, affecting as a rule the lower part of the nose. Some are smooth to the touch and others are rough. The nose sometimes possesses the normal colour, but more often is of red or purplish hue with enlarged veins and enormous dilated sebaceous follicles. Numerous methods of treatment have been advocated. Juliusberg recommends resorcin beta naphthol ointment of such strength as to cause desquamation of the upper layers of the skin. The method, however, is a tedious one, and is quite useless in marked cases. Schaeffer uses mild x ray doses or carbon dioxide snow in the early stages. Unqualified success, however, is attained in such cases by surgical treatment. Skin grafting is required for extensive operation wounds. Porosz regards the electric cautery as indispensable for securing good results. It also has the advantage of making the operation bloodless. The operation is completed in forty-eight days.

Obstetrics and Gynaecology.

416. X-ray Diagnosis of Early Pregnancy

G. ALBANO (*Zentralbl. f. Gynäk.*, August 18th, 1928, p. 2084) states that recent advances in radiological technique have made it feasible to detect elements of the foetal skeleton as early as the end of the third month of pregnancy. Certain observers have obtained x-ray evidence of one and two months' gestations by injecting into the uterus a few cubic centimetres of lipiodol, which give a fairly characteristic shadow below the lower pole of the ovum, the use of this method is not, however, free from the danger of inducing abortion. Albano describes attempts to recognize early pregnancy by screening the patient after injections of opaque substances which are excreted into the liquor amnii. Colloidal iron, as well as colloidal silver and mercurial preparations, contain so little of the metallic element that although some of them pass into the amniotic fluid no distinct shadow is cast. With two iodine preparations, however, and with strontium bromide Albano reports having had more success. Potassium iodide was given in two 1 gram pills, at an interval of half an hour, to the fasting patient in the morning, the best pictures were obtained fifteen minutes after the second pill had been taken, the film being under-developed after an exposure of three seconds. Sodium tetratodophosphatide freshly prepared or after being kept in the dark for twenty-four hours, was given intravenously (30 c.c. of a 10 per cent solution) and the x-ray examination was made similarly thirty minutes later. Strontium bromide was given intravenously and slowly to the amount of 2 grams in 10 per cent solution. Unpleasant symptoms were noted by the patients during the beginning of the injection. The second preparation was found to give the best results. In twelve cases of pregnancy in the first or second month well-defined shadows, regarded as typical of early pregnancy, were made

out in the uterine, these were distinguishable from the findings in two cases of myoma by the irregularity and less density of shadow in the latter condition. Albano adds that there appears to be no available evidence as to the x-ray shadows cast in cases of ovarian cyst or of tubal pregnancy in which the patients have received sodium tetratolol phenolphthalein injections, so that the value of the method in differential diagnosis is not yet fully worked out.

417 An Abnormal Early Uterine Pregnancy

H WOOLLARD and J B DAVISON (*Med Journ of Australia*, August 18th, 1928, p 210) report an abnormal uterine pregnancy of about twenty days' duration. The patient, aged 38, had been married for eighteen years, and the youngest of her three children was 9 years old. Since the birth of this child she had had five miscarriages. For five months before admission to hospital menstruation had been very irregular. For the three weeks immediately previous she had had a daily loss of blood with pain in the right iliac fossa. The last true menstruation occurred thirty-one days before admission. A diagnosis of incomplete abortion was made and the patient was curetted. Among the material removed was a large piece of endometrium, which was found to contain a small ovoid oyst-like body while measured approximately 6 by 4 mm. Serial sections of this showed it to be an ovum of approximately twenty days, bearing a strong resemblance to the photographs of the Bryce Teacher ovum. There was no embryo, the epithelial proliferation was normal, but the villi were enlarged by the hypertrophy of the stroma. The stroma showed fibrous change and possibly hyaline degeneration. It was therefore thought that the villi were undergoing the prolifimentary changes that lead to the formation of a hydatidiform mole. There was no indication of the presence of a foetus. The decidua did not show chronic endometritis. The cause of the hypertrophy of the stroma was not due to changes in the villous capillaries, because those had not yet appeared. It was suggested that the cause of hydatidiform degeneration was to be found in the regenerative control executed by the embryo on the formation and function of the villi.

418 Lactation Psychoses.

MÉNACHE (*Bull Soc d'Obstet et de Gynecol de Paris*, October, 1928, p 807) contributes an account of two cases illustrating the psychoses of lactation. One patient was a woman, aged 32, whose mother had suffered from mental trouble before her death, a sister had had two attacks of acute mania. The patient's previous history contained nothing bearing on the case. She had been confined four times, on each occasion the infant had been breast-fed. An attack of acute mania supervened each time towards the sixth month of lactation, and after weaning and two to three months' stay in an asylum the patient was discharged completely cured. In the second case the patient's family sent for the doctor because for several days she had appeared unusual. Seven months previously she had been normally delivered and was still breast-feeding. At the time of the visit she was seated in a corner, immovable and indifferent, her gaze being fixed and expressionless. Her memory was affected, and she was incapable of executing a command. She was somewhat disoriented in time and space. She seemed to feel nothing and to desire nothing, she had faint visual hallucinations. The child was weaned and a course of general medical treatment was started, in six weeks she was quite cured. Two years later the patient was delivered in a maternity home, and lactation had produced the same results. Similar treatment resulted in rapid recovery. These cases were two of a series of twelve treated by the author, who concludes that the psychoses of lactation show the confusional form in patients without an hereditary taint, and mania in others. They are generally rapidly cured, provided that lactation is immediately stopped. Succeeding lactation psychoses in the same woman are of identical nature. The author insists that it is essential to forbid lactation in any woman who has had mental trouble during her first lactation.

419 Cancer of the Body of the Uterus.

D DEN HOED (*Nederl Tijdschr v Genesck*, September 22nd, 1928, p 4654) illustrates the comparative rarity of cancer of the body of the uterus by the fact that in the Antoni van Leeuwenhoek Hospital there were only fourteen cases, as compared with 300 of cancer of the cervix. The ages of the patients ranged from 30 to 80. The author maintains that in cases of cancer of the body of the uterus, where operation is impossible owing to technical difficulties, the bad general condition, or concurrent disease, treatment by radium and x-rays offers a considerable chance of a cure. In cases of recurrence irradiation is usually the only favourable treatment, and sometimes saves life. In the combination of radium and x-rays special importance is to be attached to intrauterine treatment with radium.

Pathology.

420 The Mechanism of Visceral Pain

In order to test the theory that visceral pain is caused by the normal afferent impulses from the skin entering a cord segment which has become abnormally irritable owing to visceral "bombardment," S WEISS and D DAVIS (*Amer Journ Med Sci*, October, 1928, p 517) have conducted a series of experiments on twenty-five patients with intense and well defined and localized pain due to various pathological conditions of the heart, lungs, oesophagus, stomach, gall bladder, kidneys, and Fallopian tubes. Visceral pain was also induced in normal subjects. The painful area in each case was carefully mapped out, and the corresponding skin areas (varying from 6 to 60 sq cm) were infiltrated with a 2 per cent solution of novocain in order to abolish the cutaneous afferent impulses. The results gave direct support to the theory of referred pain. Afferent cutaneous impulses are closely related to the mechanism of visceral pain, since this ceases completely if the corresponding afferent impulses from the skin are blocked. Novocain infiltration of the corresponding painful skin areas caused prompt relief in patients suffering from severe visceral pain. In the cases of induced pain infiltration of the skin caused relief over the localized area, but the pain became located over another skin area. The pain again became localized over the original area on cessation of the skin anaesthesia. A dull unpleasant sensation (soreness, discomfort, pressure, but never pain) was noticed occasionally after skin infiltration. Whether this is localized in the viscera or is due to certain afferent impulses from outside of the peritoneal or pleural cavity cannot be stated. Following the cessation of the pain, abnormal afferent sympathetic impulses from the irritated viscera may still reach the central nervous system. The present observations, together with those by others on the effect on visceral function of stimulation of certain skin areas, indicate that the relationship between skin sensation and visceral function is reversible. The authors believe that skin infiltration is a practical therapeutic measure in certain conditions associated with localized pain. They discuss the relation between the effect of this infiltration and of paravertebral injection. The identical results of the two procedures suggest that the analgesic effect of paravertebral injection is due rather to the blocking of certain cutaneous impulses than to the anaesthesia of the rami communicantes of the sympathetic chain.

421 Absence of Spirochaetes from the Glands of General Paralysis

H v FISCHER (*Centralbl f Bakt*, 1928 108, p 247) recalls the fact that the *Spirochaeta pallida* can very frequently be demonstrated in the lymph glands of rabbits that have been experimentally infected with syphilis and that have passed into the latent stage of the disease. He therefore determined to ascertain whether spirochaetes could similarly be found in the glands of patients suffering from general paralysis. Eight cases of the progressive form of this disease were studied, of these, six patients had received no specific treatment, one had been treated with the malarial parasite, and one with this organism in conjunction with salvarsan. The general technique was to remove under local anaesthesia an inguinal, an axillary, and a supraclavicular gland, and to inoculate rabbits, using Tomaszewski's scrotal implantation method on one animal, and the intratesticular injection of a glandular suspension on another animal. As it is known that progressive syphilis frequently does not occur in rabbits inoculated directly from human subjects further inoculation of fresh rabbits was made from the primarily inoculated ones. The experiments, in spite of the careful technique employed, all proved negative. In not a single rabbit was evidence of spirochaetal infection discovered. It would appear, therefore, that if spirochaetes are present in the glands of general paralytics, they must presumably be present in only very small numbers—too small, in fact, to be demonstrable by the rabbit inoculation method.

422 The Effect of Glucose upon the Esterification of Cholesterol

In a study of the hepatic functions A ANDRES (*Bratislavsk Lekarsk Listy*, September, 1928, p 508) investigated the amount of free cholesterol and of the cholesterol esters in the blood, and the relation between the two—the "ester quotient." He found a very pronounced decline in the cholesterol esters in diseases of the liver. In some of these cases the esterification of the cholesterol improved distinctly after the administration of glucose. The author suggests, therefore, that the increased esterification is due to an improvement of the function of the liver caused by the administration of glucose, and that the investigation of the cholesterol and its esters in the blood may prove to be a means of measuring the functional efficiency of the liver.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

423. Hyperacidity and Burning Tongue

J SELLEI (*Deut med Woch*, October 19th, 1928, p 1758) distinguishes cases with burning and smarting of the tongue without visible lesions from cases of lingual neuralgia and the glossodynia which frequently occurs in functional nervous disorders (neurasthenia, hysteria) and cancerphobia. This burning sensation is a combination of itching and stimulation of the heat nerve endings, and resembles the sensation occurring in the extremities in Raynaud's disease. As this symptom often accompanies Hunterian glossitis, which is frequently the first sign of pernicious anaemia, Sellei considers that all these patients should have their blood and gastric secretion carefully examined in order to exclude this disease of the blood. In a number of cases of burning tongue which he investigated he found that the sense of taste was unaffected and that the saliva was chemically normal, there was also no evidence that the disturbance was due to sharp teeth or chemical alterations in the material used for dental fillings. It was, however, found that, in addition to the few cases in which achylia was demonstrated and the blood picture gave evidence of pernicious anaemia, a number of patients had other disturbances of gastric and intestinal secretion, and that in particular a moderate degree of hyperacidity of the gastric juice was common. In these cases washing the mouth out frequently with a weak solution of sodium bicarbonate, and the administration of sodium bicarbonate or a soda magnesium mixture, with or without atropine, were usually effective, though it was sometimes necessary to continue treatment for two or three months.

424. Grave Anaemia in Chronic Nephritis.

L RIVET and T LAENEC (*Rev Med Française* October, 1928, p 553) call attention to the obscure pathology in that class of case of chronic nephritis characterized by excess of nitrogen in the blood. The anaemia is not always caused by dilution, for in some cases the blood concentration is normal. Urea is itself probably not responsible for the condition, which is attributed to the incomplete metabolism of some nitrogenous substances possessing high toxicity. The anaemia can either appear spontaneously or be provoked by unsuitable treatment, such as too strict a regime, and repeated bleedings. Gilbert and Tzanac advised the reinjection of the patient's own washed blood to prevent the anaemia arising in this class of case. Treatment consists in trying to raise the number of red cells without increasing the blood urea—a difficult dietetic problem. Repeated blood transfusions have given good results. The authors describe three cases of anaemia in nephritis showing red cell counts of 2,700,000, 1,580,000 and 1,600,000 per c mm respectively. The first two patients died with anaemia, but in the third case the count rose to 2,800,000 after three transfusions, and the patient felt so much stronger that she refused further treatment, left hospital, and tried to resume her work after a rest in the country. She had, however, a serious relapse after two months, and died at home after a further few weeks. The authors add that these observations, made before the methods of Whipple were commonly known, show that in some cases it is possible to produce by careful diet and appropriate treatment a marked and fairly lasting improvement.

425. Suboccipital Puncture.

E DIAZ Y GOMEZ (*La Med Ibera*, September 22nd, 1928, p 249) records thirteen cases, in patients aged from 7 to 49 years, on whom he had performed suboccipital puncture. The quantity of fluid removed was 20 c cm in three cases, 15 c cm in one case, 10 c cm in eight cases, and 5 c cm in one case. In each case the operation proved easier than lumbar puncture and was not followed by any appreciable discomfort apart from slight headache. The technique is relatively simple. The patient sits up or is placed in the left lateral decubitus with the neck strongly flexed and the head supported by an assistant. A lumbar puncture needle is inserted at the level of the third or fourth cervical vertebra and passed obliquely forwards and upwards until the needle strikes the hard surface of the occipital bone. It is then slightly withdrawn and the movement repeated until the sensation is obtained of a membrane being pierced, an indication that the cisterna has been reached. On each advance of the needle it is advisable to aspirate, since sometimes the fluid does not escape spontaneously.

426

Hair-plucking in Typhoid Fever

J D ROLLESTON (*Clin Journ*, May 30th, 1928, p 260) records a case of trichotillomania, which was first described by Haliopian in 1889, but has not hitherto been recorded in connexion with typhoid fever. The patient was a mentally backward and under-sized boy, aged 10, who at the end of the second week of a moderate attack of typhoid fever developed the habit of pulling out the hairs from his scalp. The habit continued for about a month, during a fortnight of which the temperature was normal, and could only be prevented by putting both arms in splints. There was no local source of irritation in the scalp and no ringworm fungus could be discovered. When the boy was shown at the Royal Society of Medicine about two months had elapsed since he had pulled out any hair from his scalp but he had recently been seen to pull out some of his eyelashes. The scalp in the left fronto-parietal region showed an area of alopecia resembling that caused by a ray treatment of ringworm, and the eyelashes of the left upper lid were less numerous than those of the other lids, and some were broken. Haliopian's cases occurred in adults, but several have since been described in children, not so much in Anglo-Saxon countries as in French, German, and Italian races. In some cases trichotillomania is associated with other tics, such as nail biting or plucking at the penis, or with sexual perversion.

427

Rhino vaccination against Diphtheria

G SALVIOLI (*La Pediatria*, July 1st, 1928, p 687) reports his experience in protective vaccination against diphtheria by the nasal route. He injects a few drops of anatoxin into the nostrils alternately, starting with one drop at night and another drop next morning. When the children were subsequently examined by the Schick test it was found that 90.4 per cent were immune. Preliminary experiments showed that the rhino-pharyngeal mucosa was permeable to diphtheria antitoxin. No general or local reaction was noted after instillation.

Surgery.

429

A Conservative Operation for Bunions

E D MCBRIDE (*Journ of Bone and Joint Surg*, October, 1928, p 735) describes an operation for the relief of hallux valgus by which the deformity is corrected without resection of the joint or fracture of the metatarsal. The normal architecture of the toes is also approached and the mechanical force which caused the deformity is corrected. Additional advantages are that the scar is protected from irritation and the time of disability is reduced. An incision two inches in length, is made along the external border of the extensor hallucis longus with its centre over the joint. A downward dissection close to the metatarsal head is then made, the conjoined tendon of the adductor hallucis group is exposed and severed from its insertion. The internal sesamoid, which is embedded in the outer head of the flexor hallucis brevis, is carefully dissected out if necessary, small bone holding forceps being of great use to hold the sesamoid, or a heavy tonsil tenaculum may be helpful. The conjoined tendon of the adductor muscles and the external head of the flexor hallucis brevis are transplanted into the dorsum of the head of the first metatarsal bone. The incision is then retracted medially and a subcutaneous dissection made to expose the bursa and bone prominence on the inner side of the metatarsal head, the vein being avoided. The bursa is dissected out, the bone prominence chiselled away, the toe corrected, and the capsule repaired. The toe is manipulated into a little over correction and a light plaster slipper is applied, which, with the stitches, is removed in seven to ten days, the toe is held in place by adhesive plaster for from four to six weeks. Weight bearing is allowed at the end of two weeks.

429

Cancer of Lower Lip

F R FAIRCHILD (*Arch of Surg*, October, 1928, p 630) suggests a composite technique for plastic repair for cancer of the lower lip. Made up of various steps in other operations, the advantages claimed are that (1) contractures lessening the size of the mouth are avoided, (2) the most radical extirpation of tumour and glands can be performed, (3) the operation can be completed in one stage, (4) the tendency for the lower lip to tighten against the teeth is avoided, and (5) the sulcus in front of the lower incisors is of normal depth.

The steps of the operation are as follows. A vertical incision through the entire thickness of the lip is made on each side of the growth, and the lower extremities of these are connected by a transverse incision at the level of the point of the chin. From the lower outer angles of the space so formed bilateral incisions are carried through the skin and fat downwards and slightly outwards for about three inches. When the flap so formed is dissected free it becomes possible to draw it up, without tension, sufficiently to fill in the deficiency caused by the excision of the lower lip, and a complete lymphatic dissection can be made. The mucous lining for the intraoral portion of this flap is formed by two horizontal incisions through the buccal mucosa, to form on dissection two flaps of mucous membrane which can be drawn to the median line and sutured without tension, their lower borders being sutured to the out edge of the mucous membrane at the margin of the gum. The skin and fat flap having been secured in place by dermal sutures placed obliquely to distribute any tension, the upper border of the united mucous membrane flaps is reflected over its upper margin and sutured to the skin with interrupted chromic catgut to form the vermilion line of the lip. Fitchell claims that this procedure more closely fulfils the requirements of a one stage operation for removal of the growth and gland bearing fat and for the restoration of the lip, than does any other method.

430 Amniotic Fluid as a Preventive of Adhesions.

FOLLOWING previous experimental work on animals, H. L. JOHNSON (*New England Journ. Med.*, October 4th, 1928, p. 661) refers to his previous investigation into the use of amniotic fluid as a preventive of adhesions (see *Lancet*, January 14th, para. 41) and reports further progress. A concentrate of amniotic fluid has been prepared for clinical use, this is essentially a fractionated alcoholic precipitate containing the active principle of the whole fluid, and is obtained from the fluid of cows three to five months pregnant. As the residual proteins are discarded the use of the concentrate eliminates the fear of infection and foreign protein reaction. When employing it, the fluid is first raised to a temperature slightly above that of the body by means of a water bath. The desired quantity is then poured into the field of operation just before closing the peritoneum, the viscera being retracted to allow the fluid to sink deeply into the cavity. Contact of the fluid with the edges of the wound is said to have no adverse effect on healing. Human amniotic fluid is as effective as that of cows. Tables are given showing the benefits resulting from the use of the fluid in 65 Caesarean sections and 30 laparotomies. The mode of action of amniotic fluid on serous surfaces is not entirely apparent, but it seemingly hastens coagulation and also acts as a lubricant. It is not an irritating or dehydrating agent. The fluid may be applied to all serous surfaces, but it should be reserved for use in clean cases. Its effectiveness is conservatively estimated to be 70 per cent. Its effect on post-operative convalescence is an apparent shortening of the usual period of distress.

431 Treatment of Plantar Perforating Disease.

THOUGH many authorities, including Leriche, are doubtful as to the efficacy of periarterial sympathectomy in plantar perforating disease, A. CONTARGYRIS (*Lyon Chir.*, September-October, 1928, p. 543) is inclined to advocate it. Several authorities of a similar opinion are cited, and a case is reported of trophic ulcerations on each foot, one foot healed after sympathectomy, the other, which was not operated on, did not do so. In addition five cases are reported in which definite cures were obtained by this method. In four of these there was a traumatic lesion of the sciatic nerve with a negative Wassermann reaction, the cause of the fifth was not determined, and a Wassermann test was not performed. The author found that the condition occurred in three cases, and believes that cure often takes place only after such recurrence, though he cannot explain this phenomenon. In sympathectomy for this condition the site usually recommended for operation is the femoral artery in Scarpa's triangle. Contargyris in four of his cases operated on the retroiliac portion of the posterior tibial artery (to an extent of 6 to 8 cm.), and in the fifth on the popliteal artery, as there was denudation of the sciatic nerve at this point owing to injury by a bullet. He maintains that the results will be the same whatever artery is chosen, and that, in case of post-operative accidents, it is wise to operate on a vessel of less importance for the vitality of the limb. Sympathectomy produces effect in this disease in two ways: by creating a nutritive activity of the tissues by an increased circulation of the blood, which causes a post-operative vaso-dilatation, and by increasing the number of leucocytes, thus producing a local phagocytosis and sterilization of the wound. Asepsis and rest also play a part, and are valuable adjuncts to operation.

100 B

Therapeutics.

432 Colloid Silver in Septic Conditions.

E. MOOS (*Med. Klinik*, September 28th, 1928, p. 1507) reports good results following the rectal injection of strong colloid silver solution in the treatment of septic conditions. He does not follow any routine, each patient received treatment appropriate to the specific condition, with modification if anaphylaxis or other complications occurred. The author finds that in staphylococcal infections the daily rectal injection of 150 c.c. of a 5 per cent collargol solution is followed by more favourable results than when ordinary medicinal treatment has been employed. A woman, aged 36, with post-agonal staphylococcal sepsis had rigors, articular pains with arthritis of the right knee, endocarditis, and definite enlargement of the spleen. Salicylates and intravenous injection of colloid silver were given without benefit. When daily rectal injections of 5 per cent colloid silver solution were substituted the arthritis disappeared, the temperature fell to normal, and a thrombo-phlebitis of the right basilic vein cleared up. A man, aged 46, was admitted with severe sepsis of unknown origin. He was jaundiced and had severe endocarditis and cardiac dilatation, with arthritis and pleurisy, there was enlargement of the liver and spleen, nephritis, and staphylococcalæmia. All these conditions disappeared after daily rectal injections of 30 c.c. of 5 per cent colloid silver solution. A woman, aged 20, had bilateral pleurisy following puerperal sepsis. Staphylococci and streptococci were present in the blood though the pleuritic exudate was sterile. Hyaline casts and blood were found in the urine. The patient made a good recovery after daily rectal injections of 25 c.c. of the silver solution. Moos has cured ten other patients with staphylococcal sepsis by this treatment, and only one complained of severe burning pain in the rectum after the injections. The sole disadvantage of the treatment is said to be that patients who are seriously ill may not retain the injections. Since 1911, of 64 septic patients, 28 have died, 4 were discharged only slightly better or unimproved, while 50 per cent of the patients recovered. Among the 32 recoveries, 4 patients had received collargol intravenously and 12 had rectal injections of the silver solution. The remaining patients were treated with various other drugs, none of which appeared to yield such good results.

433 Chemotherapy of Pulmonary Tuberculosis.

G. COLTINA (*Riv. di patol. e clin. della tubercolosi*, August 31st, 1928, p. 681) remarks that the chemotherapy of pulmonary tuberculosis is still in an experimental stage, although numerous cures and encouraging results have been reported from the use of various preparations. None of these, however, has an invariably curative effect in pulmonary tuberculosis, even in cases of which the prognosis is generally favourable. The chemotherapeutic preparations which have no toxic action, and are not contraindicated in any circumstances, are the ointment derivatives, lipid substances, and morrhuins. Next in order of efficacy are the copper preparations such as cuproiodine and cuproglucocoll, and the gold preparations triphal and neoarsol. Two other gold compounds, krysolgan and sanocrysin, are liable to cause severe reactions and are contraindicated in renal affections. Generally speaking, chemotherapeutic preparations are indicated in mild exudative forms of pulmonary tuberculosis in young patients who have no other visceral lesions or organic taint.

434 Dextrose Solution as a Styptic.

L. SCHÖNBAUER (*Zentralbl. f. Chir.*, September 22nd 1928, p. 2378) recommends the employment of a 50 per cent. sterile solution of dextrose in distilled water as a styptic, he obtained good results in animal experiments. In liver resection the parenchymatous hæmorrhage was arrested two minutes after applying a swab saturated in the warm solution of dextrose, but larger bleeding vessels required ligature. Healing was uneventful. Subsequently Schönbauer used a similar sterile solution in human patients during operations on the brain and spinal cord. Parenchymatous cerebral bleeding was arrested in two or three minutes after application of a 50 per cent sterile dextrose solution when the use of swabs saturated in a hot solution of sodium chloride had failed. Schönbauer suggests that the styptic effect is due to the direct action of the dextrose solution on exposed mucous fibres which contain glycogen. A weaker solution of sugar (5 to 10 per cent) has also a styptic action, but the former solution acts more rapidly and certainly. The author has also used this solution to arrest hæmorrhage in diphtheric resection of the choledochus and of the lateral ventricle in an operation for internal hydrocephalus.

435 Therapeutic Action of Magnesium Sulphate.

J. ALSTON (*Ontario Med. Journ.*, October, 1928, p. 442) discusses the treatment of inflammation, suppuration, and cancer by magnesium sulphate. From an experience extending over nineteen years he contends that, when directly applied, the salt has the power of restoring to their normal condition tissues disorganized by bacterial toxins and other agents, when administered orally regeneration of epithellium and bone takes place. From his notion on tissue cells Alston suggests that this salt may be of use in the treatment of cancer. The method of employing it consists in the continuous application to the lesion of warm compresses, changed every three or four hours, soaked in a 10 or 40 per cent solution which has been rendered sterile by boiling, the weaker solution being used where there is a limited blood supply, or the affected part of the body may be placed in a bath of the solution. The treatment seems to be equally effective when applied to the unbroken skin, and its value in tonsillitis is seen after the application of compresses to the neck and holding the solution in the mouth. Cures in cases of septic wounds, holls, carbuncles, dactylos, oryepolias, dermatitis, arthritis with effusion, and phlebitis are reported, and notes of six cases of cancer are given in which improvement occurred. Alston refers to the work of Reding and Dustin, who claim good results from intramuscular injections of the drug, notably in the regression of bony and cutaneous metastases in mammary cancer; he contends that its beneficial action is upon the tissue cells rather than upon the bacterial toxin, since it restores something of which they have been deprived, to the detriment of their normal metabolism.

436. Bearedka's Antivirus.

It has been claimed that Bearedka's antivirus, which is a filtrate of old bouillon cultures, assists the tissues in their defense against infective agents. According to H. CARSKY (*Bratislavské Lekárske Listy*, October 1928, p. 555) its administration is advisable in infective processes where it can be brought into contact with the living cells, but not in processes with extensive necrosis and gangrene. The best results are said to have been obtained in suppurative affections of the skin, such as folliculitis, pyodermitis, paronychia, suppurative axillary hydroadenitis, and also in cases of extensive injury with dirty wounds, as well as in operations on infected regions. The author favours the view that the antivirus has local and specific immunizing properties.

Disease in Childhood.**437. Familial Pylorospasm.**

A. BRATUSCH MARRAIN (*Arch. f. Kinderheilk.*, September 28th, p. 93) who records an illustrative case, states that pylorospasm has a certain tendency to attack several members of one family. Cases have been reported in which one of the parents had suffered from the disease in infancy, and one or more of the children have been similarly affected. It is, however, very unusual for three children in the same family to be attacked, previous examples of the kind having been recorded only by Henbner and Finkelstein respectively. Bratusch Marrain now reports cases of pylorospasm in three children whose parents were healthy though their mother was very nervous. The symptoms of pylorospasm developed in each child within the first few weeks of life; two of the cases ended fatally, but one patient recovered under treatment by injections of atropine and frequent small feeds. The author emphasizes the importance of being on the look out for more cases of pylorospasm in families in which there has already been one instance. Conservative treatment in such cases is the more likely to be successful the sooner it is started.

438. Uveo parotid Fever.

L. P. HAMBURGER and A. J. SCHAEFFER (*Amer. Journ. Dis. Child.*, September, 1928, p. 434) record notes of a case of uveo parotid fever which they regard as a manifestation of Mikulicz's syndrome, in which iridocyclitis is an outstanding symptom. The three essential features of the symptom complex, described by Heerordt as febrile uveo parotiden subchronica, are enlargement of the parotid glands, running a chronic course for several months in contrast with the acuteness of epidemic parotitis, an ocular inflammation involving the uveal tract, and a coincident long continued fever of low degree. In many cases no definite etiological agent can be demonstrated, though syphilis or tuberculosis may be a factor in their causation. The authors' patient, a boy aged 12 was admitted to hospital for "sore, red eyes, fever and enlarged glands." He had had mumps two years

previously. Three months before admission he complained of headache and was in bed for a week with fever, after which he returned to school, but a daily afternoon rise from 100° to 101° F. persisted. Two months later the left eye became "red" and the pupil irregular, this was followed in about a fortnight by involvement of the right eye and a gradually increasing swelling of the parotids, which eventually impeded mastication. The conjunctivae of both eyes were injected and there were some deposits on the posterior corneal membrane. Diagnostic tuberculin and Wassermann tests were negative. The condition remained unchanged for a month, until applications of radium were made to the parotid glands, when they rapidly diminished in size, the improvement obtained by three applications continued subsequently. The authors point out that, while antisyphilitic or tuberculin treatment should be given, when there is reason to suspect these conditions as possible causes, expert radiotherapy affords the best means of cure and prevents the destructive sequelae in the eyes.

439. Pneumonia in Infancy and Childhood.

OLIVE SOMERVILLE (*Arch. Dis. in Child.*, August, 1928, p. 194) comments on the diversity of opinion as to the relative frequency of lobar and lobular pneumonia in infancy and childhood, and remarks that the only sound criteria are those based on the post mortem examination and a study of the histopathology. She concludes that broncho-pneumonia is the typical lesion of infancy and early childhood, and is the variable type in the secondary and accessory forms; lobar pneumonia is thought to be exceptional in the first three years of life. In a study of the pathology of 65 cases of pneumonia only one typical instance of lobar pneumonia was found, and this was in a child of 5 years. Of 35 cases of acute primary pneumonia all showed other typical lobular lesions, or lobular lesions with a lobar distribution and pathology. In the influenza cases consolidation was always lobular in nature. Pure pneumococcal infections occurred in both lobar and primary broncho pneumonia, but other organisms were also found.

Obstetrics and Gynaecology.**440. Caecal Volvulus in Pregnancy.**

ACCORDING TO G. RADAELLI (*Ann. di Ostet. e Ginecol.*, September 30th, 1928, p. 1085) intestinal obstruction occurs in only one out of forty or fifty thousand pregnancies. To the seventeen cases already reported in which the caecum participated in a volvulus the author adds another. A primipara aged 45, in the ninth month of an otherwise normal pregnancy, was seized with sudden and violent abdominal pain which was followed by vomiting; she died twelve hours later, shortly after Caesarean section. The necropsy showed intense congestion of the portions of the alimentary canal supplied by the superior mesenteric artery, and a volvulus of the caecum, ascending colon and small intestine. As a predisposing cause a common ileo-colic mesentery was found to be present. Volvulus of the caecum has been reported to be associated in about one fifth of cases with pregnancy from the fifth to the ninth month. Intestinal obstruction from caecal volvulus in pregnancy has proved fatal in the majority of cases—in three cases as early as the seventh to the twelfth hour after the first appearance of symptoms. It is most common in first and second pregnancies, and towards term, the patients are in general older than those suffering from volvulus of the sigmoid.

441. Hydramnios with Uniovular Twins.

M. MUEL and H. VERMELIN (*Gy. et Obst. t.*, September, 1928, p. 217) report that in a series of 100 uniovular twins 43 were normal, 43 were associated with hydramnios due to deep anastomoses between the two parts of the placenta, and in 14 the hydramnios was attributed to superficial anastomosis, or to causes which might be encountered in simple or twin pregnancy. The investigation of the anastomosis was carried out by the injection of a gelatinous solution containing metallic salts (opaque to x rays) in suspension, with different colouring matters added. X-ray photographs of the injected placentas were then taken. The results confirmed those previously obtained by Schatz, who considered that unequal development of twins was due to an unequal circulation caused by deep anastomosis; the extreme result of this condition being the oedematous foetus in a hydramniotic pouch. In the cases in which hydramnios was due to pathological conditions peculiar to uniovular twins the authors invariably found that the deep placental anastomoses constituted a circulation of transference—a

part of the blood of one foetus (transfusé) passed into the circulation of the other (transfusé). Neither the difference in the size of the two foetuses, nor the difference in the superficial area of the placental territories, indicated which was "transfusé" and which "transfusé". Moreover, the presence of hydramnios was not a characteristic peculiar to either, examination of the vessels was the only way to make this distinction. For example, the foetus A was the active "transfusé" when it sent an artery into the territory of the "transfusé," B, and, whether A was equal to, less, or greater than B, it was always found that B had hydramnios. Alternatively, the foetus A was passive "transfusé" when B sent a vein into the territory of A, but, whether A was equal to, less, or greater than B, it was always found that B had hydramnios.

442. Radiological Diagnoses in Obstetrics.

M. FAVREAU (*Journ. de Méd. de Bordeaux et du Sud-Ouest*, October 10th, 1928, p. 727) commends skiagraphy of the foetus as a valuable diagnostic method auxiliary to clinical examination. The results are considered unreliable before the fifth month of pregnancy, although the author claims to have been successful in taking a skiagram which showed a faint outline of the foetal vertebral column before the fourth month of pregnancy. The result may be uncertain when the actual age of the foetus is less than the estimated age, or when the foetus is dead and macerated. The differential diagnosis of pregnancy and of uterine or ovarian tumour is considerably facilitated, but the recognition of an extra-uterine pregnancy is more difficult. Foetal deformities, especially hydrocephalus and anencephaly, may be diagnosed prior to confinement, and also twin pregnancy, although in that case a very minute examination of the skiagrams is required to avoid error. Foetal death may be recognized by the overlapping of the cranial bones, accompanied by collapse of the cerebral contents. The presentation and changes in position will be recognized easily. The placentas must be examined carefully with the negative screen. The author uses short exposures—namely, two seconds for an antero-posterior skiagram, and three seconds for a transverse exposure. He recommends a Potter-Bucky anti-diffusion screen in order to obtain sharp shadows. The technique must be precise if good results are to be obtained. Favreau adds that x-rays are absolutely harmless when the exposures are so short—they cannot injure either mother or foetus.

Pathology.

443. Sero-haemo flocculation Test for Tuberculosis.

A. PRUNELL (*C. R. Soc. de Biologie*, October 19th, 1928, p. 1110) describes a new serological test for the diagnosis of tuberculosis which is similar to the ordinary complement fixation test, but, instead of using a specific red cell haemolysin, a 1 in 500 solution of acetic acid in physiological saline solution is employed. In the first part of the test a mixture is made of the patient's serum, the tuberculous antigen (a modified Roquet and Néron antigen), and the adjuvant disperser, which is merely a 1 per cent solution of normal human serum, added to prevent the anti-haemolytic effect of certain sera. After fifteen minutes in the water bath at 30°C. varying quantities of the acetic acid solution are added together with the washed red cells. After a further period of incubation, readings are made to determine that quantity of acetic acid solution which will cause haemolysis in five to ten minutes. In the second part of the reaction one tube is put up containing the serum to be examined, the normal serum, and the antigen, another tube contains the same mixture, except that the antigen is replaced by saline. After preliminary incubation, the acetic acid and red cells are added, and the tubes are again incubated. If the serum contains tuberculous antibodies there is no haemolysis in the first tube; the second tube, which contains no antigen, acts as a control and should always show haemolysis. The author has examined the serum from 50 patients whose sputum contained tubercle bacilli, in 35 a strong reaction was obtained, in 9 a weak one, altogether a positive reaction was therefore observed in 88 per cent of cases.

444. Extraction of Toxic Substances from Bacteria.

N. FUJIOKA (*Zell-Immunität*, September 1st, 1928, p. 466) has continued Cleser's work on the extraction of toxins from different bacteria by the use of salt solutions. He first worked with the haemotoxin of the *Librio laticox*, using rabbit blood cells for its titration. In 8 and 16-hour broth cultures of this organism there is no trace of toxin, in 24-hour cultures a small amount can be detected, while in 48-hour

cultures large quantities are present. The author found, however, that considerable quantities of toxin could be extracted if the centrifuged cells from young cultures were treated with sodium or potassium chloride, or sodium or potassium iodide. Treatment with the divalent metallic salts, such as the chlorides of calcium, barium, and magnesium, had no such effect. It appeared from this experiment that the sodium and potassium salts increased the permeability of the cell wall and allowed the toxin to diffuse out. The calcium, barium, and magnesium salts have the opposite effect, they decrease the permeability of the cell wall and prevent the diffusion of toxin. That this is true was shown by a second experiment. The bacilli from a young broth culture were treated with the different salt solutions and with broth, they were then centrifuged down and treated with potassium chloride solution. It was found that the bacilli treated with broth yielded up a large amount of toxin when extracted with the potassium chloride, the bacilli treated with sodium and potassium salts yielded a small quantity, while those treated with barium calcium, or magnesium salts yielded scarcely any or none. Working with the diphtheria bacillus, he found again that toxin could be extracted from very young cultures with the sodium and potassium chlorides, but not with the calcium, barium, or magnesium salts. Similar results were obtained likewise with the Shiga dysentery bacillus. From these experiments Fujioka concludes that bacteria do not secrete toxin at all, the toxin diffuses out in broth cultures only from dead bacilli. However, under the influence of sodium, and especially potassium, salts the permeability of the cell wall is so increased that the toxin can diffuse out from living cells.

445. The Mechanism of Pulmonary Silicosis.

P. HOFFERMAN and A. T. GREFF (*Journ. Indust. Hyg.* October, 1928, p. 272) discuss the two explanations offered up to the present to account for the action of silica dust in the lungs, and show the inadequacy of these to explain silicotic fibrosis and silicotic tuberculosis. The oldest of these explanations is the "direct injury" theory, according to which silica dust, owing to the hardness, sharpness and insolubility of its particles, produces minute wounds in the lung substance, the resulting little nodules of scar tissue constitute the typical silica fibrosis. The second explanation is the chemical theory of Gye, Purdy, and Kettie, according to which silica is a cell poison and brings about its results by its chemical action on the tissues and cells. The present authors suggest an alternative theory to explain the phenomena occurring in pulmonary silicosis. They show that silica is an ordinary constituent of animal and vegetable tissues, and is found in the urine, and they hold that the evidence is strongly against the theory that the silica ion is toxic to animals. Silica in stable combination and crystalline silica appear to be harmless while in those states. Colloidal silica is harmful to certain animal tissues when brought into surface contact with them, when administered intravenously in sufficiently large doses and in an active colloidal condition it may cause immediate death. The harmful effects of colloidal silica appear to be due to its powerful potentialities as a colloid, rather than to any toxicity of the silica ion. The authors suggest that pulmonary silicosis is probably caused by the colloidal action of hydrated silicic acid, formed from minute particles of silica dust disseminated through the lungs. The activity of colloidal silica in the lungs can be prevented by protecting the silica dust with a coating of something, such as clay substance, carbon, or shale dust, which is known to coagulate colloidal silica. Evidence of this has been obtained in the lungs of silica brick makers, noted by Smith and Collins in Yorkshire, and by Hofferman in Derbyshire. The authors believe that possibly other colloids, such as stannic acid sol, may be capable of acting in the tissues in a similar manner to hydrated silica, and they add that perhaps a hereditary phenomena bearing on immunity, susceptibility and resistance to disease may be explained on the basis of colloidal physics.

446. The Testicular Hormone.

G. PERACCHIA (*Arch. di Chir.*, August, 1928, p. 636) admits that beneficial results have followed testicular transplantation and has tried to determine experimentally which part of the organ is responsible for these effects. The test he used to determine what change followed such transplantation was the estimation of basal metabolism as shown by the respiratory metabolism. As the result of experimental work on dogs he concludes that any changes due to the testicle depend on the seminiferous coils, and not on the interstitial tissue as some authors have stated. His investigation convinced him that the interstitial cells, as tested by their effect on basal metabolism, were unimportant as far as the internal secretion of the testicle is concerned, and he believes that the cells of Leydig are only connective tissue elements.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

547 Combined Antityphoid and Antidiphtherial Inoculation

V. NOURY (*Thèse de Paris*, 1928, No 378) states that Ramon and Zoeller (1926) were the first to record cases in which vaccines against two distinct diseases such as tetanus and diphtheria, tetanus and typhoid fever, and diphtheria and typhoid fever, were employed, the individuals being young soldiers. Their successful results induced L. Martin, Leloueu, and Laffaille to use a combination of diphtheria anatoxin and T A B vaccine for protecting young nurses. The author's thesis is based on his observations in L. Martin's service at the Hôpital Pasteur, his conclusions are as follows. The association of antityphoid and antidiphtheria immunization is applicable to all individuals and communities likely to contract typhoid fever and diphtheria, such as doctors, students, nurses and recruits. Four groups may be distinguished: (1) Those with a positive Schick reaction who have not had typhoid fever should be given a mixture of T A B vaccine and diphtheria anatoxin. (2) Those with a positive Schick reaction who have already had typhoid fever should be given anatoxin only. (3) Those with a negative Schick reaction who have not had typhoid fever should be given T A B vaccine only. (4) Those with a negative Schick reaction who have already had typhoid fever need not be vaccinated. The technique of combined vaccination is as follows: A first injection is given of 1 c.c.m., consisting of 0.5 c.c.m. of T A B and 0.5 c.c.m. of anatoxin, this is followed by a second injection of 2 c.c.m. consisting of 1 c.c.m. each of T A B and anatoxin, a fortnight after the first injection, and a third injection of 3 c.c.m., consisting of 1.5 c.c.m. each of T A B and anatoxin, a fortnight after the second injection. Whenever possible a control Schick test should be performed in the following month. The histories of six illustrative cases in nurses is recorded.

548 Congugal Syphilis

A. JORDAN (*Derm. Week*, October 6th, 1928, p. 1578) states that since Lévaditi and Marie drew attention to the possibility of a special nervous syphilitic virus, and the occurrence of nervous syphilis in husband and wife has been found by various observers, the course of congenital syphilis has aroused great interest. As the result of examination of 117 syphilitic families Nonne came to the following conclusions: In only 23 per cent was the effect of syphilis confined to the first member of the family to be infected. The husband or wife who was first infected was more frequently attacked by a syphilitic nervous disease than the one who was next infected. A similar course of the disease in husband and wife was very rarely observed. The disease of the husband or wife who was the second to become infected usually ran a latent course. Well marked symptoms were relatively frequent in the absence of any nervous changes due to syphilis. This observation indicates that syphilis loses its virulence by passage through the nervous system. Jordan now records his observations on 100 married couples, in 94 of which the wife had been infected by the husband and in 6 of which the husband had been infected by the wife. Although the number of cases of nervous syphilis were almost equal between the two sexes, in only 2 cases did nervous syphilis occur simultaneously in husband and wife. There was one example of simultaneous aortitis. Jordan's observations did not furnish the least evidence in favour of the existence of a special nervous virus, but the development of nervous syphilis could always be explained by the more or less complete absence of treatment. The most interesting cases were those of 22 wives who either had a permanently latent syphilis, or who had latent syphilis for a long period, after which late syphilitic manifestations suddenly developed.

549 Addison's Disease in the Negro

L. S. EVANS (*Amer. Journ. Med. Sci.*, October 1928, p. 499), who records three illustrative cases, states that Addison's disease is supposed to be very rare in negroes. In spite of the prevalence of tuberculosis among them. The disease, however, is easily overlooked, owing to the natural pigmentation both of the skin and the buccal mucous membrane. Evans, therefore, is of opinion that the disease is much commoner among negroes than is usually thought. His first case was that of a woman, aged 46, in whom the duration of the illness was

about four years. The chief symptoms were vomiting, dull aching pain in the back and legs, gradually increasing darkness of the skin, and extreme weakness. The blood pressure varied between 70 and 80 systolic and 56 and 62 diastolic. Treatment consisted in rest in bed, a high carbohydrate and low protein diet, and subcutaneous injections of adrenaline, $\frac{1}{10}$ grain, three times a day. Death ensued, and the diagnosis of Addison's disease was confirmed at the necropsy. In the other two cases, which occurred in women aged 43 and 36 respectively, the diagnosis was based on the marked asthenia, generalized pigmentation, dyspepsia and vomiting, and low blood pressure. Both ended fatally, and no necropsy was permitted.

550 Interpretation of the Ventricular Electrocardiogram.

R. STANKOVIC and V. ARNOVLJEVIC (*Arch. des Mal. du Cœur*, September, 1928, p. 598) describe their method for determining the relation of the T wave of the electrocardiogram to the contraction of the ventricles. They selected for this investigation patients suffering from mitral stenosis and having a pronounced reduplication of the second sound at the base. By making simultaneous tracings of the carotid pulse and the heart sounds, they demonstrated that the first part of the reduplicated sound corresponded with the diastolic notch of the carotid curve. Since this incision represents the beginning of ventricular relaxation, the closure of the aortic valves is related to the first of the reduplicated sounds. Simultaneous records were then made of the carotid pulse, the electrocardiogram, and the heart sounds. These demonstrated that the second part of the reduplicated second sound fell always after the diastolic wave, and was followed later by the P wave of the electrocardiogram. This sound, therefore, could only be due to closure of the valves of the pulmonary artery. Further examination of these combined tracings showed that the T wave always bore a constant relation in point of time to the first part of the reduplicated second sound, while the second part was independent of the T wave. It was concluded, therefore, that this part of the electrocardiogram represents the conclusion of left ventricular systole.

551 Temporary Amaurosis complicating Pertussis

A. LITVAK (*Amer. Journ. Dis. Child.*, October, 1928, p. 789) reviews the literature relating to eye disorders in whooping cough, including the case of optic neuritis reported by Hogg (*Epitome*, October 1st, 1927, para. 300), and records a case in a boy, aged 19 months, suffering from whooping cough, who had several convulsions, followed by weakness of the arms and blindness. The fundi were normal. Vision began to return in about six weeks. The condition was probably due to meningeal or intracerebral haemorrhage, or acute encephalitis.

Surgery.

552. Indications for Manipulative Surgery

A. G. TIMBRELL FISHER (*Bristol Med. Chir. Journ.*, Autumn, 1928, p. 165) classifies the types of cases for manipulation in five groups: cases with adhesions, functional or hysterical cases, unreduced dislocations and subluxations, miscellaneous, and combined cases. Adhesions, which are bands of scar tissue due to organization of inflammatory products after injury, give rise to pain, weakness, tenderness, limitation of movement, and recurrent effusion. They may be synovial, capsular, or extracapsular, and are common after diseases of joints, such as synovitis or arthritis. Fisher considers that adhesions are often preventable by the institution of early movement in the treatment of injuries and diseases of joints, and he advocates rest combined with early movement through complete range. The results of manipulation in cases of synovitis of the knee following a sprain of the internal lateral ligament, in cases of rheumatoid arthritis after the subsidence of the acute symptoms, for tennis elbow, or myositis ossificans have been very satisfactory. The most dramatic results occur in cases of functional or hysterical condition, as manipulation is the most effective therapeutic measure owing to the powerful suggestion of the anaesthetic. Treatment by suggestion should precede and follow the anaesthetic. In cases of the "chronic back" the results of manipulation, followed by re-education of the spinal muscles, are often almost miraculous. Manipulation is of great value

In recent and recurrent cases of fracture dislocation of a semilunar cartilage, which must be reduced so that the patient can extend the knee fully and without pain. Gentle exercises (rotary movements being avoided) can be started when the more acute symptoms have subsided and effusion is almost gone, as prolonged immobility leads to marked and sometimes irremediable wasting and stiffness. By manipulation the displaced portion may return to the normal position and repair ensue.

453. Division of the Vagi for Pyloroplasty

O. H. MAYO (*Annals of Surgery*, October, 1922, p. 669), discussing the various known causes of gastric or duodenal ulcer, suggests that the influence of the vagi in the chronicity of gastric ulcer may have been overlooked. The pylorus and duodenum obtain their nerve supply from a large branch of the vagus which passes directly from the region of the cardia to the liver. Mayo considers that chronic appendicitis and gall bladder disease have a definite influence on the formation of duodenal and gastric ulcers, which are generally accompanied by pyloric spasm. He suggests that the pyloric spasm precedes the ulcer. In cases where the stomach trouble was reflex, whether secondary to appendicitis or disease of the gall bladder, or both, in addition to the relief of the particular disease found, he has divided the muscle of the pyloric ring at the upper border in the hope of separating the branches of the vagus, and has then doubly tied and divided between the ligatures 2.5 cm above the pyloric ring on the side of the lesser curvature into the wall of the stomach. As it has recently been established by x-ray observations that ulcers in the angle of the stomach cause the greatest spasm of the pylorus, Mayo has lately divided above the angle of the stomach the tissues of the lesser curvature well into the wall of the stomach instead of, as formerly, at 2.5 cm above the pylorus. It has been found that this procedure, in addition to gastric enterostomy or to other operations, has been of benefit for the relief of reflex conditions.

454. Ganglia.

L. CARP and A. P. STOUT (*Surg., Gynecol. and Obstet.*, October, 1922, p. 460) review the literature and record their observations on 255 personal cases of ganglia, their conclusions being as follows: Ganglia are cysts resulting from molasses degeneration of connective tissue. They generally occur in or near attached to capsules of joints or tendon sheaths, but do not communicate primarily with joints or sheath spaces. The degeneration proceeds with fibrillation of the collagen fibres and accumulation of nuclei both within the cells and in the intercellular spaces. This results finally in the disappearance of cells and fibres in a number of adjacent areas. These embryonic cysts coalesce and lead to the formation of larger cavities. The cause of this degeneration is obscure, but it is probably not due to any lack of vascular supply. Ganglia occur most frequently about the wrist joint, volar surfaces of fingers, dorsum of foot, and popliteal region. They are most frequently found in females of slight build. In the second, third, and fourth decades. Trauma does not play an important part in their production. The chief symptoms and signs are pain, swelling, interference with function, and tenderness. A differential diagnosis must be made from tuberculosis of the joint or tendon sheath, lipoma, myxoma, fibroma, osteoma, sarcoma, bursitis, and aneurysm. So many ganglia disappear spontaneously, and after breaking and pressure, aspiration and pressure, or aspiration and injection of a chemical irritant, that operation should only be resorted to when other measures have failed and there are persistent troublesome symptoms. Careful complete excision under strict asepsis and with a bloodless field will probably not be followed by reappearance.

455. Meningitis due to *B. pyocyaneus*

R. PALAZZO and O. E. OTTOLENGHI (*Rev. Sud Amer. de Endocrin.*, September 15th, 1922, p. 616), who record an illustrative case, state that though *B. pyocyaneus* infection of the meninges is undoubtedly rare, a few cases have been published by French and German writers, such as J. Abadie and G. Laroche, Schlegelhaufers, Liskuchen, Sonueuschele, and Klewe and Koch. The disease begins with a slight rise of temperature and headache, but the meningeal process remains latent until meningeal rigidity occurs, Kernig's sign gradually develops, and is followed by muscular contractions, especially of the abdomen and lower limbs, and difficulty in active and passive movements. As a general rule the reflexes are exaggerated. On lumbar puncture the cerebrospinal fluid is at first opalescent, but later becomes more turbid, and contains 1,000 cells or more per c. mm. together with a considerable increase in the albumin. The Pandy and Nonne-Apert reactions are positive and bacteriological examination reveals *B. pyocyaneus*, which is readily stained

with aniline dyes and decolorized by Gram's method. Periods of improvement and aggravation are characteristic of the disease, which often lasts from three to six months. In children, however, the disease is shorter and less severe. In the author's case, which occurred in a man, aged 28, as the result of a gunshot wound of the dorsal spine, the disease lasted four months. Considerable improvement took place under treatment by an autovaccine.

Therapeutics.

456. Epididymitis Treated by Calcium Chloride Injections.

SINCE epididymitis which is neither gonorrhoeal nor tuberculous is disabling and causes economic loss to patients, E. RUPUL (*Am. Journ. Med. Sci.*, September, 1922, p. 399) considers that a line of treatment which will lessen these results deserves serious attention. He describes a method which consists in giving intravenous injections of aqueous solutions of calcium chloride in addition to the routine treatment. To illustrate the beneficial results from these injections Rupul contrasts two series of cases. In the first group of 50 patients only the usual treatment was employed, in the second, of 28 patients, calcium chloride injections were given in addition to observing the cardinal principles of heat, rest, and support. It was found that, while patients of the first group were confined to bed for an average of 4 to 14 days, the average duration for those of the second group was 1 to 45 days. Relief from pain was the first sign of benefit, and the most striking results were seen in patients who continued working but obtained immediate and complete relief after a single injection. Swelling subsided slowly, as would be expected in an acute inflammation. The calcium chloride was given in doses of 0.5 to 1 gram in dilute solutions (10 c. cm. of 5 or 10 per cent of the salt), and the injections were made slowly at the rate of 2 or 3 c. cm. per minute, the pulse rate and general condition of the patient being carefully watched. No harm from the treatment was observed. Recurrence of the inflammation often followed too few injections, and a course of four or five, once daily, is suggested.

457. Pituitary Treatment of Diabetes Insipidus.

D. ADLERSBERG and O. PORDES (*Wien klin. Woch.*, October 18th, 1922, p. 1467) describe two cases of diabetes insipidus treated by the insufflation of powdered pituitary gland extract. A girl, aged 21, had had her right eye enucleated in 1911 for glioma, since that date she had suffered from severe thirst, polyuria, and more recently from lassitude and head ache. She was under developed and dwarfish, and amenorrhoea was present. A skiagram showed that the sella turcica was clearly defined, enlarged, and funnel shaped. The authors found that, when given by the month, pituitary extract and dried powdered pituitary substance were quite inactive, but when the dried powdered posterior pituitary lobe was insufflated into the nasal passages the result was very satisfactory. Shortly after the start of this treatment the concentration of the urine improved and the average daily quantity was reduced. Thirst and polyuria were relieved, but these symptoms recurred during the night when the evening insufflation was omitted. The second patient was a man, aged 26, who had had encephalitis in 1922, he later developed post-encephalitic changes of character, with hysterical attacks, polydipsia, and polyuria. In this case also insufflation of the pituitary powder had a striking effect, the quantity of urine was reduced to one fourth of that excreted previously. The authors conclude that the insufflation of dried powdered posterior pituitary lobe relieves the symptoms of true diabetes insipidus. It does not lose its effect with time, and it is more convenient than hypodermic injection of pituitrin.

458. Insulin as a Fattening Agent.

M. SIGGAARD ANDERSEN (*Ugeskrift for Læger*, October 25th, 1922, p. 1013) has followed the example of Falta of Vienna, who has given insulin to persons suffering from "primary anorexia"—that is, a constitutional state of emaciation and asthenia for which no specific cause can be found. At the Rigshospital in Copenhagen the author has given injections of insulin to seven patients belonging to the above category, and in every instance he has brought about a rapid and satisfactory gain of weight, which, in his first case, amounted to 18 kilos during a residence in hospital of between four and five months. The injections were often followed by a definite sense of hunger and by a better appetite. The improvement was not limited to the gain of weight, the tone of the muscles and the general appearance of the patients also were improved. It would seem that the weight thus gained does

not quickly disappear, and two of the author's patients, examined a month after the last injection, were found to have lost only half a kilo each. Symptoms of hypoglycaemia, characteristic of an overdose of insulin, were observed in some cases, and were quickly overcome by the administration of some carbohydrate food, such as a banana. The author recommends an initial dose of 2 Scandinavian insulin units (8 international units), given three times a day, about half an hour before meals. This dosage may be carefully increased if necessary. The greatest amount administered in the author's series of seven cases was 32 international units, given three times a day. The last injection of the day should not be given late in the evening, for if there is a serious fall of the blood sugar two hours or more after the last meal, the ensuing manifestations of hypoglycaemia may occur during the night and be undetected by the patient or his attendants. Almost every form of primary anaemia may benefit from this treatment, but it is contraindicated by severe debility. Thus it was found unsuitable in the case of a young woman, suffering from nervous anaemia, whose weight was 4 st 7 lb, and height just under 4 feet. A few tentative injections of small quantities of insulin were followed by an increase of her debility and anaemia. Most writers agree that fever is a contraindication on the other hand, gastroptosis and lack of tone of the stomach are indications for it. During this treatment the patient is allowed to eat as much as is desired of a varied dietary containing plenty of carbohydrates.

Neurology and Psychology.

450 Lower Medulla Radicular Compressions

N. PÉRON (Paris *Med.*, October 6th, 1928, p. 294) discusses the symptomatology and differential diagnosis of compressions of the lumbo-sacral cord and its corresponding roots, and states that, as in all compressions of the cord, when once the diagnosis is confirmed, a double problem presents itself. The condition is due either to vertebral tuberculosis with a secondary meningeal reaction involving the cord and roots, or to a tumour in the nervous elements and meninges. In the first case surgical intervention is absolutely contraindicated, in the second, as early an operation as possible is advisable in order to avoid the paralytic and urinary complications which quickly supervene. Primary tumours of the cauda equina and terminal cone of the cord present a characteristic clinical picture. Their evolution, which is usually slow and progressive, presents three stages—namely, the onset, a period of established disease, and a stage of complications and terminal cachexia. The onset is marked by luteous pain (the earliest symptom), which may be mistaken for rheumatism, lumbago or sciatica. The pain soon becomes bilateral and radiates into the perineal and gluteal regions. Vesical and intestinal troubles though much rarer, may be present. This is the commonest period of diagnostic error. In the second stage symptoms of four types appear: motor troubles, which cause a flaccid paralysis with muscular atrophy; subjective and objective sensory troubles, visceral and sphincteric disorders, and, finally, trophic disturbances. The motor troubles are essentially marked by a paraplegia due to the lesion of a peripheral neuron. The muscles of the leg and foot are first attacked, later those of the posterior thigh and the glutei become involved. The sacral, Aohills peroneo-femoral, plantar cutaneous, and anal reflexes are abolished; the patellar reflex is often normal, while the cremasteric and cutaneous abdominal reflexes are most frequently persistent. Sensory troubles are marked by intense, spontaneous pains and insensibility to such stimuli as touch and heat, anaesthesia of the perineal and gluteal regions occurs. Visceral and sphincteric disorders are also largely constant. Difficulty of micturition with, later, incontinence, constipation, with periods of incontinence and gait, and genital impotence, are usually present. The most marked trophic disturbance is sloughing of the anasthetic zones which has a tendency to extend deeply. Other later trophic troubles are tendinous contractions, with equinus of the feet and clawing of the big toes. Radiography and lumbar puncture are indispensable aids to diagnosis. The spinal fluid, which is yellow and xanthochromic, usually shows an enormous amount of albumin without any cellular reaction, and may coagulate spontaneously. Patients generally become cachectic and succumb to infection. The tumours are often huge and present characters of great malignancy. Their diagnosis is frequently difficult, and they must be distinguished from Pott's disease, secondary vertebral cancer, and from certain inflammatory conditions, such as low spinal syphilis, localized meningitis, medullary affections and peripheral neuritis. Surgery is the only treatment and success depends on early diagnosis and intervention, as well as on the nature of the tumour itself.

450 Sensory Phenomena following Removal of a Tumour of the Sensory Cortex

I. M. ALLEN (*Journ. Neurol. and Psychopathol.*, October, 1928, p. 133) reports a case of meningioma of the post Rolandic sensory cerebral cortex on the left side in which, after the removal of the tumour, three types of abnormal "stereognostic" phenomena occurred: (1) spontaneous sensations of the presence of solid objects in the right hand, gradually decreasing during the six days following operation, disappearing on the seventh day, but reappearing at intervals for five weeks; (2) sensations as of the presence of solid objects in the right hand when they were actually present and felt in the left hand; (3) persistence of sensations of the presence of objects in the right hand after they had been removed from it. Allen discusses these phenomena carefully and suggests possible causes, including the effect that accidental positions of the affected hand might have in the production of spontaneous "stereognostic" sensations. Local impulses might, moreover, arise in the sensory structures immediately above the thalamus as a result of post-operative circulatory changes in this region, and produce spontaneous "formed" sensations, in contrast with "unformed" sensations caused by lesions of, or near to, the cerebral cortex. Another possibility is the effect that post-operative mental fatigue might have in the misinterpretation of the local sensory impulses arising at the supratthalamic level. Allen suggests that the local sensory impulses arose mainly as the result of post-operative circulatory changes immediately above the thalamus, and that mental fatigue and accidental positions of the affected hand were contributory factors in their production.

451 Associated Movements in Organic Cerebral Hemiplegia

DISCUSSING the pathology of the associated movements or synkineses noted in hemiplegia, P. BLANCHET (*Presse Méd.*, September 22nd, 1928, p. 1203) states that these are characteristic of organic cerebral hemiplegia in its spasmodic phase, and never occur, as Babinski has shown, in the functional hemiplegias. These involuntary and generally unconscious movements occur in the paralysed muscles at the same time as other movements—voluntary, conscious, and made with effort—of the muscles of the sound side. Foix and Marjo have defined three varieties of these phenomena: global synkineses, synkineses of imitation, and those of co-ordination. The author believes that the majority of synkineses, of whichever group are due to the fact that each cerebral hemisphere sends out two sets of pyramidal bundles, the direct, the less important, run on the same side as the hemisphere, while the crossed, which the more important, run to the opposite side. It is logical to conceive that, in an organic cerebral hemiplegia (cortical or capsular), if the sound hemisphere initiates the starting, with effort, of movements, these will be bilateral and identical, if not in quantity at least in quality, since the inhibitory power of the diseased hemisphere is suspended, and, under the influence of a strong excitation of the sound hemisphere, the nervous impulse passes down the direct pyramidal tract in quantity sufficient to cause visible muscular contractions on the same side—that is, in the paralysed member. This theory explains the occurrence of the majority, if not of all synkineses, such as the bilateral flexion of the great toes on excitation of the sole of the foot of the non-paralysed side, and the phenomena of Raimiste.

Obstetrics and Gynaecology.

452. Mixed Tumours of the Uterus and Vagina.

W. SHAW (*Journ. Obstet. and Gynaecol. of the British Empire*, Autumn Number, 1928, p. 498) correlates the well known grape-like sarcoma of the cervix uteri with similar tumours of the corpus uteri and with certain of the vaginal sarcomata of children. All these are included under the heading "mixed tumours," by which are understood sarcomatous neoplasms, usually of special cytological characters, and invariably containing tissue elements (such as striped muscle cartilage, fat, bone, and elastic tissue, singly or in combination) which are foreign to the organ implicated. Mixed tumours of similar structure have been described in the kidney by Wilms, and in the prostate gland. Mixed tumours of the body of the uterus are the most of the three forms, thirteen cases only being on record. They occur in patients past the menopause and give rise typically to the same symptoms as cancer of the corpus uteri: the growths are polypoid, usually with a distinct pedicle. They are very vascular, liable to undergo necrosis and of a very high degree of malignancy. Mixed tumours of the cervix are more common, and give rise

to large growths possessing typical grape like vesicles, they are extremely malignant, death occurring shortly after extirpation without any extensive development of metastases. They cause irregular haemorrhage and discharge in patients, who are usually between 30 and 40 years old, and are easily diagnosed from naked eye appearances. Histologically the matrix of the tumour suggests oedema or myxoma, probably the tissue is similar to embryonal mesenchyme. A well preserved squamous epithelium usually covers almost completely even large tumours. Not all vaginal sarcomata in children belong to the group of "mixed tumours," but at least one quarter contain striated embryonic muscle fibres. Characteristically the tumours are multiple and attached to the vaginal walls, infiltrating the bladder, usually the patients are aged from 1 to 3 years. There is no satisfactory explanation of the origin of these "mixed tumours."

363. Post partum Haemorrhagic Amblyopia Treated by Transfusion.

A. FUCHS (*Med Klinik*, September 28th, 1928, p 1533) reports a case of post-partum amblyopia cured by transfusion. The patient, aged 29, had a severe haemorrhage after the birth of twins, she had had albuminuria before her confinement. Fourteen hours after delivery her visual acuity was greatly diminished, she could count fingers only at a distance of 40 inches, and could recognize friends only when they were standing close to the head. The papillae were pale, the vessels contracted, and the choroids greyish white. The transfusion of 250 c.c. of blood was followed by immediate improvement, and the patient was enabled to count fingers at a distance of 10 feet. Next day there was still greater improvement, the papillae were no longer blurred, the retinal oedema had disappeared, and the vision was 6/18. On the following day a further 250 c.c. of blood was transfused, and three days later the fundi appeared to be healthy, the formerly contracted vessels were of normal calibre, and the papillae were clearly defined. Six weeks after the confinement the papillae and obovoids were of the natural colour and the vision was normal, in the lower part of the left fundus alone did the vessels appear contracted. The field of vision showed a slight contraction in its upper part—25° for red, 30° for black. The author remarks that severe haemorrhage produces such changes in persons who are not entirely healthy, these sequelae were not observed during the war. The prognosis of this condition is very unfavourable, especially when it occurs immediately after delivery. One writer has observed 14 cases of amblyopia of this nature, 11 of these terminated in amaurosis, and in three patients the condition was bilateral. Local treatment, including massage, paracentesis, sclerotomy, and irideotomy, was of little effect.

364. Bleeding after Coitus in Cervical Cancer

ACCORDING TO H. HINSELMANN (*Zentralbl. f. Gynäk.*, September 22nd, 1928, p 2450) the bleeding after coitus which frequently constitutes an early symptom of cancer of the cervix uteri is one most commonly to tramatism involving an ulcerated carcinomatous area, in which the inflamed base is the site of inflammatory changes. It may also be caused by the detachment of fragments of carcinomatous epithelium. As proof of the latter mode of causation Hinselmann relates the case of a woman who, in spite of a two years' history of bleeding after coitus, had a cervix of which the surface was smooth and non-ulcerated, as shown both microscopically and by examination by the author's colposcope. The whole cervix, examined in serial sections, showed no trace of neoplasia, but in places fragments of carcinomatous epithelium were missing from areas in which the adjacent connective tissue showed no neoplastic invasion, but was the site of small round cell infiltration.

Pathology.

365. Blood Changes during Malarial Paroxysms.

OF the various suggestions as to the cause of the febrile attacks in malaria, J. A. SINTON, W. B. F. ORR, and B. AHMAD (*Indian Journ. Med. Res.*, October, 1928, p 341) consider that the most probable seems to be that it is a condition closely allied to the anaphylactoid shock seen after the parenteral injection of foreign protein. Some points of resemblance between these conditions are (1) a sudden onset of fever, followed by a fall by crisis, with profuse sweating, (2) a marked fall in blood pressure, (3) a diminution of the alkali reserve of the body, (4) a blood crisis of remarkable intensity, characterized by a leucopenia and a shift to the left of Arneeth's index (the haemoclastic crisis), (5) a diminution in the number of platelets in the peripheral blood, (6) an

increase in the rate of sedimentation of the red cells, (7) an increase in the blood sugar, (8) a diminution in the complement in the blood, and (9) acute enlargement of the spleen. Those points favour the theory that the malarial paroxysm is of the nature of an anaphylactoid shock, due to the sudden entry into the blood of foreign protein at the time of sporulation of the parasites. This protein may be derived from the parasite itself, from the erythrocytes altered by its action, or from malarial pigment. Widal, Abram, and Brissaud state that in the shock produced by foreign proteins there is a haemoblastia or colloidoclasia, with alterations in the surface tension, conductivity, viscosity, refractive index, etc., of the blood. To determine whether similar changes occur during malarial paroxysms the authors tested the serums of twenty patients suffering from benign tertian malaria and showing *P. vivax* in the peripheral blood. Changes similar to those recorded during anaphylactoid shock were found to occur in the surface tension and refractive index when the blood was collected at the time of the paroxysm. Tests for the presence of bilirubin in the serums gave in all cases a positive indirect van den Bergh's reaction, and its amount was found to be increased.

366. The Weil-Felix Reaction in Experimental Rocky Mountain Fever

H. MÜNTER (*Zeit. f. Hyg. u. Infektionsk.*, September 10th, 1928, p 124) states that guinea pigs, rabbits, and monkeys can be infected with the Rocky Mountain fever virus and with the virus of typhus, in addition, the Rocky Mountain virus is able to infect rabbits, whereas the typhus virus cannot do this. In order to gain some light on the relationship between the two diseases he has studied the Weil-Felix reaction in rabbits injected with these two viruses. He finds that rabbits infected intravenously or intraperitoneally with the Rocky Mountain virus may develop agglutinins to *B. proteus* X 19 up to a titre of 1 in 80 or even 1 in 160, rabbits inoculated with the typhus virus develop a titre of 1 in 160 to 1 in 320. If rabbits which have received one inoculation with the Rocky Mountain virus are re-inoculated with the same virus the titre to X 19 does not rise, but if they are given an injection of typhus virus, then the titre does rise. The author takes this as evidence that the antigens of the Rocky Mountain virus and the typhus virus are not identical, even though both are able to stimulate the formation (in different degrees) of agglutinins to *B. proteus* X 19. This dissimilarity in the viruses is supported by the fact that the inoculation of typhus virus into rabbits does not protect the animals against a subsequent injection of Rocky Mountain virus. It would appear, therefore, that, though in both infections the Weil-Felix reaction may be positive, the infecting viruses are different.

367. The Serological Differentiation of *Brucella abortus* and *Brucella melitensis*

J. VIDAL and R. ABELLA (*C. R. Soc. de Biologie*, October 26th, 1928, p 1271) have endeavoured to distinguish between *Br. abortus*, the causative organism of infectious abortion of cattle, and *Br. melitensis*, the causative organism of undulant fever. They made use of the method recommended by Domingo and Lopez, of suspending the organisms in a fluid containing bile, and of Fical and Alessandrini's method of heating the serum to 55°C for thirty minutes to destroy the non-specific agglutinins. The serums used came from aborting cattle, from rabbits immunized with heat-killed or formalized suspensions of *Br. abortus*, and from goats injected with living *Br. abortus*. The results showed no constant difference in the agglutinability of the two organisms, sometimes one agglutinated higher, sometimes the other, sometimes the bile suspension seemed to be a little more specific, and sometimes the normal suspension gave the better results. Obviously enough, both the serums from goats injected with *Br. abortus* agglutinated *Br. melitensis* to a higher titre than the homologous organism. The authors then tested 90 serums from cattle, having a titre of 1 in 200 or over, against fresh suspensions of the two organisms. Of these serums 41 agglutinated both organisms to about the same titre, 11 agglutinated *Br. melitensis* to a higher titre than *Br. abortus*, 16 agglutinated *Br. abortus* to a higher titre than *Br. melitensis*, 11 agglutinated *Br. melitensis* only, and 11 agglutinated *Br. abortus* only. From these results the authors conclude that serologically the two organisms are identical. In another paper (*ibid.*, p 1279) J. VIDAL reports a comparison of the agglutinability of the two organisms by 1 per cent lactic acid, which is said to agglutinate *Br. melitensis* but not *Br. abortus*. Working with 17 *melitensis* and 6 *abortus* strains, the author found that all the *abortus* strains and 10 of the *melitensis* strains were agglutinated, 7 of the *melitensis* strains failed to agglutinate. He concludes that this test is likewise unable to distinguish between the two organisms.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine

568

Cerebral Cysticercosis

P. SCHMITE (*Ann de Méd*, October, 1928, p 288) believes that, though not a frequent disease, cerebral cysticercosis is not so rare as is thought. In this disease the parasite often assumes abnormal forms. Sometimes it is destitute of head or hooks, at other times it is branched and complicated, attaining a length of 20 to 25 cm, being then known as the *Cysticercus racemosus*. The essential lesions of the disease are of two types, meningeal and cystic. The sites of the former are obliquely the base of the brain and the posterior spinal region. The basilar lesions are intense, the meningitis presents a lardaceous, gummatous appearance, is irregular, and always very thickened (in places to 3 to 5 mm), simulating chronic tuberculous or syphilitic meningitis. The spinal lesions are more important. They cause a lepto meningitis, mainly localized on the posterior surface of the cord in the cervico dorsal region. This meningitis, characterized by slight thickenings very different from those of the basilar type, shows in places small whitish swellings in which can be seen cystic vesicles. Cystic lesions are much rarer, and are characterized by the formation of small cysts on the external surfaces of the hemispheres or in the cerebral parenchyma. Only the former can be surgically removed. Other lesions are vascular changes, especially in the basilar and Sylvian arteries, simulating syphilitic endarteritis, and, in ventricular cysticercosis, a granular opendymitis and hydrocephalus. Clinically, three varieties of this disease can be distinguished—the cystic, meningeal, and mental, anatomically, there are two types—the ventricular, and the medullary and spinal meningeal. The cystic form, a veritable tumour, is accompanied by the usual signs of intracranial hypertension, it is very frequently marked by convulsive (epileptic) crises and a general headache with crises of vomiting. The meningeal form is characterized by sensory, motor, and mental troubles. All the cranial nerves, especially the ocular, are affected. The mental type shows symptoms of depression, troubles of memory, and disorientation in time and space. The ventricular forms are localized in the lateral and the third and fourth ventricles, particularly the last, two distinguishing symptoms are abnormal attitudes of the head and increased cephalalgia, with vertigo and vomiting on moving the head. The diagnosis of cerebral cysticercosis is extremely difficult. Blood eosinophilia may be present, the cutaneous and subcutaneous reactions, the precipitin diagnosis of Heig and Lisbonne, and complement fixation tests are the more important diagnostic criteria. Lumbar puncture is the chief diagnostic proceeding, especially in meningeal cases. The fluid is clear and slightly under pressure, with an albumin content of 0.4 to 0.75 gram, positive Pandy and Wetschbiold reactions, and a cell count of 50 to 300 (chiefly lymphocytes). The colloidal benzoin test is positive in the first ten or twelve tubes. Those results, coupled with negative bacillary and Wassermann tests, distinguish the disease from tuberculous and syphilitic meningitis and from cerebral abscess and tumour. The prognosis is always grave. Medical treatment appears useless, though some authors report benefit from etheral extract of male fern given in large doses over a long period. X-ray and radium therapy seems to have benefited some cases, and merits a trial. Surgery is applicable only in the cystic forms.

569

Syphilis and Tuberculosis

L. S. T. BURRELL (*Brit Journ Venere Dis*, October, 1928, p 290), in considering syphilis in relation to the etiology and diagnosis of tuberculosis, points out that (1) since bacilli are almost invariably present in the sputum in chronic pulmonary tuberculosis, their absence on repeated examinations indicates the possibility of the condition being non-tuberculous in spite of suspicious physical signs, (2) signs of fibrosis at the root of the lungs spreading towards the bases, and with but few constitutional symptoms, are consistent with syphilis and are not common in tuberculosis, (3) a considerable extent of tuberculous disease may exist without much dyspnoea, while it is the most prominent symptom in syphilis, (4) a positive Wassermann reaction does not necessarily imply syphilis of the lung, and (5) improvement on antisyphilitic treatment confirms the diagnosis of syphilis. Burrell concludes that syphilis of the lungs is seen chiefly either as a peribronchial fibrosis resembling chronic fibroid tuberculosis, or as a mediastinal gumma producing effusion

and resembling a neoplasm. S. R. GROVE (*Ibid*, 1928, p 293) considers that positive Wassermann tests in known tuberculous patients should be repeated with cholesterolized and non-cholesterolized antigens and that positive complement fixation reactions in syphilitics should be accepted with reserve. The surgical tuberculosis group of bone and joint diseases presents the greatest difficulties in distinguishing between the two diseases, especially when there are no discharges from which pus can be obtained for examination. Grove calls attention to the need of a reliable serological test for tuberculosis, since, while the sedimentation test appears to be the best of the non-specific ones, it is doubtful how far it could be used as a means of differential diagnosis between syphilis and tuberculosis.

570

Antityphoid Inoculation

D. OTTOLENGHI and G. BROTTU (*Bull Sci Med*, July-August, 1928, p 213) record their observations on antityphoid inoculation of rabbits and healthy adult men who had not had typhoid fever, their conclusions being as follows. The oral administration of antityphoid vaccine gives experimental animals a considerable degree of immunity against typhoid and paratyphoid infection. This immunity, however, is always considerably less than that obtained by subcutaneous injection of the vaccine. The state of immunity is denoted satisfactorily ten days after completion of the inoculation, and persists though gradually becoming less marked, for another two months. The immunity following oral vaccination in animals is accompanied by the appearance of bactericidal bodies and probably lysins. Bactericidal bodies and a slight allergic state are also found in human subjects who have been inoculated against typhoid fever. Inoculation by the nasal route is also followed by the appearance of abundant agglutins in the blood. Animals which have been inoculated by any of these three methods and have resisted a control inoculation may nevertheless remain typhoid carriers for some weeks. Although the authors' experiments on man are not sufficiently conclusive as to the value of oral antityphoid inoculation, they are encouraging, even if the results are less successful than those obtained by the ordinary subcutaneous method.

Surgery.

571

Leucoplakia of the Urinary Tract.

W. E. KEANE and G. M. DENNIS (*Urol and Cut Rev*, September, 1928, p 589) record an illustrative case with a review of the literature, and come to the following conclusions. Leucoplakia of the urinary tract is not so uncommon as the few reported cases (81) indicate. The condition is a true metaplasia, a degenerative alteration of one of the primary types of tissue. Renal leucoplakia is probably more common in reality than vesical, because vesical leucoplakia is more easily diagnosed. The etiology is not understood, but the general view is that it is the result of chronic infection. It is very likely that syphilis plays an important part. Some writers believe that it is congenital and that misplaced test cells are at fault. The condition may occur at any age but the onset as a rule is in the late thirties or early forties. It probably occurs more often in males than in females. The only pathognomonic symptom is the passage of membrane, from which the diagnosis is made by microscopical examination. Persistent colic is usually associated with this. Leucoplakia does not as a rule respond to irrigations and instillations, but resection, radium, and electro-desiccation are the only effective methods of treatment.

572.

Cysts of the Spleen

H. GATERSLEBEN (*Deut Zeit f Chir*, October, 1928, p 139), who records an illustrative case, states that Lubarsch distinguishes two groups of cysts of the spleen and splenic capsule. The former consists of multiple small cysts situated just beneath the capsule, and the latter of large and usually single cysts frequently giving rise to symptoms during life. The diagnosis of splenic cysts is difficult, since the small cysts usually escape notice during life while in the case of the large cysts the symptoms may be general, such as anorexia and fatigue, and local, such as pain and swelling in the left hypochondrium, and digestive disturbances due to local peritoneal irritation. Fever may occur as the result of septic complications. These symptoms may develop

insidiously, but often appear with remarkable suddenness. A ray examination is of value, especially in cases where there is more or less marked calcification. Treatment, which must be surgical, is only required in the case of large cysts. Marsupialization and resection of the cyst wall should not be employed unless the cysts are of enormous size and are accompanied by dense adhesions. The best treatment is splenectomy. Gatersleben's patient was a woman, aged 34, who had suffered from weakness, loss of flesh, and pain in the back and hypochondrium for two months. An x-ray examination showed appearances resembling those of a calcified hydatid. The operation, however, proved that the condition was a calcified splenic cyst. Splenectomy was performed and recovery followed. This is said to be the first time that a splenic cyst has been diagnosed by x-rays.

473. Chronic Gonorrhoeal Cowperitis.

ACCORDING to E. SKLARZ (*Derm. Woch.*, September 29th, 1928, p. 1380) all authorities are agreed as to the importance of infection of Cowper's glands, which are much more frequently involved in gonorrhoea than is generally supposed. The following three groups of chronic gonorrhoeal Cowperitis can be distinguished: (1) Cases in which the first portion of urine is clear or only slightly turbid. The flocculi floating in it contain mucus and only a few leucocytes. The threads which come from Cowper's glands usually contain no epithelial cells, but occasionally groups of gonococci lying in the mucus and enclosed in the leucocytes. The patients have a watery discharge, and show inflammation of Cowper's glands both on rectal palpation and on endoscopic examination of the opening of the glands into the urethra. (2) Cases with neuralgic symptoms. The patients complain of pain on defecation, or after standing or sitting for a long time, and occasionally suffer from stabbing pain in the rectum. The urine may be quite clear and free from filaments, and such cases are frequently wrongly diagnosed as hysteria. (3) Cases in which violent relapses occur. The gonorrhoeal infection lies dormant in Cowper's glands, and as the result of riding or some excess is roused into activity. The treatment, which varies according to the clinical findings, consists in antiseptic injections, passage of bougies, and external massage of the affected glands. Hot hip baths and diathermy are also of value, and vaccine treatment may be tried.

474. Interpectoral Cellulitis

A. NUÑEZ (*Arch. de med. cir. y esp.*, October 13th, 1928, p. 412), who records two illustrative cases, in men aged 26 and 56 respectively, states that little attention has been paid to cellulitis and acute abscess arising in the space between the pectoralis major and the clavi-coraco-axillary aponeurosis of Mochet. The condition is the result of a wound, boil, eczema, whitlow, or other lesion in the area drained by the lymphatic glands in this space. The earliest symptoms are severe pain in the root of the arm with high fever, which, after being intermittent, becomes continuous, and is accompanied by profound constitutional disturbance. At first the pain and functional weakness shown by difficulty in abduction of the arm through contracture of the pectoralis major constitute the only local symptoms. There is no change in colour of the skin of the anterior region of the thorax or arm, no oedema or supplementary circulation, the skin is not painful, and moves freely over the deeper structures. In a few days, however, the anterior wall of the axilla presents a deep-seated swelling extending upwards to the shoulder and downwards to the lower border of the pectoralis major. Examination of the blood shows the characteristic picture of an acute abscess. Treatment consists in early and free incisions under general anaesthesia, one being made a few centimetres below the clavicle and the other below the lower border of the pectoralis major. The arm should then be kept in a position of extreme abduction by a Thomas's splint.

475. Primary Tumour of the Lung

M. W. MARSHMAN (*Nederl. Tijdschr. v. Genees.*, September 15th, 1928, p. 4498), who has seen fifteen cases of tumour of the lung in the last two years, concludes that it is commonest in males, only one of his patients was a woman. It is exceptional in young persons, and usually occurs in the middle aged and elderly, the ages of his patients ranged from 43 to 61. Marshman advises that the existence of primary tumour of the lung should be suspected when a patient about the age of 40, who has previously had good health, develops an obstinate cough with occasional blood in the sputum, and complains of pain behind the sternum with shortness of breath, which is increased by movement, or of neuralgic or rheumatoid pains in an arm or along the intercostal nerves without any physical signs being found to explain the condition.

Therapeutics

476. Auto haemotherapy in Herpes Zoster

ON the ground that no great advance in the treatment of herpes zoster has been made until recently, B. B. BEESON (*Arch. Derm. and Syph.*, October, 1928, p. 573) advocates auto-haemotherapy in this disease. The method, first employed five years ago by Spillmann and Raspiller, consists in the withdrawal of blood as for a Wassermann test and its injection into the gluteal muscles, preferably into the upper and outer quadrant. The amount varies from 5 to 20 c.c., the usual dose being 10 c.c., for children half this amount is the rule. Injections may be repeated every two, three, or four days, the number in herpes zoster being two to six. The procedure appears to be free from any serious after effects, except for slight pain at the site of injection, or a mild febrile reaction in a few cases. Several cases are cited from the literature on the subject which responded favourably to auto-haemotherapy, and Beeson reports seven further cases in which this method, the sole treatment employed, produced excellent results. In two of these cases a single injection of 10 c.c. entirely relieved the pain and aided in quickly healing the cutaneous lesions. According to Wintz the various theories concerning auto-haemotherapy are based on sensitization and desensitization, and he himself believed that the leucocytosis induced by the treatment plays an important part. Some consider that this treatment should be considered a form of protein therapy, and Raspiller compared its action to that of peptone. From their results in eleven cases Mouton and Rachelet concluded that auto-haemotherapy produced a haemoclastic reaction, which was followed within a hour by a hyperleucocytosis. Piffard expressed the belief that the injected venous blood is slowly absorbed by the lymphatics, and suggested that this passage through the lymphatics may produce favourable defence reactions. Louste, Thibaut, and Barhier agreed with Spillmann that auto-haemotherapy may be classed with the methods of non specific desensitization.

477. Antigen Therapy in Hodgkin's Disease.

A. WALLHAUSER and J. M. WHITEHEAD (*Amer. Journ. Surg.*, September, 1928, p. 229) give results of a method of treatment of Hodgkin's disease by means of autogenous, bacteria free extracts made from the specific lesions of the disease. This extract was given subcutaneously in small and usually increasing doses over a period of several months. Of five cases treated, improvement was shown in all, with complete disappearance of all clinical symptoms in two cases. The extract was made from the more cellular masses and not from hard dense nodes, care being taken to maintain the sterility of the finished product, which was injected at a point distal to the more prominent lesions. The dosage began with 0.1 c.c., and increased by a similar amount to a maximum of 0.5 c.c. The first sign of improvement was seen in the specific lesions, which became smaller and softer, the temperature gradually reached the normal, and symptoms of nausea, dyspnoea, and asthenia were relieved. Later, only fibrous nodules were left, which disappeared after several months, the cachexia was gradually reduced, and in two cases there was a most striking gain in weight. The authors state that the injections should be continued every other day until definite improvement is noticed, the interval is then increased, weekly injections being given for three or more months. The best results were obtained when the dose was kept well below the toxic amount, and when the injections were employed regularly over a prolonged period of time, an occasional rest period of one or two weeks being sometimes advisable.

478. Sodium Sulphocyanate in Hypertension

A. G. SMITH and R. D. RUDOLF (*Canadian Med. Assoc. Journ.*, September, 1928, p. 288) report favourably of their experience in the use of sodium sulphocyanate in high blood pressure. The drug is an alkaline, white, crystalline powder, very soluble in water or alcohol, in aqueous solution daily doses of 15 grains are usually tolerated over a period of at least three weeks. The sulphocyanates are normally present in dilutions of 1 in 10,000 in the saliva, tears, and urine, when given by the mouth the content in the saliva and urine is markedly increased, and persists for several days after administration is discontinued. In persons with normal blood pressure the systolic figure became lower by from 15 to 30 mm. in one week following 5 grain doses thrice daily after meals. In patients with abnormally high pressure similar effects resulted from 5 grains administered either once, twice, or thrice daily, a fall, especially in the systolic figure, occurring with usually no change in the cardiac rate. In those with much kidney damage or arterio-sclerosis a

similar effect was produced, though to a less extent. Notes of five cases are recorded, four patients being women, but it is stated that equally good results were observed in men. The drug has a sedative effect and is often mildly hypnotic. It would appear that a dosage of 2½ grains twice or thrice daily is sufficient to produce the desired effects, while it is pleasant to take in an aromatic mixture.

479

Iodine in Hyperthyroidism.

L. Dautrebande (*Presse Méd.*, October 27th, 1928, p. 1361) recalls the successive rises and falls in favour of iodine in the treatment of exophthalmic goitre since 1820. He attributes the disfavor into which iodine medication fell from 1910 to 1920 largely to Kocher's description of symptoms of hyperthyroidism appearing after iodine therapy in cases of colloid goitre showing indurated nodules, and even in cases of simple adenoma—the so-called iodine-basedow syndrome. Since 1920 many authors, especially in America, have advanced the view that iodine therapy, though useful in true exophthalmic goitre, is contraindicated in toxic adenoma. Dautrebande claims to have shown by his researches in connection with the report that the use of iodine in toxic adenoma, at any rate in Belgium, has been well proved, and he suggests that the contrary results noted in America and Switzerland are due to climatic differences and have no general application. Dautrebande uses a solution containing 10 grams of iodine and 20 grams of potassium iodide in 100 grams of water, he considers that it is of the utmost importance to keep a record of basal metabolism and to increase the dose after each rise of the rate. He disagrees with the view that the action of iodine is necessarily transient and that prolonged treatment is impracticable. In his experience the giving of the minimum effective amount in divided doses counteracts the rapid excretion of the drug in the urine. He quotes a case of exophthalmic goitre where improvement was not obtained till 5 drops of the solution were given over a half hour (twenty doses in twenty-four hours). In this case the patient was intelligent and used to measure his own doses. He claims that treatment by divided doses over a long period (several months, or even years when the patient is unwilling to have an operation) eventually puts the patient in a much better condition for surgical treatment than the method of giving iodine only for a short time immediately prior to operation and that by the former method the basal metabolism can be maintained at a normal level for long periods.

Ophthalmology.

480.

Diathermy in Ophthalmology

A. MONBRUN (*Journ. de med. et de chir. prat.*, June 10th, 1928, p. 385) maintains that both medical and surgical diathermy may be of great value in ophthalmology. Owing to its numerous physiological effects and its penetrating action, medical diathermy may be of use in affections which prove refractory to ordinary treatment. Monbrun has employed it with success in atonic ulcers of the cornea, neuro-paralytic keratitis, and follicular conjunctivitis. Its analgesic action is particularly noticeable in the neuralgia following ophthalmic zoster. At present the method appears to be contraindicated in intraocular affections. Surgical diathermy, or diathermo-coagulation, is the method of choice for clearing out the orbital cavity before fitting in an artificial eye. It is also suitable for the treatment of tumours and chronic processes attacking the lids and ocular conjunctiva, such as palpebral epithelioma, xanthelasma, sties, ectropion and entropion, trachoma, pterygia, palpebral conjunctivitis, tubercles, and hernia of the iris or vitreous. Monbrun adds that it must be remembered that faults in technique may entail necrosis of the lids and severe damage to the eyeball.

481

Voluntary Extrusion of the Eyeball.

H. FERRER (*Rev. oto-neuro-ophthalmologica*, September, 1928, p. 403) records the unique case of a lad, aged 19 who had always had prominent eyes, and from the age of 5 or 6 had acquired the faculty of projecting his eyes out of their sockets to the extent of 9 millimetres, and keeping them in that position for some minutes without any inconvenience. The return of the eyeball to its normal position was also accomplished readily. These movements of propulsion and retraction could be performed in both eyes simultaneously, or first in one and then in the other, in which case the eye which was not pushed forward was slightly closed so that the eyelids could keep it in the orbit. The phenomenon was due to the fact that the boy possessed the faculty of contracting the oblique muscles, which push the eye forwards, at the same time that he relaxed the recti, which retract it,

while he kept his eyes wide open. The eyeballs then, being left to the action of the oblique muscles, passed through the palpebral fissures and were more or less rapidly extruded according to the patient's wishes. When more than half of the eyeball had left the orbit the orbicularis was contracted behind its equator, and the eye was thus held in position. To make the eye return to the orbit he first relaxed the orbicularis and then the oblique muscles. The visual acuity, accommodation, and fundi were normal, but there was a divergent strabismus of 20 degrees. Ferrer is of opinion that a continuation of the practice would in a few years produce irreparable loss in the optic nerve and retina.

482.

The Pulse during Operations on the Eye.

E. MARX (*Neurol. Tijdschr. v. Geneesk.*, October 20th, 1928, p. 5189), as the result of observations on the pulse in thirty-nine operations for strabismus and cleft enucleations, comes to the following conclusions: (1) In operations on the external ocular muscles changes frequently occur in the pulse, the rate, volume, form, and dicrotism being affected in order of frequency. (2) As a rule the pulse rate diminishes, but sometimes it shows an increase. The volume of the pulse usually increases, while the dicrotism generally shows little change. (3) The symptoms described must probably be regarded as reflexes the paths for which cannot at present be determined with certainty.

Obstetrics and Gynaecology.

483

Local Anaesthesia for Abdominal Caesarean Section

TREX (*Zentralbl. f. Gynäk.*, September 22nd, 1928, p. 2485) states that local anaesthesia in abdominal Caesarean sections is regarded as being fraught with such advantages both for mother and child that at Zürich it is given as a routine, exception being made only in cases of eclampsia or of patients with deficient mental development. He records an eight years' experience of 353 sections, of which 281 were performed under local anaesthesia. The percentage of live births was considerably larger after local anaesthesia, although this group included not only the whole of the cases of placenta praevia and premature placental detachment but also a large percentage of cases in which labour had continued for considerable periods in the presence of pelvic contraction. The cases of general anaesthesia included 5 of post-operative pneumonia, which was absent in the much larger group of local anaesthesia. All save one of 88 placenta praevia patients operated on under local anaesthesia survived, and a series of 20 cases of Caesarean section in subjects with decompensated heart lesions was without mortality. The better maternal results are in part to be ascribed to preservation of uterine tone, which is increased by the adrenaline in the infiltrating solution, to the small degree of bleeding from the uterine incision, and to the consequent facility of uterine suture, in the series recorded tamponage was never necessary, atonic post-partum bleeding was never noted and subsequent pregnancies and deliveries were normal in the 10 per cent of patients who conceived subsequently.

485

Diathermy of the Thyroid for Uterine Haemorrhage.

G. TRAVERSO (*Ann. di Ostet. e Ginecol.*, September 30th, 1928, p. 1099) in a preliminary communication reports satisfactory immediate results from treatment of excessive uterine haemorrhage by application of the diathermic current to the region of the thyroid and parathyroid glands. Having found that in three healthy young subjects with normal menstruation the treatment described was followed by oligomenorrhoea (in one patient combined with menstrual retardation), and that in three other patients suffering from dysmenorrhoea associated with morbid functional symptoms this treatment gave rise to scantier menses without pain or sympathetic phenomena, Traverso tested the effect of thyro-parathyroid diathermic applications in 52 women suffering from metrorrhagia or menorrhagia. These comprised 25 cases of metrorrhagia, 11 of uterine myoma, 3 of parenchymatous metritis, 11 of adnexal inflammation and 2 of metastasis ascribed to uterine retroversion. In all the author found that diathermy led to cessation of haemorrhage but the cases are too recent to permit of a description of the later results. Of the cases classified as metrorrhagia haemorrhage the majority occurred in subjects about the age of puberty—a time when a particularly good response is said to follow diathermic application. The strength of the current employed was, as a rule, half to one and a half amperes, and large dorsal and small cervical electrodes (7 by 4 cm.) were used,

the applications, repeated on successive or alternate days, lasted up to half an hour or even longer. In the hands of other observers (*Arch f Gynaek*, 1924, p 310) modification of thyroid activity by α radiation has proved successful in the treatment of excessive uterine haemorrhage of puberty.

385 Cystoscopy in Carcinoma of the Cervix.

A. A. GEMMELL (*Journ Obstet and Gynaecol of the British Empire*, Autumn number, 1928, p 465) describes his cystoscopic findings in 111 cases of carcinoma of the cervix, and discusses the practical value of this procedure in this connexion. Thirty nine of the cases were clinically judged to be operable. The chief findings, enumerated in ascending order of gravity, are (1) bulging of the bladder floor, (2) circulatory changes—namely, dilatation of vessels, appearance of new vessels, petechial submucous haemorrhages, and definite haemorrhagic suffusion, (3) transverse ridging and furrowing of the bladder wall, (4) oedema, diffuse or bullous; (5) desquamation, and (6) malignant invasion. Gemmell concludes that while cystoscopy is unnecessary in clinically inoperable cases, in the borderline case it is of great value and may be the deciding factor, it affords a means of assurance that there is no extension of the growth forwards which has escaped detection on bimanual examination. He finds that bulging of the bladder wall is mechanical only, and that circulatory changes are a part of the pelvic hyperaemia associated with the disease, transverse ridging, on the other hand, is a cystoscopic finding which denotes the limit of operability. Bullous oedema is associated with neoplastic invasion of the bladder wall or an extremely near approach thereto. Gemmell's conclusions are in general accord with those of foreign workers; he points out that the neglect of cystoscopy in cancer of the cervix is partly explicable by the increasing adoption of radium as against operative treatment, and partly by Schauta's denial of the significance of the cystoscopic picture. Schauta, however, extended the limits of operability far beyond the majority of surgeons, and mostly performed vaginal extirpation.

Pathology.

386 The Precipitating and Protective Powers of Anti-anthrax Serum

A. SORDELLI, C. HARISPE, and P. BELTRAMI (*C R Soc de Biologie*, November 9th, 1928, p 1423) recommend for the preparation of anti-anthrax serum the prolonged injection of horses or mules with capsulated strains of *B anthracis* cultivated on serum agar. Serums prepared in this way have a marked precipitating power. For use in the diagnosis of anthrax the authors find that if the extracts of the organs are prepared by maceration in the cold with carbolized saline the results are very much better than if they are made by boiling, as in the usual Ascoli thermo-precipitation method. The amount of precipitinogen in the "cold" extract is often ten times as great as that in the extracts made by heating. The dilution of the serum should be with normal serum, since they find that the use of distilled water causes a flocculation of the englobulins and at the same time of the precipitins. A. SORDELLI, P. BELTRAMI, C. HARISPE, and C. FRANCESCHI (*ibid*, p 1428) find that serums prepared in the way already described have a neutralizing and a protective power. The neutralizing power can be illustrated by mixing the anthrax culture and the serum *in vitro*, the protective power can be shown by the subcutaneous or intraperitoneal injection of guinea pigs and by the intraperitoneal and intravenous injection of rabbits with the serum, followed later by injection of the bacilli. The serum must be injected before the organisms, when given at the same time as, or later than, the bacilli it had—under the conditions of the experiment—no protective effect. Dilution of the serum with nine times its volume of distilled water saturated with CO_2 precipitated the englobulins leaving the albumins and pseudo-globulins in solution. The protective antibodies are all contained in the englobulin fraction. Since the englobulins represent only one fifth of the proteins in the serum, it is possible to concentrate the antibodies considerably by this means.

387 The Sugar Content of the Skin

E. URBACH and G. SICHER (*Wien med Wchns*, October 25th, 1928, p 1481) believe that the role of the skin in carbohydrate metabolism and sugar storage must be of considerable importance, in view of the fact that it weighs three times as much as the liver and normally contains a higher percentage of sugar than muscle (dog skin 67 mg per cent, muscle 54 mg per cent, rabbit skin 117 mg per cent, muscle 55 mg per cent). In a series of preliminary experiments they

estimated the sugar content of the skin by an electrical intra-vital method in a number of animals and in man, and compared it with the blood sugar curve, they found that the ratio was normally fairly constant for each group of animals examined, but varied in different species. Thus in human and monkey skin the sugar value was about half the blood sugar, in the dog about two thirds, while in the rabbit, guinea pig, and rat the two values were about equal. The amount of carbohydrate in the diet also normally has some effect on the skin sugar content. Successive estimations in normal human subjects and the sympatheticotonia after an intake of 100 grams of glucose showed that the maximum skin sugar value was reached after one hour, it then fell more slowly than the blood sugar, but had invariably returned to the initial value in four hours, the two curves running to some extent a parallel course. In pancreatic diabetes the skin sugar figure after glucose did not reach its maximum for three hours, and had not returned to the resting level in four hours. It is suggested that this prolonged storage of sugar in the skin may account for the susceptibility of diabetic patients to skin lesions. The administration of large doses of insulin showed that the skin sugar was only mobilized up to a point, and remained relatively high even during hypoglycaemia. In a number of patients with skin diseases examined four types could be distinguished: (1) blood and skin sugar curves normal, (2) blood and skin sugar curves characteristic of diabetes, (3) skin and blood sugar curves suggesting latent diabetes—normal fasting blood sugar, glycosuria absent, sugar tolerance diminished, some mild cases gave a diabetic skin sugar curve with a normal blood sugar curve, and (4) blood sugar curve indicating sympathetic endocrine disturbance—the fasting blood sugar normal, after glucose there was a rapid rise to a high maximum with an equally rapid fall, while the skin sugar curve remained normal.

388 Bacillary Types in Human Bone and Joint Tuberculosis

A. S. GRIFFITH (*Journ Path and Bact*, October, 1928, p 875) has determined the type of the infecting virus in a new series of 132 cases of bone and joint tuberculosis, of these, 111 proved to be of human type and 21 of the bovine type. Among the human viruses there were two dysgonic strains, and among the bovine viruses there were two strains of attenuated virulence. Summarizing all the cases in Great Britain that have been typed by the Royal Commission, Eastwood and Griffith, and the author, he obtains altogether 598 cases. Of these, 20.5 per cent were infected with the bovine bacillus, the remainder with the human bacillus. The proportion of bovine infections is closely dependent upon the age of the subject—the younger the patient the greater the proportion of bovine infections. Thus, under 5 years of age the proportion of bovine infections was 32.8 per cent, from 5 to 10 years 24.5 per cent, from 10 to 15 years 12.1 per cent, from 15 to 25 years 10.5 per cent, and over 25 years 0 per cent, no case of bovine infection was in fact observed in patients more than 23 years of age. Examining the distribution of human and bovine infections among the different joints, he obtained evidence to suggest that bovine infections are commoner in the spine than in the joints of the leg. This he considers is probably due to the fact that the vertebrae are sometimes infected directly from the mesenteric or other abdominal lymphatic glands, since 82 per cent of cases of primary abdominal tuberculosis are of bovine origin, this would explain why a higher proportion of bovine infections are encountered in the spine than in other joints. Finally he brings evidence to show that bone and joint tuberculosis may result from either a respiratory or an alimentary infection, the former being the commoner.

389 Etiology of Coeliac Disease.

WITH a view to obtaining information about the determining causes of coeliac disease A. MONCRIEFF and W. W. FARNS (*Arch Dis in Child*, October, 1928, p 257) have investigated a number of cases in children up to the age of 4 years. Working with very small quantities of blood, the normal figure of the blood fat was established, and attention was then paid to coeliac disease in which large, bulky, fat-containing stools are characteristic, but no organic disease has yet been described. In these children, who are much under weight and are under developed, the blood fat was very high, sometimes as much as ten times the normal. The authors advance the theory that coeliac disease is possibly not due to a malabsorption, but rather to a malutilization, and that the difficulty of fat metabolism is comparable with the defective utilization of sugar in diabetes. It is claimed by other workers that the fat found in the faeces in coeliac disease is due to a re-excretion of blood fat, and the authors suggest that the large quantities present are due to a leakage of this blood fat.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

490 Inoculation of Pirquet Negative Persons with B C G

J. H. INUBACK (*Idiosyncrasy of Normal Infector*, October 15th, 1923, p. 945) has, since May, 1926, inoculated 726 Pirquet negative persons up to the age of 30 with Calmette's B C G culture of living bacilli. This vaccine was given by subcutaneous injection, and as the original dose of 0.2 mg frequently provoked local abscesses it was reduced to 0.05, and in some cases even to 0.02 mg. Among the 726 persons thus treated were 89 nurses whose Pirquet-negative reaction when they first joined the author's hospital showed that they were in grave danger of contracting tuberculosis from the patients they were about to nurse. Five of these nurses were inoculated in October, 1926, and their treatment in this way was so far unsatisfactory in that they had already nursed tuberculous patients three or four months before they were inoculated. There were 44 nurses in 1927 and 40 in 1928 who, as soon as they were found to be Pirquet-negative on entering hospital for the first time, were inoculated with B C G. For the next month or six weeks they were kept away, so far as was possible, from tuberculous cases. Only in 2 of these 89 cases did signs (pleurisy) of tuberculosis subsequently develop. One of these nurses was among the five who had been inoculated in 1926, and who had been exposed to infection for some months before the inoculation. The other nurse had been inoculated only for a month when she developed pleurisy. In the same two years, 1927 and 1928, there were 30 nurses who were Pirquet-negative when they joined the hospital, but who refused to be inoculated. Eight of these nurses (27 per cent) subsequently developed signs of tuberculosis after having been in attendance on tuberculous patients. With regard to the nurses who were Pirquet-negative when they joined the hospital in 1924, 1925, and 1926 and who were not inoculated with B C G, it was found that 16 per cent of them had subsequently developed signs of tuberculosis. In none of the 726 Pirquet-negative persons inoculated with B C G did this treatment provoke illness, but in as many as 53 cases abscesses formed at the site of injection. They were some what tender, but the discomfort was purely local, and there was no evidence of general constitutional disturbances. In eight cases glandular nodes were inoculated with the pus from these abscesses, and none of these animals developed tuberculosis. The most effective remedy for these abscesses was quartz lamp light treatment, which cured the largest abscess in a week. Heimbeck adds that the exclusion of Calmette's system (giving newborn babies B C G by the mouth) to the subcutaneous injection of Pirquet-negative adults with this vaccine is the more important since only a minority of human beings in an ordinary civilized community are infected with tuberculosis during childhood. He records his own mass Pirquet tests in support of this opinion, which, he admits, is not generally accepted.

491 Myocarditis

B. J. CLAWSON (*Inner Heart Journ.*, October, 1928, p. 11) has made a study of the gross and microscopical features of the myocardium in 429 patients dying from cardiac failure. These observations were made in order to determine the conditions under which a diagnosis of myocarditis might be justifiable. Among 178 hearts from subjects of rheumatic and bacterial valvular diseases acute myocarditis with proliferative inflammation occurred frequently in non-rheumatic endocarditis (80 per cent), in recurrent rheumatic endocarditis (65 per cent), and in subacute bacterial endocarditis (73.5 per cent), but the myocardium associated with old valve defects and with adherent pericardium showed this type of inflammation in much smaller proportion (about 20 per cent). The myocardium was studied in 106 cases of syphilitic aortitis. In only 11 of these was proliferative inflammation observed, while myocardial fibrosis of the atrophic type was also found only eleven times. Hypertensive hearts made up 139 of the 429 cases examined. Cellular proliferation or exudation was never found in these hearts except in the presence of infarction. Severe degrees of coronary sclerosis were found in 56, and in a majority of these death had occurred suddenly from coronary narrowing. Only 20 of the hypertensive hearts showed extensive myocardial fibrosis while in 60 there was no fibrosis. Such fibrosis as was found appeared to result from myocardial anæmia following narrowing of the coronary arteries. Failure, the sequel of right ventricular hypertrophy and dilatation, was present in only

4 of the 429 cases, and in each slight proliferative fibrosis was seen. The author concludes from this work that the extent of the myocardial injury, as shown by anatomical changes, rarely appears to be sufficient to bring about cardiac failure, and that the conditions usually diagnosed as acute or chronic myocarditis cannot be demonstrated to be inflammatory processes.

492 Dry Bronchiectasis

R. RAGUZ (*Arch. de med. et y esp.*, November 3rd, 1928, p. 492), who records an illustrative case, states that the principal feature of bronchial dilatation is the association of profuse expectoration with the signs of a cavity. In many cases the fluoroscopic screen or x-ray plate confirms the clinical findings, but in others the physical signs suggestive of bronchial dilatation are negatived by x-ray examination. Raguz's patient was a girl, aged 20, who had suffered from frequent hæmoptysis for several years. Examination of the sputum was negative for tubercle bacilli, and nothing to indicate a broncho-pulmonary lesion was found on x-ray examination. After two injections of lipiodol, however, bronchial dilatations were found which accounted for the hæmoptysis. The therapeutic action of lipiodol was also illustrated by complete cessation of the hæmoptysis and improvement of the general condition.

493 Familial Anæmia with Splenomegaly in Infancy

I. AURICCHIO (*La Pediatria*, October 1st, 1928, p. 1023) publishes a dozen cases of anæmia associated with splenomegaly in infants. The chief interest of these cases lay in the fact that they were familial in type. The author failed to find any of the ordinary causes of infantile splenic anæmia, such as malarial parasites, sepsis, syphilis, or tubercle. It was noted that the first sufferers in the family were the older ones, while in the younger ones the condition appeared much earlier in life. Auricchio suggests that possibly in one or other of the parents there is a latent pathological condition which affects the normal formative process of the hæmopoietic organs in the infant.

Surgery.

494 Pre-operative Treatment of Graves's Disease.

G. L. ADAMSON and A. I. CAMERON (*Canadian Medical Assoc. Journ.*, October, 1928, p. 420), with the co-operation of the Medical Research Committee of the University of Manitoba, made a series of tests which show that vitiodum a preparation of iodized jecoleic acid incorporated with a vitamin concentrate from cod liver oil, has a value at least equaling that of Lugol's solution in the pre-surgical treatment of Graves's disease. Vitiodum is put up in gelatin capsules, each representing 275 units of vitamin A and not less than 75 units of vitamin D, together with iodized jecoleic acid containing 0.03 gram of available iodine, the equivalent of that present in 10 minims of Lugol's solution. In order to ascertain which of the constituents was responsible for two similar preparations in gelatin capsule form, one having the exact dosage of vitamins A and D contained in the vitiodum capsules and the other having the equivalent amount of iodized jecoleic acid in liquid paraffin and without any vitamin were tested on eleven patients. Though insufficient in number for a final conclusion, these tests strongly suggest the probability that both the vitamin fraction and the iodized fatty acid fraction are necessary for definite effect, and that neither is effective alone. The authors conclude that the preparation vitiodum is as effective in Graves's disease as Lugol's solution, while the limits of its beneficial action closely resemble. No gastro-intestinal disturbances were produced by the preparation, either during or following its administration. They advocate further research, not only to investigate the relation between the vitamins and thyroid and iodine metabolism but to check accurately a much larger number of cases during the administration of vitiodum.

495 Open Operation for Congenital Dislocation of Hip

W. R. MACAUSLAND (*Surg., Gynecol. and Obstet.*, November, 1928, p. 697) advocates a more extensive use of open operative procedure in the treatment of congenital dislocation of the hip as presenting certain advantages over manipulative methods. An open operation is indicated in children from 4 to 8 years of age in whom one or two closed manipulations have been unsuccessful. It becomes the method of choice

in older children and adolescents in whom manipulative treatment is liable to cause extensive trauma, in adults open operation is necessary to correct deformity and produce satisfactory functional results, and to relieve pain and stiffness with avoidance of late developing arthritic complications. Treatment aims at simple replacement of the femoral head in the acetabulum, with such reconstruction methods as may produce satisfactory functional and anatomical results. After a two day preparation of the operation field the capsule and joint cavity are explored through an incision curving downwards from the anterior superior spine to the outer part of the thigh, and any obstacle to reduction is removed. This is obtained by a combination of abduction and internal rotation movements, with the help of the author's "congenital hip skid" to lever the head into the cavity. A plaster spica from the breast iliac to the ankle is worn for eight weeks, with the hip in abduction and inward rotation and the knee flexed, after this period a new one is applied with the hip in 15 to 20 degrees abduction, and in marked inward rotation with the knee extended. At the end of six to ten weeks this can be removed and massage and passive movements commenced. Occasionally marked internal rotation may require osteotomy later, but this should not be performed until motion in the hip is well established. At the operation such pathological changes may be found as an hour glass shaped constriction of the capsule anteroversion of the femoral neck, or an acetabulum filled with adherent tissue covered over with the inferior capsule in the presence of such alterations the closed method of reduction is useless.

496 Tonsillectomy in Arthritis and Rheumatic Diseases

J. SCHNEYER (*Nach Arch f inn Med*, October 15th, 1928, p 119) describes 208 cases of acute and chronic rheumatic arthritis, rheumatoid arthritis, myalgia, neuralgia, osteoarthritis deformans, Bechterew's disease (2 cases), and gonit (2 cases), in all of which tonsillectomies were performed. Of these patients, 152 were women and 56 were men, their ages ranged from 19 to 65 years. Schneyer does not recommend tonsillectomy as a routine procedure in all these diseases, and insists that care should be exercised in the selection of suitable cases. His conclusions are as follows: (1) In acute rheumatic polyarthritis, after the subsidence of acute symptoms, and in secondary chronic polyarthritis, tonsillectomy should always be advised regardless of the condition of the tonsils. (2) In "rheumatoid" diseases such as chronic infective rheumatoid arthritis, in neuralgia, and in myalgia, tonsillectomy should be performed only when the tonsils are unhealthy, and the connexion of the tonsillitis with the arthritis or other rheumatic disease appears to be probable. Caution should be exercised in cases of primary chronic polyarthritis, since this disease is but rarely associated with tonsillitis. (3) In osteoarthritis deformans, Bechterew's disease, and gonit the author has never seen any improvement following tonsillectomy.

497 Phrenicectomy in Pulmonary Tuberculosis

G. ICHOK (*Arch de med, cir y exp*, October 20th, p 446) maintains that excision of the phrenic nerve is chiefly indicated in ulcerative, inactive, and localized pulmonary lesions which show a spontaneous tendency to retract, in such cases it may produce a cure. This result is not affected by the localization of the lesions or the presence of adhesions. It depends almost entirely on the retractility of the diseased tissue. As a subsidiary operation phrenicectomy may be of assistance in association with an incomplete artificial pneumothorax, or in facilitating suspension of artificial pneumothorax and maintaining its beneficial effects. It may also improve the results of high or low thoracotomy, act as an adjuvant in any extensive thoracoplasty, and facilitate the surgical treatment of tuberculous empyema. In conclusion Ichok declares that the sequelae of phrenicectomy should be considered much more from the qualitative than from the quantitative aspect, since this operation frequently has unexpected results.

498 Naevus-carcinoma.

A. BLAIR AITKEN (*West African Med Journ*, October 1928, p 118) reports the case of a male European aged 48, who appeared at first to be suffering from acute lymphangitis spreading to the left axillary glands from the region of a small pigmented naevus the size of a sixpenny piece on the flexor aspect of the forearm. He had been under treatment for prickly heat with secondary sepsis in the form of numerous small boils and pimples all over the body and had several other smaller naevi. The lymphatic inflammation subsided after a week, but a large hard mass of glands remained in the axilla. A small fragment excised from the axillary mass was found to be *carcinomatous* in the mean time the naevus remained soft, and according to the patient's

statement, was only very slightly enlarged since two years previously, when he had noticed it to be somewhat tender to touch. A palliative operation was performed, the naevus being excised with a wide margin and the axilla cleared. The patient died with widespread secondary deposits six months after first reporting at hospital. The author remarks that this case is of interest in view of the rarity of malignant changes in pigmented naevi and the rapidity of fatal spread of growth from a focus showing little or no changes clinically. He comments on the apparent lymphangitis, and raises the question whether this was really a manifestation of the spread of cancer cells, also whether the sepsis resulting from prickly heat could have had any influence in determining malignant changes in the naevus.

Therapeutics

499 Treatment of Infections of the Urinary Tract.

K. KELSTED and L. SCHUBERT (*Acta Med Scand*, September 28th, 1928, p 268) insist that for an accurate estimate of the value of any therapeutic method in treating infections of the urinary tract the nature and locality of the infection must be known. Urine obtained by ureteral catheterization under strict asepsis must be examined chemically, microscopically, and bacteriologically, since otherwise the exact site of the disease cannot be determined. The most common infecting microorganism is *B. coli*, then come *B. proteus*, *Staphylococcus aureus* and *albus*. Treatment includes the use of autogenous or stock vaccines, irrigation with various antiseptic solutions, such as silver nitrate (1 to 2 per cent), boric acid, or mercurochrome, and flushing the urinary system from kidney tubules to urethra with large quantities of fluid combined with various antiseptics. The authors recommend keeping the urine acid and administering hexamethylene tetramine or salol. Calcium chloride and ammonium chloride increase the acidity of the urine. In some cases alternating acidification and alkalinization of the urine are advantageous. The authors treated 70 patients in all, comprising 28 cases of pyelitis and 42 of cystitis, pyuria was associated with bacilluria in all. Most of the cases were complicated by such conditions as sonitic mobility, carcinoma of the bladder, and prostatic hypertrophy, with heart disease. In all of the 70 cases the authors combined the administration of calcium chloride and ammonium chloride with urinary antiseptics, such as hexamethylenetetramine, salol, or hexyl resorcinol. Only six cases of pyelitis and six cases of cystitis became free from bacteria under internal treatment. The remaining 36 cases of cystitis, after prolonged internal treatment, required further local treatment—1 per cent silver nitrate solution for three consecutive days. Disinfectants are said to be useless for preventing phosphatic encrustation of catheters and Pezzor tubes. The authors believe that antiseptic treatment is comparatively useless when large quantities of fluid are administered, reduction of the urine to half its volume increases greatly its bactericidal power. They conclude that it seems advisable to combine treatment with restriction of the fluid intake.

500 Liver Treatment of Pernicious Anaemia.

T. ORDWAY and L. W. GORHAM (*Journ Amer Med Assoc*, September 29th 1928, p 925) report excellent results from the administration of liver or a potent extract in twenty five of their own cases of pernicious anaemia and in 553 cases collected from the literature. Of these, 387 were treated with liver and 191 with extract alone. In the first 12 of the 25 cases now reported the Minot-Murphy diet was rigidly adopted, in the remainder a liberal diet with sufficient liver was found to be equally effective. The authors believe that strict adherence to the original Minot-Murphy diet is not essential and that the administration of hydrochloric acid is unnecessary, since equally prompt improvement was obtained when this was omitted. The symptom changes were rapid and led to clinical recovery, though achlorhydria and advanced cord changes persisted almost without exception. The blood changes, all indicating stimulation and increased activity of the bone marrow, confirmed the findings of Minot, Murphy, and other workers. No failures occurred in this series, and lack of success in liver treatment is attributed to one of the following causes: infection or other complication, the giving of insufficient liver, incorrect diagnosis, the effect of multiple transfusions, and in exceptionally rare cases, possibly to a lack of reactive power of the bone marrow. Liver appears to exert a specific influence on the development of fanly erythrocytes but has no effect on the underlying pathological process, and hence cannot be termed a cure. The quantity given daily should be 1/4 to 1/2 lb, and monthly blood counts are necessary to gauge correctly the maintenance dose necessary for the patient. Attention is drawn

to certain risks. With the widespread use of liver in all types of anaemias, secondary anaemias due to operable surgical conditions, and which may yield to proper surgical treatment, are apt to be overlooked. Impotent extracts are a source of danger. While multiple transfusions are contraindicated, transfusion is of value in desperate cases to tide over the patient. Two cases of gout and a few of hypoglycaemia have been reported during treatment. These complications, as well as the possibility of remote renal effects after years of diet, should be borne in mind. E. H. HILARI (ibid., p. 928) reports similar benefits from liver administration in 24 cases (19 treated with liver and 5 with extract). The only departure from the Minot-Murphy diet was an increase in the low fat constituent so as to make the diet more palatable. Among 16 patients reaching the diet the average hospital stay was 37 days, and the average erythrocyte count and haemoglobin on discharge were 3.6 millions and 76 per cent, in 5 receiving the extract the figures were forty six days, 4 millions, and 83 per cent respectively. Two unusual cases are reported in detail.

501 Administration of Ergosterol in Rickets

P. ARMAND DELILE and J. BERTRAND (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, October 25th, 1928, p. 1418) regard the employment of irradiated foodstuffs as a valuable addition to the therapeutics of rickets. They have not made an extensive trial of irradiated milk because they found it difficult to administer to children on account of its very disagreeable taste, they therefore employed irradiated ergosterine. They report the case of a boy, aged 2, who was admitted with very definite signs of rickets, he had been badly fed and his weight was only 21 lb 6 oz. He could not stand. The frontal bone was bowed and the anterior fontanelle admitted two finger tips; the costal cartilages were overted with a rickety rosary, and the abdomen was prominent and flaccid. There was no evidence of tuberculosis, but the long bones showed typical rachitic deformities. The ossifying centres of the os magnum and unciform were alone visible in the skiagraph of the carpus. Two days after admission 20 drops of ergosterol daily was prescribed, without any other treatment, except heliotherapy when the sun was visible. Two months later the child was discharged, his weight was then 24 lb, his appetite was good, and he could stand and walk a few steps. Skiagraphs showed that ossification was proceeding rapidly. The authors have another child under the same treatment who is also making rapid progress. They claim that the results obtained greatly exceed those following natural or artificial heliotherapy, but they advise continuing the administration of ergosterol with light treatment to improve the muscular tone. They add that ergosterol is easily administered and promotes rapid calcification of bone, it will probably be of value in the treatment of decalcification of bone due to other causes.

Dermatology.

502. A Bacteriological Treatment of Ringworm

THE knowledge that many saprophytic fungi overgrow or inhibit the growth, *in vitro*, of many of the ringworm species led S. O. CHAMBERS and F. D. WEIDMAN (*Arch. Derm. and Syph.*, October, 1928, p. 568) to a further examination of the problem which included the bacteria. Ringworm of the toes was particularly studied; these skins being considered normal which appeared normal grossly and scrapings from which were negative for fungi. Fifty platings were made from the skins of four normal subjects, and the resulting colonies were purified, if necessary, by subculture. These were tested against *Tricophyton interdigitale* and other ringworm fungi, and fifty strains later identified as *B. subtilis* were found to have an inhibitory effect on the growth of these organisms. As the next step, 50 apparently normal toes and the toes of 50 patients showing more or less disturbance between the toes were examined for *B. subtilis*. It was found to be present in 35 of the normal cases and absent in 34 of the abnormal ones. Further tests with mixed cultures of *B. subtilis* and *T. interdigitale* showed that the bacteria inhibited the fungi in thirty four out of forty tests, and restrained them in the remainder. Finally, clinical tests were made on 20 patients suffering from dermatomycosis of the feet. Blood agar cultures of *B. subtilis* were used, the growth being removed and applied directly to the affected skin with no other treatment. After the first week 25 per cent improvement was noted, and 50 per cent after the second. The authors maintain that, while these tests do not completely substantiate the hypothesis that *B. subtilis* exists as a biological protector on apparently normal skins and is absent on fungus infected ones, they do not refute it. They also believe that

the improvement they obtain by this method warrants further investigation and encourages its application to other dermatoses in which the causative micro organism is known and is cultivable.

503 Eczema-Asthma Prurigo Complex

R. C. LOW and J. A. DRAKE (*Brit. Journ. Derm. and Syph.*, October, 1928, pp. 389 and 407) independently discuss the eczema asthma prurigo complex. That eczema and asthma frequently occur in the same patient, either simultaneously or alternately, has been recognized for some time, and sufferers from one may recover completely and some months or years later develop the other. Statistics compiled by other investigators also show that many cases of chronic eczema give a history of asthma, and vice versa. In order to overcome the confusion arising from looseness of terminology Low uses the term 'prurigo' to indicate "Hebra's prurigo," and the term "asthma eczema" for the condition described variously as "Bernier's prurigo," "spritzexudatives eczematoid," "chronic eczema," "pruriginous eczema," "flexural eczema," etc. A considerable proportion of chronic eczemas and asthmas give positive skin reactions to various proteins, suggesting that the same protein is responsible for both conditions. The fact that eosinophilia occurs in the blood in eczema, asthma, and prurigo, locally in the lungs in asthma, and in the skin in prurigo and eczema points further to the relationship of these conditions. Low concludes that asthma eczema and asthma are shown to be analogous in every respect from their clinical course, symptoms, hereditary tendencies, skin tests, and blood and tissue changes. Drake considers that the underlying basic factor in the asthma eczema prurigo complex is an inherent or acquired dysfunction or disharmony of the autonomic nervous system.

504 Pemphigus.

J. SABRAZES and J. TORLAIS (*Gaz. Heb. des Sci. Méd. de Bordeaux*, October 7th, 1928, p. 643) sum up the results of a prolonged study of this disease. They remark that true pemphigus must be distinguished from simple symptomatic pemphigoid rash, as there is a congenital bullous epidermolysis which is due to a special sensibility of the skin to external injuries, and there is also an acquired type. This vulnerability of the skin probably plays a large part in the development of certain cases of the disease, whether acute or chronic, and determines the outbreak of pemphigus in various toxæmia, septicæmia, anaphylactic, or endocrine states. Dühring's herpeticiform dermatitis belongs to the group of pemphigus, and the authors adduce evidence that congenital syphilis may be a cause, the histological changes which they describe and illustrate bear this out. They find that infective conditions of the kidney and liver may also be a cause of pemphigus. Eosinophilia was variable in its appearance, but was more commonly seen in the young. Other suggested causes are peculiarities in the vascularization and innervation of the skin and the retention of waste products.

Obstetrics and Gynaecology.

505 Anaesthesia in Gynaecological and Obstetrical Operations

According to T. HEYNEMAN (*Zentralbl. f. Gynäk.*, September 15th, 1928, p. 2427) the safest, most convenient, and most generally applicable mode of anaesthesia in gynaecological and obstetrical operations is open administration of ether. Chloroform is to be rejected on account of its harmful action on the heart and liver, since the introduction of ethyl chloride as a preliminary to ether narcotization, chloroform is not required except in exceptional cases in which profound muscular relaxation is necessary for the performance of difficult obstetric versions. Lumbar anaesthesia, in the author's and others' experience, is not free from danger, is unpleasant from the patient's point of view, and may be followed by headaches and paralyses. For these reasons it finds its application only in prolonged abdominal operations such as Wertheim's hysterectomy, and in patients with pulmonary contraindications to inhalation anaesthesia. Heyne has abandoned paravertebral anaesthesia as inconvenient and unrollable both from the patient's and surgeon's point of view, and sees little to recommend sacral anaesthesia. Intravenous administration of ether in septic cases is followed by temporary improvement in pulse and general condition. Local anaesthesia is not acceptable as a rule to patients, but its scope (in certain cases) in vaginal operations of all sorts, in Caesarean section, and in short abdominal operations. In the author's practice local anaesthesia has been replaced very largely by nitrous oxide, combined—especially in vaginal

operations—with other Gas anaesthesia is free from danger and unpleasant after effects, and is used in all vaginal operations, including radical hysterectomy for cancer of the cervix, on an average 50 grams of ether are required in addition. It is also employed for episiotomy, perineal suture, forceps applications, and vaginal Caesarean operations. In curetting operations bimanual exploration of the pelvis necessitates supplementary administration of ether, and for version, manual loosening of the placenta, and suture of cervical tears ether is preferable as inducing less bleeding and greater muscular relaxation.

506. Treatment of Inflammatory Adnexal Diseases.

C BUCURA (*Nieuw Arch. Ned. Geneesk.*, November 1st, 1928, p. 1530) advises expectant conservative treatment in adnexal inflammations, except when an abscess requires evacuation, or when there is no probability of recovery without an operation, since the prognosis, in regard both to freedom from pain and the possibility of subsequent conception, is more favorable when conservative treatment is combined with vaccine therapy. Sterility may result from a minor as well as from an extensive surgical intervention if the operation is performed while there is active inflammation; the degree of such activity is indicated by the temperature, leucocyte counts, blood precipitation tests, and the response to the hypodermic injection of a moderately large dose of gonococcal or mixed vaccine. If a positive reaction follows, operation should be deferred unless required by some emergency. In that case, although the patient's life may be saved, it is probable that the removal of all trace of disease may necessitate the sacrifice of all the internal genital organs. If, however, it is possible to defer operation until the symptoms of inflammation have subsided, vaccine therapy accelerates resolution of the inflammatory process. Bucura states that the great majority of recurrent adnexal tumours are due to gonorrhoeal or mixed infections. He advises the employment at first of a gonococcal vaccine followed, if necessary, by a polyvalent vaccine containing gonococci, streptococci, staphylococci, and *B. coli*, until all signs of inflammation have disappeared, this may entail treatment for two, three, or occasionally more months, after which an operation is permissible if necessary. In many cases sexual activity may thus be preserved and the danger of post-operative complications avoided.

507

Pylitis in Pregnancy

ACCORDING to J. HOFBAUER (*Arch. f. Gynäk.*, June 26th, 1928, p. 205) the use of antisepsis, whether given by the mouth or intravenously, in treatment of pylitis in pregnancy is contra-indicated by the fact that morbid conditions of the renal parenchyma are concomitant with almost every case. The diet should be regulated in order to exclude all but small amounts of protein, vegetables should be excluded in it, and copious hot draughts be administered containing substantial amounts of grape or milk sugar. Injections of pituitary extract should be given three times daily, besides its antipilegistic action, it induces vigorous contractions in the musculature of the ureter and promotes drainage of infected and obstructed urine. The injections are not, it is said, fraught with any danger of inducing abortion. Since dilatation of the ureter by no means always disappears after labour, the administration of pituitary extracts should be continued for at least a fortnight after delivery. Hofbauer believes that the excess of bile salts present in the blood during pregnancy is a contributory cause to the atony of the ureter, and on experimental grounds advises also the use of adrenaline in the therapeutics of pregnancy pylitis.

Pathology.

508

A Female Hormone.

IN response to Graves's demand for a standardized ovarian hormone E. LAQUEUR and S. E. DE JONGH (*Journ. Amer. Med. Assoc.*, October 20th 1928, p. 1169) recommend the standardized limpid watery solution to which they have given the name of "menformon," the preparation of which is based on American discoveries. Menformon produces oestrus in castrated rats and mice, and in all mammals tested increases the size of the juvenile uterus, vagina, and tubes. It induces growth of the mamma in both young females and males, small doses affecting the glandular secretory parts, larger doses the external parts also. Menformon increases metabolism only in castrated females, and not in castrated males, it has an antimasculine influence. It is non-toxic even when injected for many months at a time. It is soluble in volatile solvents and water, the purer it is the more soluble it is in water and the less in volatile agents. These are all true solutions being dialysable. Menformon is adsorbable, the less so the purer it is, is not volatile, and is very resistant to

heat, acids, alkalis, ferments, and reducing agents, but is susceptible to oxidizing agents. Probably it consists only of carbon, oxygen, and hydrogen. Menformon is considered to be a true hormone because it occurs in, and may be prepared from, normal organs, it produces certain effects that also occur in the normal individual, and it is present in body fluids apart from the places where it is formed. It occurs regularly in the blood and urine of both males and females. On subcutaneous injection it is resorbed at once without leaving any troublesome residue, in contrast to colloidal or oily solutions. In view of its perfect harmlessness, even in large intravenous doses, the authors advocate menformon for clinical use. In an editorial article on ovarian hormones and ovarian organotherapy (*ibid.*, p. 1194) reference is made to menformon, and it is pointed out that the fact that it can be obtained not only from the ovaries and urine of females, but also from the testes and urine of normal males, raises the question of specificity, and also the question whether the recent laboratory reactions are really reliable criteria of ovarian hormone reaction. While the various ovarian preparations are now sufficiently purified to be tried in cases of definitely uncomplicated ovarian deficiency, in most of the other disturbances of the female sex life other than ovarian factors are primarily involved. Negative results are therefore of little value in guiding further investigations in this important field.

509

Virus III Encephalitis

T. M. RIVERS and F. W. STEWART (*Journ. Exper. Med.*, November, 1928, p. 603) report some fresh work on Virus III. This virus is an active filterable agent indigenous to rabbits. Experimentally it has been shown to produce a high fever and characteristic lesions in the cornea, testicles, and skin, within the epithelial and endothelial cells of these lesions acidophilic nuclear inclusions are found, similar to those seen in varicella and herpes. Frozen and desiccated, and kept in sealed tubes on ice, it retains its virulence indefinitely even after fifteen months under these conditions the virus was still active. Its activity is also maintained for at least six weeks if infected testicular emulsions are mixed with equal amounts of glycerol and stored on ice. In the present work the authors started with a virus that had been stored for a long time, but all their subsequent experiments were performed with fresh material. They find that if 0.2 c.c. of infected testicular suspension is inoculated intracerebrally into rabbits encephalitis is frequently produced, as evidenced by the tremor, ataxia, irritability, circling, salivation, retention of urine, generalized tonic and clonic contractions of the skeletal muscles, or paralysis that follow. The results, however, were very irregular—occasionally all the rabbits inoculated died; at other times none of them died. Whether this was dependent on variations in the virulence of the infecting organism or on variations in the resistance of the rabbits was not determined. Histologically the picture was that of a meningo-encephalitis, not unlike that of herpetic encephalitis. There was a chronic meningitis, characterized by lymphocytic plasma cell, and endothelial cell infiltration, the perivascular sheaths of penetrating vessels were often distended with similar cells, nerve cells in the hippocampal region and in the cerebellum underwent hyaline degeneration, leaving a spongy reticulated zone of ground substance, and intranuclear inclusion bodies were found in nerve cells, glia cells, ependymal cells, endothelial cells, arachnoidal fibroblasts, and in cells of the choroid plexus. Though the encephalitis produced by Virus III is similar to that produced by the herpetic virus, experimentally showed that the two viruses were immunologically distinct.

510 Effect of Anthrax Bacilli on Tissue Cultures.

E. A. H. FRIEDHEIM (*O. R. Soc. de Biologie*, November 15th, 1928, p. 1467) previously found that fibroblasts from the hen, which is refractory to anthrax, appeared to be unaffected by the growth of anthrax bacilli in tissue cultures. In the present communication he has repeated his work with tissue cultures coming from the mouse—an animal susceptible to anthrax. Fibroblasts from the embryonic skin were cultivated in embryonic juice and plasma, anthrax bacilli, virulent or avirulent, were introduced into the same preparations. The results were similar to those with the hen. Even when the colonies of the bacilli were in extremely close apposition to the tissue cells the growth of these cells did not appear to be in any way interfered with, and it was not till the bacilli brought about an actual liquefaction of the medium that the growth of the cells was stopped. No difference was noticed whether the plasma in the culture came from a susceptible or a refractory animal. The author concludes that the mesenchymatous cells of susceptible animals are indifferent to anthrax bacilli, and that therefore natural susceptibility and immunity must be related to some other type of cell.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

511 Rheumatic Infection in Childhood

DISCUSSING the predisposing factors in infantile rheumatic infection, A. D. FORDYCE (*Med Journ and Record*, November 7th, 1928, p. 460) states that the hypothesis generally held is that the infecting agent of rheumatism under normal conditions and in natural sites is a harmless saprophyte, and that infection is the ultimate result of disturbed physical or chemical conditions which cause the development of a favourable environment, consequently, a necessary preliminary to infection—which is endogenous—is a derangement of metabolic activity or of organic constitution. Given such a suitable diathesis or constitution the selective spot for the rheumatic attack is the lymphoid tissue in the nasopharynx and intestine, and, as a result of infection, the danger sites in the viscera are the heart and brain (carditis and chorea). Fordyce advances as three chief predisposing factors of rheumatic infection in children: instability of the nervous system, digestive disorder, and weakness of the lymphoid defence. When all these are marked there is serious danger of heart infection and chorea. When nervous instability and digestive disorder alone are marked chorea is threatened. When lymphoid weakness is the sole prominent condition the danger is of heart infection, and there is little likelihood of chorea. The predisposing factors are simple and common, and for this very reason are difficult to control. Fordyce believes that given the opportunity of post natal supervision and treatment of predisposing factors, it would be possible to eliminate to a very great extent the scourge of rheumatic heart disease.

512. Premature Alopecia

J. SPITZ (*Liol and Cut Rev*, November, 1928, p. 733) states that the commonest cause of premature alopecia is seborrhoea or its allied condition, dermatitis seborrhoeica. In many cases this is doubtless complicated by hereditary predisposition. Local disease of the scalp such as ring worm, favus, impetigo, eczema, oryctolasis and lupus, or general conditions such as psoriasis, influenza, typhoid fever, syphilis, or pregnancy, may also be responsible. The prognosis depends upon the cause. The principal requirement in therapeutics is to treat the scalp so that it will receive a better blood supply. If debilitated the patient must first have his strength built up by ordinary tonics or general measures. On the theory that the alopecia may be due to endocrine disturbances, various extracts of the ductless glands, especially the thyroid and parathyroid, may be used. The scalp must be washed frequently, preferably with tincture of green soap, and energetically massaged at the same time. The patient should be advised to expose his hair to the sun as much as possible. In the belief that the alopecia is due to a parasitic infection, parasiticides such as ammoniated mercury and borie acid ointments are employed usually in combination with stimulants such as oil of cade, crude coal tar, chrysarolin, pyrogallol acid, resorcinol and sulphur, or salicylic acid. The ointments should not remain more than twelve or fifteen hours on the scalp, and should then be washed off with soap and warm water. The application should be made every other day rather than daily, for fear of over stimulation. Ultra violet rays are useful if there has been sufficient loss of hair to favour the access of the rays to the scalp. Spitz regards diathermy of great value, as it acts as a stimulant. The brush and comb should be thoroughly washed and dried at least once a week. The patient should be made to realize that the treatment is a prolonged one, and that it is only the dormant but still living follicles that can be stimulated to growth.

513 Effect of Strain on the Heart.

P. D. WHITE (*New England Journ Med*, October 25th, 1928, p. 801), in his consideration of the effects of strain upon the heart, calls attention to the factor of ventricular balance. The brunt of increased work falls initially upon either the right or left side of the heart, if failure of one side occurs it is not long before the other side fails, unless compensation is meanwhile established. Thus all degrees of failure of either ventricle or both, may be encountered. The author divides strain into intrinsic and extrinsic varieties. Intrinsic factors causing strain are essentially valvular defects and disorders of rhythm. While it is true that the condition of the myocardium is of vital importance, there has been a tendency to under estimate the embarrassments offered by severe mitral

stenosis or aortic incompetence. With regard to those conditions, it is believed that a less serious strain is imposed by combined regurgitation and stenosis of the mitral valve than by either separately, while in the case of aortic regurgitation the occurrence of some stenosis is a favourable event. Greater strain results from aortic incompetence when it is syphilitic in origin than when rheumatism is the etiological factor. In congenital heart disease the author believes that the degree of cyanosis is an index of the burden thrown upon the heart. Other intrinsic factors are pericarditis (acute and chronic), coronary disease, myocardial disease of infective or toxic origin, and disease of the great vessels. Of the arrhythmias, flutter and fibrillation represent greater strain than paroxysmal tachycardia unless this is of ventricular origin. Extrinsic factors are of less importance, with the exception of hypotension and hypertrophy. The chronic burden of high blood pressure may alone be sufficient to produce cardiac failure. Exercise, pregnancy, obesity and overeating, anaemia, nutritional diseases, and anaesthetics are some of the other extrinsic factors considered.

514 Pellagra and Alcoholism.

S. L. SWEITZER (*Minnesota Med*, November, 1928, p. 719) records his experience of an epidemic of eight cases of pellagra in Minnesota, seven in hospital and one in private, in which alcohol was a striking etiological factor, probably through its action as a disturber of nutrition. Though all need not be present in each case, there are said to be four cardinal symptoms of the disease, those consist of skin manifestations with the development of large bullae on the backs of the hands and fingers, and, in a few cases, the face and neck, involvement of the mouth mucous membrane, the tongue being coloured blood red or with red edges, severe intestinal diarrhoea and mental symptoms. The typical eruption on the back of the hands, red tongue, and diarrhoea established the diagnosis in the author's cases. All the patients had been drinking heavily, and the seven admitted to hospital had obtained denatured alcohol. Switzer considers that the alcohol by acting as a disturber of metabolism, caused the condition, although some other etiological factor must have been present also, seeing that the disease did not occur previously when alcohol was largely consumed.

Surgery.

515 Elephantiasis

A. P. BERTWISTLE and A. L. GREGG (*Brit Journ Surg*, October, 1928, p. 267) discuss elephantiasis as a disease of great antiquity which is common in parts in which *Filaria bancrofti* is prevalent, being less frequent in other tropical and subtropical places. It is less common in Germany and Austria than in the British Isles and France. It is a condition of hypertrophy and hyperplasia developing in a part as a result of excessive protein from lymphatic exudate. This is present as the result of infection, most frequently streptococcal, occurring in a part primarily presenting veins and lymphatic stasis. It may occur on any part of the body, but the most common sites are the legs (57 per cent) and the scrotum (38 per cent). The commencement of true elephantiasis dates from the first attack of lymphangitis occurring after an acute illness, such as tonsillitis or pneumonia and is manifested either as a phlebitis or erysipeloid attack with localized lymphatic inflammation, associated with pyrexia, abortion of vomiting, and general body pains. The disease progresses in three stages, the first being the smooth uniform swelling or thickening of the part, during which little discomfort is felt. In the second stage the skin shows definite thickening and coursing, and has an uneven ridged appearance, the muscles being hypertrophied to compensate for the increased burden. In the third stage the skin and subcutaneous tissues are greatly hypertrophied, and, in the case of a limb, are thrown into large folds separated by deep sulci, while in the scrotum there is diffuse rigidity. There is a liability to weeping fissures, indolent ulcers, and abscess formation. The intervals between the attacks of lymphangitis may either become greater or else the attacks may increase in number and severity until the lymphangitis causes deep abscess formation and septicaemia and the death of the patient. The first treatment of elephantiasis must be the discovery of the source of focal infection, which may be the teeth or tonsils, though pelvic appendicular or urinary infections may be responsible. The general health of the

patient must be improved by rest and better nutrition, vaccine therapy and sebum have also been used with marked success. Elevation of the affected part is essential, and deep and vigorous massage will help to restore the vitality of the affected tissues. If these methods of treatment are insufficient an operation must be considered, amputation being the only procedure for scrotal and breast enlargements. In the amputation of the scrotum special measures for ensuring lymph drainage are advisable, a new scrotum being formed, if necessary, by plastic methods. In the case of elephantiasis of the lower limbs, an exterior incision is made from the external malleolus to the mid Poupart line, a large slice of oedematous skin and subcutaneous fat is removed, and the aponeurosis removed three fingerbreadths through out the length of the incision. The skin is then sutured in contact with the muscles without drainage. The operation is conducted in stages. Kondoleon's operation holds out good prospects of a prolonged temporary, if not a permanent, cure.

516 Acute Appendicitis

C. EGGERS (*Amer. Journ. Surg.*, October, 1928, p. 335) emphasizes the importance of early diagnosis and treatment as the means of lowering the rather high mortality of acute appendicitis. This mortality he considers to be due to delay on the part of the patient, to the administration of a laxative which increases peristalsis and delays the walling off of an inflamed appendix, and also to incorrect diagnosis. The symptoms are abdominal pain, cramp-like in character, in the epigastrium or round the umbilicus, vomiting, which may be severe or intermittent, and fever, which invariably develops as the inflammatory process evolves. The pulse rate is generally elevated, and may be one of the most valuable indications for diagnosis. A blood count nearly always shows leucocytosis, with an increase in polymorphonuclear neutrophils. An operation should be performed as soon as possible after acute appendicitis has been confirmed, the incision being made over the region of rigidity and tenderness, and ensuring adequate exposure. Out of 250 patients admitted to hospital, 112 had perforated at the time of operation, but the mortality was only 9, or 3.6 per cent. Death was due in 7 cases to peritonitis, and in the other 2 cases to septic thrombophlebitis with multiple liver abscesses.

517 Angioma and Trauma

O. ANDREI (*Arch. Ital. di Chir.*, September, 1928, p. 105), who records three illustrative cases, states that Angelioli has recently revived the view of Lücke and Pilzer that a traumatic haematoma may be transformed into an intra-muscular cavernous angioma. According to Angelioli, the blood after escaping from the vessels does not coagulate, but remains fluid as in haemophilia, and more or less infiltrates the muscular tissue without forming a circumscribed haematoma. The connective tissue elements of the tissue infiltrated by the blood then assume a protective endothelial function, and a cavity is formed in which the blood remains fluid and communicates with the circulation. Kelaczek, on the other hand, out of 95 cases of angioma on record, could find only 8 cases in which there was a history of trauma, and Andrei himself has been unable to trace a single instance of angioma which could be attributed to trauma among 63,000 cases of trauma of all kinds and degrees. He is therefore very sceptical as to the possibility of any causal relation between trauma and angioma, especially if the trauma had been a single one, and attributes more importance to congenital malformation of the vessel or vascular area to which the violence has been applied.

518 Varicose Ulcer

H. O. MCPHEETERS (*Surg., Gynecol. and Obstet.*, October, 1928, p. 459) discusses the etiology, pathogenesis, and treatment of varicose ulcer of the leg. Since the causation is due to a trophonutritive disturbance resulting from the stagnation of serum in the tissues secondary to varicose veins, it is held to be obvious that the correct procedure is to cure the veins first and the ulcer second, the converse being wrong both in theory and practice. The actual ulceration commences with gangrene and separation of the superficial layers of the skin, and there does not appear to be any relation between the type of bacterial infection and the rate of healing, neither can any constant organism be regarded as a specific cause. Cure is most rapidly effected by the injection of sclerosing solutions to obliterate all the affected veins together with the application of pressure by means of a rubber sponge and elastic support, and the judicious use of skin grafts in the case of large ulcers. McPheeters advocates the use of a tourniquet in order to retain the solution locally and so ensure its sclerosing effect, he uses a 20 per cent salt solution for extensive cases, the

60 and 76 per cent calomel for any isolated varix which may be left, or in cases of one long vein with a distinctly positive Trendelenburg sign, and the 30 and 40 per cent sodium salicylate solution in those occasional cases which do not respond to salt or calomel. In order to avoid any recurrence after healing continued support for some time is essential in all cases, and especially in those in which skin grafts have been used.

Therapeutics.

519

Treatment of Gonorrhoea

BELIEVING that the many failures in the treatment of gonorrhoea are due to the lacunar and follicular lesions caused by the gonococcus in areas into which medicaments can with difficulty penetrate, M. DURAY (*Brussels Med.*, October 14th, 1928, p. 1650) describes the method of Maisler, in which a gas is employed which, by dilating the canal, smooths out the mucosa and facilitates the access of injections into all the urethral folds and diverticula. Maisler advocates the use of an oxydizing agent such as neol, with a specific antiseptic, silver proteluate. The method is simple and rapid. A catheter with an olive shaped bulb is first passed to determine the seat of the lesions. Then 2 c.c.m. of neol, pure or diluted according to the patient's sensibility, is allowed to flow down the catheter. The neol passes back freely along the length of the canal and thus impregnates it. The patient then fixes the catheter by pressing the urethral canal towards the gland, and 1 c.c.m. of 10 per cent silver proteluate is injected. Some rapid to and fro movements of the piston are then made until the froth produced overcomes the patient's pressure on the canal. This treatment is painless, non-irritant, and well endured, the majority of patients tolerating even pure neol, and no accidents from its use have been noted. It has proved efficacious in acute infections, but Duray has obtained cures in cases of chronic urethritis that were refractory to ordinary measures, and in some cases of chronic prostatitis in which the treatment was applied to the posterior urethra combined with massage of the gland. The method is said to be of especial benefit in cases of long standing prothrititis.

520 Protein Therapy in Peripheral Vascular Diseases

As peripheral gangrene is limited almost entirely to males in the prime of life, A. W. ALLEN and R. H. SMITHWICK (*Journ. Amer. Med. Assoc.*, October 20th, 1928, p. 1161) emphasize the importance of therapeutic measures that permit restoration of function. The mechanism of the disease is an obliteration of the main arteries which, developing slowly, permits the establishment of the collateral circulation, if the compensatory process is inadequate gangrene occurs. The authors believe that the vasomotor system plays a more important part than pure mechanics in the production of the disease. Following the suggestion of Brown, a small series of 25 cases (a tabulated report of which is given) were treated with intravenous injections of typhoid vaccine. The vaccine consisted of a mixture of typhoid bacilli with paratyphoid A and B, 1 c.c.m. containing 2,500 million organisms. For the average patient the initial dose was 0.05 c.c.m., but if the reaction following this dose was too severe, a smaller dose was given in subsequent injections. The desired reaction is an elevation of the mean temperature of 3° to 5°F. At the commencement weekly injections were given, the time interval being increased as the patient improved. The treatment was combined with proper hygiene and minor surgical procedures when necessary. The results obtained were encouraging, and of 19 patients with complete disability 12 were able to return to work. Non-specific foreign protein (typhoid vaccine) gives a marked reaction, much like that following periaxillary sympathectomy, with a definite relief from pain and a beneficial change in the lesions. The authors believe that this method hastens the development of an adequate collateral circulation more effectively than any conservative measures hitherto suggested.

521

Stramonium in Parkinsonian Rigidity

E. A. CARMICHAEL and T. H. K. GREEN (*Quart. Journ. Med.*, October, 1928, p. 51) record the results of a clinical and histological study of the effect of stramonium and hyoscine upon the Parkinsonian syndrome. In order to compare their effects upon tone, fine movements, and rapidity of movement, they recorded graphically in five patients by means of a special apparatus the time taken to stretch a voluntarily relaxed group of muscles, an ergograph tracing of a series of repeated fine movements, and a simple voluntary movement. The results were checked by normal controls. The administration of hyoscine subcutaneously and by mouth, and of stramonium

by mouth, was found to reduce considerably the length of the rigidity curves, which became smooth in contour, and these effects coincided with a marked clinical improvement in the rigidity of the arm muscles. The ergograph tracings changed remarkably in the direction of the normal, and the bradykinesia tracings correspondingly improved. The authors conclude that these investigations prove that the administration of tincture of stramonium in large doses 45 to 60 minims being given three times a day, lessens the Parkinsonian rigidity and increases the ability to perform fine rapid movements. The tremor is not affected, but the mental condition is improved. They found it to be at least as efficient as hyoscine subcutaneously in large doses, and better than hyoscyne given by the mouth. The drug may be continued over a long period of time rarely producing toxic effects which may occur more in elderly patients suffering from idiopathic paralysis agitans than in younger post-encephalitic. This action, however, is palliative and not curative, and the whole tincture of stramonium is more efficacious than atropine or hyoscyamine.

522. Vaccine Treatment of Rheumatism

R. LAUTIER (*Bull. Soc. de l'her.*, October 10th, 1928, p. 183) during the last four years has treated 152 patients with a vaccine prepared from two strains of *Acholema bacillus* (*Clostridium aerogenes capsulatus*) from his report 32 cases are excluded in which the treatment had not been continued sufficiently long to be conclusive. Of the remaining 130 patients 117 made a complete recovery or showed considerable improvement, in 10 there was slight improvement, and in 3 the treatment completely failed. The 117 successes consisted of 12 cases of acute or subacute articular rheumatism, 37 cases of nodal cardiac rheumatism or rheumatic myocarditis, 46 cases of chronic myocardial rheumatism and 22 cases of various rheumatic manifestations such as angina pectoris, sciatica, and thyroiditis. Lautier is convinced that many lives would be saved if a wider use was made of the vaccine, and adds that it should always be employed in cases which are refractory to sodium salicylate.

Anaesthetics.

523. Blood Changes during Surgical Anaesthesia.

R. L. MACKAY and S. C. DYKE (*Brit. Journ. Anaesth.*, October, 1928, p. 61) discuss certain changes in the blood observed in a series of 39 patients under general anaesthesia, 13 of whom received in addition local and regional anaesthesia. The investigation was undertaken mainly to ascertain whether any relationship existed between the variation of the sugar content and the regrouping of the buffering substances. Samples of blood were taken from an arm vein before induction and at half-hour intervals afterwards, chloroform being used only for induction, the anaesthesia being maintained by C.E. mixture or ether. While no conclusions can be drawn in respect of chloroform administration, the results showed that there was no significant difference in this respect between the two last anaesthetic procedures. The only selection made was of cases probably requiring anaesthesia of longer duration than one hour. The chloride content of the plasma rises during anaesthesia, while that of the whole blood remains constant, there being a 'shift' of Cl ions from the red cells to the plasma. The fixed CO₂ of the plasma diminishes rapidly at first but the fall tends to become slower and to cease altogether as the anaesthesia proceeds. Meanwhile the blood sugar rises quickly at first becoming slower later, and gradually reaching the original level. No apparent relationship exists between the extent and duration of the variation of the chlorides and the fixed CO₂ of the plasma on the one hand, and of the sugar content of the blood on the other, there appeared to be no significant differences in the behaviour of the phenomena observed as between cases operated upon under local and regional anaesthesia and general anaesthesia alone.

524. The Heart during Anaesthesia.

H. M. MARVIN (*New England Journ. Med.*, September 20th, 1928, p. 547), in his discussion of the heart during anaesthesia, calls in question the widespread belief that anaesthetics and operations entail stress and strain on the heart. The various circulatory disturbances that are apt to occur do not generally indicate cardiac insufficiency—for example, the onset of irregularity is but the manifestation of an abnormal rhythm long recognized and treated, while lowering of the blood pressure often indicates impending shock, which again does not depend upon incompetency of the heart. In support of his contention that the burden of anaesthesia is but slight, the author has made frequent blood pressure and pulse rate observations during the course of operations lasting several hours, and has found little or no alteration in these readings

when elevation of pressure and increased pulse rate occur, they are no more than those incidental to the activities of daily life, with the exception, therefore, of a phyllophobic incompetence, in which sudden death is specially apt to occur, any heart functioning adequately in everyday life will tolerate anaesthetics well. If the history or physical signs point to congestive failure, rest and digitalis are urgently indicated prior to operation. When an immediate operation is imperative and advanced failure is present a fairly large dose of a digitalis preparation should be given intramuscularly during the operation, administration being continued orally on recovery from the anaesthetic. The author condemns the pre-operative use of digitalis as liable to promote post-operative lowering of the blood pressure. The only arrhythmias that should occasion anxiety are dropped beats not the result of digitalization or representing a form of sinus arrhythmia, and high grades of heart block. The use of chloroform in these cases is regarded as always contraindicated, in very young children ether is often the best anaesthetic. For patients with cardiac disease in general, ethylene is recommended as the ideal anaesthetic, while nitrous oxide should be the second choice.

525. Treatment of Ether Bronchitis.

D. HAYWARD (*Zentralbl. f. Chir.*, October 6th, 1928, p. 2501) refers to the good results recorded by several writers as following the intramuscular injection of ether in post-operative bronchitis, which was recommended by Bior, one writer employs ether with oil of turpentine. Hayward's experience extends over two years and has been very favourable. It has convinced him that the intramuscular injection of ether in post-operative bronchitis and bronchopneumonia is superior to the usual treatment by expectorants. In thirty-two cases one injection sufficed, two patients required a second injection, and in one case the intramuscular injection was given three times.

Obstetrics and Gynaecology.

526. The Uterine Musculature in Pregnancy

H. KLIPPER (*Bruxelles Med.*, November 4th, 1928, p. 1) reports a series of histological observations on the changes in the smooth muscle fibres of the uterus during pregnancy. Small pieces of uterine tissue, several millimetres thick, were obtained at Caesarean operations, and, for comparison from hysterectomies of the gravid uterus at three to four and a half months. The preparations were fixed with Bensley's liquid and stained by Benda's method with alizarin crystal violet. The simple hypertrophy of all the uterine tissues, which begins in the early weeks and continues to about four months, was confirmed, but from this time new phenomena were observed. First, the chromaticity of the sarcoplasm and nucleus increased, then, at the periphery of the cell, there appeared a fine clear zone. This zone increased in size, probably by a process of hydration. Innumerable fine centripetal fibrils gradually appeared in this transparent zone, uniting the peripheral envelope (which consisted of bigger fibrils arranged longitudinally) with the chromophilic sarcoplasm, which appeared to be the substance from which the contractile fibrillar material was derived. At the moment of maximum hypertrophy the sarcoplasm was clear, but traversed longitudinally, transversely, and obliquely by very many fibrils clearly stained by alizarin and crystal violet. They were in a state of relaxation, or in large or small nodulations according to the degree of contraction. At or just before term degenerative changes began to appear such as alterations in the nuclei, decoloration of the fibrils, hydropsy of the cell, and finally total histolysis. At the same time fibroblasts made their appearance in the intercellular tissues. These were very chromophilic and took the form of muscle cells but remained opaque until they reached the size of the ordinary hypertrophied cells, when they cleared towards the periphery and apparently assumed the function of the old cells. At term, therefore it appeared that the uterine muscle bundles contained original fibres in process of maturation, others in full maturity in process of histolysis, and, in addition, a large number of fibroblasts in all stages of evolution.

527. Radium Treatment of Myoma Uteri

J. IKEDA (*Zentralbl. f. Gynak.*, September 29th, 1928, p. 2514) has treated 723 cases of myomata in the last twelve years in 79 cases an intravaginal hysterectomy was performed, and in 76 radium alone was used. The majority of patients were between 35 and 50 years of age, and 30.4 per cent were sterile. The tumours varied greatly in size, most of those reaching to above the umbilicus were removed by operation. The chief symptom was irregular bleeding then came

menorrhagia, and in a few dysmenorrhoea, also pressure symptoms according to the size of the tumour, and anaemia. In doubtful cases a preliminary diagnostic curettage was performed. The radium was usually placed in the cavity of the uterus, the dose was repeated three to five times at the end of the second, third, and fifth weeks, and the radium was left in for twenty-four hours or less when given more often. The total dose in milligram hours ranged from 1,593 to 20,885, the size of the tumour had less to do with the dose required than its consistency and vascularity, a small dose sufficing for a soft tumour. There were some complaints of nausea and vomiting, and in a few cases of raised temperature and actual pain the radium had to be removed, one case ended fatally owing to the patient's disobedience to instructions. Of the 76 cases treated, in 91.3 per cent metrorrhagia was arrested, in 83.3 per cent menorrhagia ceased, and in 9.2 per cent menstrual disturbances were less pronounced, in most instances menstruation ceased after two or three returns, and the uterus and tumour diminished in size until no trace of the tumour was to be found. Both subserous and submucous tumours were treated equally satisfactorily. Of 79 operation cases one patient died of septic peritonitis. The results are thus similar from both methods, but the author considers operation to be not without danger, whereas radiation can be safely performed by general practitioners if they have mastered the technique, it is the treatment of election in many cases, particularly where operation is feared.

528 Tuberculosis of Bartholin's Gland.

While inflammation and suppuration of Bartholin's gland is usually ascribed to gonococcal infection, W. D. FULLERTON (*Journ. Amer. Med. Assoc.*, October 20th, 1928, p. 1175) states that this may be due to other organisms (streptococci, staphylococci, *B. coli*), and that, unless gonococci are recovered from the genitalia, injustice may be done to the patient. Tuberculosis of Bartholin's gland is rarely recognized and is probably overlooked, since only three cases have been recorded. The author reports and describes another case, in which microscopic examination of the gland showed typical tubercle formation with slight secondary infection. The patient had an unusual vaginal discharge, and showed signs of tuberculous infection in the lungs and possibly also in the bowel. Fullerton adds that these four cases show that tuberculosis of Bartholin's gland does occur, either as a primary condition or secondary to tuberculosis elsewhere. The chronicity of the condition, the absence of the usual signs of acute inflammation, the thin watery clear or brownish discharge, and the absence of gonorrhoeal infection are the signs which suggest a tuberculous origin of an infection in this situation.

529 Suprapubic Cystotomy and Operation for Vesico-vaginal Fistula.

D. MÉRÉL (*La Gynéc.*, August, 1928, p. 467) in a case in which two operations for vesico-vaginal fistula had been unsuccessful, performed suprapubic cystotomy six days before a third and otherwise similar operation. The cystotomy tube was taken out on the fifteenth day and the fistula was found to be closed. Four other cases of low vesico-vaginal fistula have since been dealt with successfully on the same lines, but MéréL now prefers to open the bladder ten days before the operation and to drain the cystotomy wound for about twenty days. High fistulae, he remarks, are to be approached by the transvesical route, and cystotomy constitutes a necessary part of the operation. Recently Bloch has advocated non-closure of the suprapubic incision, and Marion and others, a transvesical repair of fistulae, have tied a tube in the bladder.

Pathology.

530 Ulcerative Processes of the Oesophagus.

J. FRIEDENWALD, M. FELDMAN, and W. F. ZINN (*Arch. Int. Med.*, October, 1928, p. 521) have made an experimental investigation of the diagnostic problems associated with oesophageal ulceration. In their experiments ulcers of variable depth were produced in sixteen dogs, and healing was subsequently traced by x-ray and oesophagoscopy examinations. After simple scarification the lesions produced gave no signs after a week, while even deep uncomplicated ulcers tended to heal rapidly. The administration of large quantities of hydrochloric acid to dogs in which ulceration was present produced chronic ulcers similar to those found in the stomach, while penetration and perforation were apt to follow. On the other hand, if no ulcer, or a healed ulcer, was initially present there were no pathological results of acid administration. By producing a steady flow of barium along the oesophagus into the stomach the x-ray signs of ulceration were observed. These were of three types: filling defects projecting from

the oesophageal outline, those partly displacing this outline, and spastic defects. The first type presents the most direct evidence of ulceration, and may sometimes be best observed by the retention of barium in the crater when the opaque meal has just passed out of the oesophagus. Deep penetrating ulcers are often more easily demonstrated when the oesophagus is well filled. The second type of defect often accompanies an ulcer crater, and may be seen in its immediate neighbourhood or on the opposite wall. Spasticity is found most commonly below the level of the lesion, it is of the tapering type, and may be so pronounced as to cut off completely the barium meal. Oesophagoscopy examination showed the ulcers to be well defined, with smooth bases bleeding easily when touched, even in long-standing ulcers definite induration and thickening were not noted. With fully established ulceration dysphagia was observed, but diet influenced very little the healing process. The lesions produced in the experiments were found on microscopic examination to present appearances similar to those of gastric or duodenal ulceration in man.

531 Liver Fractions in Pernicious Anaemia.

In their endeavours to ascertain whether certain constituents of liver are as effective as whole liver in pernicious anaemia R. WEST and EMILY G. NICHOLS (*Journ. Amer. Med. Assoc.*, September 22nd, 1928, p. 867) have already shown that the filtrate derived from a 60 per cent alcoholic extract of liver, treated with ammonium sulphate, was effective in raising the blood count. Further work on the commercial extract prepared by Cohn's method is now reported. This extract was dissolved in water and cleared with lead acetate, the lead being removed from the filtrate by hydrogen sulphide or sulphuric acid. A saturated solution of calcium phosphotungstic acid in 3 per cent sulphuric acid was added until no further precipitation occurred. The precipitate was dissolved and suspended in 75 per cent acetone and broken up with barium. The decomposed phosphotungstates raised both the red cell and reticulocyte counts, and were next fractionated by Kössel's silver method, silver acetate being used. The two silver precipitates were combined, decomposed with hydrogen sulphide and administered to a patient for ten days, but without effect. The silver filtrate, after removal of the silver was reprecipitated with phosphotungstic acid and decomposed as stated, and this material gave effective results. Precipitation of the active material with mercuric acetate has produced very feeble clinical responses. Three pure substances have also been tried as substitutes: choline with a negative result, and glutathione and ornithine with probably negative ones. The best fractions prepared had the following properties: nitrogen, from 12 to 14 per cent, amino-nitrogen, 20 per cent of nitrogen, which increases after acid hydrolysis to about 40 per cent, phosphorus, none, sulphur faintest traces, iron, none found. The analysis for copper is not finished, but probably none is present. Organic tests gave the following reactions: Biuret +, Diazo +, Hopkins-Cole weak +, naphthol test for arginine +. Polar scope readings indicated a weak dextro rotation.

532. A Serological Study of *Bacterium pseudotuberculosis rodentium*.

H. SCHÜTZE (*Arch. f. Hyg.*, 1928, 109, p. 181) has made a receptor analysis of eighteen strains of *B. pseudotuberculosis rodentium* cultivated from various animals. Morphologically and culturally, with one or two minor exceptions, these strains were identical, biochemically likewise they gave the same reactions, the main sugars fermented being glucose, maltose, mannite, and salicin. Serological analysis was performed by means of the agglutination and absorption of agglutination reactions. Two antigens were demonstrated, a flagellar and a somatic. The flagellar or H antigen appears only in cultures incubated at a low temperature—about 25°C. This is thought to be of considerable interest because it is known that it is only in cultures grown at this temperature that motility of the organisms is observed. The somatic or O antigen is formed at all temperatures of growth. The H antigen is destroyed by heating at 100°C for half an hour, and is therefore heat-labile, the O antigen is not destroyed at this temperature, and is therefore heat-stable. The H antigen was found to be common to all the strains, with the exception of one, which contained only O antigen. On the other hand, there was a marked difference in the type of O antigen possessed by the different strains. It was possible to differentiate these strains, postulating three groups on the basis of this antigen content. Group 1 contained twelve strains, Group 2 contained five, and Group 3 contained one strain. Moreover, both Groups 1 and 2 could be further subdivided into two subgroups. The remarkable observation was made that the antigen of Group 2 was closely related to the O antigen possessed by the Derby, Reading, *B. paratyphosus* B, and *B. agrippae*, equinus types of the *Salmonella* group.

